

UNIVERSITÀ DEGLI STUDI DI TORINO

Dottorato in Lettere

Titolo Tesi: Meaningfulness and Experience in Virtual Realities.
Semiotics of a Digital Pla(y)typus



Candidato: Gianmarco Thierry Giuliana

Tutor: Massimo Leone

Periodo: 2017-2021 (33°ciclo)

Introduction: <i>l'enjeu</i>	7
1. Semiotic fundamentals and legacy of our work.....	16
1.1 About the crisis of semiotics and its usefulness.....	16
1.2 Descriptive semiotics? An enthusiast thesis written by a cynic semiotician	21
1.3 Semiotic traditions and perspectives	26
1.3.1 Saussure	26
1.3.2 Barthes	29
1.3.3 Greimas	31
1.3.3.1 Additional notes on Greimas.....	32
1.3.4 Eco and Peirce	34
1.4 From meaning-making to meaningfulness.....	40
2. The virtual experience between language, body and mind.	45
2.1. Semiotics and experience.....	46
2.1.1 Experience as narrativity.....	53
2.1.2 Experience as cognition.....	57
2.1.3 Experience in the middle.....	61
2.2 Ugo Volli : what is a semiotic of experience?.....	63
2.2.1 Ten criteria for a semiotics of experience in virtual realities.....	70
2.3 Ruggero Eugeni : semiotics of <i>erlebnis</i>	73
2.3.1 Critique and adjustment of Eugeni's experiential semiotics.....	77
2.3.2 Beyond a medium-based typology of experience.....	92
2.3.2.1 Notes on the different spaces of virtual realities.....	94
2.4 Patrizia Violi: meaning and experience	103
2.4.1 : Semantic representation of interactions and cognitive tasks.....	109
2.5 Claudio Paolucci: semiotics fundamentals of embodiment & prosthesis.....	112
2.5.1 Semiotics and cognition: epistemological ground of virtual experiences.....	112
2.5.2 Thinking and feeling through signs	114
2.5.3 Prosthetic access to virtual worlds.....	116
2.5.4 Prosthesis and enunciation	120
2.5.4.1 Prosthesis in and out of semiotics.....	123
2.6 Semiotics and cognitive sciences	127
2.6.1 Three cognitive evidence of a semiotic hypothesis	129
2.6.2 Perceiving reality through predictions	133
2.6.3 Embodied meaningfulness: Prinz's gut emotions.	135

2.7: Torben Grodal's experience and cognition	143
2.7.1: Virtual realities as real-life experiences	144
2.7.2: Embodied semantics, ratio & isomorphism	150
2.7.3 Semiotic reinterpretation of Grodal: the case of Ico.....	154
2.7.3.1: Possible critiques to a semiotic reading of Ico	157
2.8 Enjoying insignificance : embodied habits and meaningfulness	159
2.9: Conclusions.....	160
3. Virtual realities as digital pla(y)types: a new textuality.....	162
3.1 Virtual realities as texts	166
3.1.1 Virtual realities as texts and cultural artifacts: ten criteria.....	166
3.1.2 Virtual realities as texts: metalinguistic concepts	168
3.1.3 Main issues and a discarded brilliant solution	170
3.1.2.1 : Concrete example of an odd complexity: Prince of Persia (1)	175
3.1.2.2 : Concrete Example of an odd Complexity: Prince of Persia, (2).....	180
3.1.2.3 Virtual reality as "odd texts" in visual and literary arts.....	182
3.1.4 Reducing variability: pragmatics of interactivity	190
3.1.5 Reducing variability: first-order authorship	191
3.1.5.1 Kristian Bankov: economy of meaningfulness	192
3.1.5.1b Economy and interactivity as experience in digital culture	196
3.1.5.1.1 Economy of differences and sociosemiotics	198
3.1.5.1.2 Economy, narration and aesthetics.....	201
3.1.5.1.2.1 Economic and narrative meaningfulness of Esports	202
3.1.5.1.2: Time as value	205
3.1.5.1.2.1 Pokemon toward effortlessness	206
3.1.5.1.2.2 State of Survival	209
3.1.5.1.2.3 : My Oasis	218
3.1.5.1.2.5: Economics and <i>formes de vie</i> : Marvel Contest of Heroes.....	221
3.1.5.1.3 The complexity of effort.....	226
3.1.5.1.3.1 Effort and meaning in Paper's Please.....	229
3.1.5.1.4 Transparency & trust:.....	231
3.1.5.1.5 Economy, temporality and projectuality.....	239
3.1.5.1.5.1 Working in virtual realities: <i>Warframe</i>	241
3.1.5.1.5.2 Projectuality outside of gamification:	243
3.1.6 Rethinking interactivity: enunciation and second-order authorship	244

3.1.6.1 Playing with phrases.....	249
3.1.6.2 Syntagmatic creativity: teabagging, bike dancing, bullet drawing & more.....	264
3.1.6.3 Aesthetics of impossibility & destiny	268
3.1.6.3.1 Destiny and impossibility in <i>Braid</i> and <i>The Stanley Parable</i>	272
3.1.6.4 Clash of authorships through enunciation in MMOG	274
3.1.6.5 Enunciation as playing with culture	275
3.2 Semiotics of simulations and/as games	279
3.2.1 Virtual realities as playful realities	281
3.2.2.1 Critique and rethinking of Thibault's ludosemiotics	291
3.2.3 Virtual realities as gamified realities	302
3.3 Semiotics and game studies	312
3.3.1: Espen Aarseth's cybertext and game ontology	313
3.3.2: Ian Bogost's unit operations & procedural rhetoric.....	324
3.3.3: Riccardo Fassone's island	342
3.3.4 : Half-reality and failure in Jesper Juul	348
3.4 Semiotics and digital culture	355
3.4.1 Dead ends.....	357
3.4.1.1 Forsaking HCI semiotics.....	357
3.4.1.2 Forsaking hypertexts and electronic Texts.....	359
3.4.1.2.1 <i>Forsaking</i> hypertexts: case studies	363
3.4.2 Virtual realities in the post-media society	370
3.4.2.1 Blending the epos: beyond the media	375
3.4.2.2 The death of the reader and the utopia of authorship	376
3.4.2.2.1 Authorships between background and foreground.....	378
3.4.2.2.1.1 The semiotics root of background and foreground	386
3.4.2.2.1b Closing the gap: background disappearance through design	388
3.4.2.2.1c Closing the gap: background disappearance through digital interaction	399
3.4.2.2.2 SOA as inside digital manipulation	401
3.4.2.2.2b SOA as outside digital manipulation	404
3.4.2.3 The Epos of naturalization and subjectivation in the commercials of virtual realities.....	406
3.4.2.3.1 Playing <i>within</i> the machine	408
3.4.2.3.2 Trust issues in digital environments.....	410
3.4.2.3.1.1 The Pokemon "no hit" run	411

3.4.2.3.1.2: Trust issues in digital environments: Overwatch's hitboxes.....	413
3.4.2.3.1.3: Trust issues in digital environments: Cat Mario & Trap Adventure ...	414
3.4.2.3.1.4: Trust issues in digital environments: Amnesia & Eternal Darkness ...	416
3.4.2.4. Third order authorship? Software creating narration.....	418
4. Understanding and analyzing virtualrealities: a summary.....	422
4.0 (Re)Defining virtual realities.....	422
4.1 The commonsense assumption.....	425
4.2 Convergences: the three directions of analysis	426
4.3 First step of textual analysis: identifying an s-theme.....	427
4.4 Second step: identifying the valorization.....	429
4.5 Last step: meaningfulness	431
5. Case studies: the metaphors we play by.....	432
5.1: The Simulation and valorization of martial arts in <i>Street Fighter 2</i>	432
5.1.1: Looking for a story.....	432
5.1.2 Narration through Semantics: Isotopies of Fight and Nations.....	435
5.1.2.1 Semantic instability: critical issues & solutions.....	438
5.1.2.2 Semantics & aesthetics.....	443
5.1.3 Syntagmatic analysis	443
5.1.3.1 Mirrored macro narrativity	443
5.1.3.2 Micro narrativity through enunciation.....	445
5.1.3.3 Syntagmatic possibilities & narrative interpretation	446
5.1.4 The embodied & proprioceptive representation of fighting.....	447
5.1.5: Economics and projectuality	449
5.1.6: Street Fighter as cultural discourse.....	451
5.1.6.1 Looking into the Semiosphere: Street Fighter in real life.....	451
5.1.6.2 Semiotics of a moment: the meaningfulness of Moment 37 & EVO	452
5.2 The economic meaningfulness of fire in <i>Dark Souls</i>	455
5.2.1 Darkness & hardship between narrative and gameplay	455
5.2.2 Enunciation, Transparency & Trust	457
5.2.3 From use-value to semantics	462
5.2.3.1: Fire & humanity.....	467
5.2.4 Labor-Value & scarcity.....	468
5.2.5 Mathematical determinism and free interpretations:.....	472
5.3 The Sensorimotor metaphor of brotherhood in <i>Brothers</i>	474

5.3.1 : Input-based storytelling	474
5.3.2 <i>How to play, how to mean</i>	475
5.3.3 Embodied semantics through performative valorization	480
5.4 Seeing intersubjectivity in <i>Everything</i>	482
5.4.1 Allan Watt's view of the world	482
5.4.2 Performing philosophy through visuals and narratives	484
5.4.3 Embodied strategies of likeness within diversity	486
5.4.5 <i>Everything's</i> experience outside of the text?	491
5.5 The greatness of the Apollo 11 mission through guts and failures	493
5.5.1 VR, documentaries and digital games	493
5.5.2 Description of the Apollo 11 VR experience	495
5.5.3 Conclusions	502
6. Application of the methodology for the cultural inquiry	503
6.1: The representation of love and sexuality in the digital age	503
6.2 The conception of personhood in the digital age	505
6.3 The meaning of the face in virtual realities	507
7. Social impact of our semiotic theory	511
7.1 Finished projects: Edugamers and Medical Formation	511
7.2 Ongoing project: Horizon: Digital Games Psychology	512
7.3 Projects to come: NOVIS, Blind Console	512
8. Conclusions & future researches	513
8.1 Acknowledgements	517
Bibliography	518
Ludography	534
VR	541
Sitography:	543

Introduction: *l'enjeu*

I would like to start by explaining forthwith what this work proposes.

The goal of my thesis is to offer a 1) qualitative and comprehensive approach for the cultural investigation on artifacts of virtual reality such as digital games and VR experiences 2) based on a specific and novel methodology for their textual analysis 3) grounded on a formal description of their means of meaning-making 4) which are put in relation with the semiotic fundaments of human cognition. 5) Such approach and methodology are aimed to inquire on the creation, conveying and interpretation of both designed and unforeseen contents 6) partially explaining some the user's observable behaviors in virtual contexts 7) and resulting from the user's interactions with the software mediating his access to the virtual world. 8) Therefore the results of such work should highlight relevant facts for the study of cultures and societies 9) of the human embodied mind 10) and of communication and language in relation to digital technology.

This methodology, grounded on both interdisciplinarity and the integration of different semiotic traditions, was designed to inquire on virtual realities as a specific object of study. A term which here precisely refers to 1) software based cultural artifacts witnessed through computational means 2) presenting an aesthetic of indeterminacy, impossibility, opacity and hyper-iconicity 3) requiring the user's effort in terms of fallible agency, economic reasoning and physical involvement 4) which represents objects and events existing in a non-physical and discrete space and time 5) influenced by the player's intervention both from the inside (interactivity) and the outside (the code) of the text 6) who has a primarily role in the co-production of the utterances constituting the expression plane 7) with a mirroring consequence on narrativity 8) and who can and often must verify by himself the causes, properties, states and possibilities related to these object and events 9) which are accessed and acted upon through prostheses simulating a phenomenological continuity between the user's physical world and the virtual one 10) and producing consequently an hybridization between linguistic and non-linguistic forms of intersubjective access to reality that ends up in being interpreted as a first-person experience.

Thus, on the one hand this thesis will *describe* and *explain* (hence the scientific pretense) the cognitive and cultural fundaments of a new widespread form of textuality, modeled from the anthropological activity of playing with its characteristic simulative capacity, resulting in a *new form of semiotic discourse* which can be used to *rhetorically* convey ideas as well as to *efficiently* represent reality in experiential terms. In regard to this, our work is offering a methodology to analyze and deconstruct virtual realities as gamified texts characterized by a *know how* obtained through *execution* and by a practice of *rewriting* depending on a network of "what if". More simply put, virtual realities will be considered as software-based representation determined by the user's agency presenting a certain degree of translatability of both its content and simulative underlying logics that, from a semiotic point of view, represents the main object of interest both in terms of cultural inquiry of the artifacts themselves and of social inquiry on their enjoyment. On the other hand, this thesis will *propose* to consider them as *playful* digital artifacts which contains in themselves part of the *means of their own production* and therefore that offer unique interpretative possibilities which must be understood in relation to the production of further socially relevant texts and discourses inside the broader perspective of digital and convergent culture. Lastly, the results of this research will be useful for the concrete design and production of virtual realities as well as for theoretically tackling with textual elements that are often relegated to insignificance: the meaningfulness of the empirical body, of the syntactic over the semantic, of our more trivial habits and of the underlying mathematics of such digital artifacts.

This thesis is based on a corpus of 290 digital games and 56 VR products, and has to be valid for:

- Virtual realities of any historical period (from 1958 to at least 2022)
- Virtual realities of any genre (from adaptations of board games to porn minigames)
- Virtual realities usable in any mode (single player, multiplayer, offline, online)
- Virtual realities usable on any platform (including webpages and mobile games)
- Virtual realities using any input device (from arcade cabinet to VR headset & haptic suit)
- Virtual realities meaningful for any player (of any culture, age, gender, etc.)
- Any social uses of virtual realities (cheating, modding, speed-running, streaming, e-sports, healthcare, teaching)
- Non-formally gamified virtual realities (No win/lose condition, scores, levels, rewards)

Furthermore, the results obtained by it must be related to some of the main events about digital games and VR that occurred and were reported in the last 15 years:

- Behaviors of the users inside digital spaces and in the physical world.
- Study& usage of virtual realities in medicine, psychology and neurosciences.
- Digital technology and informatic tools developed and applied in digital games.
- Usage of virtual realities in schools and museums for didactic and artistic purposes
- Relevant events that occurred inside the “gaming” community
- Economic growth of videogames and virtual realities as forms of entertainment

More generally, it must shed light on the ambiguous concept of “virtual experience” by deconstructing it in three discursive *myths* which are surrounding these technologies: *Interactivity* as a form of freedom through agency; *Immersion* as a form of unprecedented embodied illusionism; *Alterity* as a form of meaningful distance (“be whatever you want”, “live in another world”, etc.). Therefore, it must be able to answer to questions like:

- Why does the concept of experience is so commonly used when talking about such objects and what does it precisely refers to?
- How is this experience really different from the one offered by other media?
- What does the concepts of presence and immersivity exactly stand for?
- Where is the threshold between the real-life experience and the virtual one, and how do they influence each other?
- What are the causes of the perceived phenomenological, narratological and sociological continuity characterizing virtual realities?

Moreover, this approach has to be academically and socially useful in different ways. On the one hand it must be able to produce interesting and reliable textual analyses, which in their turn can be used for broader cultural investigations and social applications. On the other one the very conceptual fundaments of these analyses must be able to contribute to the theoretical debate and discussion about meaning-making, digital technology and culture. This thesis should be:

- Partially explaining some observable behaviors in digital simulations and by offering new insights on why so many humans apparently enjoy virtual digital worlds-texts.
- Contributing to some of the most socially relevant questions about games (game as art and cultural artifacts, education through gaming, representation of society in games, etc.)
- Offering an improved method of critical reading to scholars of any discipline while contemporary offering conceptual tools for the concrete design of virtual realities.
- Offering a second and fertile ending to the ludology vs narratology debate, and more generally by contributing to the debate about meaning-making in Game Studies.

- Offering new case studies and issues for Anthropology, Sociology and Ethnography to inquire on the rise of meaning and on the social behavior inside digital communities.
- Offering new case studies and issues for Philosophy, Linguistics and Cognitive Sciences to inquire on the relationship between digital interactivity and semantics.
- Enriching the debate on meaning-making in Media, Software and Visual Studies.
- Enriching the specific applied Semiotics of Game and by suggesting new fields of inquiry to both Semiotics of Culture, Computational Semiotics and Cognitive Semiotics.
- Renewing the general theory of Semiotics through the critical discussion of some of its key concepts and by integrating different perspectives and traditions of our discipline.

Finally, faithfully to the semiotic approach, this research does not primarily rely on:

- The author's intention
- The user's individual identity (gender, age, social class, etc..)
- The user's individual psychology and personal life
- Data gathered through interviews, surveys, focus groups, etc.
- Data gathered through experiments in a laboratory or simulative context
- Statistical evaluations and quantitative methodologies

The expected results of such ambitious work are thus on the hand very precise (such as pointing out the best way to analyze *Super Mario* for the purpose of understanding its meaningfulness) and on the other hand should contribute to a general discussion on very actual issues and topics such as the subject's degree of freedom within informatic systems, the creation and crisis of identity in digital contexts, the new forms of rhetoric in digital narratives, the new role of play and simulation in our cultures, the impact of digital technology on human sensibility and intelligence, the influence of digital media and texts on our beliefs and view of the world, and so on.

Now that our goals have been explained, let's move on to how this thesis is structured.

This whole research starts from a single question : "How can we explain the meaningfulness experienced by a player involved in digital simulation such as a videogame or a VR experience?". Which from a semiotic standpoint correspond to two separated but complementary queries:

1. One about the potentially new content conveyed by the sensorimotor involvement (embodied interaction) and the ways in which such involvement, achieved through different kinds of mediation and translations of our native phenomenological reality, can be responsible for the *verisimilitude* of virtual realities and can create new processes of meaning-making by blending itself with the languages of previous media. Thus a query on both the new semantic elements participating in meaning-making and on how non-linguistic elements are influencing the linguistic-ones. Hence, how a semiotic approach can both deconstruct the "experience" and consider it inside its own epistemological paradigm.
2. The other about how the meaningfulness of virtual realities arise from within a playful digital system affording individual acts of a user actualizing virtualities and manipulating data (digital interaction) which are then represented (as words, sounds and pictures) to constitute an expressive surface of a cultural artifact that has a significant number of variations and different meanings. Thus, the query on the new narrative and cultural logic within the particular artifacts that we used to call "texts" which now require their users to participate in their creation (through choices and interactions) and consequently comprehending the means of their own production.

The interest and pertinence of contemporary semiotics to inquire on such topics are discussed in chapter one. Then chapter 2 and 3 are respectively dedicated to the problem of the embodied experience and of the digital and playful nature of virtual realities. In each chapter we discuss these issues by critically exposing some key works of our main authors and by presenting 200 stories and facts that occurred from 2005 to 2020. The solutions that will be found will then allow us to articulate the main issues at the center of our work in three more specific ones:

1. Is it reasonable to claim, out of metaphor, that texts such as videogames are narrations and thus that their meaning rely on narrative features, structures and mechanics?
2. Can we assert that in an interactive digital simulation the user's interaction with both the software and the hardware is truly meaningful, even more than the explicit content?
3. Is it possible to affirm, out of metaphor, that meaning-making in virtual reality depends on the fact that such technology is influencing the way we think, interact and feel?

These three questions are then answered, after a recap of our main claims and methodological proposal in chapter 4, through concrete analyses in chapter 5 of *Street Fighter II* (5.1) *Dark Souls* (5.2) *Brothers: A Tale of Two Sons* (5.3) *Everything* (5.4) *Apollo 11 VR* (5.5). These case studies will prove how our methodology is offering a model of meaningfulness and experience in games that, for the first time, focuses on the player's production of meaningful events through digital mediation and quilts together:

1. The representational level constituted by chains of explicit signifiers
2. The underlying mathematical structure and the related system of rules
3. The embodied-cognitive dimension required to act in the virtual reality

In fact, while each discipline typically has its own explanation about meaning-making in various forms of virtual realities and digital contexts, a comprehensive and *conciliative* view is still absent as of today. Additionally, our theory of virtual reality as a discourse and new form of textuality is the first one that, to our knowledge, is both non-mediological and not centered nor aimed toward a discourse on a theory of arts/aesthetics or toward a philosophical reflection on the real .

Then, in the sixth part of our thesis we will highlight how our approach is not only useful for the analysis of a single text (as shown in Chapter 5) but can be used for the cultural investigation of the digital era. Indeed, on the one hand digital simulations include and use the technologies defining digital culture itself: internet, artificial intelligence, procedural generation, algorithmic determination, 3D computer graphics, data storage and processing, digitalization, digital faces and even face recognition. On the other hand they are the world's first form of entertainment, perhaps the most iconic object of a "post-materialist" society that cannot be overlooked. Consequently, even though videogames and VR experiences are only a little part of the digital culture, they are significant enough to study what they both contributed to build and belong to. To do so, in chapter 6 we will propose three concrete cultural investigations made during the three years of our PhD: on the new representations of love and sexuality (6.1), on the new conceptions of personhood (6.2), on the new role of the digital face (6.3). Finally, chapter seven will be briefly dedicated to the finished (7.1), ongoing (7.2) and future (7.3) social applications of our methodology and approach to virtual realities.

With both the goals and structure revealed, allow me a few words on why you could (should?) care about my work as well as why I care about it.

This thesis was conceived to be useful to very different scholars, and as a consequence is very likely to disappoint them all. In fact, we are perfectly aware that both our approach and object of study could seem of no particular interest for many scholars belonging to the field of humanities. In these first four pages we already use the word “digital” thirty-one times and this whole work may very reasonably seem a cyber-enthusiastic attempt to claim that videogames and VR experiences are the “next best most important relevant and beautiful thing”. Even the extensive use of numbered lists in the first pages of this introduction (which, by the way, will be a distinctive trait of this entire work) instead of aesthetically well written paragraphs could be enough for some scholars to decide to not bother themselves with the rest of this manuscript. But do not be deceived, in this thesis we are interested in digital simulations first of all and almost exclusively as humanists. Indeed, our so in-depth interest for digital technology and simulations is not intended at all to claim any kind of superiority or a total novelty of virtual realities but on the contrary is interested in digital games and VR because they represent the latest forms of our distinctive love for fictional worlds as humans (Maldonado, 1992) and for very old *utopias*: of an incorporeal body, of an ordered world, of an authorless society, of an inexhaustible wealth, of illimited space, of a manipulable time and so on. Moreover, it is an undeniable fact that even humanists which despise and are absolutely not interested in digital games or VR experiences cannot anymore exempt themselves from dealing with them since, either as references as a theme or as an aesthetic, they are simply everywhere inside the cultural semiosphere: in movies¹ and tv series², cartoons and anime³, tv shows⁴, car commercials⁵, music and videoclips of songs⁶, visual art, expositions in museums⁷, fashion⁸, politics⁹, activism for animal rights¹⁰, when football players celebrate their goals¹¹, in CNN articles¹² and so on. Additionally, our object of study has actually very little of virtual: products such as digital games are living places of individual and collective experiences and memories, they are where unexpected unique events can occur, they are where subjects are both physically and logically learning and struggling, they are where social interactions and psychological behaviors can be observed, they are places of laughter and tears, places of secrets where the human curiosity find endless pleasure, they are where emotions such as loneliness or pride can be experienced, they are among the latest forms of artistic expression, they are filled with intertextuality and where history is both represented and rewritten, they are moral test grounds, they are where players are dealing with the phantasm of writing their story

¹ From Cronenberg’s *Existenz* (1999) to Columbus’ *Pixels* (2015) and Spielberg’s *Ready Player One* (2018) without forgetting all the adaptation of successful digital games such as *Doom*, *Assassin’s Creed*, *WoW* and much more.

² Both references such as “Leeroy Jenkins” in 4X19 of “How I met your Mother” (2009) and themes in *Black Mirror* (2011-2019) and the special “episode” *Bandersnatch* (2018) will suffice as an example among others.

³ Let’s think of the success of *Sword Art Online* (2002) and of how the genre of the *Isekai* progressively moved from fantastic worlds to virtual ones.

⁴ <https://www.billboard.com/articles/news/8516634/adem-show-performs-mortal-kombat-routine-americas-got-talent-video>

⁵ <https://www.destructoid.com/stories/watch-final-fantasy-s-lightning-and-snow-awkwardly-advertise-for-nissan-in-china-450873.phtml>

⁶ From Red Hot Chili Peppers’ *Californication* (1999) to Duke Dumont’s *I Got You* (2014) or Tiesto’s *Secrets* (2015) without forgetting original songs born from within the industry such as the first hit of League of Legends *POP/STARS* (2018) nor Italian indie-pop songs such as *Tetris* (2018) from Pinguini Tattici Nucleari

⁷ <https://www.museumoflondon.org.uk/discover/great-fire-1666> ; <https://deyoung.famsf.org/explore-teotihuacan-minecraft> ;

⁸ As an example, in 2015 the protagonist of the videogame *Final Fantasy XIII* became a model for Louis Vuitton , and in addition Moschino started a collaboration with The Sims <https://www.bbc.co.uk/newsround/48040602>

⁹ <https://kotaku.com/heres-how-the-presidential-election-is-playing-out-in-s-1788714977> ; <https://video.repubblica.it/edizione/firenze/salvini-diventa-un-videogioco-lancia-ruspe-e-salva-i-maro/214304/213476>

¹⁰ <https://globalnews.ca/news/6964435/peta-animal-crossing-new-horizons-fish/>

¹¹ <https://www.sbnation.com/lookit/2018/3/11/17106330/fortnite-sports-celebrations-bundesliga-nrl-nba-nfl>

¹² <https://edition.cnn.com/2020/05/11/politics/coronavirus-leroy-jenkins-states-reopening/index.html>

and playing with destiny, they are where time is a traded value, they are places of invention and imagination, they are places of social protest and where players often play against rules, they are where humans are constantly making sense of the meaningless, they can be places of love and erotism, they are perhaps the greatest example of cultural participation through digital media, they are where “to feel” is a common verb used by players, they are where identities are both reproduced and faked, they are where values and ideas are conveyed, they are where we simultaneously evade from reality and extend it. Lastly, both the content of digital games and the behaviors of their players are all influenced by the most relevant historical and cultural events that occur in the “real world”: from the presidency of Donald Trump in 2017 to the deaths caused by the Covid-19 and the Black Lives Matter movement in 2020.

In other words, digital games and virtual realities are a privileged object of study to understand the most tangible and common aspects of how we make sense of our reality. Of course, most of all this can be related to narrations and games in general and is not unique of digitalized simulation of reality. But what is distinctive here is the role of technology in mediating our actions, thoughts and passions: a mediation which is precisely what is happening in many aspects of our everyday lives. Hence our focus on both the unique blending of features of digital texts and on the characteristic interactions and embodiment of the users, a focus aimed to reveal how we interpret reality *tout court*.

I would now like to end this introduction with a general reflection on the reasons behind the choice and potential contradictions of such an unreasonable approach and object of study.

Even while focusing only on videogames and VR experiences the corpus and goals of this thesis are without a doubt unreasonable and seem to belong to the infamous “imperialism” of Semiotics, being thus in contrast with the above claim of interdisciplinarity. If we look at this thesis we can find extremely different subjects that could have been analysed by different disciplines. At a first glance, the only point in common of all these topics seems to consist in being interesting and entertaining topics chosen for marketing purposes, which is by the way undeniably true. Lastly, whereas convincing analysis of specific games are very few in Semiotics, proposing such a method after twenty years of games studies during which so many textual investigations have been made is to say the least anachronistic from an interdisciplinary point of view: we are offering something no one asked for and that is supposed to already exist. But such approach has three precise reasons.

First of all, as perfectly explained by Eco in his *Trattato* (1975), saying something from a semiotic perspective on many different subjects does not mean to claim that nothing more can be said on them. On the contrary, scholars interested in games but coming from many different disciplines and with different objects of study are all likely to find something worth of attention. Indeed, even non-scholars such as game designers could be able to read this work with, at least, some curiosity. Actually, anyone that ever wondered “ Why do so many people enjoy that much something so stupid?” could partially find an answer to this question. Working with such a broad perspective is a characteristic of Semiotic itself, a discipline born as a general theory of meaning-making from a philosophical, literary and linguistic perspective. And, as it is easy to guess, such a semiotic point of view on something is far from being exhaustive. Moreover this thesis is very loyal to the perspective of the original semiology of the twentieth century by studying the meaning of a text while ignoring many aspects of undeniable importance. Finally, the method offered in this thesis is mostly an improvement of what has already been done in the last thirty years.

Secondly, the intradisciplinary aim of this corpus was to push the semiotic theory to its limit, to make contact with some kind of threshold and breaking point. Indeed, both as games and as digital products what we call “videogames” are something that the traditional semiotic methodology of textual analysis was not meant for: “texts” that have so much to do with psycho-physical-sociological experience outside of the screen, that are apparently “linguistic” only on the surface, which have a mathematical and computational nature and which require the concrete involvement of the player as an actual embodied person and not as an idealized reader. Above all, texts in which, in most cases, the idea itself of meaning is very problematic and that in most cases do not allow the scholar to explain some hidden idea or very complex theme intended by the creator of the game but that only a few people can grasp.

The idea of virtual realities being a challenge for semiotics, of pushing it towards new territories and of requiring the inclusion of extremely different aspects of human signification (from proprioception to the psychology and sociocultural context) emerged almost since the beginning of the proper semiotics of digital games (Meneghelli, 2005) and constitutes its biggest theoretical *enjeu*. This thesis is therefore a continuation of such project, the belief that Semiotics was and is the only discipline with a theoretical ground fertile and versatile enough to face what, in my view, are the most interesting aspects of virtual realities. Consequently, semioticians not directly interested in digital games or VR technology will still find theoretical subjects of (hopefully) great interest such as enunciation, re-semantization, experience, narrativity, body, audiovisual language, practices, subjectivity and prothesis. Furthermore, they will find in this thesis the concrete example of how the different traditions of Semiotics can be combined together in an interpretative perspective to overcome some major difficulties. Finally, recognizing a semiotic threshold means precisely opening the possibility for a continuous and fruitful dialogue with non-semioticians, which in the specific case of this thesis can be seen with the implementation of concepts and perspectives belonging to cognitive sciences and game studies. In terms of published papers before the thesis, this interdisciplinary intent of ours has been extremely costly with several refusals both inside and outside semiotics for mostly reasons of different disciplinary criteria of “scientificity”. We hope that, in the end, this sacrifice will pay off in this work.

Thirdly, this approach aims to highlight the fact that digital games are not “just games” but cultural artifact of great diversity, complexity and of undoubtedly serious social relevance. This social relevance can indeed be found in some recurrent topics discussed across the media: Are games art? Do videogames make us violent? Why do so many people enjoy them? Etc. And while the content of this work could be used to answer these questions to some extent, truth is that the social relevance of digital simulations by far exceed these classic issues and themes. To expose such relevance, corresponding both with a new relation with textuality and to a new underlying logic and pleasure of representation, it was impossible to limit ourselves to only some formal aspects of virtual realities and we had to necessarily exceed our own strengths. In fact, because of all these different facets of the object “virtual reality”, without a doubt, in an ideal world this thesis would have been written by a team of different scholars and not by myself. But for the time being you’ll have to bear with me on the basis of my 20.000 hours spent in virtual realities and of three years of uninterrupted dialogue with most of the different scholars that I met.

So, we have now explained the reasons behind our ambitious choice. But the biggest questions remain unanswered: how did we manage such an immense corpus, how did we answer to so different questions and how did we obtain results of relevance for so many different disciplines? The answer is rather simple: we did not. The corpus was “managed” by selecting five main games to thoroughly analyze (analyses ranging from ten to twenty pages), each one focusing on a key semiotic feature of meaningfulness in digital simulations, namely:

- The mirrored narrativity: how subjectivity occur through conflict & competences shared between the user and his avatar (Street Fighter 2, 1987)
- The meaning-making economy: how specific encyclopedic entries are valorized through time and effort inside a closed system of differently valued item (Dark Soul, 2011)
- The prime semantics of sensorimotor interaction: how the coordination of inputs and tasks can convey ideas by mirroring the explicit representation on a cognitive and experiential level (Brothers: A Tales of Two Sons, 2013)
- The usage of visual language as an agentive prosthesis: how the point of view on the world can become a meaningful metaphor of subjectivity (Everything, 2017)
- The proprioceptive involvement of the body: how the users' senses can be tricked into *feeling* a virtual reality as a physical one with rhetoric efficacy (Apollo 11 VR, 2018)

The other hundreds of texts are mainly taken as examples and smaller case studies (usually from one to three pages) during the theoretical exposition of chapter two and three, or considered inside the corpus of the cultural investigation of chapter six. But more importantly, the other referenced texts can all be analyzed through the methodology applied in our five main case studies. This is somehow a solution to the main problem of justifying “why did you chose such a game and not another?”, in the sense that, without denying at all the influence of my personal interests nor our rhetorical purposes, thousands of other games could have been used without invalidating our claims at all. Finally, each of these semiotic features is based on basilar characteristics and requirements of digital simulations and virtual realities which are *per se* of course not exclusively nor primarily “semiotic” but fall into the semiotic domain when they produce the communicative and interpretative features from which meaningfulness arise.

In regard to the questions, we did not even try to directly answer to all the different questions which are involved in our research. What we did was to focus on the key factors of meaningfulness and the on meaning-making possibilities that exists both as a result of technical features and human interpretative processes. What we specifically looked at was the relationship between the representational explicit content (stories, themes, figures, pictures, music, narrative events, dialogues: everything on the screen that could be described, explained and intuitively acknowledged as meaningful) and a non-representational level (mathematical hierarchies, algorithms, cognitive mapping, physical interactions with input devices, effort put into play, physical sensations, time requirement) to produce different interpretations and *effet de sens*. In other words, we focused on the aspects of virtual realities which are transversal enough to be used for *any* inquiry: instead of finding the answers, we crafted the conceptual tools to dig for them. As an example, this thesis will not directly answer to questions such as “are games art?”. Yet, any discussion on such topics will eventually come to debate also about the expression, conveying and representation of an “idea” through a specific means. On this specific point, this thesis wants to be of invaluable help. The interdisciplinary value of this work and of its result must consequently be understood as the possibility for our findings to become a critical part and important background of different research, but certainly not in the sense that our results can answer to the questions of other disciplines. Indeed this last kind of conception of interdisciplinarity would be totally idealistic and unrealistic: even if the questions of Semiotics and other disciplines were actually the same, each one has very different methods to gather the data, analyze it and validate the answers. This is why what we did was to highlight facts of potential interest for non-semioticians and to avoid any kind of hermetic language to help and encourage future confrontation. Additionally, this is also why we have chosen to extensively quote the main authors examined by us (hence the number of pages), so that the possible different backgrounds of our readers and examiners would not be an issue.

The model of interdisciplinarity we chose was consequently not to improvise ourselves as sociologist, ethnographers or philosophers, but rather to suggest and propose common points of interest by tracing thresholds that explicitly ask for the help of perspectives and instruments belonging to other disciplines. Indeed, the nature of meaning is precisely to be something multilayered and quilted: no discipline can pretend to have an independent theory of meaning-making, even though each disciplines is without a doubt absolutely right about focusing on some specific aspects of it. Yet, at some point, each single disciplines should also be interested in trying to see how these aspects can fit with others since having all the pieces of a puzzle on a table is not equivalent to completing it. And since digital games are such a platypus (a mix of media, languages, practices involving so many different human faculties and habits) to analyze them as a whole what you need is precisely a semiotic *platypus* framework and methodology: a disciplinary perspective which is a mix of linguistics, narratology, philosophy of the mind, cultural critique and even something more. Nonetheless, this does not mean that this thesis is exhaustive and can explain everything about meaning in virtual realities. As an example, this thesis is mostly excluding the role of art and aesthetics in digital games, which is without a doubt a factor of critical importance. Similarly, this thesis is based on several facts that occur in games a result of social behaviors and yet is also lacking a sociological theory and inquiry of its own. Finally, this thesis has undeniably several flaws. Most notably, if the scientific and academic validity of a PhD thesis is determined by its capacity to extensively and critically examine all the previous bibliography on its objected of study and related themes, which is undoubtedly a more than reasonable criteria, then this is probably not a very good work. References of all kinds, and even semiotic ones, are missing. The vastity and diversity of themes and approach considered by us made such bibliographic task impossible in the few years of a PhD and have as a consequence that our own work is platypus-like. We knew all along that our goals and methods were unreasonable but nonetheless decided to pursue our objective and therefore we have no excuses.

To sum up, this is a very ambitious work offering a very modest contribution to the study of virtual realities intended as cultural artifacts deemed as the latest among the most iconic items of our contemporary societies. More than giving answer, this work aims at opening new horizons of inquiry inside and around such objects. I am however still surprised about the result of this thesis, and consequently I would be even more if this thesis actually accomplished even only half of its ambitious goals. So, more generally and to avoid any lawsuits for misleading advertising, let's say that it is a very modest contribution to understand why, as humans, we love digital simulations and spend in them an unusual amount of our most precious resource: the time of our life.

Additional notes for the examining committee:

Coherently with its interdisciplinary purposes, this thesis was written in English for an easier dialogue with many non-Italian speakers both during our PhD and after. However, for this first version we have chosen to keep many quotes in Italian since we knew that the commission examining us would be composed of Italian professors.

At the light of both our critical attitude and our multidisciplinary literature of reference, we have chosen to quote extensively our authors. Such quotes will however always be preceded by a general explanation and are therefore not strictly necessities. This also justifies, in part, the length of our work.

The structure of this thesis is conceived to allow the examiners to understand all our main claims and arguments without having necessarily to read every part these five hundred pages. For instance, all the titles 5 and 6 are case studies which do not add essential elements. Additionally, several recap are made at the beginning of both new sections and new chapters.

1. Semiotic fundamentals and legacy of our work

In this chapter we will make a brief overview of the challenge faced by our discipline nowadays and highlight in which way the main authors of semiotics have influenced this work from both a theoretical and very pragmatic point of view. Finally, we will explain what distinguishes a semiotics of meaningfulness in virtual realities from a more common semiotics of meaning-making.

1.1 About the crisis of semiotics and its usefulness

“Che dire, allora, dell’utilità sociale della semiotica? Personalmente non ho mai osservato come la mirabile analisi semiotica della propaganda di un partito populista convincesse i suoi seguaci a votare ipso facto per il partito avverso.”

Leone, 2018, p.215

During the last (14th) Mondial congress of Semiotics in Buenos Aires, Paolo Fabbri began his plenary by saying that, to overcome what he recognized as the actual semiotic crisis, there was the necessity of criticizing our own discipline to improve it. Furthermore he claimed that being too much loyal to semiotics was as dangerous as abandoning it. Besides, he described Semiotics as being a two-headed creature (one linguistic and one more philosophical) and, by referring to Thomas Kuhn’s epistemology of sciences, highlighted this condition as a strength and advantage. This thesis endorses all of these statements. Unfortunately, his own proposal of a "marked Semiotics" to overcome the crisis seemed¹³ to actually be only a caricature of Eco's "inclusive" semiotic approach, a critique likely based on an excessive loyalty to structuralism. So, while in disagreement with Fabbri's somehow contradictory solution, this thesis shares the same belief, the same concern and intention of improving Semiotics through critical reflection. The necessity of such a critical reflection was also at the heart of the 2017 congress of the Italian association of semiotic studies, originally centred around the topic of the semiotic methodology but that turned out to rather highlight doubts about the efficacy of Semiotics (Lorusso, 2018, p.9). Two years later, at AISS 2019, Tarcisio Lancioni was also opening the conference by highlighting the closure of the Siena research centre as the result of a crisis and in the same year Guido Ferraro published the book “Semiotica 3.0” that was also written as an answer to a semiotic crisis. Moreover, in 2018 the newspaper *Il Corriere della Sera* published an article written by Aldo Grasso which criticized Umberto Eco’s interest with Semiotics defined¹⁴ as a discipline believing to be able to interpret anything but that, after many years, only offered very humble results.

¹³ To me and many other semioticians, such as Vice-President of IASS Chema Paz Gago, who in that context strongly expressed their disapproval.

¹⁴ “Un apparato teorico di rara sontuosità che però dava sempre risultati pratici molto modesti: la semiologia, per esistere, aveva costantemente bisogno di autoalimentarsi, di credere di poter interpretare qualsiasi «pratica linguistica». Ha finito per interpretare solo sé stessa.” <https://www.corriere.it/cultura/18-dicembre-03/umberto-eco-scritti-televisione-la-nave-di-teseo-a84043ca-f722-11e8-bd62-81aafd946bf7.shtml>

Finally, already twenty years ago semiotics was described as outdated due to historical and epistemological reasons by two of the most important semioticians (Fabbri & Marrone, 2000, p.7). In light of these facts, any contemporary semiotician, no matter his object of study, will face this crisis and should, in his own interest, contribute to its end. But how? My personal answer is: not through theoretical justifications nor list of semiotic congresses and publications¹⁵ but only with the social efficacy and pertinence of his, of our, work. Indeed, we cannot deny that if in the last thirty years we had found a cure for blindness, or at least if our ray-cat solution¹⁶ had been really usable to face the problem of hazardous wastes, the core of our epistemology would be irrelevant from the point of view of the social and interdisciplinary perception of Semiotics. Of course it could be argued that no one is expecting such a thing from a discipline belonging to humanities, but then who is expecting something from Semiotics and what is this something? “*Quel est l'enjeu et quelle est la mise?*” could we ask. For many other disciplines of the humanities this problem is in some sense trivial since they have both extremely long traditions and sometimes a very explicit historical intent (which is in itself an *enjeu*), but this is not true for Semiotics which is a discipline of rupture both in its anti-diachronic and anti-cartesian facets. This question is not only important from an academic point of view, but first of all from a psychological one: if no one is expecting us to do great things, if no one cares when we are wrong since our work has no serious consequences, then why and how should we be motivated and satisfied? Many of us started doing semiotics precisely because what semiotics *did*, or at least hoped to do, of its past bets and expectations. But we cannot continue to live from annuity and in the shadow of the past. As Massimo Leone perfectly explained (2018, p.207), truth is that the “golden age” of Semiotics depended as much on the adoption of what was interdisciplinary recognized as a rigorous method than on the not so rigorous works of authors that had nonetheless an outstanding power of describing and criticizing reality in a new way, highlighting new problems that in those time were of great actuality and importance. Semiotics was “spectacular” (Leone, 2018, p.214) and we could even dare to say that in some cases, such as in Calabrese’s *Neobarocco* (1987) and Barthes’ 1957 *Mythologies*, the importance of the topic and of the result is what granted to the semiotic methodology some kind of validity and not vice-versa. Similarly, Lotman’s 1977 writings about what he called “artificial intelligence” was without a doubt enlightening and ahead of its time, yet we would hardly justify the importance of such writings for the very fragile epistemology behind these claims. More generally, texts, discourses and signs were not only subjects of research but also *means* to face many socially relevant issues. This view was shared by many intellectuals of that time, and we can find it in an author such as Foucault which, somehow amusingly, has been criticized in philosophy from a methodological point of view for both debatable readings of ancient texts (Hadot, 2005, p.170) and for his disputable series (Nussbaum, 2004, p.214¹⁷). Besides, in the early years of Semiotics we also had a kind of exclusive on some arguments belonging to the mass culture and mass media. Let’s think of the harsh critique made against Eco for applying the traditional knowledge of the humanities to the “low” and mass culture (Eco, 1964/2008, introduction).

¹⁵ To Aldo Grasso’s critique, professor Tiziana Migliore gave the next day on this same newspaper what was a very unfortunate answer: she made a list of books and congresses of Semiotics about tens of different arguments to prove the importance of Semiotics, without realizing that she was precisely confirming Grasso’s critique. Indeed, outside of the strange world of the academia (Bourdieu, 1984), publications and congresses are not worth any points in demonstrating the social value and seriousness of a discipline.

¹⁶ <https://benjaminhuguet.com/portfolio/the-ray-cat-solution-aeon-videos>

¹⁷ “Foucault brings together, in his History of Sexuality [...] Greek and Roman texts of different types, from different social classes, geographical locations, religious and philosophical contexts, to produce a single and homogeneous image of each era. ”

This situation radically changed with both the birth of specialized fields of academic inquiry (such as media studies, game studies, cultural studies, and so on) and with an interest on these objects by well affirmed disciplines such as philosophy and sociology. Finally, the success of Semiotics was almost immediate and could consequently not be validated by time or by some Popperian process of scientific validation. Structuralism of course had proven its strength and scientific validity in the field of language, exactly as Peirce's theory of the mind is today still part of the scientific debate on cognition (Malafouris, 2014, p.95 and 2018), but there was absolutely no scientific evidence that the two founding theories of Semiotic could be equally and successfully applied to other fields and objects of study. It was, and still is, both a bet and a guess. Similarly, the conceptual and methodological tools "borrowed" from philosophy, anthropology, and narratology could not and still cannot be thought to be as valid in the semiotic paradigm as they are in the one they were born in. Besides, even within their own discipline some of them have become criticized, such as Foucault's already cited *series* adopted by the Semiotics of Culture (Lorusso, 2010) or Levi-Strauss being almost ashamed of its anti-oedipus schema¹⁸. Not to mention the critique of some founding texts of modern semiotics by their own authors (such as Eco's *Trattato* during the 40th Anniversary of his work in Bologna) and the sometimes radical change in the direction of their works: from the *modeling system* to the *explosion*, from *structural semantics* to *imperfection*, from the *tractatus* to the *platypus*. On the contrary, and has it often occur in the history of sciences (Feyerabend, 1975), semiotics was adopted long before our discipline had actually the incontrovertible arguments and proofs that it was the correct approach to understand so many aspects of how humans make sense of things. Our main authors had perhaps insights and splendid intuitions more than irrefutable evidence, and we shouldn't be ashamed of this since even mathematics had its own Srinivasa Ramanujan who had foreseen many correct answers long before they could be demonstrated. After all, even the most descriptive and formalist father of Semiotics, Saussure, was defining the reality of meaning as something *mysterious* (De Mauro, 1970, p.149). This is why, in conclusion, we could dare to say that Semiotics in those days was first of all a bet and guess on a new way to face the very concrete questions of meaning and culture. Yet, the study on meaning and culture was not born in the 60's and has no copyright on it, all the humanities (and not even only them) study different facets of it. Anyone who ever stepped in a newsstand knows that magazines mainly refer to philosophy, psychology and literature in their articles about "how to make sense of the world and find meaning in life". The issues discussed by Semiotics were, consequently, initially not our "own" but rather the same of others which had however somehow ignored, abandoned or even removed some fundamental aspects of them, exactly as Semiotics itself was removed from philosophy. In doing this Semiotics took the risk of stepping on everyone's foot and of becoming the worst kind of uninvited guest, and we cannot reasonably think that this risk was taken for nothing. The bet on structuralism was a guess on the whole apparatus of our knowledge, which is why interdisciplinarity was both deep-rooted in the bibliography of the most important works of semiotics, in the personal curriculum of most semioticians and a recurrent concern in many different authors such as Jakobson (1966/2012, p.8), Eco (1975/2013, p.24) and Greimas (1970/1984, p.12). The very identity of modern semiotics is defined by all the different perspectives which constitutes it: it is a *participative/inclusive* one and who would be terribly wrong to hide it. Semiotics, for its so fresh and inclusive perspective on meaning, defined by its fathers not as a discipline but as a field of research (Eco 1975) and a methodology for the humanities (Greimas, 1976), taken as a whole is still extremely contemporary and was perhaps only outdated by our contemporary interpretations and applications of it.

¹⁸ <https://www.youtube.com/watch?v=VVRH8ENDQvg&t=58s>

This brings us to the following question: what about semiotics now? We have to deal with the death of our fathers: choosing what to keep and what to let go, teaching *them* something new¹⁹. As mathematicians did, we have to strenuously work on their best intuitions not merely to prove them true but rather to *use* such truth both in and out of semiotics. But most importantly, we have to be extremely careful of not transforming our discipline in a metalinguistic *exercice de style*. Without a doubt Semiotics is no more the same and could not be the same even if it wanted to. But, without ever being nostalgic, we have to find the courage to ask if it changed for the best. Because of all our different methods and objects of study it is impossible to give a single answer to this question, so I will give one for the specific object at the center of this thesis and for my specific field of research: unfortunately, it hasn't. None of the many books and articles on both computer semiotics and digital games written by semioticians in the last twenty years had a positively noticeable and transversal impact on the study of such objects and even more on the idea of virtual reality. When semiotics is quoted it is often misused, when not criticized, and a semiotic perspective on the problems raised by such objects of study is almost nowhere to be found in a context dominated by a media-centered, sociological and phenomenological approach to meaning-making. Finally, even inside semiotics virtual realities did not shake at all our theory and methodology, they did not create any serious debate nor the need to answer to new questions about meaning. Many interesting questions raised already in 1987 by Bettetini, about the social impact of informatics and virtual texts, were mostly abandoned. In this sense, the fact that Maldonado's critiques to our metalinguistically entangled "discipline" (2015, p.53) were raised precisely in a work about virtual reality, was both sadly premonitory and perhaps not a coincidence. More than a personal judgement this regrettable answer is based both on what I did not find in the interdisciplinary literature and on many scholars that I met and that shared with me the same critique: semioticians talk and write in an autoreferential way, almost entangled in their own metalanguage and issues as in some kind of intellectual autism. On some occasions someone even recommended me to hide the fact that I was doing semiotics, so it is undeniable that something went wrong and that in some fields we became the beforehand mentioned uninvited guests. Something which apparently and unfortunately also occurred in other fields such as the semiotics of cinema and music (Surace, 2019; Marino, 2020). Perhaps semioticians were too much nostalgic and respectful of their father, perhaps they made the wrong deal by trading the past sensibility for the modern trend of objectivity, perhaps they looked like improvised anthropologists and philosophers, or perhaps we were simply unfairly misjudged and misunderstood. Whatever the reasons are, instead of discussing them, this thesis wants to renew a common social interest toward our discipline and to prove that a semiotic approach can be of high-value and great usefulness both among the different disciplines and outside academia: that semiotics is *extremely actual*. It wants to prove that we can now be more epistemologically and methodologically accurate than we have been in the past, and that to do this we do not have to lose our insight and sensibility toward the problem of meaning in life and culture. This is why this thesis was conceived not to adapt the semiotic bibliography and metalanguage to virtual realities but to explain, through semiotics, some of the most "spectacular" facts that occurred in the last twenty years in the community of both the users and scholars of virtual realities. Furthermore, this is also why it was written to be potentially used by both non-academic figures (such as game designers) and scholars belonging to different disciplines, which is in my own vision the minimum criteria for any semiotics work to be socially *useful* and therefore to contribute in renewing the interest and positive social perception of our discipline.

¹⁹ Umberto Eco, Sulla memoria. Una conversazione in tre parti, 2015. Parte 3. Regia di Davide Ferrario

Yet, truth is that the problem of usefulness is rarely explicit and even sometimes denied in the humanities: and for very good reasons as Massimo Leone points out. In this sense, this thesis represents a perhaps less idealistic and more utilitarian idea of its social usefulness. Of course I can totally see the risk here of becoming a pop-discipline without any scientific rigorousness always superficially focusing on the next more clicked trend and hiding behind the excuse of the social importance of its topics. The same risks also apply to abandoning and disowning our founding epistemology. This is obviously not what I want nor hope for the future of Semiotics. Moreover we should of course all be aware of the political dangers of the rhetoric of usefulness, an instrumental term that can be conferred both to drinking water and daydreaming. From a certain point of view, uselessness can be an important value. Finally, I perfectly understand that not all the subjects studied by semiotics can have “useful applications” as explicitly as in the case of virtual realities and that usefulness should be measured in the longtime and not in the short one. Indeed, what is the criteria to quantify the degree of usefulness of theoretical reflection without which any concrete application is impossible? By blindly defending usefulness in its more trivial sense I would be both hypocrite and ungrateful since my thesis is completely based on the reflection of some semioticians who continuously worked on the more general theory of semiotics and on the, so to speak, more abstract issues of our discipline. Yet, given a choice between two evils, I would rather prefer a discipline too much into the world than too much outside of it. Given the risk and the sometimes very bitter impression of the academia being mostly a form of entertainment of its own members, my (political) position is that we should care, as humanist, to let as many people as possible enjoy the show. At the end of the day, the most convincing argument about the importance of Semiotics could perfectly be that a book like Barthes’ *Mythologies* still makes a great Christmas present for siblings and friends who never put a foot in a department of humanities. Similarly, I have personally witnessed that Eco’s participations on Tv to discuss a book such as *Cuore* can be interesting even for teenagers which are hardly preoccupied by the theoretical issues raised by meaning-making through semiosis. How could we and why should we not be happy and proud of this? Proud of the critical attitude toward language, culture and history (and much more) that a reader of many of our books cannot but embrace? But with this thesis, which is about an undeniably pop and trendy object of study, I hope to demonstrate that fortunately we do not have to make such a drastic choice. I hope to prove that we can continue the legacy of the father of Semiotics through the very critique of their works and without ending up in inheriting the limits of their times because of nostalgia: that we can be extremely actual without denying our past nor our epistemological identity, and that by studying one of the most successful form of entertainment in the world we can both make a concrete original proposal on this particular object of study and also make significant theoretical reflections. This hope is based not only on a lack of self-modesty but also and mostly on the encounter and collaboration with many talented semioticians that I met during both my studies (In Catania and Bologna) and the three years of my PhD in Turin: young scholars and affirmed professor which already took this path and succeeded before me. These people are therefore to blame for these almost six hundred pages, not me.

“Semioticians are not primarily called to fight violence and injustice in the world; yet they are not called either to turn into the detached bards of the reasonableness of semiosis, developing sophisticated theories to justify the status quo.”

Leone, 2020, p.16

1.2 Descriptive semiotics? An enthusiast thesis written by a cynic semiotician

“Ci sono degli ingenui che credono che la semiotica sia una disciplina o una scienza”

Eco, 2006

We have just claimed that this work aims to honour the legacy of what semiotics was by choosing to not be nostalgic and focusing on issues which are, per se, not exclusively semiotic. However, from a certain point of view this thesis can very much look like a come back to the 60's and is undoubtedly *enthusiast* (Leone, 2018). First of all for the topics: virtual realities are understood as a form of narrative discourse and almost Barthesian rhetoric; the problem of experience and immersion is reinterpreted under the light of semiotic means of access to the world and of effects veridiction and belief; and after forty years we are still talking about the production of meaning and signs coming from the user's cooperation. But also for the methods: faithfully to the two founding fathers of our discipline, methodology (the study of language in Saussure and of the mind in Peirce²⁰) will be a major preoccupation since the heart of this work is made several textual analyses, each one aimed at answering to a precise starting question about meaning-making in a particular text and virtual experience. These answers are then given by deconstructing a text from its “superficial level of expression” to a deeper core of invisible elements and functions. Something undeniably *démodé* especially in an era were already ten years ago scholars such as Lev Manovich claimed (2010 & 2013) that to understand product such as videogames we need to abandon a textual perspective by focusing on these artefacts as software inside a software culture. Furthermore, this work will try to avoid both *vague* questions about the impact of virtual realities and metaphorical concepts to explain them, aiming to obtain precise and falsifiable arguments. In fact, the author of this thesis is strongly against the possibility of multiple valid conclusions as a result of the semiotic analysis of a same object. On the contrary, here the fundamental claim is that either my analyses and conclusions are right or they are wrong, proving consequently that my methods and notions are appropriated or not. Without this clause, it is very hard for me to understand how and why the academic community and society should care about these descriptions. Despite the trend of quoting quantum mechanics to somehow defend relativistic positions supposedly proving the impossibility of objectively looking at an object of study²¹, I still believe that attempting impersonal analyses of textual objects is crucial. Of course who we are, where we work and when we write are variables that have undoubtedly an influence on our results, but this is a quite obvious fact when we study culture and meaning.

“How could we believe, in fact, that the work is an object exterior to the psyche and history of the man who interrogates it, an object which the critic would exercise a kind of extraterritorial right? By what miracle would the profound communication which most critics postulate between the work and its author cease in relation to their own enterprise and their own epoch? Are there laws of creation valid for the writer but not for the critic? All criticism must include in its discourse (even if it is in the most indirect and modest manner imaginable) an implicit reflection on itself; every criticism is a criticism of the work and a criticism of itself. In other words, criticism is not at all a table of results or a body of judgments, it is essentially an activity, i.e., a series of intellectual acts profoundly committed to the historical and subjective existence (they are the same thing) of the man who performs them.” (Barthes, 1964b, p.257)

“Spesso per essere *veramente* ‘scientifici’, non occorre voler essere più ‘scientifici’ di quello che la situazione permetta. Nelle scienze umane si incorre sovente in una fallacia ideologica che consiste nel considerare il proprio discorso immune all’ideologia e, al contrario, ‘oggettivo’ e ‘neutrale’. Sfortunatamente ogni ricerca è in qualche modo ‘motivata’. [...] A queste condizioni allora è molto meglio (e molto più ‘scientifico’) non nascondersi le motivazioni del proprio discorso [...]” (Eco, 1975/2013, p.45)

²⁰ “Peirce’s ambition is first of all of a methodological and not ontological kind” (Paolucci, 2011, 85).

²¹ Indeed, truth is that if you talk to actual physicians (as I did by asking several questions to my friend and esteemed researcher Jacopo Marcheselli) they can very simply explain how humanist are making two fundamental mistakes: confounding the mathematically proved principle of indeterminacy with its philosophical interpretation and the fact that this principle only apply to specific micro-objects that can be described with mathematics as a formal language.

So, in many ways, this thesis could seem very loyal to a certain *descriptive* linguistic tradition (Saussure, Jakobson, Hjelmslev) and to a certain *scientific vocation* of the most structuralist branch of Semiotics. Both my approach and several terms that I will use undoubtedly come from this tradition. In other words, I could very well look both like a nostalgic hypocrite and an ingenuous. However, there are some important differences that must be considered.

First of all, I am not interested here in “dismantling” games and virtual realities only to find (or better reconstruct) such structures or elements and to prove that someone or some general theory was right. In the golden years of structuralism many great thinkers had very good reasons in acting in such a way since structuralism came with a great interdisciplinary bet about a model of how humans shape and give meaning to the world. This is evident in reading Jakobson’s enthusiasm for the possibility of structuralism to be applied to so many different fields and even trying to explain phenomenon such as aphasia (1966/2012, p.22). At the same time Barthes analysing for the first time a dress using the category of paradigm or Greimas reconstructing a possible syntagmatic of a cooking recipe had a value beyond their actual analyses exactly because they seemed to open new possibilities and perspectives. Fifty years after, it is very hard for me to attribute an *a priori* social value to such a “game” (Leone, 2018) of metalinguistic attributions and operations. In several occasions my impression has been that some semioticians are using the innate generality of their metalanguage to still ask themselves if structuralism can be a sort of theory of everything. And while doing this they are not concerning themselves with the problem of finding any original answer to more concrete issues. Not only they seem unaware of the risks of an ontological structuralism (Eco, 1968/2016, p.32) but they seem to confuse the possibility of using certain notions to *talk about* everything with the act of *saying something about* them. This concretely means that the “search for structures” and the use of a certain metalanguage (and thus model) must, from my point of view, now be justified by its capacity of answering to actual questions of interdisciplinary interest exactly to correspond to the social vocation of the Saussurean idea of Semiotics. In this sense, I totally endorse here Leone’s claim about Semiotics being an interpretative discipline that shall not entangle itself in a sterile descriptive level (2018, p.210). As I’ve already explained, the reluctance toward Semiotics that I personally encountered in a field like the Game Studies was exactly caused by many years of descriptive attitude of Semiotics mostly interested in applying a particular metalanguage and model without increasing the actual knowledge of the common object of study.

Secondly, and as a consequence of the previous point, I will deconstruct virtual realities through some linguistic notions but without assuming the structuralist model of natural language as the main model of reference for such a deconstruction. This choice is also related to Eco’s perspective and to the legacy of this perspective that can specially be found in Paolucci’s Interpretative Semiotics (2010). A simple and concrete example of this can be found in my attempt of deconstructing a game in a structure of mathematical values of phenomenological implications correlated to semantic entries: it is clear here that the deeper core elements have nothing to do with phonemes. I am therefore here exactly at the opposite of what, for example, Metz was initially doing in looking for the minimal units of meaning in movies that had to be equivalent the ones of language (1964). Similarly, my explanation of meaning in terms of both psychophysical factors and cultural elements is also clearly violating the “limits” of the text and more generally the renowned closure of structuralism. Yet, in doing so I am not really doing things in “my way” but actually following the footsteps of the living and actual structuralism such as the one of the linguists Tullio de Mauro.

It is indeed interesting to note that in an interview made few years before his death²², this important Italian linguist was simultaneously defining Saussure as one of the most important authors and defending both a critical reading of his work (for which, for example, the *parole* was far more important than the *langue*) and precisely highlighting how the excessive closure of the system, leading to a “monolithism”, did not pass the test of time and was thus a flaw inside that theory:

“Strutturalismo Classico e Generativismo hanno prodotto una grande quantità di descrizioni di lingue, e noi dobbiamo a questo, paradossalmente, in parte paradossalmente, la percezione sempre più accentuata del carattere tutt’altro che strutturale e generativo delle lingue. Ciò che è andato anche in crisi non è solo l’idea che ogni paese ha una lingua e una sola, ma è anche che l’idea che la lingua sia qualcosa di monolitico e di chiuso” (min 22.30-23.07)

Consequently, the traditional structuralist conception of language will thus be a precious compass (a metaphor that we borrow from De Mauro himself) and a port of departure, but not an anchor nor a destination. Saussure predicted modern Semiotics, it is true, but he never claimed that he was founding it and nor that his linguistics would be perfectly fitted to this semiotics. The idea for which Semiotics can be conceived as a part of structural linguistics was a Barthesian turn. In fact, if we conceive structural linguistics as a scientific paradigm, than we should be pretty comfortable with the idea of it being wrong on several points and, after almost one hundred years, even ending up in being replaced when it is no longer able to give us the answers that we are looking for. Otherwise, we are not considering linguistics and structuralism as a discipline but rather as a doctrine. An impression that can emerge from one of Marrone’s interview²³ in 2020:

“La semiotica o è strutturale o non ha senso” (min. 10.00) “liberarsi dallo strutturalismo cosa ci dà di migliore?” (min.10.16) “non è la nostra forza perché siamo migliori degli altri, ma perché gli altri non lo fanno più, peggio per loro se non lo fanno più” (min. 9.54) “lo strutturalismo è nato come tutti sappiamo grosso modo negli anni 30 del secolo scorso in sette, otto, nove scienze umane contemporaneamente, più o meno, poi l’hanno abbandonato tutti...peggio per loro, spero che prima o poi lo ritroveranno così da non aver bisogno di comprarsi qualcosa di migliore, sempre che la trovino”. (min.9.31)”

Thirdly, my “surgical intent” is by no way meant to prove that my work is something close to hard sciences. On the contrary, I totally disagree with the idea of a linguistically transmitted empiricism: I cannot think of any reason to accord to some conceptual tools a higher degree of trust and objectivity only because they come from linguistics where they were truly empirical since based on totally different and measurable data. Likely, I do not think that verbally referring to mathematics or physics, especially through metaphors, can in any way change the fact that humanists are not people in white coat working with hazardous materials in a laboratory and possibly harming someone’s health if their methods are erroneous. My descriptive intent can be opposed to an interpretative one only by referring to “free interpretation” as intended in works such as “Again Interpretation” by Susan Sontag (1966). Thus, once again, I am not advocating here in any way a “superiority” of a somehow quasi-scientific description over reflection. On the contrary I would say that some of the more socially relevant semiotic contribution for the society where the exact opposite of a theoretically flawless and methodological perfect “semiotic exercise”. In writing this thesis in such a way, I am actually more advocating for Volli’s idea of Semiotics expressed during his last *Lectio Magistralis* in Turin²⁴, which is by the way very close to Eco’s one in his *Trattato* in using the same metaphor of the microscope.

²² Tullio de Mauro, Intervista per Istituto Svizzero, Roma, Marzo 2013. Link: <https://www.raicultura.it/letteratura/articoli/2018/12/Tullio-De-Mauro-il-pensiero-di-Ferdinand-de-Saussure-come-bussola-per-orientarsi-nelle-societ224-linguistiche-odieme-cea38c5f-9a0f-4989-aea7-ffa4e3e328b7.html>

²³ https://www.youtube.com/watch?v=y36lqtx_iVo

²⁴ <https://www.youtube.com/watch?v=K1s8rx8gFkk>

Fourthly, the traditional structuralist approach was characterized by switching off the spotlight from the subject and lighting it on the underlying structures. Similarly, Peirce's thought has been described as "a *transcendental philosophy without subject*, in which what makes it possible for the phenomena to become present to the mind is exactly the semiotic community" (Paolucci, 2011, p.76). More trivially, even the pragmatic Eco was clearly stating that the textual cooperation was realized between two strategies and not individuals (1979, p.63); and of course we all know very well Greimas' approach and theory of enunciation which was focused on impersonal instances and simulacra. In respect to these positions, some could argue that both my interest in the actual experience of the empirical player and my semiotics of "meaningfulness" are betraying the fundament of semiotics itself. Although I cannot deny at all my interest for the subject, I think that this thesis is actually based on a compromise since I am reconstructing subjectivity mostly in terms of intersubjectivity. Nonetheless this could be another important point of difference.

Finally, I am totally aware of the inevitable banality of the analyses of this thesis deriving from my descriptive act applied on cultural products that are mostly designed to be extremely simple and clear from the point of view of what they mean to their players. Undeniably, a certain value and fascination for textual analyses based on close and critical reading derives both from the complexity of their object of study and from the impossibility of exactly knowing the intents and doing of their creators. In the case of videogames this is often not the case: you do not expect from the analysis of *Street Fighters* what you could expect from the analysis of Joyce or Klee. The content of a game is very often *obvious*. Additionally, when critics tried to reconduct a game like *Tetris* to deep social themes (Murray, 1998) the result were mostly regarded as disappointing and unfounded (Eskelinen, 2001). Moreover, as we onetime laughed about with professor Riccardo Fassone, analytic methodologies in humanities are mostly based on inferences for obvious reasons: the author is dead. But why inferring about games when you could at least try to contact the still alive game designer? However, semiotics has a long history of interest in common sense precisely because of its not so obvious obviousness: let's think of Barthes analysing the Panzani advertising (2001, p.22) or at Umberto Eco being interested in James Bond (1978/2015. P.177). Moreover, semiotics is also the discipline which, thanks to Eco, overturned the problem of ambiguity by focusing on the lector fundamental cooperation in meaning. The descriptive approach of this thesis is thus following such footsteps, but with an important difference. If the work of such authors was revealing for the first time what had been in front of the eye of everyone for so long, it is clear that trying to do the same sixty years later is to say the least anachronistic. Indeed, thanks to them we have no reason to doubt about the fact that any text, including games, will represent a certain system of values through different kinds of functions and configurations, nor that products for mass-consumption are more likely to have such representation to be in accord with a certain economically and historically dominant vision of the contemporary world that is both conveyed as a tacit message and required by the interpretative cooperation involved in such texts. So, what is really the point in following such footsteps sixty years later? Am I not myself falling into the mistake of Queneau's *Exercices*?

I have three arguments in my defence.

1. The first is that I am offering something that still does not exist: an updated, comprehensive and specific apparatus of critical analysis for the study of digital games and virtual realities as cultural artefacts which can be used both for very concrete application and for a more general reflection on our contemporary society.
2. The second one is that the problems faced during my analyses have brought a critical reflection on the general level of the semiotic theory and have led me to both conciliate different schools of semiotics and to rely on some disciplines outside of semiotics such as with cognitive sciences. As of today, this approach is mostly new.
3. The third is that while a typical exercise would translate an exterior knowledge into the semiotic language, I am actually doing the opposite: translating semiotics out of its own language and theoretical issues in defence of its “usefulness”.

So, in conclusion, my work can certainly not be called nostalgic, even though this does not coincide at all with abandoning the theory of the most descriptive and linguistic tradition of Semiotics. On the contrary, if for instance I am not using the phonetical traits or functions of Jakobson it is precisely to defend this author from being misused and consequently misjudged. I chose to be very loyal to him and to his work in another way: by adopting his interdisciplinary interest, his concern for rigorousness, his critical attitude toward ambiguous terminology and the centrality of signification and language. The same choice was of course made for many other authors of semiotics, as I will explain in the next section.

1.3 Semiotic traditions and perspectives

In a wonderful little book of Semiotics often unknown to semioticians, Professor Sebastiano Vecchio describes Semiotics through two possible interpretations of Agostino's definition:

“Della semiotica esiste una definizione autorevole che non viene mai citata e che a me pare buona nella sua generalità. Ha due versioni, una forte e una debole. Nella versione forte – ambiziosa e un tantino enfatica – la semiotica è la *scienza che racchiude la conoscenza di tutti i segni*. Nella versione debole, più modestamente, la semiotica diventa un sapere in cui si raccolgono notizie di ogni sorta di segni. Sono i due possibili modi di rendere possibile in italiano la formulazione latina originale data da sant'Agostino, che suona: *doctrina qua continentur notitia signorum omnium*. Definizione involontaria, in realtà, perché il santo non si riferiva a una disciplina già costituita né, come farà Saussure quindici secoli dopo, ne preconizzava la nascita dopo averla configurata; ciò che faceva era tracciare un orizzonte conoscitivo, segnalando la bellezza ideale di una prospettiva di quel genere” (2005, pp.7-8)

By being interested both in a theory of meaning though signs and inspired by the facts/news about the usage of signs in virtual realities, this thesis definitely embraces a semiotic horizon. But yet what is exactly a semiotic perspective? Indeed, despite its undeniable rhetorical and poetical power, perspective is a word that, after all, does not refer to a unique way of looking at the world: painters of different periods, using different techniques, with different intents and concerns, used a same kind of perspective derived from Brunelleschi. Furthermore, many handbooks of Semiotics define this discipline as the one that studies how we make sense of the world or, even worse, that studies meaning itself. However, truth is that “meaning” and “sense” are both what we are all looking for in our private life and what many discipline studies from very different points of view. Additionally, defining a unique perspective belonging to all those who defines themselves as semioticians is honestly impossible. So once again it is really not clear what a semiotic perspective should be. However, being able to identify some characteristics of a semiotic perspective is essential for any interdisciplinary intent: other scholars need to know precisely what they will eventually borrow and use in their own work. Therefore, when I say that I am looking at virtual realities through a semiotic perspective I am referring mainly to the key notions and interests of some main authors and founding fathers of our discipline.

1.3.1 Saussure

The interdisciplinary intent and approach of this work, negating the idea that a discipline alone can seize in autonomy something as complex as “meaning” (and even more meaningfulness) or “language”, could seem something reflecting the contemporary trend of interdisciplinarity but actually comes from very afar and is a crucial premise of Saussure's work and conception of both language and linguistic:

“Saussure, quantunque a suo modo anch'egli isolato, fu invece attento e interessato allo stato istituzionale, accademico, dei diversi campi di studio: economia teorica, psicologia e nascente psicoanalisi, sociologia, teoria delle scienze, oltre naturalmente la filologia e i tradizionali *studia humanitatis*. E anche in questo orizzonte di rapporti tra scienze e discipline egli scorgeva la complessità del linguaggio. Per la sua natura complessa gli pareva che il linguaggio a giusta ragione potesse essere rivendicato come «materia» di studio da una pluralità disparata di discipline: storia e fisiologia, psicologia e sociologia, filologia e, naturalmente, linguistica (oggi potremmo aggiungere statistica e neuroscienze, teoria dell'informazione ed etnologia).[...] Tale appariva a Saussure il linguaggio: luogo di confluenza di strutture eterogeneamente diversificate. [...] Secondo Saussure, esplorare come si formano e funzionano le lingue dà alla linguistica la possibilità di offrire un suo contributo specifico al coro delle discipline che da altri punti di vista si occupano del linguaggio.”» (De Mauro, 2011, pp.36-37)

“Ora, è ben vero che Saussure ebbe anche questa preoccupazione, ma assolutamente in subordine, come si vedrà: il richiamo all'autonomia della linguistica, di cui assai gelosi erano stati ed erano (e sono restati) i linguisti, era per lui quasi solo un argomento *ad hominem*, adoperato nel senso che una disciplina incurante o incapace di definire con precisione il proprio oggetto di studio, il « fatto linguistico concreto », non sapeva e non poteva nemmeno garantire seriamente la propria autonomia, in conseguenza dell'incuria e dell'incapacità, dalla intrusione indebita di valutazioni d'ordine psicologico o fisico o fisiologico .” (De Mauro, 1970, 137)

Thus, this work is using a semiotic perspective not only by sharing the same belief of one of the two founding fathers of our discipline, but even more by sharing an epistemological preoccupation and starting point:

“Una disciplina non può sperare di qualificarsi dichiarando semplicemente che si occupa di tale materia così intrinsecamente eteroclita, ma deve specificare sotto quale profilo se ne occupa. E alla linguistica Saussure suggeriva di assumere come filtro epistemologico, come punto di vista, quello del costituirsi e organizzarsi delle lingue sotto la spinta delle esigenze individuali di esprimersi (che Saussure chiamava in francese *parole*) e grazie alla facoltà innata, naturale, del linguaggio.” (De Mauro, 2011, p.37)

This is why this thesis is interested in how the meaningfulness of virtual realities can arise from the individual acts actualizing the virtualities of a given system which, when enacted, are then linguistically represented (through words, sounds and pictures) to constitute the expressive surface of the digital text (simply put: what appears on the screen). Clearly this is different from Saussure's concrete objective but being into semiotics and not into linguistics (letting aside the more than hundred years separating our work and his) it couldn't possibly be the very same. Yet, despite the obvious differences, the similarities between our approach and his are stunningly evident.

Which lead us to a second and very important point: Saussure's notion of *parole* and, contrary to the past *vulgata* (De Mauro, 1970, p.132) its centrality. Indeed, in virtual realities users have access to a *given* and *virtual* database of action which, since they must be somehow represented, correspond to “lexical entries” or perhaps better “minimal sentences” which can and must be combined to create the equivalent of meaningful sentences used for completing a given *textual gap* to fill. They do this by triggering inputs which transfers on the expression plane (typically through audiovisual representation) and thus the very same act of pressing a button become the equivalent of a *linguistic execution* or a *linguistic act* belonging to the individual. Of course, the differences with the actual verbal language are many (and faced in detail in chapter 3) but they are extremely interesting and actually the only way to understand the possibilities for players to be “creative” and create new meanings. Indeed, they all follow the principle of the *parole* as “poggiante su una scelta dello stesso individuo, dei suoi comportamenti linguistici e del suo significare.” (De Mauro, 1970, 186) in relation to a pre-existing system and of his communicative goal. It is thus to understand the “meaningful acts” observable in the gameplay footage of a virtual reality, that we have focused on the Saussurean concepts of the peculiar “double articulation of the human language” and more generally on the characteristic combinatory rules of language which is strictly connected with both subjectivity and creativity.

“In quanto semiotica non-creativa che combina unità date e fisse secondo certe regole, in modo sistematico, e però anche in quanto semiotica non non-creativa, che ammette l'abbandono di vecchie forme e l'introduzione di nuove, una lingua comporta il convergere di diverse forme generali, pre- e non linguistiche, dell'intelligenza umana: l'intelligenza combinatoria, naturalmente, e l'intelligenza propriamente creativa, capace di produrre e intendere ciò che sia radicalmente nuovo. Ma l'una e l'altra forma di intelligenza non sussisterebbero senza un'altra capacità e intelligenza: la capacità di mimèsi, l'imitazione. Senza capacità imitativa non si entra in una lingua, né in altre semiotiche, e non la si domina.” (De Mauro, 2011, p.80)

Finally, the very premises of our approach to textual analysis, the search for relations between signifiers and signified creating meaning and values inside a given independent system, are of course all found in Saussure's work and the very heart of structuralism.

“Il valore e, quindi, in via subordinata, il significato di una parola è interamente in funzione del sistema di cui la parola è parte. Saussure non ha e non vuole lasciare dubbi su questo punto. « Nessun sistema è rigidamente chiuso (serré) come la lingua: rigidamente chiuso implica precisione dei valori (la minima sfumatura cambia le parole); molteplicità dei tipi di valori ; molteplicità immensa dei termini, delle unità in gioco nel sistema; reciproca e stretta dipendenza delle unità (di tutti i termini) tra loro; tutto è sintattico nella lingua, tutto è sistema » (Saussure, 1 908-9, p. 69).” (De Mauro, 1970, p.147)

“(Un signe... dépend d'un système de signes - voilà ce qui est négligé – tous les signes sont solidaires .) Toutes les grandeurs dépendent les unes des autres (Saussure, 1908-9, p. 20). » (De Mauro, 1970, p.171)

Although without falling into the “anti-sociological fallacy” of past interpretations of Saussure:

“Le système de signes (tend toujours à trouver ce milieu où seulement il vit), est fait pour la collectivité, comme le vaisseau est fait pour la mer. C'est pourquoi, contrairement à l'apparence, à aucun moment le phénomène sémiologique ne laisse hors de lui le fait de la collectivité sociale. Cette nature sociale (du signe) c'est un de ses éléments internes et non externes. Nous ne reconnaissons donc sémiologique que la partie des phénomènes qui apparait caractéristiquement comme un produit social... (Saussure, 1908-1909, pp. 25-6).” (De Mauro, 1970, p.175)

With profound consequences on the idea of *value* itself:

“Viene così qui in luce il secondo aspetto per cui le considerazioni del secondo corso di linguistica generale del Saussure meritano rilievo : accanto alla concezione in cui il valore del segno, cioè la sua identità formale e semantica, è affidato interamente ed esclusivamente al sistema, si profila in queste considerazioni una nuova concezione che, nella determinazione dell'identità del segno, fa intervenire una seconda « variabile” e cioè la società.” (De Mauro, 1970, p.176)

Which is also why it is fundamental to always consider the transcendental value of the value in a Saussurean perspective:

“ Un valore per Saussure è infatti sempre definito da due dimensioni, *entrambe puramente differenziali e relazionali*. La prima dimensione in cui consiste un valore risiede infatti nella sua corrispondenza con delle entità *esterne* al sistema all'interno del quale è considerato. Per esempio il valore di un pezzo cinque franchi è determinato dal fatto “che lo si può scambiare con una determinata quantità di una cosa diversa, per esempio con del pane” (CLG, p.140) . La seconda dimensione consiste invece nelle relazioni che un valore contrae con altri valori *interni* al sistema di cui è membro. Per esempio “lo si può confrontare con valore simile del medesimo sistema, per esempio un pezzo da un franco, o con una moneta di un altro sistema (un dollaro).” (CLG, p.140). Queste due dimensioni relazionali, una trascendente e l'altra immanente al sistema considerato, sono entrambe costitutive della nozione stessa di valore: un valore si dà solamente quando è scambiato con un “fuori” e confrontato con un “dentro” del sistema di cui è parte [...]” (Paolucci, 2010, p.39).

Summing up Saussure’s legacy in our work, we can say that our perspective acknowledges:

- A multifaced conception of language and meaning
- A particular interest for how language is used to express meanings which are then interpreted inside a given community
- A view of linguistic expression as the result of combinatory mechanics between “present” and “absent” elements
- A dualistic conception of how signs are able to mean (signifiers and signified)
- A differential conception of meaning as occurring inside a given system
- A relational conception of identity and value (as a consequence of the previous point)
- A structure in which the relationships granting meaning are simultaneously immanent and transcendent
- An interdependence between language, meaning and society

1.3.2 Barthes

Another fundamental author behind our work is Roland Barthes, and the first key perspective we will adopt is his claim about narration being a sort of anthropologic characteristic of mankind upon which societies and cultures grow (1966). Barthes' idea was that we can only look at what we call "reality" through narrations, both because we are born in a world of already written narration and because narration is in some way how we make sense of things. An idea which implies a subsequent perspective very important to us and that is that staring directly at reality is thus impossible for the reason that our own gaze is somehow shaped by narration themselves: we cannot just look at things for how they simply are, we are somehow naturally and culturally doomed to a *surplus* of signification (an idea that we can also find in Volli, 2008) in interpreting the world. Rather than being a cognitive characteristic of mankind, however, for Barthes this "surplus" and "mediation" is historically and socially determined both in its forms and contents. Additionally, this condition is proper of language and of signs which can, as a consequence, be understood through the main axioms of Saussure's structuralism and through Hjelmslev's idea of the form creating linguistic substances. This is properly what Barthes refers to as an *isology* (1964/2002, p.33) or ideology (1982/2001, p.38) which is not simply an issue of proposing some specific values (such as the one of the bourgeoisie) in a cultural object (which is inevitable in any narrative) but which is more specifically the issue of the influence of the political and economic dominant *status quo* in the recurrence of forms and contents shaping the narration we live in and live by (which is what was and is still not understood by scholars criticizing Barthes for being as ideological). The drama of language, for Barthes, is precisely that the world always makes sense since the virtual system of language also produces the *parole* through which we think and speak as individuals, hence the *fascism* of language. Although these could seem concerns that are proper of other disciplines such as anthropology or sociology, what Barthes did was to use the linguistic paradigm to deconstruct the invisible narrations of a wide variety of cultural objects into combinations of signs, but intended in the structuralist way: as *obvious* superficial elements of expression that acquire meaning through *difference* connected to an invisible/mental level of content determined by cultures and languages working on the axes of paradigms and syntagms. An invisibility which is related to the fact that some things are for us so *natural*, so self-evident, that we tend to forget that they are so because they have been *naturalized*. Barthes' problem was therefore situated on the side of semantics since a signifier could and would be doomed, inside a given culture, to be related with different kinds of signified: which gave birth to the well-known opposition between denotation and connotation (1964/2002, pp.73-74) and is defined by our author as the essence itself of the "myth" (1957, p.183). Furthermore, this problem does not only concern the single words of a language but more extensively also the communicative forms established through and by history, such as the one of the novel (1953/1972, p.32). Which brings Barthes to focus on the issue of the *rhetoric* as a particular logic of meaning-making (1964/2002, p.75) and which is also sensible to the different substances of its signifiers (1982/2001, p.39), working as an ideology of the form superior to the ideology of the contents (1970/2011, p.10). This intellectual move makes it so that linguistics and narratology become somehow preferential ways of studying social and cultural meaning conveyed through different systems of signs. Barthes' perspective becomes consequently not only a new approach on meaning, focused on what was almost ignored by the previous critical inquiry that was almost discarding the obvious and more superficial level of the text, but also a proposal for cultural critique that was no more centered on the author (1967&1973 p.45). Without completely endorsing such view (as we will see with Eco), this perspective is of extreme value for us since the problem of how a given content can be conveyed in a virtual reality is at the very heart of our reflection.

Secondly, the other important and very different work of Barthes which guided our reflections is his 1973 “Le Plaisir du Texte”. The main reason for such choice is that the absence of interest for the pleasure of playing in virtual realities is the elephant in the room of most of semiotics work on my topic of research. Almost as if such pleasure was too shameful to mention or not worthy of attention. Therefore, confirming a certain intellectual tradition and obscurantism highlighted by Barthes:

« Un Français sur deux, paraît-il, ne lit pas; la moitié de la France est privée — se prive du plaisir du texte. Or on ne déplore jamais cette disgrâce nationale que d’un point de vue humaniste, comme si, en boudant le livre, les Français renonçaient seulement à un bien moral, à une valeur noble. Il vaudrait mieux faire la sombre, la stupide, la tragique histoire de tous les plaisirs auxquels les sociétés objectent ou renoncent : il y a un obscurantisme du plaisir. » (p.74)

« [...] le plaisir est dicible, la jouissance ne l’est pas. La jouissance est indicible, interdite. [...] La critique porte toujours sur des textes de plaisir, jamais sur des textes de jouissance. » (pp.36-37)

And, even more interestingly, the reason for which such obscurantism exists can be found in the very epistemology of semiotics since pleasure is a form of meaningfulness implying the crisis and death of language (p.15), something that cannot be fully understood by following the logic of grammar and of the sentence, which are in semiotics the very ground of the most rigorous Greimasian tradition of textual analysis, which are ideologic.

Le plaisir du texte serait irréductible à son fonctionnement grammairien (phéno-textuel), comme le plaisir du corps est irréductible au besoin physiologique. » (p.29)

“La Phrase est hiérarchique: elle implique des sujétions, des subordinations, des rections internes. De là son achèvement : comment une hiérarchie pourrait-elle rester ouverte? La Phrase est achevée; elle est même précisément : ce langage-là qui est achevé. La pratique, en cela, diffère bien de la théorie. La théorie (Chomsky) dit que la phrase est en droit infinie (infiniment catalysable), mais la pratique oblige à toujours finir la phrase. Prenons aussi cette proposition de Julia Kristeva dans son envers : tout énoncé achevé court le risque d’être idéologique. On dirait que la société (la nôtre) refuse (et finit par ignorer) tellement la jouissance, qu’elle ne peut produire que des épistémologies de la Loi (et de sa contestation), jamais de son absence, ou mieux encore : de sa nullité.” (p.80)

Finally, the metaphors used by Barthes to talk about this unspoken pleasure are almost all related to the body and the reader’s sensoriality understood as a form of sensuality, which is another interesting point for our object of study in which *feelings* are a fundamental part.

“Quel corps? Nous en avons plusieurs; le corps des anatomistes et des physiologistes, celui que voit ou que parle la science: c’est le texte des grammairiens, des critiques, des commentateurs, des philologues (c’est le phéno-texte). Mais nous avons aussi un corps de jouissance fait uniquement de relations érotiques, sans aucun rapport avec le premier: c’est un autre découpage, une autre nomination; ainsi du texte : il n’est que la liste ouverte des feux du langage. » (p.29)

« Il suffit en effet que le cinéma prenne de très près le son de la parole (c’est en somme la définition généralisée du « grain » de l’écriture) et fasse entendre dans leur matérialité, dans leur sensualité, le souffle, la rocaille, la pulpe des lèvres, toute une présence du museau humain (que la voix, que l’écriture soient fraîches, souples, lubrifiées, finement granuleuses et vibrantes comme le museau d’un animal), pour qu’il réussisse à déporter le signifié très loin et à jeter, pour ainsi dire, le corps anonyme de l’acteur dans mon oreille : ça granule, ça grésille, ça caresse, ça râpe, ça coupe : ça jouit. » (p.105).

Summing up, Barthes’ influence on our work can be clearly seen in:

- The idea of narration as a way to understand the world and of simulating reality
- The correlation between narration and language
- The many linguistic aspects of non-properly linguistic signs
- The perspective of rhetoric as a form of logic used to make some claims
- The interest for the dimension of the pleasure of virtual realities
- The critical dimension of our work from a cultural point of view
- The conception of meaning as something separated from the author’s intention

1.3.3 Greimas

The third author is Greimas. Interestingly enough, what we share with this author is first of all a kind of interdisciplinary preoccupation which was perhaps somehow lost by his own school. In fact, both in the introduction of *Sémantique Structurale* (1966/2002, pp.7-8) and of *Du Sens* (1970) he shares with the reader his concern about “dissatisfying everyone” by being too formal for the humanists but not enough for the mathematicians and logicians. This concern is also rather explicit when the author describes the problem of semantics which must be perfectly integrated inside linguistics but at the same time must aim at a certain degree of generality so that its methods can be used by any other research on signification (1966/1986, p.7). Now such concern would not make sense, of course, if his semiotic theory was not meant to dialogue with (and satisfy, in his own words) other and very different disciplines. A problem and goal which was extremely reasonable in his context since his semiotics was born from structural linguistics that he described as a “pilot discipline” with a leading role similar to the one of psychoanalysis and sociology in the past (1966/1986, p.5). So, since all eyes were on structural linguistics then they would inevitably be too on structural semiotics. In this sense, his “obsession” with jargon and formalism (up to the creation of a shorthand language) was absolutely reasonable: Greimas was undoubtedly hoping for his semiotics to be similar to mathematics for both accurateness (escaping thus the ambiguity of verbal language) and flexibility of application. In his own words semiotics is a *methodology for human sciences* and in some sense this is precisely what our thesis wants to offer: a methodology for any inquiry on virtual realities interested in meaning and culture. Yet, we have no evidence to think that he was confusing the theory of mathematics with a theory of everything and so that he was conceiving his Semiotics, in the long-term, as an independent and self-sufficient theory to study meaning in all his complexity. On the contrary we have very good reasons to think that a Semiotics which is not interdisciplinary and which is not used by human sciences, is not greimasian and would have been conceived as a failure by this important father of our field of research. Despite the academic context being drastically different, we also wish for our work to be similarly useful and we also fear that, instead, it will be disappointing for many.

Secondly, with his theoretical model of narrativity refined in 1970 as an immanent grammatical model of narration which is independent from the substances (p.168), Greimas will be fundamental for the formal analysis of digital games as both texts and experience. Somehow coherently with Barthes’ view, one of the most precious idea of Greimas was, following the footsteps of Levi Strauss, that the narrative components and linguistic structure that we can find in cultural artifacts can be thought as a model to understand how, as humans, we shape experience and cut out sense. Whereas Barthes’ idea of narration was extremely broad, the greimasian narrativity is extremely advantageous from an analytical point of view since it is on the contrary very specific. The component of Greimas’ narrativity, taken from Structuralism and Formalism and blended, are indeed few and particular, but can nonetheless be found in a great variety of objects and even behaviors (Floch, 1990/2002). Even more interesting, this model of narrativity is strictly connected, starting from the terminology, with the theme of *destiny*. These characteristics are why we will use narrativity as one of the key dimension of meaningfulness, effectively explaining meaning-making in digital simulations as the effect of a mirroring narrativity between the textual level and the experiential level of the player.

Finally, we will also use Greimas' semantics to some extent as invaluable part of the content analysis and as in continuity with Saussure's perspective. Indeed, for him signification cannot occur, and the world would have no shape, without the perception of a *différence* : of two object and their relation (1966/1986, p.19) intended as conjunction and disjunction (p.20) on a common semantic axis (p.21) or category (p.28). Therefore, the idea of deconstructing significants of any kinds (such as visual and verbal, but also sensorimotor as we will explain) in their inner conceptual semes and semantic categories will be useful. This deconstruction will of course be sensibly different since the object of study of Greimas and its final aim are different from ours: while he was studying and describing a natural language, here we are trying to understand why players enjoy fighting games. Nonetheless, this usage will allow us to give a central place to the idea of *isotopy* intended by Greimas as a recurring textual element both disambiguating meaning (p.70) and grounding it through repetition (pp.69-72) on the level of the discourse. Indeed, in our view isotopies between the different levels of meaningfulness in games are what can tighten and secure the meaning of a given text despite its unlimited possible occurrences. Both narrativity and isotopies will consequently be the precious theoretical and methodological instruments to fulfil the Barthesian-like inquiry on the values conveyed and the proposed view of the world of a particular game.

Summing up, the legacy of Greimas in our work can be found:

- In the intent of creating a methodology of textual analysis which, thanks to a certain abstraction and formal approach, can be used by different disciplines and for different purposes.
- In the idea of narrativity as a key perspective to understand how we make sense of reality and consequently in the methodological adoption of his approach to a grammar of meaning based on a syntagmatic of events and on oppositions.
- In the adoption of a perspective for which the repetition of certain semantic and semic entries (isotopy) inside the text has a fundamental role in the stability of meaning and conveying of a "theme".

1.3.3.1 Additional notes on Greimas

All these points could suggest that our work is strongly inspired and loyal to a greimasian and structuralist perspective on meaning, but actually it is not. Greimas' work, at least from *Sémantique Structurale* of 1966 to *Du Sens II* in 1972 and its most notorious application in the 1976 analysis of *Deux Amis*, could be defined as an attempt at an *ipo-deterministic model of sense*. Greimas strenuous reflection was seemingly aimed to fight against the natural *entropy* of language and meaning, using an extremely complex, rich and versatile theory (structuralism) to limit the issues while reducing all the variables of meaning to the one of the texts, what he called the "datité" (and took once again from the linguistic methodology) and was his epistemological and heuristic safety anchor. Since structuralism was epistemologically secured and founded on the language as object of study, the decontextualized text, a direct occurrence of language, in his view could be rightfully analysed by a structuralist semiotic. Of course this couldn't happen without somehow flattening meaning itself, so much that the greimasian square has become sadly famous for making different cultural artifacts look all alike and that works like "la soupe au pistou" could be used, if abruptly taken outside of such attempt and epistemological preoccupation, as an argument in favour of deconstructivism.

Starting from this reasonable choice, Greimas forcefully made its way to meaning through what he believed to be the most scientific and heuristic way to inquire on it. However, meaning is one of the most sensible arguments for humans, a kind of irreducible and unexplainable religious belief shared by all mankind, and we do not like very much to see it reduced and schematized. But differently from many other authors, Greimas was perfectly aware of the complexity of meaning and communication, and so should not be blamed as if he had been blind in front of what was obvious. This awareness and research project can be seen in several pages of his first work :

“ Cette recherche, pour nécessaire qu’elle soit, ne doit pourtant pas nous faire oublier que la communication humaine n’est pas, comme certains le prétendent, univoque ni unilinéaire. » (1966/1986, p.96).

And especially when reflecting on the semic stability of lexemes:

“ Le lexème est le lieu de manifestation et de rencontre de sèmes provenant souvent de catégories et de systèmes sémiologiques différents et entretenant entre eux des relations hiérarchiques, c’est à dire hypotaxiques. **Mais le lexème est également un lieu de rencontre historique. En effet, malgré son caractère figé, le lexème est de l’ordre de l’événement et se trouve, comme tel, soumis à l’histoire.** Cela veut dire que , au cours de l’histoire, les lexèmes s’enrichissent de nouveaux sèmes, mais que cette même histoire, c’est à dire, à l’extrême, l’écart qui sépare un procès de communication de l’autre (car la diachronie peut comprendre les durées de 5 secondes tout aussi bien que de 5 siècles) peut vider les lexèmes de certains de leur sèmes. [...] Le lexème nous apparaît dès lors comme une unité de communication relativement stable, **mais non immuable.** » (p.38, my bold)

Finally, the inquiry on semantics also touched the theme of possibilities of freedom in the enunciations of the discourse (p.31) and in the same page Greimas also tackle with the problem of what he considers two faced madness of communication, resulting in the end of meaning and information: the total freedom of discourse and a totally socialized language used indistinctively and iteratively (p.31). Despite all the good reasons of Greimas’ approach, and once again underlining how his care for righteousness was without a doubt something that should be praised, we however cannot share such a research project on meaning.

First if all because Greimas’ goal is explicit (p.13) and very different from ours: in his view semantics is a method to describe, through a scientific metalanguage (p.15), a natural language intended as a closed systems of relations between signified and signifiants (*ensemble signifiant*). Secondly, because once structuralism has been interdisciplinary abandoned and even criticized within linguistics itself (as we have seen with the example of Tullio de Mauro) then the very same epistemological ground of a structuralist semiotic is shaken: the limitations imposed by it loses their heuristic purpose and meaning. Thirdly, since in this thesis we are proposing for Semiotics to shift from meaning making to meaningfulness, we cannot exclude all the elements absent from the greimasian perspective: and especially the interest for the pragmatic aspects of communication (D’Armenio, 2019). In fact, when shifting the object of study from meaning-making to meaningfulness, all these different languages and sensible signifiants also require a theory of the different sensible and cognitive means through which this content is accessed and processed. Moreover, this is also why we cannot agree on the idea that natural languages can translate any other forms of meaning, and thus on the centrality of the structure of natural language to study meaning in general (an idea that we can also find in Lotman’s concept of *model*). It is true that, following Greimas’ example, the art critique can talk about a painting by translating it (1966/1986, p.12), yet it is also true that it is very unlikely and counterintuitive to think that a writing could convey all that is conveyed and experienced when we *look* at a painting. Nonetheless, strongly believing that semioticians should not confine themselves in specific schools of semiotics (the greimasian, the Peircean, and so on), Greimas will be strongly present in our work which took on not only his metalinguistic terms and tools but also his own epistemological preoccupation.

1.3.4 Eco and Peirce

Umberto Eco is the last and the most frequently mentioned author in this thesis, both for his own works and for the way in which he offered a Peircean perspective on the problem of meaning. Toward this author our debt is so great that it is extremely hard to choose where to start, so I suggest beginning with my very initial definition of virtual realities as software based cultural artifacts witnessed through computational means presenting an *aesthetic of indeterminacy*. Already there we can of course see his influence, and in particular of his *Opera Aperta*. Indeed, what Eco defined the “poetics of indeterminacy”:

“una autonomia esecutiva concessa all’interprete, il quale non è soltanto libero di intendere secondo la propria sensibilità le indicazioni del compositore (come avviene per la musica tradizionale) ma deve addirittura intervenire sulla forma della composizione, spesso determinando la durata delle note o la successione dei suoni in un atto di improvvisazione creativa”. (p.31).

Such perspective is a key point to understand virtual realities. Indeed, the first example made by Eco is precisely a work in which the interpreter has a combinatory freedom to put together premade musical phrases, something extremely similar to what we have already seen with the premade minimal enunciations which inspired us to compare the gameplay with the Saussurean *parole*. Likely, in his third example about Pousseur “Exchanges” the work is defined as *a field of possibilities* (p.32) and it is imagined that *the audience at home* can itself use his own imagination to enact such composition. Going further into the book, the successive examples he makes even considers the idea of an *effort* (a key term that we will find in Espen Aarseth’s theory of games) of the audience/user (p.95) toward an experiential “fulfilment”(p.194) and of a motor-physical involvement also including a degree of agency (155) to *witness* the multiplicity of meaning by itself. Eco describes all these works as :

“ queste nuove opera musicali consistono invece non in un messaggio conchiuso e definito, non in una forma organizzata univocamente, ma in una possibilità di varie organizzazioni affidate all’iniziativa dell’interprete, e si presentano qui non come opere finite che chiedono di essere rivissute e comprese in una direzione strutturale data, ma come opere “aperte”, che vengono portate a termine dell’interprete nello stesso momento in cui le fruisce esteticamente” (p.33).

Putting aside the intended and expected complexity of meanings deriving from this, we would hardly find a better functional definition of what videogames are, and indeed the comparison with games follows immediately two pages after:

“ detto volgarmente, sono opera “non finite” che l’autore pare consegnare all’interprete più o meno come i pezzi di un meccanismo, apparentemente disinteressandosi di come andranno a finire le cose.” (p.35).

And if we think that such a definition was given precisely 10 years before *Pong*, we can only be amazed by what such a semiotic perspective can do. Now, Eco itself immediately right after highlight that this impression is paradoxical and inexact. In fact, despite the appearances :

“ L’opera in movimento, insomma, è possibilità di una molteplicità di interventi personali ma non è invito amorfo all’intervento indiscriminato : è l’invito non necessario né univoco all’intervento orientato, ad inserirci in un mondo che tuttavia è sempre quello voluto dell’autore”(p.58).

Moreover, Eco clearly states that this new form (second degree in his words) of openness is not directly equivalent to an increase of meaning but rather of information (p.93) . Which, once again, is a statement extremely accurate when we realistically think of games, cultural artifacts which are certainly not famous for their intellectual complexity or endless possible meanings.

However, Eco highlight that it is interesting to inquire not only on the formal characteristics of such cultural artifacts but also on the cultural reasons behind such a shift (against *necessity*, p.35) which, back in the 60's, belonged to the artistic avant-garde and is the now common characteristic of the mass entertainment. Indeed for Eco:

“ogni forma artistica può benissimo essere vista, se non come sostituto della scienza, come metafora epistemologica: vale a dire che in ogni secolo, il modo in cui le forme dell'arte si strutturano riflette – a guisa di similitudine, di metaforizzazione, appunto, risoluzione del concetto in figura – il modo in cui la scienza o comunque la cultura di un'epoca vedono la realtà [...] Per cui non sarà azzardato ritrovare nella poetica dell'opera “aperta” (e più ancora dell'*opera in movimento*), dell'opera che a ogni fruizione non risulta mai uguale a se stessa, le risonanze vaghe o precise di alcune tendenze della scienza contemporanea” (pp.50-51).

For Eco the “open work” is a direct consequence of the crisis of the principle of causality together with the crisis of the dual logic between true and false (p.52; p.159); which also correspond to a new psychological attitude:

“La ricerca di una apertura di secondo grado, dell'ambiguità e dell'informazione come valore primario dell'opera, rappresentano il rifiuto di una inerzia psicologica come contemplazione dell'ordine ritrovato. Ora l'accento si pone sul processo, sulla possibilità di individuare molti ordini.” (p.147).

“ogni esecuzione la spiega ma non la esaurisce, ogni esecuzione realizza l'opera ma tutte sono complementari fra loro, ogni esecuzione, infine, ci rende l'opera in modo completo e soddisfacente ma al tempo stesso ce la rende incompleta poiché non ci dà assieme tutti gli altri esiti in cui l'opera poteva identificarsi” (p.52).

And this statement is fundamental to understand the cultural relevance of digital games and virtual realities, which are precisely this: texts where is both true and false that Mario saves princess Peach and where the main value is the multiplicity of ways in which Peach's rescue can be attempted and failed. But perhaps even more importantly the open work is not a “story” about the new state of the world but *a direct experience of it*:

“in un mondo in cui la discontinuità dei fenomeni ha messo in crisi la possibilità di una immagine unitaria e definitiva, essa suggerisce un modo di vedere ciò in cui si vive, e vedendolo accettarlo, integrarlo alla propria sensibilità. Un'opera aperta affronta appieno il compito di darci una immagine della discontinuità: non la racconta, *la è*.” (pp.163-164).

Virtual Realities, from the early arcade videogames of the 1970 to the most recent VR games, are precisely interesting for this and cannot be fully understood without such a perspective. Concordantly, for Eco such a shift in the *usage* of open work is so fundamental that it goes far beyond the problem of aesthetics itself:

“Ma questa nuova pratica fruitiva apre in effetti un capitolo di cultura ben più vasto, ed in questo non appartiene solo alla problematica dell'estetica. La poetica dell'opera in movimento (come in parte dell'opera “aperta”) instaura un nuovo tipo di rapporti tra artista e pubblico, una nuova meccanica di percezione estetica, una diversa posizione del prodotto artistico nella società; apre una pagina di sociologia e di pedagogia, oltre che una pagina della storia dell'arte. Pone nuovi problemi pratici creando situazioni comunicative, instaura un nuovo rapporto tra contemplazione e uso dell'opera d'arte”. (p.63).

Now, these points will of course not be used to claim that Joyce's *Ulysses* and *Fifa2020* are the same. But rather that they share similar characteristics and profound differences which must be understood under the light of history and culture. More specifically, we will see that while almost all Eco's example presents a certain degree of semantic ambiguity (90) creating possibilities of the unexpected and defying the obvious, most virtual realities almost only present syntagmatic ambiguity and, through game design, *valorize the expected* and pragmatic emotions (82). Nonetheless, without Eco's perspective it would have been impossible for us to grasp these very differences.

Moving from there, the concept of *hyper-iconism* coming from Volli (2020) is once again a clear evidence of Peirce's influence through Eco but is also directly linked to another of his concept: the one of *possible world* as exposed in his *Lector in Fabula*. In fact, it is precisely through Volli's reflection and critique that in 3.3 we will come to rethink such concept under a different light and yet still pointing at the fundamental topic of the believability of a fictional world in terms of continuity between the reader's world and the virtual one. Which brings us to the other extremely important part of the definition of virtual realities as a in text in which the reader "has a primarily role in the co-production of the utterances constituting the expression plane and the narrative layer of meaning". Obviously, our idea of co-production is directly linked the Eco's interpretative cooperation (1979):

"Il testo è dunque intessuto di spazi bianchi, di interstizi da riempire, e chi lo ha emesso prevedeva che essi fossero riempiti e li ha lasciati bianchi per due ragioni. Anzitutto perché il testo è un meccanismo pigro (o economico) che vive sul plusvalore di senso introdotto dal destinatario, e solo in casi di estrema pignoleria [...] E in secondo luogo perché, via via che passa dalla funzione didascalica a quella estetica, un testo vuole lasciare al lettore l'iniziativa interpretativa, anche se di solito desidera essere interpretato con un margine sufficiente di univocità. Un testo vuole che qualcuno lo aiuti a funzionare. [...] un testo postula il proprio destinatario come condizione indispensabile non solo della propria capacità comunicativa concreta ma anche della propria potenzialità significativa."(pp.52-53)

and simply adds the characteristic of producing tangible utterances as a consequence of the player's choices and inputs. An addition which has been done somehow "safely" since Eco himself uses an explicit reference to both games and generative mechanisms:

"Possiamo dire meglio che un testo è un prodotto la cui sorte interpretativa deve far parte del proprio meccanismo generativo : generare un testo significa attuare una strategia di cui fan parte le previsioni delle mosse altrui – come d'altra parte in ogni strategia. Nella strategia militare (o scacchistica, diciamo in ogni strategia di gioco) lo stratega si disegna un modello di avversario."(p.54)

Simply put, Eco's blank spaces are metaphorical, which is also why textual cooperation occur between strategies (not individuals, p.63) and are grounded in the virtualities of the sentence (p.62), while in game they are not and we must take account of an individual act leaving *traces* and determining part of the expression level. Thus, we will introduce the concept of an *enunciative cooperation* (or co-enunciation) between user and author, which is required by virtual realities of all kinds, and that when done will need be subjected to the interpretative cooperation. But more than this, the true influence of the *Lector in Fabula* resides in its political value and our interest for the player's productions (enunciation) and interpretations in relation to the *intentio operis* rather than with the auctor, which is once again a distinctive trait of our work in respect to the previous semiotic literature on digital games. A distinctive trait which comes from Eco not only from the point of view of the interest and importance of the reader but also of how such interpretations are always guided and limited (1990/2011).

But even our idea of enunciation actually comes from Eco's perspective of enunciation as an intersubjective act used to express subjectivity. A solution which is also an alternative to Barthes already exposed "pessimism". Such a view was of course possible only thanks to Claudio Paolucci's reconstruction of this theory which was not an explicit one and that could be unknown to most semioticians. Abandoning the reductive (Violi 2007) conception of Benveniste, Eco's theory of enunciation is instead grounded on the relationship between and the Subject and the Encyclopedia:

"Siamo, come soggetti, ciò che la forma del mondo prodotta dai segni ci fa essere. [...] Solo la mappa della semiosi, come si definisce a un dato stadio della vicenda storica (con la bava e i detriti della semiosi precedente che si trascina dietro), ci dice chi siamo e cosa (o come) pensiamo. La scienza dei segni è la scienza di come si costituisce storicamente il soggetto. (Eco, 1984, p.54 in Paolucci, 2010, p.452).

To some this quote could seem rather deterministic, almost implying that people living in a same historical period have to think all in the same way and that, consequently, subjects, as we euphorically consider it in its vest of unicity, does not and cannot exist. But those acquainted with Eco know very well that “the form of the world produced by signs” and the “map of the semiosis” can actually be understood as Eco’s *Encyclopedia*. And the most important feature of it is precisely that the general encyclopedia of a given historical moment includes different versions and interpretations of the world, very often conflicting between them. So in Eco’s view we are subjects determined by signs because in 2020 we must necessarily think of the earth in terms of both accessible possibilities and “theories”, because we have been “forcefully” nourished by a diversity of “texts” (newspapers, memes, scientific researches, movies, schoolbooks, conversations with friends, websites, desktop globes, verbal expression such as “all around the world”, etc.) presenting to us these views and, at some point, we will have to make a choice, to make something *belonging to other as something that is our own*. This view allows to complete the usage of Saussure’s distinction between *Langue* and *Parole* to explain the production of utterances in digital games and virtual realities. In fact, *Parole* and effect of subjectivity (and even identity) are tightly interconnected: both for the distinctive freedom of the *parole* and for expressive function which is innate in any linguistic utterances, implying in Tullio de Mauro’s word “I am here”²⁵. This was precisely at the origin of Barthes drama. In this regard Eco position offers not only a philosophical solution but also a very concrete tool for analysis in understanding that the co-production of utterances, made by combining “chunks” of encyclopedia that does not belong to him, is actually a way for a player to express his own *version* of the world and *presence*.

Presence is of course a central part of the experience of virtual realities and a central topic of the research on them but is usually faced from the point of view of the senses, perception and cognition. And once again here Eco’s influence is evident in our interest for such aspects of meaning-making since we defined the player as someone “who can and often must verify by himself the causes, properties, states and possibilities related to these object and events which are accessed and acted upon through prostheses simulating a phenomenological continuity and producing consequently an hybridization between linguistic and non-linguistic forms of subjective and intersubjective access to reality that ends up in being interpreted as a first-person experience.” Indeed, in a wonderful interview of 2006 he was extremely clear, and I would add happy (his laughter and smile are unequivocal), about the importance of semiotics and cognitive sciences working together on the topic of the mind toward the goal of a theory of knowledge²⁶ (right at the opposite of Greimas). The key work of reference here is of course *Kant and the Platypus*, from which we (as many before us) have taken the central notion of “prosthesis” as well as the title for our work. But this interest in the theme of “intelligence” and cognition is actually far from belonging exclusively to the last years of Eco. Not only it is interesting to see how a key concept of his *Lector in Fabula*, the one of “frame” (p.78), comes from the researches in artificial intelligence (and several authors interested in cognition and AI are referenced such as Eugene Charniak, Roger Schank and Winston Patrick), but already in the *Trattato* his well-known semantic model Q comes from the perhaps less known Ross Quillian who was precisely working on cognition and artificial intelligence. Furthermore, some issues about perception and phenomenology are also faced in his 1962 *Opera Aperta* (p.54) and of course we can see here once again Peirce’s shadow in the interest for a theory for the mind.

²⁵ Originale: “Chi parla dice, qualsiasi cosa dica, io sono qui”. Min 33.20-33.30 Tullio de Mauro, vedendo il linguaggio e chi lo usa, Conferenza Nuovoeutile - 2016

²⁶ 6.20-6.40 & 24.34-24.54

As we have seen the direct influence of both Eco's perspective and terminology is massive, and yet there are at least four other points which are more general that still need to be pointed out.

The first one, and in continuity with many of the previous authors, is the transdisciplinary goal of this thesis which is a direct consequence of Eco's approach. In his 1975 "Trattato di Semiotica Generale" the first pages already present the problem of the semiotic imperialism and boundaries. Pages in which Eco already talks about what we have criticized and claimed as one of the reasons behind the crisis of semiotics, namely the tendency of translating everything into semiotics and metaphors (1975/2013, p.16). But more importantly, Eco's works are an incredible example of interdisciplinarity where philosophy, linguistics, phenomenology, narratology, cognitive sciences, mathematics, anthropology, aesthetics, and psychology are all mentioned and fruitfully used. Differently from Greimas who took inspiration from many disciplines to create a unique methodology *super partes* inquiring on meaning in an exclusive way, Eco conceived Semiotics as a part of many other disciplines inquiring on knowledge and culture (going so far as to claim that semiotics was the contemporary form of philosophy), sharing some of the same issues but examining them from a unique perspective offering additional and complementary answers. In this sense Eco's relation with other disciplines was strongly "dialogic" and cooperative. One single example here should clarify what we mean: in his 1962 "Opera Aperta" when faced with the problem of meaning and openness he almost immediately chose to look into psychology to find the roots of our tendency and pleasure to complete unfinished work (p.138), and only successively proposes his own theory which includes the psychological findings that he previously examined. Finally, this interest for the collaboration with different disciplines was of course also valid for the collaboration inside semiotics: let's think of Eco's recognition of the importance of Greimas work in *Lector in fabula* (1979/2013, p.176) and at the conciliative nature of Eco's "interpretative" tradition (Paolucci, 2007, pp.46-47 & 2010). Indeed, by looking at Eco's production it seems that each book is almost a critique of the previous, and that really defines "Eco's semiotics" is first of all Eco's critical attitude toward semiotics.

The second one is the interest in communication as an important part of semiotics, indeed we will use the concept of *entropy* and talk about communicative values of interactions to explain in what sense digital games and virtual realities are communicative artifacts and to explain the value of their contents and pragmatical meaning of the user's interaction. Although this point may seem almost trivial and granted, actually it is not. In fact, while in his 2019 paper "Dai sensi ai dati. Le protesi audiovisive tra percezione ed enunciazione", Enzo D'Armenio affirmed that:

"Nell'epoca del loro pieno sviluppo, le discipline interessate alla comunicazione e quelle interessate alla significazione si ponevano in netta contrapposizione. Da un lato, le teorie dei media erano interessate al modo in cui le tecnologie cambiano la società e le relazioni che la animano; dall'altro, la semiotica di matrice strutturale si costituiva come una teoria dei discorsi interessata ai contenuti e ai valori circolanti nella cultura.[...] Secondo Greimas la comunicazione e l'informazione dovevano essere reinquadrati alla luce di una scienza della cultura, in cui il posto più importante spettava alla significazione, a cui doveva seguire l'edificazione di una sociosemiotica: una semiotica che, partendo dagli universi discorsivi – desunti da corpora di testi prevalentemente verbali – potesse descrivere il senso di una società. Veniva insomma a costituirsi un'opposizione tra teorie della comunicazione e teorie della cultura: le prime si caratterizzavano per un approccio che andava dal generale al particolare – dalle evoluzioni tecno-culturali più inclusive verso gruppi di relazioni locali – mentre le seconde si affidavano a un approccio inverso – dalla particolarità dei contenuti discorsivi ai valori che abitano le culture. Per ciò che concerne la semiotica contemporanea, l'opposizione tra comunicazione e significazione è stata implicitamente superata con lo sviluppo pieno di una sociosemiotica (Landowski 1989, Marrone 2001) e di una semiotica della cultura (Lotman 1984, Lorusso 2010)." (pp.22-23)

It is important to highlight how such perspective was actually not the one of Eco who since the beginning (and in particular since the *Trattato*) and up until the end never lost the interest on the issue of communication.

The third one is related to Eco's transversal interest in communication and culture, from Superman to Boulez, although of course for different reasons. Something which can also be seen in a variety of "minor" writings such as in his "Bustina di Minerva" on pornographic movies (1998) or his phenomenology of the TV host Mike Buongiorno (1963). This interest, or at the very least this consideration, for these products that would have been usually avoided by intellectuals such as him was part of the "spectacularism" of semiotics and therefore of its social importance. Similarly, my work on virtual realities is also related to the social relevance of these texts, or better discourse, inside our society and comes with the hope of being a work which will be able to "talk" to a large audience feeling that my semiotics has something to do with their everyday life and with their passions.

Finally, the last one is a common pragmatic approach and perspective: from the central interest in the technical-material dimension of virtual realities (adopted by Eco from Pareyson in regards to the art, see: Paolucci, 2018, p.2) to the centrality of the *experience* (owed by Eco from Dewey, ibidem), to the Peircean interest in cognitive operations made by the players to act upon a world by processes of trials and errors and, of course, to the value given at the concrete interpretation of the users which can both be found at the end of *Lector in Fabula* (1979) and in the project of guerrilla semiotics itself since it required for the semiotician to "sit in front of each television" exactly as we put ourselves for months inside the VR headset and in the communities of the virtual realities at the center of this work. Even our idea that the "feelings" and "cognitive operations" of virtual realities are experienced as meanings because of their semiotically created context is heavily influenced by Eco's belief and methodological proposal that semantics is actually determined by usage and contexts:

"Eco's Reformulated Semantics Model (1975) inserts all of a sign's accepted meanings, along with the contextual and circumstantial selections that make it possible for us to use it within concrete linguistic practices (usages), into the semantic representation of that sign. "Contextual selections" make it possible to activate the correct meanings in function of the other, co-existing meanings of the sign in question. [...] As such, the conceivable interpretative activity of the speaker, with the possible ways he could use language, becomes part of the semantic representation of a sign-vehicle, exactly like encyclopedic knowledge, in its regularity, becomes an ineliminable component of semantics. It is a completely Eco-like way of interpreting the Peircean idea that, in order to determine the meaning of something, the *conceivable* practical effects must be determined." (Paolucci, 2018, p.4).

And, of course, this is more generally related to a Peircean perspective which, by referring to Claudio Paolucci's work in several part of our research, will be examined later and more in details. Indeed, a great influence of Eco's thought in our work can be undoubtedly seen by the "choice" of basing most of our theory on this scholar which, from many points of view, can be considered as his living legacy. Finally, it could also be highlighted how such pragmatism, such interests for the facts concerning language rather than for the study of their grammatic rules, has its root in the very origin of both semiotics and philosophy of language in Agostino (Vecchio, 2017, p.15).

So, to sum-up, the debts toward Eco in our work can be found in:

- The focus on the poetics and meaning making of indeterminacy
- The focus on interpretative processes and limits of both the users and the texts
- The intersubjective conception of enunciation and parole
- The consideration of the sensible dimension as a semiotic one
- The particular interest in cognitive science and philosophy of the mind
- The conciliative intent of putting together different traditions and disciplines
- The whole interpretative approach to semantics in terms of encyclopedia
- The interest in mass-culture and the related phenomena of communication
- The very pragmatic approach, both from a theoretical point of view and in a literal sense

1.4 From meaning-making to meaningfulness

The authors discussed in the previous section will be the fundamental guides for our semiotics of meaningfulness in virtual realities. However, what is a semiotics of meaningfulness and what is the difference with a semiotics of meaning-making? Well, at a first glance there is no actual difference: a semiotic of meaningfulness is simply when the meaning-making theory and methodology of semiotics is correctly applied to any given object of study which can be deemed as socially “meaningful” from a certain perspective. In the specific case of our research, the meaningful quality of our object of study, both from an individual and cultural point of view, has been very well expressed by Ugo Volli in the introduction of Thibault’s *Ludosemiotica*:

“Il peso di questo gruppo di attività è poi certamente molto aumentato negli ultimi secoli, non solo per l’invenzione dello “sport”, che ha meno di due secoli, ma per il crescente orientamento della nostra cultura verso il divertimento e il piacere come scopo esistenziale primario, che contraddice platealmente una considerazione di Aristotele, che è stata condivisa e considerata ovvia per buona parte del corso della civiltà occidentale: la felicità non consiste nel divertimento. [...] Ovviamente oggi questa etica della “serietà” resiste anche nella nostra cultura, ma è chiaramente minoritaria, mentre il “divertimento” è al centro della vita sociale e il gioco, con tutta la sua complessità, è il centro di questo centro, come si vede da qualche dato empirico. Se anche consideriamo solo la parte più innovativa e vendibile dei giochi, i cosiddetti “videogiochi”, sono ormai parecchi anni che essi generano un fatturato superiore a quello di musica e cinema assieme [...] Questi dati di fatto suggeriscono due considerazioni di metodo. La prima è che è importante e urgente occuparsi oggi teoricamente del gioco, della sua definizione, dei meccanismi che lo fanno funzionare. Non si tratta semplicemente di legittimare l’attenzione ai generi “bassi” della cultura — una scelta di strategia culturale comune non solo alla filosofia e alle scienze umane dell’ultimo secolo (dall’antropologia culturale all’estetica e alla semiotica, da Mauss a Barthes, a Dörfles, a Eco e Lotman. . .) ma anche alle arti (da Courbet a Duchamp, a Warhol. . .). È necessario anche guardarlo come un modello culturale importante, forse il sistema metaforico dominante nella società contemporanea. [...] Il secondo punto è il carattere non naturale, non dato, non universale di questo veicolo metaforico e di ciò che gli sta dietro.” (Volli, 2020, in Thibault, 2020, p.12).

However, the distinction between meaningful and non-meaningful objects of study is obviously impossible, and even if it wasn’t such distinction would have very serious ethical implications and would be risking to become a form of discrimination: who can decide it? Should we only judge as meaningful mass-phenomenon and therefore, concretely speaking, using mostly the economic measure of a certain human activity as the meter of potential meaningfulness? Of course, this is not the path that we are suggesting nor wish to take. A second and better definition could be that a semiotic of meaningfulness is, at least in the beginning, necessarily *impure* from a theoretical point of view since it is grounded in the observable usage and effects of a certain object of study rather than on its formal semiotic properties. Semioticians interested in meaning-making ask *how* and *what* to their objects, semioticians wishing to dirty their hands with meaningfulness will instead dare to ask *why* to the community of interpretants consuming such objects and creating interpretations of it. In the very concrete case of virtual realities, instead of asking ourselves how do such texts convey meanings and what are their semio-linguistic characteristics, our questions were rather: Why do people spend fifty euros to buy a virtual hat? Why do players spend hundreds of hours of their life in games notoriously bugged such as Fallout 3? Why do people enjoy gathering in an arena to look at seventeen years old kids playing on a computer? Why do 3 millions of players feel the need to modify their fantasy game to have “A completely customizable female body”²⁷? Why do games are having so much success as audiovisuals watched on YouTube or Twitch? Why are players avoiding the coins in Super Mario? Why is VR so efficient for professional formation? And so on.

²⁷ <https://www.nexusmods.com/skyrim/mods/2666>

Now if we look at these examples, we can immediately find one point in common: there is no possible answer that we can find in our semiotic books and which can be considered exclusively ours. On the contrary, a multiplicity of disciplines could try to answer: sociology, anthropology, philosophy, psychology, economics, and even neurology. And yet, none of this could give us the definitive answer. The reason for this is very simple: they all regard the private and emotional life and interpretation of the “reader”. They have to do with what moves us, with our feelings, beliefs, preferences, memories, salaries and even with our brains and bodies. When we compare such approach to Zinna’s 2004 approach to electronic writing, the difference is crystal clear:

“In effetti questo studio si interroga più sulla scrittura ipertestuale che sull’ipertesto, più sul linguaggio che sul *discorso* o *l’uso* dell’ipertesto. Ciò accade perché, prima di affrontare la discorsività delle scritture elettroniche, è necessario cogliere *le condizioni di possibilità* di quello che si pone a metà strada tra uno strumento e un linguaggio, tra una tecnologia e un modo di significare.” (p.18).

Another very clear comparison can also be made with Jacques Fontanille’s answer²⁸, during a 2021 seminar on his notion of “Formes de Vie” (2015), to our question about 1) what constituted the semiotic specificity of his approach to experience in comparison with other disciplines such as anthropology or philosophy 2) what was the interdisciplinary expendability of this approach. To such issue, the author gave an extremely simple and yet brilliant answer: since neither meaning nor experience are semiotic objects, semiotics must study their underlying semiosis in terms of expressions related to contents (E/C), which is the only proper object of study of semioticians. An answer which from a meaning-making perspective is indisputable and yet is implicitly stating that the ultimate goal of such semiotics is the formulation of a “perfect” and omni comprehensive theory of semiosis, not the actual comprehensive explanation of any particular experience, phenomenon or issue which are left to other disciplines more “capable” than us. Semiosis is therefore a theoretical starting point from which he approaches experience and on which he focuses to construct in the end a better notion and theory of the starting concept itself. It is almost left to fate (hope?) or obviousness if then such perfected theory of semiosis will actually be able to answer, both independently and interdisciplinarily, to several possible questions about a certain form of experienced meaningfulness (such as the one of virtual realities that we are interested in).

So, in opposition to such views, we can define meaningfulness as *the meaning experienced and granted by a particular human being in a particular historical moment and as a direct result of its living in (sweating and soaking wet), struggling for (love, reputation, freedom, possession, evasion, control) and acting upon such a reality as part of a broader community*. If the efficacy and specificity of Greimas’ semiotics of meaning-making was to study meaning outside of the empirical factors of communication (Paolucci, 2010, p.218), a semiotic of meaningfulness is characterized exactly by the opposite attitude. Thus, starting questions about meaningfulness are not about what a certain object can do or is attempting to do, but with what people are doing with a certain object and, consequently, with an infinity of different uses, reactions, interpretations, judgements and so on. In some sense, we could say that the shift from the interest in meaning-making to the interest in meaningfulness is similar to the one between my ex-professor of general linguistics and the one of sociolinguistics: the first one was a man who knew absolutely everything about the history and typologies of languages as systems of meaning, while the second one was a woman who went on the streets with a hidden microphone to gather data on how people were using language to create meaning. The first-one taught me the characteristics of standard-Italian, the second one taught me that standard-Italian did not exist.

²⁸ Organized by Simona Stano in 2021 for UniTo and which was about the topic of experience

This shift is also similar to the one made by Michel de Certeau in his *L'invention du quotidien* (1990) where the meaning and experience of the city was not thought as a direct consequence its topology and formal properties, as it is in the perspective of Bauhaus²⁹ explained by Walter Gropius himself, but rather as a consequence of the strategies adopted by the real people to move and live into the city. However, despite the enthralling way in which we just described this approach, it is generally speaking a very bad idea. There is indeed a very good reason for which even Eco has always been extremely careful in focusing his interest in the relation between the *intentio operis* and the culture, between the narrative and interpretative strategies, and never on the empirical reader. In fact, the single readings are inexhaustible and there is no scientific way to account for them through the semiotic epistemology and inside a general theory of signs and signification. Additionally, the researchers asking such questions about meaningfulness are obviously losing their focus from the initial object of inquiry to a variety of different texts attesting such interpretations and translations. Hence a second important difference: semioticians inquiring on meaning-making starts from the semiotic theory and interdisciplinary literature on their topic, semiotician inquiring on meaningfulness starts from their personal experience and will be very likely completely compromised and lost. As a consequence, many of our research choices made initially almost no sense: spending five hundred hours inside the top guild of *Warframe*, working for two months with a company producing mainly VR for advertisement, reading essays of cognitive and neurosciences, watching hundreds of videos “about” digital games, interviewing artists using VR for painting, following the tournament of e-sports, and much more. Nothing in the semiotic epistemology and theory could guarantee us that these things would be useful. Ideally, a semiotics of meaning-making would also eventually come to answer to such more “pragmatic” questions and, similarly, a semiotic of meaningfulness will find its way back to the theory. However, reality is far from ideal and the many limits for the research, first and foremost time, are evident in the results frequently obtained: our arriving point is usually very close from the one of departure. Even more seriously, there is no guarantee that the instruments developed for one purpose will be useful for another: Zinna’s impressive and pioneering work of formal analysis of the linguistic properties of electronic writing never resulted in a socially relevant semiotics of the usages and discourse of hypertexts, digital games or VR. In this sense, our approach was determined by the very peculiar situation and crisis of the semiotics for our field of research: it was a risk that had to be taken since we felt that we had to both give some answers about why do virtual realities matters for human beings and find a common ground for the discussion on more general issues regarding other disciplines. But here comes the problem: whereas many other disciplines are used to such forms of “observations”, let’s think of ethnography or sociology, semioticians are not formed to scientifically perform such tasks since their objects of study have traditionally been mostly objects in the proper sense. Furthermore, the “data” gathered must then fit into the semiotic theory and in a coherent schema, a task easier said than done. All this may seem to seriously compromise the scientific validity of our work, and to be in total contradiction with our previous claims of being more “accurate” than our fathers thanks to the evolution of both the semiotic theory and of the other disciplines involved in our research. Without denying at all such risk, it was nonetheless a calculated one for two main reasons. First, the commercial success and visual nature of digital games and VR has caused an explosion of easily available textualized interpretations of them.

²⁹ <https://www.youtube.com/watch?v=cWWgkRRjyr0>

We can distinguish between at least ten of them:

1. Gameplay footages of both interpretations and uses of the text
2. Player's reactions and comments while playing
3. Comments of the viewers of the footage and of the play
4. Developer's reactions to the player's play
5. Reviews of the game on specialized website or channels
6. Articles about unexpected discoveries or uses about the game
7. Discussions on forums about the game's content
8. Fan-based inquiries on the mathematics and coding of the game
9. Fan-based and freely distributed modification of the original software
10. Meme and video parodies of the game

This situation is rather unique and strangely ideal for semioticians who are experts in communication and textual analyses, also from the point of view of the awareness that such texts are not neutral nor necessarily the "true" interpretation since they are created as a content for entertainment. Still, these are additional data which cannot be ignored by a semiotics interested in the meaningfulness.

Secondly, for its epistemological anti-subjectivism semiotics is, somehow paradoxically, a particularly good choice to inquire on the particular and individual dimension of the experienced meaning. In fact, the main object of semiotics, both as a study of language and of the mind, is precisely an intersubjective dimension belonging to each one in virtue of being shared and not of being exclusively of someone. This is what narration is, this what signs are, this what culture is, this is what language is. But here a single example will be better than a theoretical discussion. Umberto Eco is remembered for many things and findings among semioticians, but certainly not as a semiotician directly interested in the emotions of the reader. Yet, his interest for both the most "abstract" mechanisms of narration and on ideological values conveyed in them is an extremely useful way to grasp and inquire on such emotive dimension in a given text:

"Qualcuno, dopo la proiezione di *Love Story*, ha detto che bisognerebbe avere un cuore di pietra per non scoppiare a ridere di fronte ai casi di Oliver e Jenny. La battuta, come tutti i paradossi di tono wildiano, è superba. Purtroppo non rispecchia la verità. Infatti, qualunque sia la disposizione critica con cui si va a vedere *Love Story*, bisognerebbe avere un cuore di pietra per non commuoversi e piangere... E questo per una ragione semplicissima: che i film di questo genere sono concepiti per fare piangere. E quindi fanno piangere. Non si può mangiare un confetto pretendendo di sentire – solo perché si ha una vasta cultura e un forte controllo delle proprie sensazioni – sapore di sale. La chimica non sbaglia mai. **Siccome esiste anche una chimica delle emozioni, e uno dei composti che per antica tradizione suscitano emozioni è un intreccio ben congegnato, se un intreccio è ben congegnato suscita le emozioni che si era prefisso quale effetto.** Potremo poi, *après coup*, criticarci per averle provate, o criticarle come emozioni repellenti, o criticare le intenzioni con cui è stata congegnata la macchina che le ha provocate. Ma questa è un'altra storia. Un intreccio ben temperato produce gioia, terrore, pietà, riso o pianto." (1978/2015, my bold).

This extract and example are of particular importance for us for another reason: virtual realities are also designed to offer emotions and "thoughts", and sometimes they do so by acting almost directly on our bodies, which are precisely another intersubjective aspect of we make sense of both physical and virtual realities. Therefore, looking back at our definition of meaningfulness as "the meaning experienced and granted by a particular human being in a particular historical moment" semiotics has allowed us to consider such particularness and individuality in two ways:

- A. The particularity of the human being has been considered in terms of interpretative schemas and cognitive disposition through which reality is grasped by different forms of mediation: from the cultural ones to the phenomenological ones.

- B. The particularity of the historical moment has been considered in terms of social discourses which are both shaping the current semiosphere and encyclopedia of a given individual.

This is why our inquiry on virtual realities can be described as a research on meaning “from gut sensations to political values” and tries to reach the “meaningfulness” by reconstructing the semiotic relations between these different aspects as well as by putting into relation the text with its observable interpretations. Just as clinical semeiotics does not consist in the study of symptoms but rather in the study of the patient (Fradà, 2018), in the same way then in the semiotics of experience will necessarily have as main object of study the Subject examined through the analysis of interpretative logics and processes of attribution of meaning underlying the experiences of the texts. A subject conceived encyclopedically and intersubjectively, studied through what is intimately his and yet does not *belong exclusively to him* (Paolucci, 2010 & 2020). More generally, we could affirm that inquiring on the meaningfulness of virtual realities from a semiotic point of view has to do with the *philosophical relevance and signification of their specific communicative and pragmatic features*.

Hoping to have somehow clarified why we are talking about meaningfulness; a last question remains: is this Semiotics of meaningfulness something new? Of course not.

This need for semiotics to grasp meaning *alive* and in the dimension of the collective individuality can be found in several authors and all along the history of semiotics. One of the best examples can be found (once again) in Umberto Eco’s ending appendix of *Lector in Fabula*, where the author made an inquiry of the readers’ actual interpretations gathered from interviews (p.230). So the true point of our usage of this term is mostly a political one to distinguish our inquiry from other works with a different approach and highlighting that our main issue is the “why” of why so many people all around the world and across different cultures are all spending an incredible amount of efforts, time and money to live these experiences, which on the other side correspond to an incredible amount of intellectual, artistic and economical resources to create games as well as an explosion of texts about virtual realities.

2. The virtual experience between language, body and mind.

In this chapter we will face the issue of the experience of virtual realities and of how semiotics can tackle through its own epistemology and theoretical background with such themes. After a first overview of how the narrative and cognitive traditions of semiotics have tackled with the experience and the body in general, we will refer to Ugo Volli and Ruggero Eugeni as the two main authors that can direct such inquiry to obtain fruitful results. The analysis of some of their works will bring us to identify two main points of interest:

1. The recreation of a phenomenological situation and continuity through semiotic means creating plausible possible worlds
2. The identification of experiential semantics conveying content in a rather unique way

These two paths will then be explored by examining the works of Patrizia Violi and Claudio Paolucci that, through the notions of *non-autonomous semantics* and *prosthesis*, which will give us the theoretical ground and conceptual horizon to successfully apply semiotics to well-known issues and topics of virtual experiences. Finally, in the last part of this chapter we will refer to some empirical studies on the brain activity during the involvement of the user in virtual reality as a way to confirm our proposal. Additionally, we will also take into consideration authors adopting a cognitive approach to meaning making, such as Torben Grodal, Andy Clark and Jessie Prinz, to further verify and complexify our claims.

The results of this chapter should prove that:

- A. The experienced meaningfulness of virtual realities can only be successfully studied by taking into consideration the whole set of physical interactions, logical operations, cognitive tasks, perceptions and psychological effects involved in virtual realities.
- B. The experienced meaningfulness of virtual realities can be successfully studied by a semiotics which is able both to integrate new conceptual tools coming from cognitive sciences and to take into account phenomenological dimensions of meaning.
- C. The experienced meaningfulness can be studied by semiotics in terms of cognitive semantics and habits, two key notions.

2.1. Semiotics and experience

“Se capiamo è perché la nostra conoscenza linguistica si è formata assimilando la conoscenza e l’esperienza dei processi, delle pratiche sociali e culturali e, beninteso, dei vincoli materiali, fisici, biologici, entro cui ci muoviamo e si muovono le altre persone della nostra comunità. (De Mauro, 2011, p.85)”

We live in a social context where the word “experience” is used constantly and especially by the market who pretend to sell no more products but experiences: smartphones (as the Sony Xperia), travels, movies (The Titanic VR experience), food, concerts, apps, sex, cars, drugs, processors (intel experience), websites, techno music and much more. Moreover, we are the ones talking constantly of things and events *as* experiences. In this context, virtual realities, whether as proper content designed for the VR technology or as digital games and simulations, represent an emblematic case. Since 1983 the advertisement for a game like *Joust* was claiming “ You don’t play, you live it”³⁰ and the very title of the 1982 Coleco system advertisement was “The Arcade Experience”³¹. Virtual realities seem to be no more “representations” but *experiences* in which the user is *immersed* so much that their main characteristic is a certain *sense of presence*. A trend that will continuously grow. It could of course be said that it is just a marketing strategy, a trend that does not need much attention. But as semioticians we cannot assume such a position for two main reasons. The first is an historical one for which we know that language always reflect a cultural vision of the world and is the essential lying tool thanks to which we, as humans, can build our truths. The second one is that modern semiotics is born as a kind of fascination for the “obvious”, trying to critically deconstruct it and showing the extremely relevant underlying ideas hiding behind the apparently irrelevant and natural facts of language and culture. So, the questions are the following five:

1. Is this experience of immersion and presence in a fictional reality something unique?
2. What are the objectively observable features of such experience in virtual realities?
3. How can such experience and its rhetoric be described?
4. Is this experience a new object of study for Semiotics?
5. How can such experience be studied inside a semiotic perspective interested in meaningfulness and why should it be ?

To the first question we can safely answer that no, it isn’t. First of all, for the problem of the extreme ambiguity of the concepts of immersion, sense of presence and experience:

“ Starting from the myth of the painting competition between Parrasio and Zeusi, we can say that the human fascination for the ability to “trick the mind” through ultra–realistic representations has without doubt a very long history. [...] we can affirm that each different medium is special for the way in which it simulates and enacts aspects of our access to a reality: from the underlying logical structure of a succession of events regulated by a causality principle (what we could call the narration of our daily lives as in Ricoeur, 1983), to the visual perceptual aspects recreated by media such as photography and cinema, up to the agency on the world and mimetic sensory–motor skills required by games. In other words, we can say that each different medium offers the possibility of an “immersive experience” because it relies on some of our own capacities of grasping and acknowledging our “real word” or first order reality in an ontological view.” (Giuliana and Alexiev, 2020, pp.115-116)

“ This is exactly why the notion of “level of immersion”, that we can find in psychology (Herrera et al., 2018) and often related to the idea of degree of interactivity (Cosenza, 2008; Hand & Varan, 2008) becomes weak when we look at the simple fact that literature, music, painting, theater and games can all be considered highly immersive because of being

³⁰ <https://www.youtube.com/watch?v=okSQDYu5xIc>

³¹ <https://www.youtube.com/watch?v=5l0T1f81Rao>

able to grant an experience of absence and presence through both cultural elements, linguistic mechanisms (such as what in structural semiotics is known as the theory of *embranchement* and *débranchement*) and psycho-sensorial means (such as movement as an effect of corporality, see Musatti, 1961). In fact, it is precisely in two supposedly “non immersive” media, literature and theater, that the concept of a distancing effect was born. [...] So, the first important acknowledgment to make is that Virtual Reality is not special in any way about this general possibility of immersiveness and experience, and neither when a superior effect of realism occurs it can be simply reduced to the technological specificities of VR.” (Giuliana and Alexiev, 2020, pp.117-118)

The real novelty of such experience has to be found in the technological means through which this is reached and a spectator becomes technologically co-constituted, which started with cinema:

“The separation between all these phenomena and the immersive forms proper of modern times is determined by technological instrumentation: in fact, technology generates the passage from ancient forms of illusionism to modern forms of immersiveness. The roots of contemporary immersion therefore date back to the nineteenth century and in particular to the rise of cinema. Cinema constitutes a first model of technological immersiveness: although through forms that were still limited, it introduced the principle that technology can intervene on the subject’s sensory capacity and manipulate their ways of being in the world. The cinematographic spectator experiences for the first time a technologically modified self-centered world — that is a “world in which an organism lives, the one that recognizes and makes” as constituted or co-constituted by technological means.” (Catricalà and Eugeni, 2020, p.65)

And which find its current apex in the VR technology through headset and trackers:

“In addition to specific softwares such as Unity or Unreal and computers able to process information, the use of display and listening devices (headsets) with position sensors becomes decisive. The headset is a stereoscopic helmet able to reproduce the three spatial dimensions of reality (depth, horizontal and vertical). Most headsets have side bands that allow complete estrangement creating an internal/external dualism, inside/outside the world. The sensors or trackers contribute to trace the user’s position in the virtual universe and therefore allow a complete simulation of the movement, guaranteeing the sense of immersion in a new environment through motion and interaction. Compared to other forms of pictorial illusionism and semi-immersiveness, these two elements — the helmet and the trackers — bring out the main feature of a third new phase. The device is thus conceived as a dress to wear while entering another world, different from the “real” one.” (Catricalà and Eugeni, 2020, p.66)

Finally, different technologies of immersiveness give birth to different forms of experience:

“Virtual, augmented and mixed reality thus constitute three different forms of extended reality. It is evident that the difference between them is not only technological, but more deeply concerns the type of experience designed for the user and especially their “being in the world” — that is, their living and active relationship with the life world that surrounds them, with the objects and subjects that inhabit it, and with its temporal and spatial dynamics —. It is precisely in this sense that we speak of different forms of technologically modified self-centered worlds.” (Catricalà and Eugeni, 2020, p.68)

Moving on to the next question, we can now describe the experience of virtual realities. for which a fiction is “lived”, in terms of *several different experiences*:

- An *emotional* one of fear, anger, pride, hopelessness, surprise that depends not only on the narrative layer but on the very *fallible agency* and *learning* involved.
- A *physical* one related to the usage of limbs to act in virtual realities and that can result in several psychophysical states such as fatigue or frenzy.
- A *perceptive* one related to a phenomenological continuity involving *seeing with eyes*, *hearing with ears*, *touching with fingers* and through haptic feedback, etc.
- A *spatial* one related both to a visual/sensorial recreation of proxemics as well as a cognitive one for which space is processed for both orientation and calculating actions.
- A *temporal* one related to the potentially infinite amount of time spendable in many virtual realities where *projects for the future* can be made and to the possibility for time to *persists* (Bartle, 2003) even while the players are not playing
- A *social* one involving the possibility of meeting with other players and the presence of social mechanism such as competition, distinction, collaboration, betrayal, leadership...

A layered classification which is valid not only to understand the “experience” but also the two other main terms of immersion and presence:

“However, these two different trends agreed on the opportunity of building “presence constitution scales” defined by various factors, e.g., measurable degrees of immersiveness and isolation of the subject, number and type of sensory channels involved, subject’s types of movement and possibility of interaction with objects and subjects, subject’s speed of reaction. Ultimately for psychologists, in immersive media environments. [...] A different and more productive point of view would rather be to admit the existence not of “one”, but of multiple and different types of presence” (Catricalà and Eugeni, 2020, p.77)

To the third question we can answer that this new notion of “experience” is condensed in three main ideas. On the one hand the idea of something *personally, subjectively, witnessed and evaluated through conscious interpretation*. It is the encounter between the “thing” and the person inside the living cultural world with its own purposes and expectations. It has to do with what could be conceived as an *event*, which also implies the possibility of a *temporality* personal *memory* of such experience. From which the *learning* involved in this experience which is typically conscious and constitutes *socially sharable and linguistically expressible form of knowledge*. On the other hand, this experience has often to do with what is perceived as something *beyond interpretation* and outside of control since it is grounded on our bodies and senses: it is the taste of salt, the feeling of cold, the sense of vertigo, the perception of adrenaline and of a fast-beating heart, the dopamine of high-fat food, touching fire with a bare hand and so on. In the case of virtual realities, the perhaps most iconic example of this is the shooter genre where “People have this feeling when they like a game's guns, they talk about how it “feels” really good. And, fair enough. ‘Weapon feel’ is a thing, but ultimately you’re not feeling the gun at all.”³² Finally and almost at the crossroad between the event and the body involved in it, in this rhetorical perspective experience comes together with an emotional dimension and, almost always, with a euphoric one related to positive emotions or at least positively experienced emotions. As a simple example, the vertigo experienced in a VR text involving being into space comes with an unexpected perceptive realism and the artistic beauty of such representation and action (moving into space, messing around with gravity, etc.), from which raise the emotion of surprise which may turn out, at least the very first time, into joy. In other cases, the emotional dimension of the experience may come more simply from the satisfaction granted by a particularly well-made design of an object, therefore allowing us to easily do what we wanted and to obtain results matching or even surpassing our expectations. In this sense, the emotive dimension of the experience is part of the memorability of the event and of its subjectivity: we do not remember experiences as we remember a poem learned by heart in our childhood nor how to drive. Experience, in all these cases, is something which *cannot be denied*, but for opposite reasons. On the one hand it is because it is *too close* and often *cannot be fully exactly replicated nor explained to others*. On the other hand, and in obvious relation with the semantics of the scientific experiment, it can be observed, reproduced, shared and rationalized through narration. But whereas the value of truth of the experience is split between the world and the subject, there are instead no doubts on the subjective point of view from which this experience arises and towards which it is directed. Simply put, the rhetoric of the experience is promising something unique and unforgettable that must be *tried and felt* by the user *himself*.

³² <https://www.vice.com/en/article/nzgddg/why-video-game-guns-feel-good>

However, paradoxically the most common characteristic of this embodied experience is precisely that it is mass-produced (junk food or jump scares) and shared (think of pain and pleasure), therefore something somehow at the opposite of the subject's intimacy. The subjective dimension of this side of the concept of experience resides on the one hand on the possibility of an *exception* (we have all met one time in our life, and with great astonishment, someone disliking French fries, Nutella, cheese or enjoying BDSM) and on the other, very interestingly from a semiotic point of view, mostly in the incommunicability of such experience caused by the lack of a linguistic grip and clear access about our own conscious elaboration of a sensorial experience: the well-known philosophical problem of the *qualia* (Lewis, Quine and Goodman in Scardicchio, 2010). Which lead, consequently, on many occasions at the *impossible comparison* between a shared experience, both in terms of quantity and quality.

This brings us to our fourth question: is this something that was never considered by semiotics before? Well, there are two opposite answers. The first one is no: semioticians have always tackled with the experience and more specifically with experiences. First of all, no matter how much formal was the final analysis, there is no semiotician who had the superpower of analyzing a novel without reading it through its own mental schemas and culture, without being happily surprised or disappointed, interested in the theme or not, fascinated by the beauty of the style or not, etc. Analyzing the most formal properties and most deeply rooted mechanics and stratagems of a given cultural artifact always corresponds *also* in highlighting part of the reasons for which a certain experience of it took place. Moreover, certain applied semiotics, such as to one of the space (Giannitrapani, 2013) or ethnosemiotics (Marsciani, 2007) and more broadly any semiotic interested in practices (Fontanille, 2008), have also very concretely studied meaning as something occurring as a result of an event and encounter between the "text" and individuals involved in a certain activity. Then experience has been a central focus in the semiotics of media (Eugeni, 2010) as well as in regard to meaning and semantics (Violi, 1997). Even topics such as the ones of perception (Eco, 1997) and more generally of the body (Fontanille, 2004 & 2011) have been faced. Even the topic of the presence was since long present and changed in relation to the new centrality of the experience:

"The starting point could be the relative lemma of the Dictionary of Greimas and Courtés [...] Starting from the Nineties, with the passage from structural to (explicitly) phenomenological semiotics, the picture deeply changes; moreover, the theme of presence takes a central role within this transformation." (Catricalà and Eugeni, 2020, p.79)

Indeed, we cannot but agree with and praise Marrone's belief that:

"Current semiotic research has reached a point where it considers the sensible and, more in generally, corporeal experience as a sort of coparticipant in the creation and transformation of signification. No semiosis, establishment or bequest of meaning can be possible outside a body which is alive, experiences the world, enters in contractual or conflicting relationships with the world, shapes it and is modified by it." (2005, pp.19-20).

And even more so considering his proposal of a non cartesian approach to the cognition and passion characterizing our experience:

"Hence, rather than distinguishing between passions of the soul and passions of the body as in the Cartesian tradition, semiotics recaptures a general corporeal component in the affective processes, a component which the desiring imagination of mental nature is grafted upon or is dispersed within." (2005/2009 p.19)

Finally, any semiotic approach related to the study of interpretation and of how we make sense of the world is inevitably an inquiry on how our experiences, including the phenomenological, and psychological one, are unknowingly and inevitably mediated.

The second answer, however, is on the contrary that semiotics has not really studied experience in the past years, although of course with some exceptions. In fact, it seems to almost always directly avoid the problem of this experience since it also corresponds to the issue of the *operis*' effects on the empirical reader. Semioticians may highlight a particular underlying narrative structure proposing a given cultural value which may have an emotional effect but are usually not much interested in inquiring on the effect itself nor in "proving" why a certain emotion may be triggered at some point. Furthermore, the body studied by semioticians is definitely a modeled one as in the case of Fontanille which, despite highlighting how the body was historically excluded from semiotics (2004) and attempting to remediate, uses the image of the envelope as a starting point for his reflections. Similarly, Marrone himself is well-aware that his study on the body may be controversial:

"It may be argued that, given the chosen field of analysis, the body I discuss here is largely imaginary, or even fictitious, a body created by the fantasy of a writer and captured by a cinematographer, both with predominantly aesthetic communicative goals." (2005, p.7)

Moreover, and coherently with other disciplines of the humanities, semioticians belonging to socio-semiotics and to the structuralist tradition often consider that the physical and sensorial involvement of the interpreter, especially in terms of chemical reactions or neural activity, is not a part of the main focus of semiotics, namely signification and culture. The same goes for the topic of emotions which in the first twenty years of the greimasian traditions have been explicitly avoided because of their relationship with the human psychology (Greimas, 1983, p.13). And then, when after all this time semiotics finally opened to the theme of the *passions*, it mostly tried to deconstruct them inside its own methodological frame as syntagmatic combinations, relation to objects of values and as modalities of the subject. As a result, to inquire on nostalgia Greimas looked into its definition in a dictionary and admitted himself that such an approach was helpful for the textual analysis but not sufficient nor reliable to understand what nostalgia is (Greimas in Pezzini, 1991, p.24). Similarly, semioticians using such "narrative perspective" on emotions would explicitly write that their work is not about the empirical emotion: "l'interrogativo verte sulla natura semiotica della vergogna, non sulla vergogna in quanto sentimento empirico provato da attori umani (o assimilabili) psicologicamente e socialmente determinati" (Marsciani in Pezzini, 1991, p.35). Basically, structural semiotics took the concept of "passion" and the topic of "emotion" from psychology and philosophy to answer to its own analytical issues and almost redefining it inside its already established metalanguage. In this regard, the Peircean tradition of semiotics is in some sense an exception since Peirce himself raised very important questions about the experience and problematized several issues related to our phenomenological access to the world, let's think at the "experiment" of the coin to expose the issue of a blinding point in our vision. More specifically, this interest is explicit in "Some Consequences of Four Incapacities" (1868) where he showed how "In short, the Immediate (and therefore in itself unsusceptible of mediation -- the Unanalyzable, the Inexplicable, the Unintellectual) runs in a continuous stream through our lives; it is the sum total of consciousness, whose mediation, which is the continuity of it, is brought about by a real effective force behind consciousness." and focused exactly on the topic of sensations by claiming that "Thus, the sensation, so far as it represents something, is determined, according to a logical law, by previous cognitions; that is to say, these cognitions determine that there shall be a sensation". This of course also applied to feelings "In short, whenever a man feels, he is thinking of something." and to emotions "If a man is angry, he is saying to himself that this or that is vile and outrageous. If he is in joy, he is saying "this is delicious." If he is wondering, he is saying "this is strange.".

Thus, an interest on the phenomena of perception and cognition grounding our experience which gave birth to a works such as *Kant e l'Ornitorinco* (Eco, 1997) and to more general reflections on the nature of emotions (Savan in Pezzini, 1991). Nonetheless, these works are certainly different from any neurocognitive or psychological approach to meaning making and are fundamentally interested denying a purely phenomenological dimension of the experience and therefore are focusing more on the mediation of the experience than on the experience itself. In this sense, these two semiotic traditions have either simulated and formalized the experience or focused on its semiotic background: in both cases almost disregarding the empirical effects and material conditions of such experience.

And so, we come to our fifth and last question: how can a semiotics of meaningfulness study such experience and why should it be interested in it?

The reasons for studying experience are determined by our own purposes of analysis since in virtual realities the empirical results of the experience have as much importance as its semiotic construction: demonstrating that the vertigo experienced in VR is a semiotic “effect” is important but would still not explain what is the role of such feeling in the interpretation and attribution of meaningfulness inside the more broad and extensive experience of the text. Similarly, understanding that digital games present a narrative model of experience designed to discover the truth of the digital world is only one half of the answer to why such virtual world make sense to the user. In other words, experience is not simply a “result” of interpretation but is part of it, part of the semiosis: there is not only one experience in virtual realities but there are several and each one is influencing the overall textual meaningfulness which, in its turn, is the object of study through which semiotics can give a unique and precious contribution to offer a better understanding of the cultural and social relevance and impact of virtual realities. Once and if we accept the necessity of extending these elements (psychological, cognitive, physical, perceptive, spatial, temporal, social) to the semiotic textual analysis, the question shifts to how such “empirical” dimension can be considered inside a semiotic perspective and epistemology.

First of all, we need a theoretical perspective to approach such empirical dimension. This perspective, working as a real research project, is perfectly described by Eugeni and Catricalà:

“c. media have been and still are the technologies most explicitly working on the constitution of the sense of presence by operating on the user’s self-centered world. d. presence should not be considered in a unitary and absolute sense, but as a modulation of different “modes of presence (and absence)”. e. consequently, media can be analysed not only as devices for the construction of presence, but rather as devices for modulating multiple modes of presence within technologically modified worlds. f. The modulation of presence is linked to the enunciative configuration in which the user feels he or she is inserted, and to the consequent postures and responsibilities for which they feel appointed.” (2020, p.80)

A conclusion that, interestingly enough, was casually also reached in another article of this same volume by us although through a different approach and bibliography:

“Whereas the impression of being immersed in media has also an important literature (Lombard et al., 2015), it is often overlooked that this immersion is semiotically granted in two opposite ways: through absence and presence. (Giuliana and Alexiev, 2020, p.116)”

Therefore, from a semiotic standpoint, the experience of virtual realities raises from a complex *dialogue between semiotic forms of presence and of absence mediated by technology and occurring through enunciation.*

Secondly, semiotics has to respect the disciplines already inquiring on such aspects and mustn't copy the work of neurosciences, psychology, phenomenology and so on. Most importantly, semiotics mustn't lose its own perspective, precisely the one of mediation, in favor of other perspectives. We can perfectly work with psychology without assuming that psychological experiments and psychological models of the mind are the best and only way to grasp how humans make sense of the world, we can accept that there is a phenomenological dimension of how we make sense of reality without assuming that this dimension is a neutral ground from which meaning arise, we can use the results of neurosciences without believing that brain scanning can give us relevant answers about meaning-making, we can let philosophy of the mind and of the subject be the guiding stars of our reflection without ever renouncing to our love for textual analyses and cultural inquiries. To a certain extent, competition and concurrence are as healthy inside the academic debate as elsewhere. To do so, semiotics will have to be loyal to its own conception of meaning as something extremely complex and "impure" by blending the two beforehand mentioned dimension of experience: as something grounded on *both* narrativity and embodiment. Simply put, we have to recognize that riding a bicycle can neither be reduced to a series of logical instructions nor to an unconscious and unexplainable event controlled by our body. In regard to narrativity and the eventual dimension of experience, it will have to be considered in relation to the very specific situation of the practice of interactions in virtual realities and will have to consider the empiric narrativity of the user. All this will be faced in chapter 3. In regard to embodiment, there will be two fundamental intellectual moves. The first will be to understand the role of embodiment in terms of cognitive semantics creating isotopies which contributes to meaning making. The second one will be to focus on the notion of "prosthesis" and of "possible worlds" to understand from a semiotic point of view the understanding and veridiction of virtual worlds from a non-narrative point of view where the role of the body and of the sense acts as a form of rhetoric. Finally, it must be highlighted and repeated that we are certainly not the first ones to focus on this idea of and approach on the experience. Beside the authors that will be at the center of this chapter, a very good example of this can be found in Malvasi's "Racconti di Corpi" (2009) which, perhaps not accidentally focusing on audiovisual texts, preceded our intentions and interests already twelve years ago. Excluding from our discussion other works similar to this has been a hard but necessary choice due to the temporal limitations of our very ambitious project of research, but certainly not an intentional way of unfairly claiming the field of the "proper embodied experience" as ours.

2.1.1 Experience as narrativity

Although we will not use it as a perspective or tool, it can be interesting and it is certainly important to briefly examine two works of the 2000's in which the experience and body are topics explicitly faced by the greimasian tradition of semiotics. These two works are Gianfranco Marrone's introduction to the 2007 collection of essays "Narrazione ed Esperienza" and Marrone's own and previous 2005 book titled "La cura Ludovico".

In the first work Marrone is, since the very beginning, extremely clear about the claim that narrativity can be and has been used by semiotics to understand texts as well as living experiences of the world:

"A dispetto della sua conclamata, doppia origine linguistica e filosofica, la semiotica s'è infatti sempre occupata dei meccanismi interni, dei valori sociali, degli effetti estetici e delle conseguenze pragmatiche della narrazione. Come è noto, la scienza del segno e della significazione ha ripreso con forza l'eredità della Poetica aristotelica, coniugandola e integrandola con gli studi folklorici ed etnologici, con le ricerche sui mass media, con il comparativismo linguistico e religioso, con l'analisi letteraria formalista e strutturalista, con la teoria dell'arte e l'iconologia, con la fenomenologia husserliana e merleau-pontiana, con la pragmatica linguistica, con gli studi strategici ecc., non solo contribuendo in prima persona alla costruzione di una narratologia coerente ed efficace, ma addirittura proponendo la nozione di narratività come ipotesi interpretativa dei sistemi culturali e ideologici più profondi, supposti per questo essere quasi universali. **Da qui l'idea che le strutture narrative contribuiscono all'articolazione semantica sottostante dei testi e dei discorsi, esplicitamente narrativi e non, ma anche delle pratiche sociali concrete e delle esperienze vissute.**" (p.7, my bold)

"E la quotidianità? Anche se raramente tematizzata in quanto tale, la semiotica se ne è sempre occupata. A dispetto di chi, disattento o smemorato, oggi sostiene che la significazione ricostruita dai semiologi s'è estrinsecata pressoché univocamente e piattamente a partire da testi istituzionalmente o socialmente dati (racconti, romanzi, film, quadri, fotografie e simili), già delle sue origini semiologiche degli anni Cinquanta o Sessanta la scienza dei segni ha messo a fuoco la problematica della vita quotidiana, delle esperienze e delle pratiche in essa vigenti, incrociandola con quella dell'insorgere della cultura mediatica di massa, da una parte, e con quella del cosiddetto linguaggio ordinario, dall'altra." (p.10).

Indeed, for the author the issue of experience, from a semiotic point of view, is determined by the fact that inquiries about experiences are putting into discussion the centrality of both narration as a general perspective and of its epistemological background:

"A più voci e da più luoghi, però, si sta recentemente tornando sulla questione. Ora per estendere la casistica delle esperienze narrative (o narrativizzabili) a fenomeni in un primo tempo esclusi dall'analisi semiotica (come l'esperienza sensoriale e somatica, quella sociale e mediatica, quella intersoggettiva e passionale, quella legata alla spazialità, quella che si produce in rete o in generale con i nuovi media ecc.), arricchendo e affinando i modelli d'analisi narrativa con nuove categorie e metodi più potenti. Ora per mettere in dubbio la centralità e la pretesa universalità della narrazione, invocando strumenti metodologici e pratiche interpretative che trascendono – o non includono necessariamente – la narratività. Ora addirittura per (rin)negare la validità ermeneutica di modelli quali il quadrato Semiotico [...] In un caso come nell'altro, il termine – più che la nozione – che è venuto fuori con maggiore frequenza è stato proprio quello di *esperienza*. Agitando il quale è stata altresì messa in discussione la validità di un altro dei concetti chiave della semiotica – il concetto di *testo* –, anch'esso accusato di limitare il campo d'indagine semiotica a fatti di significazione socialmente e culturalmente precostituiti, chiusi, istituzionalmente circoscritti in un qualche supporto mediale, di fatto tralasciando sia l'auroralità del senso – tutti i fenomeni legati al sorgere filo- e ontogenetico del linguaggio, della significazione e pertanto della testualità – sia le pratiche sociali d'interpretazione, d'uso e abuso dei testi medesimi. L'esperienza del senso, insomma, non si esaurirebbe nella narrazione e nella testualità, per principio discontinui e articolati." (p.8)

"Dal punto di vista interno della ricerca semiotica, invece, si discutono come s'è detto le recenti prese di posizione che tendono a ridimensionare, se non addirittura a dimenticare o a negare, il valore euristico della nozione di narratività come forma profonda del contenuto di tutti i possibili processi discorsivi e manifestazioni testuali. Le attuali investigazioni riguardanti la dimensione passionale ed estetica, il dominio visivo e sensoriale, la corporeità, le pratiche socio-culturali – ma anche, per altri versi la prassi inferenziale, la semantica cognitiva e il funzionamento della mente – tendono a mettere fra parentesi l'idea forte della narrazione come forma primaria dell'esperienza umana e sociale, come modello profondo di attribuzione di senso al mondo degli uomini e delle cose." (pp.8-9)

An issue which, very interestingly and cleverly, Marrone highlights also as an issue related to the success of new forms of textuality:

“Si tratta di esplorare le *nuove forme di narrazione* presenti nei vecchi e nuovi media, le quali fanno sempre più spesso uso di sostanze dell’espressione non – o non solo – linguistiche (audiovisivi, musica, performance ecc.). In questo campo, spesso, viene messa in discussione sia la nozione di autore (e del suo correlato testuale, l’enunciatore) come proprietario legalmente protetto della produzione discorsiva, sia quella di lettore (e del suo correlato testuale, l’enunciatario) come semplice bersaglio/interprete di prodotti non suoi.” (p.9)

Yet, inside this volume we can also glimpse at how, perhaps, even in more classic texts semiotics has avoided some of the more experiential aspects of it. A great example is constituted by Peter Fröhlicher’s analysis of Caravaggio’s painting “L’incredulità di san Tommaso” where the biblical problem of the belief is represented through the recreation of an illusionary empirical cut on the painting which belongs to the spectator’s space:

“A differenza di tutte le altre aree del quadro che rappresentano abiti, quella corrispondente alle spalle di Tommaso è praticamente sprovvista di drappaggio: la lacerazione perciò risalta sulla superficie liscia del tessuto come unico elemento di forma, al centro della zona luminosa corrispondente alle spalle e al braccio. [...] Da questo punto di vista, la lacerazione nell’abito di Tommaso, che al contrario della ferita è visibile soltanto allo spettatore del quadro, è interpretabile come un “effetto di reale”. [...] La piega nel vestito tematizza il passaggio da una figura bidimensionale – la superficie del tessuto – alla tridimensionalità della profondità; nell’ottica della spazialità del quadro, in effetti, è disposta nel punto più vicino all’osservatore: si direbbe anzi che coincida con l’intersezione fra lo spazio rappresentato e lo spazio dell’osservatore, tanto che la si potrebbe anche interpretare come una fenditura sulla superficie del dipinto, posto che il colore biancastro ricorda il colore della tela, e dunque il supporto stesso della rappresentazione pittorica. Così, proprio mentre l’incredulo discepolo esamina il corpo di Gesù per verificarne lo statuto di realtà, l’osservatore, dal canto suo, si trova a dover fare i conti con la lacerazione. Quest’ultima è disposta sulla superficie del quadro, e ha dimensioni ridotte, il che esige una relativa prossimità dello spettatore; l’atteggiamento di Tommaso nei riguardi della ferita è dunque assolutamente adatto a prefigurare lo sguardo dello spettatore dinanzi alla lacerazione: il foro, rappresentato in modo da poter esser scambiato per una fessura reale, sembra in tal modo suggerire allo spettatore un’esperienza mentale analoga al fare cognitivo del discepolo, che si realizza verificando lo statuto di un fenomeno non soltanto attraverso la vista, ma anche mediante il tatto. In questo modo l’osservatore finirebbe per scontrarsi contro il limite, in linea di principio invalicabile, fra due dimensioni: da una parte quella dell’enunciato – ovvero l’atto rappresentato –, dall’altra quella dell’enunciazione, ossia la dimensione della comunicazione con lo spettatore.” (pp.138-140)

Furthermore, Marrone also perfectly understands that the issue of experience is both a theoretical one and an interdisciplinary one:

“È indubbio del resto che nella comunità dei semiologi s’avverte l’esigenza di un ritorno a una riflessione interna su ciò che – come le nozioni di narratività e di testualità – sembra assodato (e perciò talvolta dimenticato, superato, rimosso...) ma che, non foss’altro che per la sua potenza applicativa, continua a richiedere integrazioni di tipo metodologico e interrogazioni epistemologiche di base. Una riflessione interna che, però, fa tutt’uno sia con quella volontà di dialogo transdisciplinare che la semiotica ha sempre praticato come sua vocazione costitutiva, sia con quella *curiositas* verso l’attualità culturale e sociale di cui essa s’è perennemente nutrita.” (p.9)

“Da qui un ulteriore elemento di discussione, ovvero la relazione fra i modelli narrativi proposti dalla semiotica e quelli utilizzati – in modo più o meno irriflesso – da molteplici altre discipline: dall’antropologia alla sociologia, dalla psicologia alla psicanalisi, dalla filosofia alle scienze cognitive. In questi come in altri assetti disciplinari torna sempre più spesso l’idea che la narrazione sia un modo basilare per dare forma all’esperienza – intra-psichica e inter-personale, micro e macro-sociale, vissuta fenomenologicamente e filtrata culturalmente. Può la semiotica prestare ausilio a queste diverse prospettive d’indagine (talvolta ingenua ai suoi occhi), fornendo loro l’apporto di modelli consolidati, sperimentati nel tempo e nello spazio, fondati teoricamente, discussi epistemologicamente? O, viceversa, è la scienza della significazione a dover importare al proprio interno riflessioni e ricerche che guardano alla narrazione in modi originali ed efficienti (cfr. Greimas, Ricoeur 2000)? (p.10)

To such fundamental questions, the semioticians inside this volume and sharing the same narrative paradigm of semiotics will give different answers. From our point of view the one exposed by Eric Landowski is perhaps the most interesting since it affirms that, without a doubt, semiotics needs new conceptual tools to face the topic of experience without reducing it:

“Non c’è dubbio che il senso del vissuto e l’esperienza sfuggono alla struttura canonica del modello narrativo classico; ma può questo solo fatto indurci a concludere che si tratta di nozioni inconsistenti e prive di qualunque pertinenza semiotica, alle quali in definitiva non corrisponde nulla di cui il semiotico debba occuparsi? Epistemologicamente, peraltro, siamo in presenza di un atteggiamento assai strano: si rinuncia ad analizzare un fenomeno sostenendo che i modelli di cui disponiamo non possono darne conto, invece di cercare di immaginare i nuovi strumenti concettuali necessari a chiarirne la natura. Dal mio punto di vista credo che una teoria debba affrontare a viso aperto la complessità del reale, senza tentare di ridurla entro i limiti che di volta in volta la caratterizzano. Il problema, a mio avviso, non è affatto il preteso statuto “extra-semiotico” dell’esperienza – con cui ci si libera in modo affrettato e sin troppo comodo di questa dimensione del sentire – quanto l’incapacità di darne conto che caratterizza i modelli semiotici esistenti; di conseguenza sono proprio quei modelli che bisogna cercare di rendere più potenti. [...] Al tempo stesso, però, visto che i modelli narrativi a noi noti – quelli che abbiamo ereditato da una tradizione consolidata (cfr. Greimas, Courtés 1979; Greimas, Fontanille 1991) – per quanto adatti a spiegare in forma costruttiva le significazioni prodotte nel quadro del “discorso della narrazione” si rivelano del tutto insufficienti a rappresentare il “vissuto dell’esperienza”, bisognerà altresì riprendere e completare la riflessione sulle forze della *narratività*.” (pp.35-36, my bold)

However, in Marrone’s perspective these questions are, on the contrary, mostly (and from our point of view unfortunately) rhetorical since he very clearly refers to other of his works such as “La cura Ludovico” (2005/2009) where his position and answer are extremely clear. A book in which, interestingly enough, since the very first chapter “electronic simulations of perception” are mentioned as a practice on the body making it *artificial*:

“After a long period of denial and despite those who still disregard it, the question of the body has taken the centre stage in contemporary intellectual thought. The body is discussed in philosophy, psychology, psychoanalysis, human and social sciences, historical and cognitive studies, theory of language and theory of signification. Actually, no other subject seems so intensely discussed. Besides, today the body is at the centre of a series of social practices—from the care for one’s appearance to complementary medicine, from plastic surgery to wellness clinics, from physical culture to electronic simulations of perception. All these practices tend to exalt and glorify the body, while transforming it into something artificial. At the same time, they also have the effect of denying it.” (p.7)

But most importantly a book in which the centrality of narration and language to inquire on the body involved in the human experience is strongly defended.

“At stake might not be the real body of our shared everyday experience; and not even the objective body that experimental science has been determined for centuries to anatomise and to understand its functions, by dissecting its organs. As I do not wish to reply with a question (what does “real” or “objective” body mean?), it suffices to say that **the only way that our experiences, bodily or not, can be accounted for and thus controlled is through a narrative.**” (p.8, my bold)

The different senses are described as languages and the whole bodily experience is both understood through Hjelmslev’s notions of expression and content and Greimas narrativity:

“Obviously the body has to deal with the different matters of expression of different languages - aural, olfactory, tactile and so on and so forth. It contributes in a crucial way to their semiotic formation and to their articulation in signifying substances. Besides, the body is present in the plane of content of those very languages. Once incorporated in them the body constitutes the “downstream” figurative level that makes manifest, concrete and likely any abstract thematic content. At the same time, the body is located “up stream” of these contents, acting as the ground where semantic categories and their articulation can be established. Openings and closures, expansions and contractions, impulses and resistances, energies and matters, forces and forms, aims and holds are each a prototypical corporeal process. They can be cognitively reinterpreted as states and transformations, actions and passions, operative programmes and modes of doing, and perhaps even as adversities, contradictions, complementarities, affirmations and negations.” (p.20)

Which lead of course to also include human emotions and passions in such perspective:

“If the meaning of human experience, thus the construction of subjectivity, is grounded on narrative logics, these logics not only organize sequences of actions but also affective processes. A narration is not only a series of organized actions toward certain, more or less anticipated, goals, it is also a series of passions interlinked with actions, both provoking and enduring them. (p.19)

And the body is inconceivable outside of culture and society:

“The living, substantial, real body of the human experience is always a social body, a body in action and affected by passions; a body that perceives itself and the world insofar as it is always already world in itself; a body that is an essential component of the world with which it shares profound cultural configurations; a body, ultimately, that is affected by and, in turn, affects the destiny of the world.” (p.11)

Ans lastly a position that is explicitly deemed as irreconcilable and in conflict with others such as the one of neurosciences:

“As for the laboratory experiments that contend with the bodies of science, it suffices to remember that, beyond their social and political status, they should be considered as spaces created *ad hoc* with the aim of verifying pre-existent hypotheses. Not only these experiments are totally artificial; but the bodies of the laboratory inhabit a space which is infinitely more fictitious than that of the bodies which circulate freely in the imaginary but entirely feasible world of literature or cinema. If the textual analysis of aesthetic works might be preferred to (or eventually reach the same empirical value of) scientific experiments, it is only because the object of textual analysis, contrary to the object of laboratory experiments, was certainly not made to be an object of analysis. Rather, these works exist in the world, they are part of the semiosphere, regardless of the semioticians who one day (perhaps for undisclosed personal reasons) might decide to analyse them.” (p.8)

A position that 15 years later seems almost the same when we see that during the 2019 AISS conference on enunciation, at the end of his plenary professor Eugeni's was criticized by Paolo Fabbri and Gianfranco Marrone for having shown a recent research about mirror neurons. Critiques that consisted in claiming that 1) Semiotics already knew this, 2) that those results were valid only inside the lab and finally that 3) these research could not be useful to Semiotics since they had nothing to do with signification. And an “hostility” which is shared by many semioticians all around the world since the same critiques were also raised at the 2019 Mundial Congress of Semiotics in Buenos Aires during a presentation on enactivism evoking the death of representation by Martin Saavedra³³. At light of all this, we can now understand the strength and weaknesses of such perspective from our viewpoint and for our personal goals. On the one hand, the perspective on the body and the experience of the narrative tradition is extremely precious to have a more complex notion of them and will be used by ourselves in terms of:

- Symmetrical narrativization and modalization of the viewer/reader/user
- Immersiveness as an effect of reality blending of space of the utterance and of enunciation
- Semantics of the feelings, emotions and perception

On the other hand, we will have to abandon its contradictory, ontological and unnecessarily contrastive position toward other approaches. Contradictory since the greimasian methodology used by authors such as Marrone is a perfect laboratory, conceived to exclude any variables that would compromise the expected result and with a so intense metalinguistic level of abstraction that some kind of results will always emerge. Even the text chosen by Marrone to discuss about the body as semiotically constructed is extremely convenient. Therefore, the critique of Marrone to “natural sciences” is very badly placed and paradoxical. Ontological because on the basis of ontological structuralism it ends up by almost denying the body involved in the experience in non-semiotic and non-cultural terms, postulating a state of reality which would be a very serious problem for surgeons. Simply put, the model of explanation and its language should be confused as the real thing. Unnecessarily contrastive since, as we will prove with our work, there are, as Eco believed too, many possibilities of collaboration and to enrich each other.

³³ <https://www.worldcongressofsemiotics2019.org/es/congreso-de-semiotica/sessions/el-enfoque-enactivo-y-la-muerte-del-representacionismo>

2.1.2 Experience as cognition

After this brief glance at the narrative tradition of and approach to the experience, it is of course also important to look at the more cognitive-oriented tradition of semiotics.

Although only a little part of European's Semiotics would define itself as "cognitive", truth is that the problem of cognition is inseparable from all the central issues of Semiotics such as the one of interpretation and of meaning-processing through a formal structure. In fact, even the branch of Semiotics closer to Linguistics and apparently further away from the issue of cognition itself is actually based on an a-priori cognitive hypothesis that constituted, back in the golden age of structuralism, an epistemological guarantee: a correlation between language and thought that expressed itself in different social and cultural manifestations. As a matter of fact, any theory of meaning-making has to include, at some point and in some parts, some hypothesis about *how we think*. And this is especially true in relation to language that, since the early Greek philosophy (Eco, 1993/1995, p.11), always implied some kind of hypothesis on its relation with thought. Even on the side of cultural investigation the topic of the mind as always been present in Semiotics, although not always as explicitly as in the case of Lotman for which culture had to do with mechanisms of a collective mind (1977) and played a central part in structuring the mind of the individual. A topic that both in Eco with the concept of *Enciclopedia* and in Lotman was directly related to the issue of societies creating identities and new ideas from a collective memory and semiotic form of intelligence. Indeed, the creation of new messages was for a semiotician like Lotman the "crux of the mental act itself" (1977, 5). More generally, we can say that:

"Given that semiotics is usually defined as the study of signs, or more generally meaning, and the polysemy (and current popularity) of the term "cognitive", just about any semiotic theory – from those of Peirce and Saussure to Eco (1999) and Hoffmeyer (1996) – could qualify as a "cognitive semiotics"." (Zlatev, 2012, p.3).

Yet, this correlation between language, culture and thought has been unfortunately often given for granted in the last years, or at least apparently not enough problematized. Indeed, the linguistic theory of structuralism had many cognitive implications and was not however a cognitive theory. This constitutes its Achilles' heel and is at the origin of many critiques that raised when, during the nineties, cognition became the main interdisciplinary focus. This is evident not only outside of Humanities, reading authors such as Steven Pinker (2003), but also when we look at schools such as *integrationism* that raised precisely against some of these ideas that were negatively defined as myths: "briefly stated, that myth holds that linguistic communication involves the transfer or conveying of thoughts from one mind to another, and the related notion that languages achieve this by virtue of being 'fixed codes' (Harris, 1998:32). In this sense, integrationism can be understood as an extended critique of Saussure and the discipline of linguistics that took the Course in General Linguistics as its founding text." (Pablé & Hutton, 2015, p.1). Furthermore, these critiques highlight also the philosophical premises implied by such a theory "Saussure's theory of language is resolutely cartesian, in that the social system of langue inhabits an autonomous mind." (Pablé & Hutton, 2015, p.2) and that, once again, were not at all the main problem of Saussure.

On the other side, what is known and commonly recognized as “cognitive semiotics” is an application of semiotics that is very well aware of this kind of problem and tried to give to language its “right” place by recognizing its limits:

“ There is no reason to believe that our three main lines of interaction (with nature, society and mind) should follow inherently one and only one type of structuring principles – e.g. grammatical patterns. Linguistic sentence-and-phrase syntax and grammatical linearization rules are not found outside the domain of language proper (though word class structure and case structure may be of a more general nature than syntax). [...] *Language*, the emotional *Imaginary* and perceptual *Iconicity* seem to yield separate primary processing, which consciousness then merges and combines in infinitely many ways – probably using a finite set of formal, conceptual schemas *sui generis*” (Brandt, 13-14, 1995).

Whereas for most of structuralist semiotics language is ultimately the form of meaning itself, for cognitive semiotics there are several levels and language is only one of them:

“ Meaning – in the context of cognitive semiotics – is characterized at the four levels exemplified above: the level of life, levels of consciousness, signs and language”. (Konderak, 2018, p.10)

More specifically, Cognitive semiotics has an history and a series of distinctive characteristics that have been well summarized in Zlatev’s 2012 article “Cognitive Semiotics: An emerging field for the transdisciplinary study of meaning”. Among these, three are of particular importance.

First of all, it judges the structural approach to meaning as too much “static” and differently studies meaning in terms of dynamic and variable processes:

“At the risk of using a notion that has reached almost fetish status during the last decades (“everything changes, nothing is static”), one can make the generalization that CS studies meaning on all levels – from perception to language, along with the various forms of “external”, cultural representations (theatre, music, pictures, film, etc.) – primarily as dynamic processes rather than static products. Though the latter can be a convenient descriptive shorthand (e.g., of the “lexicon” of a language, or the “repertoire” of gestures in a community), nearly all CS scholars have made the point that viewing meaning in purely static, structural terms is insufficient for understanding the essentially relational, subjectrelative, and (often) interpretive nature of semiosis.” (p.16)

Secondly, it shares none of the hostility of the structuralist semiotics toward cognitive science:

“Cognitive Semiotics (henceforth CS) can be defined as an interdisciplinary matrix of (subparts of) disciplines and methods, focused on the multifaceted phenomenon of meaning. It is an emerging field with the ambition of “...integrating methods and theories developed in the disciplines of cognitive science with methods and theories developed in semiotics and the humanities, with the ultimate aim of providing new insights into the realm of human signification and its manifestation in cultural practices” (Zlatev, 2012, p.2)

Something which also depends on the inclusive approach to meaning-making that characterizes the European studies on cognition:

“Whereas the North American cognitivists decisively reject the basic doctrines of modern film theory (a.k.a. ‘contemporary’ film theory, based upon structural linguistics, semiotics, Marxism, and psychoanalysis), the European cognitivists inaugurate a revolution in modern film theory by returning to and transforming its early stage – that is, the semiotic stage. Both groups therefore reject psychoanalysis and replace it with cognitive science. However, the European cognitivists assimilate cognitive science into a semiotic framework, whereas the North American cognitivists work within a pure cognitive framework (one untainted by semiotics).” (Buckland, 2000, p.2)

In fact, CS present a transdisciplinary approach including also psychology which is described as distinctive (Zlatev, 2012, p.17). Although:

“The relationship between the two interdisciplinary matrixes is complex and deserves more attention than can be given here. There is considerable overlap, and in a number of ways the relation is still open to negotiation. But in a nutshell, cognitive science has from its onset in the 1950s adopted an explicitly physicalist (computational and/or neuroscientific) take on mind, connecting to the humanities quite selectively, and above all to philosophy of mind with a distinctly reductionist bent (e.g., Dennett 1991). CS is, as we will see, considerably more pluralist in its ontological and methodological commitments, and thus, with a firmer foot in the humanities” (Zlatev, 2012, p.3)

Lastly, and interestingly enough, the concept of experience is absolutely central in the very history of the birth of such interdisciplinary perspective:

“But in the last two decades of the century, researchers from developmental and cognitive psychology (Bates, Bruner, Tomasello) and linguistics (Langacker, Talmy, Lakoff) turned increasingly to “experiential” notions such as schematization, (joint) attention, metaphor, and narrative. The ground was thus set for a rapprochement.” (pp.3-4).

Indeed, many of the topics related to the problem of the experience between body, language, culture and mind can be found as the main issues of important authors such as Zlatev or Sonesson:

“More recently, I have struggled with the proverbially “hard problem” of consciousness. In agreement with Sonesson, I see phenomenology as providing tools to address the complex interrelations between bodily experience, sociality, and language (Zlatev 2010).” (p.7)

Something which is also related to the close relationship between CS and the linguistic concepts born during the experiential turn of semantics:

Cognitive linguistics and its most prominent subfield cognitive semantics arose in the late 1970s in reaction to the dominance of formalist and modular approaches to language and cognition, such as Chomskyan linguistics and computationalist cognitive science. Unlike these, cognitive semanticists like George Lakoff, Ronald Langacker, and Leonard Talmy claimed that language is above all characterized by meaning, and that linguistic meaning is continuous with cognition and consciousness. At least in the earlier works, such claims were presented as part of a more general philosophical enterprise called “experientialism” or “embodied realism” (Lakoff and Johnson 1980; Lakoff 1987; Johnson 1987). Lakoff and Johnson (1980, p. 181–182) described this as being indebted to “central insights of the phenomenological tradition, such as the rejection of epistemological foundationalism, the stress on the centrality of the body in the structuring of experience, and the importance of that structure in understanding.” (Zlatev, 2015, p.1045).

In particular, three of these concepts are extremely important for CS: image schemas, conceptual metaphors, and construal processes. Of these, the second one and more broadly the second one will have a great importance.

“A similar assessment can be made on what is now known as conceptual metaphor theory, an extensive body of research based on the original *Metaphors We Live By* (Lakoff and Johnson 1980), that changed the traditional meaning of the term “metaphor” by claiming that metaphors are essentially conceptual “crossdomain mappings” used in thought, and only secondarily expressed in language. Some of these mappings have been argued to be “primary,” e.g., SIMILARITY IS CLOSENESS, and based on presumably universal prelinguistic experience (Grady 2005).” (Zlatev, 2015, p.1045)

This approach is thus highly compatible with ours, especially in the cooperative terms of how semiotics can be used by cognitive sciences and of how it can use it:

“Such a combination was supposed to overcome the limitations of these two disciplines. Cognitive sciences, as seen by semioticians – lacked a proper conception of meaning. In addition, it ignored the specificity of various kinds of sign-vehicles. The task of semiotics was to provide a relevant notion of meaning and deliver conceptual tools for analyses of meanings. Semiotics, in turn, was considered a primarily theoretical discipline: autonomous in regard to other empirical fields of study. Accordingly, cognitive science was expected to supplement semiotic theories with empirical findings. Mutual cooperation between semioticians and cognitive scientists with particular emphasis on phenomenological issues promised to provide an appropriate account of meaning.” (Konderak, 2018, p.11)

Nonetheless, CS still presents few issues for which this work cannot be recognized under this paradigm.

First of all, the inquiry of cognitive semiotics is aimed toward a theory of the mind in terms of specific semiotic mechanisms through which meaning occur, such as “image schemas” or “conceptual metaphors”. Differently, our approach will use similar concepts to deconstruct the texts of our corpus but without having as a main objective to elaborate or defend a particular semiotic theory of the mind. Very similarly the previously mentioned issue of the narrative approach, we are not here interested in the validation or verification of a given metalanguage but far more in a fruitful usage of this conceptual set to obtain results both in and out of semiotics.

Secondly, and accordingly, cognitive semiotics main objects of research are somehow distant from the textual approach characterizing both the other traditions. Still referring to Zlatev's article, we can see this in the main themes inquired: gestures, child-development, Bio-cultural evolution and embodiment. This also involves a somehow different methodological approach more closely related to empirical research, which is an explicit value of CS. Differently, our work will include many empirical research but is not aiming to be strictly speaking empirical by itself.

Which brings us to the third point, related to the fact that while CS is deeply rooted in the Peircean tradition of semiotics, it has developed somehow differently in respect to Eco's own Peircean approach and application on the cultural inquiry in terms of encyclopedia and interpretation. CS is in this regard a semiotic of signs, while the other tradition of semiotics has embraced the "textual turn" postulated by Paolo Fabbri in 1998.

Finally, CS is also strongly grounded in phenomenology from a theoretical point of view (p.15), a discipline which is for us a precious ally for some issues but not a part of our core approach.

Therefore, while on a general perspective cognitive semiotics has "the ultimate aim of providing new insights into the realm of human signification and its manifestation in cultural practices" (Zlatev, 2015, p.1043) there are some important differences from this approach and ours to the "experience".

2.1.3 Experience in the middle

In this thesis we will adopt a perspective and methodology that are somehow in the middle between the narrative and cognitive approach. A conciliative proposal that was simply needed for this work. Such proposal has two main prerequisites:

1. First of all, we need to agree on a fundamental point: meaningfulness and signification are the heart of our conscious experience and are heavily rooted in culture. Without a doubt they depend on more than cognition and embodiment, but they could not occur without it and are surely greatly influenced by it. Any empirical research on the brain and philosophical reflection on the mind are thus *potentially* useful and should at least be considered as a ground for more semiotic hypotheses about the interpretive processes occurring during the experience of a virtual reality.
2. Secondly, we need to adopt a perspective which is not aimed toward demonstrating a particular theory but is rather interested in choosing the most efficient explanation to shed light on a particular problem raised by a given cultural artifact. In this sense, while very often the direction of traditional approaches to virtual realities can be summarized in:



Our analysis is differently oriented in:



Since this statement can be controversial, allow me to make two very significant examples. In her 2008 book “Dentro lo schermo. Immersione e interattività nei god games”, Meneghelli was claiming that the different shots (third person, first person) in videogames could be understood in the greimasian terms of *débrayage* and *embrayage*. Similarly, in the 2018 “The Semiotics of the Game Controller” Blomberg was claiming that the input pressed on the controllers could be considered as signs and therefore as icons, symbols and indexes. In both cases the results were not by themselves resolving any issues related to the object (the question “why do we understand a third person view shot?” simply doesn’t exist from an interdisciplinary standpoint) but they were using a particular metalanguage to face the particular issues and themes of semiotics: saying that a first person shot is a *débrayage* and that pressing x in a caring game to accelerate is using an icon does not really explain anything “new” about the object that couldn’t be explained in other terms. There is of course nothing wrong about this approach, which is ultimately defending a semiotic point of view in terms of our interpretation of the world as either linguistic or sign based. However, from an interdisciplinary and social point of view these results are hard to evaluate and to apply. This is why, as a complement of such approaches, we have chosen to focus on more concrete issues and perhaps less noble themes. Specifically, this thesis will try to answer to two main unanswered questions.

First of all, to why the users of virtual reality are actually enjoying and finding some kind of meaningfulness in mashing buttons in front of moving images. Therefore, a question to the social and cultural relevance of digital games answered in terms of the formal properties of digital games. Secondly, to how can we conciliate all the different theories of meaning-making coming from very different disciplines elaborated in the last forty years. More precisely, four different aspects which, as of today, have not yet been put together:

1. Phenomenological issues and proposal about virtual embodiment and sensorial immersion
2. Informatic issues and proposal related to the user's interaction with the software
3. Cognitive issues and proposals related to the role of body and emotions involved through inputs
4. Narrative issues related to the more explicit content and themes of games.

Once we accept this, and are then freed from the necessity of understanding the whole meaningfulness in either one of these two paradigms and metalanguages, we can then integrate both these approaches by using them on the *different layers of meaningfulness*. An idea actually rooted in Per Aage Brandt's precious acknowledgement of the difficulties for *any* kind of semiotics to inquire on the impact of the digital technologies and virtual realities:

"neither the interpretative semiotics based on the Peircean tradition (such as Eco 1976), nor the structural semiotics of the Saussurean tradition (such as Greimas 1976) though both are necessary, seem sufficient to follow up the substantial change induced by the on-going implementation of these machines in our 'life world,' probably for the very simple reason that even these often rather sophisticated semiotic elaborations fail to see what a 'symbolic machine' actually is and what it can do" (1993, 128)."

Furthermore, an integrative idea shared and prospected by Meneghelli herself:

"Se il gioco non ha senso se non in quanto discorso in atto, in quanto significazione come processo in fieri, la semiotica o sceglie di non interessarsene o decide di tenere conto degli aspetti fenomenologici, passionali e perché no psicologici (anche se questo termine ha sempre fatto troppo paura alla semiotica!) della significazione." (2005)

Indeed, our solution to overcome this situation is to not only use both a narrative and cognitive approach to meaningfulness in virtual realities but to use them *together* although at different levels:

- A prosthetic level of semiotic access to a virtual world through our senses
- A narrative level of semiotic modelling of our experience determined by agency
- A common level of semantics shared between non-linguistic enacted inputs and linguistic representational elements visible on the screen.

A choice and approach that would not have been possible without Claudio Paolucci's work which, especially in the last ten years, created a solid theoretical and epistemological ground that is extremely useful for our purposes.

With this said, we can now start to examine the main authors through which virtual realities will be studied and analyzed in the two last chapters of our work.

2.2 Ugo Volli : what is a semiotic of experience?

We have seen that the concept of experience is absolutely central in the discourses of virtual realities: these products are sold as experiences, experience is the name given in games to the resource allowing a mathematic improvement of the player, players have invented the verbal form “exping” to refer to self-improvement, and the critique of games constantly use not only the explicit term of experience but also the close related one of “feeling” and “immersion”. Consequently, this thesis wants to offer a method to study meaningfulness and experience in virtual realities. But can semiotics study such a thing as an experience? Thirteen years before us, Ugo Volli was already highlighting the problem of such a task:

“Cos’è l’esperienza? Le esperienze non sono cose *del mondo*, naturalmente, anzi non sono affatto cose, né “generi naturali”, e neppure sono stabilite per stipulazione esplicita come molte entità sociali (dai matrimoni alle discipline scientifiche, dalla moneta alle note musicali). Non hanno neppure lo statuto di oggetti teorici costruiti nella pratica scientifica, non sono idealità matematiche. Tutto questo è ovvio, ma esclude le esperienze dal campo degli oggetti con cui sappiamo bene come comportarci dal punto di vista teorico. Che cosa è dunque l’esperienza? Lo statuto minimo che non possiamo negare è quello di una *parola* del nostro lessico, un’*entità testuale* che ricorre abbastanza spesso e che viene di solito usata per definire certe classi di descrizioni del mondo, o di passioni che lo riguardano.” (p.17)

This brought him to the semantic analysis of the concept of experience:

“È interessante notare che *experiri* è un verbo composto dalla preposizione *ex* e dalla radice indoeuropea **per*, che compare nel vocabolo greco corrispondente *empeiria* (su cui dovremo tornare), anche qui con l’aggiunta di un prefisso preposizionale *en*. Questa radice, che indica rischio o prova, compare in parole come pericolo, pirata, repertorio. I sensi del vocabolo latino *experiri*, abbastanza vasti e variati, risentono del contenuto fondamentale di tale radice. [...] Si vede che il nucleo semantico fondamentale del verbo è quello del “mettersi alla prova affrontando un antagonista in diversi modi ed eventualmente trarne una conoscenza”.

And to highlight two main semantic nucleuses in the modern use of this concept: the one of *past-experience* as a form of acquired *knowledge* and of *present-experience* as a *personal and subjective* form of *consciousness* including *feelings* and *thoughts*. (p.19). The first aspect, says Volli, is semiotically interesting because it can be doubted, repeated and shared:

“Il carattere pubblico e ripetibile dell’esperienza linguistica e in generale semiotica (cioè della pratica attiva e passiva della comunicazione) è la garanzia del carattere regolare del senso, che lo sottrae alla dimensione privata, puramente psicologica, o meglio relega quest’ultima fra gli effetti secondari della comunicazione. È in questo stesso senso – di evento in linea di principio pubblico e ripetibile, caratterizzato dal principio di fiducia nell’intercambiabilità dei punti di vista di Schutz (1971) –, che il termine viene assimilato alla tradizione filosofica nel dizionario di Abbagnano (1971, pp. 323-330). [...] Insomma l’esperienza, per Aristotele come nella definizione di Abbagnano, è un grado, minore ma valido, della conoscenza, non solo *ripetibile*, ma frutto di ripetute osservazioni e della loro memoria, quindi *già ripetuta*, per definizione non unica. Non vi è qui in nessun modo una dimensione soggettiva nel senso di *experience present*, di stato interno del soggetto, anche se la definizione aristotelica può certamente presentare un lato personale, ma solo nel senso *1.* di Abbagnano.” (pp.19-20).

Differently, when we nowadays talk about experience we talk about a present-experience (which in German has its own lexical entry) characterized by the opposite characteristics:

“Autonomia, primato e non interscambiabilità sono infatti le proprietà che maggiormente caratterizzano l’*experience present* di Williams e di tutti coloro che oggi la danno per scontata, anche se si tratta di esperienze estetiche e non di gnosi mistica della divinità. In particolare le semiotiche dell’esperienza proposte riguardano questa accezione e non certo il problema dell’accumulo della conoscenza che si realizza in esperienze ripetibili.” (p.21)

“Il termine che la fortunata lingua tedesca conosce per questa nozione di esperienza è *Erlebnis* (che si contrappone alla normale *Erfahrung*). [...] Quando si parla di semiotica dell’esperienza, ci si riferisce evidentemente a questo orizzonte teorico, che però nella cultura contemporanea è certamente minoritario.” (p.24)

However, as Volli explains, this very idea of experience is grounded on culture as much as in our phenomenological experience of the world:

“Il nostro problema riguarda dunque essenzialmente quest’ultima accezione di esperienza e il modo in cui essa si è affermata (in un momento più tardo rispetto alle altre accezioni, come risulta da tutte le ricostruzioni di storia della lingua che abbiamo riportato sopra) come uno dei dati caratteristici della descrizione occidentale moderna dei rapporti fra “soggetto” e mondo. Questo modo di vedere è senza dubbio il frutto di una storia complessa, che da un lato ha a che fare con la progressiva affermazione della nozione di soggetto (in quanto distinto da io, da persona, da essere umano, da mente, dal sé ecc.) nella filosofia europea e nella naïve psychology della modernità occidentale. Dall’altro, come vorremmo sostenere, quest’idea e perfino quest’esperienza (giacché senza dubbio esiste in noi l’esperienza dell’esperienza) si lega a una specifica tecnica narrativa caratteristica della nostra cultura.” (p.21)

Additionally, Volli points out how Semiotics was born within a theoretical and epistemological context opposed to the present-experience:

“Nella generazione successiva a Heidegger, ancora in modi molto diversi, Sartre, Merleau-Ponty e Lévinas lavorano intorno al problema del senso dell’esperienza individuale. È questa la sorgente anche dell’ermeneutica novecentesca, da Ricoeur a Gadamer, che raccolgono anche i contributi delle teorie storicistiche alla Dilthey. È interessante notare che lo strutturalismo (e la semiotica) si affermano in polemica con queste tendenze, per riaffermare una conoscibilità oggettiva dei contenuti della coscienza, almeno nella misura in cui sono esteriorizzati in segni o se si vuole in testi.” (p.22)

“Anche la linguistica, con la svolta strutturalista, ha stabilito procedure che (come la prova di commutazione) ignorano l’intimità della coscienza del parlante e badano invece al suo comportamento sollecitato sperimentalmente.” (p.24)

Indeed, the study of meaning in such terms has not given satisfying results in other disciplines and could hardly do it inside a semiotic paradigm:

“La ragione è abbastanza decisiva anche da un punto di vista semiotico: James e molti dopo di lui hanno mostrato che le *descrizioni dell’esperienza* (nel senso di *experience present*) non sono stabili nel tempo, né confrontabili fra soggetti diversi. È possibile solo ricordare qui la gran mole di studi di filosofia della mente, neurologia del cervello, scienze cognitive che negli ultimi decenni sono andati a caccia dell’esperienza e dei suoi supposti elementi ultimi, i cosiddetti *qualia*, di solito secondo paradigmi riduzionisti, cioè ponendosi il problema di legare l’*apparire* dell’esperienza ai modi di essere del cervello.” (p.23)

Yet, Volli also underlines how any cultural approach has tackled and will inevitably tackle with some forms of present-experience:

“Non ci darebbe quasi critica letteraria e cinematografica, psicologia clinica, narrazione storica se non si applicasse sistematicamente ai personaggi che vi compaiono quella che Daniel Dennett (1987) ha chiamato “*intentional stance*”, cioè l’attribuzione di stati mentali ed esperienze ai loro protagonisti. La proposta di una semiotica dell’esperienza si situa naturalmente all’interno dell’“*intentional stance*”. Naturalmente questo atteggiamento è del tutto naturale e sarebbe difficile vivere senza adottarlo nelle più diverse circostanze della vita quotidiana, e in particolare di fronte alla narrazione attiva (cioè prodotta da noi) o passiva (cioè ricevuta in qualche forma).” (p.24)

But what is the nature of this experience? Certainly not a “intimate” one, but, for Volli, a narrative one perfectly explainable in semiotic terms:

Nondimeno, si tratta di un *effetto di senso* che presuppone una *produzione semiotica*. L’attribuzione di passioni, esperienze, volizioni ecc. ai soggetti coinvolti in varie forme di discorso, dal punto di vista semiotico, deriva evidentemente da una loro posizione narrativa, che si tratti di quel che Eco chiama “narrativa artificiale”, cioè finzione vera e propria, o di una narrativa “naturale”, cioè storico-giornalistica, o infine di quell’attività narrativa inconsapevole e continua con cui noi diamo senso al mondo e a noi stessi e che può essere identificata nell’attività della coscienza, come sostengono anche illustri riduzionisti come Dennet ed Edelman.” (p.24)

“L’esperienza da questo punto di vista ci appare essenzialmente come una particolare forma di *embrayage attanziale* per definizione successiva a un *débrayage*, in cui la posizione della narrazione si identifica alle passioni dell’attore, non assumendo semplicemente una *focalizzazione interna* (per usare i termini di Genette) ma sforzandosi di farsi *intima*, affermando implicitamente una posizione *interna* al personaggio in qualche modo più o meno marcato: alcuni modi diversi, come il flusso di coscienza, il discorso libero indiretto, le forme più tradizionali introdotte da “x pensò, volle, credette, si disse, vide, sentì ecc.”. Pure va detto che si tratta di posizioni *narrative*, di effetti di senso, della costituzione di stili di enunciazione, e non di qualcosa di *semplice, diretto e vero* come vorrebbe la coscienza naturale.” (p.24)

This lead Volli to point out both the risks and goal of a semiotic of experience. Specifically, the author argues that an ontologized greimasian perspective would not be fit for such a task:

“Siamo dunque in grado di proporci come obiettivo lo studio con strumenti semiotici delle esperienze “reali”, cioè di quelle che (supponiamo) provano le persone che incontriamo o quelle che proviamo noi stessi? Un rischio maggiore, nella semiotica contemporanea, soprattutto di matrice post-greimasiana, è l'appiattimento della differenza di livello logico fra linguaggio e metalinguaggio, fra unità testuali e componenti della teoria. Capita così abbastanza di frequente di leggere (e anche da illustri studiosi) che vi sarebbero degli *attanti* a fare certe cose (che sarebbe come porsi il problema giuridico dell'esercizio del diritto di proprietà da parte dei complementi di specificazione), o magari che una certa realtà, per esempio corporea, è un attante (come dire che Torino è un complemento di moto a luogo, dato che spesso ci vado).” (p.24)

“Un rischio analogo (questa volta di confondere il livello della costruzione testuale con il mondo di sfondo) sarebbe pienamente realizzato in un atteggiamento che prendesse dati e modi di funzionamento testuale (in particolare di testi artistici) per *descrizioni vere* della struttura della realtà, magari pomposamente definite come *analisi fenomenologiche*. Si ignorerebbe così che i testi narrativi sono dispositivi per realizzare certi effetti sul lettore e per riuscirci non raddoppiano affatto la struttura della “realtà” (o mondo possibile che descrivono), ma la deformano, per esempio sottolineando dettagli e omettendone altri, o deformandone la struttura temporale (su questo punto vedi il mio studio sulle diverse organizzazioni delle temporalità narrative, *Tempo interno e tempo esterno ai testi*, 2003). Questo problema si ritrova con molta evidenza in *Dell'imperfezione* di Greimas, e soprattutto in molte analisi che ne hanno seguito la traccia, dove si confondono certi dispositivi di *concentrazione delle descrizioni*, che sovente i testi adottano per far percepire l'acme della storia (il che, come sapeva già Aristotele e hanno largamente teorizzato i formalisti russi, è una delle principali condizioni di buon funzionamento e di impatto emozionale dei testi narrativi), con condizioni più o meno mistiche di funzionamento esaltato del mondo o almeno con delle *esperienze forti* che gli attori presenti nel testo (o addirittura, per carità gli attanti) proverebbero. Mettere in rilievo il dispositivo di concentrazione estetica di cui stiamo parlando è stato senza dubbio un merito di Greimas, ma è un errore non solo empirico ma teorico estrarlo dalla meccanica del testo, dal suo lavoro di costruzione di effetti di realtà, per collocarlo nel mondo. Si ignora in questo modo il fatto basilare che Renzo e Lucia, Ulisse e Lucien Leuwen, come tutti i loro fratelli, sono fatti solo di parole (e di immagini ecc.) e non dunque possono *esperire* nulla; ma che al contrario, il modo in cui sono organizzate le parole che li narrano serve a far provare emozione a noi.”. (pp.24-25)

And that the only reasonable semiotics of experience can be one aimed to deconstruct experience by focusing on its narrative a cultural dimension and to highlight thus the *erlebnis* as an effect.

“Se il nostro primo compito specifico come semiotici di fronte all'esperienza narrata nei testi consiste dunque nel de-naturalizzarla, mostrandola come effetto narrativo che a sua volta ha un posto di rilievo nella grande macchina della narrazione, lo stesso gesto deve valere anche all'inverso. Noi dobbiamo saper vedere in ogni pretesa di cogliere l'esperienza altrui (e in definitiva anche la propria), un gesto narrativo soggetto per sua natura a un *débrayage*, che dev'essere analizzato con tutto il distacco riservato ai testi di finzione. Il che significa relativizzarla, coglierne la dimensione culturale, de-naturalizzare anch'essa. Sapere che, come ciascun analizzando, secondo una vecchia battuta non priva di verità, sogna secondo l'orientamento del suo psicoanalista (vedendo archetipi se costui è junghiano, simboli sessuali se è freudiano ecc.), così ognuno di noi ama, si arrabbia, percepisce, decide, ha fede ecc. secondo il proprio contesto culturale e quindi linguistico. Non vi è nulla di naturale o di immediato negli *Erlebnisse*, la vita vissuta non è meno culturale delle parole scritte nei libri, anche se le parole scritte nei romanzi non testimoniano affatto la verità di una vita interiore. [...] È a questo livello e solo a questo livello che si pone la possibilità di una semiotica dell'esperienza: come *decostruzione dell'esperienza* e come *studio delle strutture linguistiche e semiotiche che la definiscono* in ogni determinato contesto linguistico e culturale. Studiare l'esperienza del tempo o del corpo o dell'amore da un punto di vista semiotico non potrà certo voler dire pretendere di aver accesso alla *vera* dimensione del corpo e del tempo e dell'amore esprimendo la nostra presunta esperienza *immediata* di queste dimensioni, se non altro perché tale esperienza non è affatto immediata, ma anzi fortemente mediata dalla costruzione culturale che abbiamo ereditato a questo proposito, da categorie come i tempi grammaticali e l'uso dell'orologio stabilizzato in certe forme in un caso, dalla *naïve biology* cui siamo stati acculturati da piccoli e da nozioni religiose nell'altro e da norme giuridiche, narrazioni letterarie e ancora prescrizioni religiose nel terzo.” (pp.25-26).

“Semiotica dell'esperienza sarà dunque un lavoro di autocomprensione non individuale ma culturale, nello sforzo di definire per contrasto con altre culture e in maniera genetica le caratteristiche strutturali, le genealogie e le etimologie che danno luogo al nostro *Erlebnis*, che si presenta come concreto e immediato proprio perché è costruito e fondato su grandi categorie astratte.” (p.26)

We cannot but agree with both Volli's preoccupation and semiotic conception of the experience, but nonetheless the specificity of virtual realities require us to make some clarifications. First of all, there are three important points of agreement between our perspective and the one of Volli:

1. The experience is not the specific object of study of this thesis nor hypothesized as a separate object of study that requires a specific semiotics.
2. The interest on the experience of virtual realities is not aimed to discuss or analyze the intimate content of the subject's consciousness. Even our interest in the emotional aspects of virtual realities is non-sensible to the specific ways in which such emotions are subjectively experienced (i.e.: the specific anger, frustration or fear).
3. If we are interested in the experience it is only because in virtual realities such experience is designed and created ad-hoc, thus it is possible to deconstruct it and highlight it as an effect creating an *intersubjective* content and meaning.

However, digital games and VR experiences require to take into account some specific aspects:

1. Differently from other kinds of texts, in virtue of both the strong psychophysical involvement and fallibility of most virtual realities, they often offer a proper experience in the sense of something not subjectively sharable that can only be learned through personal training and repetition. You cannot, for instance, fully share your knowledge on how to perform the “moment 37” parry in *Street Fighter* or how to climb the Everest in VR. You can instruct someone on the correct inputs required, on the mechanics and general AI behavior, you can show it to someone to objectively prove what you are saying, but despite all this the other person will still need a personal involvement and training to do it. Additionally, very often in virtual realities the users do not have to empathize with or hypothesize the intensions or feelings of a character since the causality of what is happening on the screen are actually absent from the text and are identical with (and only known by) the ones of a user. When *Lara Croft* (Tomb Raider, 1996) fails a jump, is she frustrated? Why did she fail such jump? What was she trying to accomplish? Such questions have no answer in the text and are only known by the player/user. For these reasons, even if on the surface these texts appear as novels, movies and so on we must accept that they are sensibly different since their understanding is strongly bounded with the required *actions* and *decisions* of a user.
2. There is an overwhelming literature on how the VR technology can be used to simulate so realistically some situations that they allow for both professional training (such as surgeons) and rehabilitation (both physical and psychological). This realism is of course designed and the result of signs used through communicative criteria, yet its efficacy has very little to do with narration in its common sense. Very simply, it is due to the fact that the design of virtual realities (and thus of their experiences), from hardware to software, is heavily based on mathematics, physics and a scientific knowledge on the human body and psychology. The declared goal of immersive technologies is to allow for communication through *naturally perceived data*: even though shooting with a gun in reality is without a doubt different than it is in VR, it is still the closest thing to reality that any medium has ever achieved. Exactly as the verbal description of a novel, many aspects of a real gun will be absent from the control of a digital one (such as the feeling of metal since the joystick is made of plastic), but the design behind such “description” is not relying on word and comprehend tangible conditions of failure and of success which are absent from any other medium. More importantly, the realism and complexity of using a gun is often also the main aesthetic aim of a shooting game. It is thus not reasonable to tackle the problem of experience in virtual reality by ignoring the cognitive-embodied and phenomenological criteria which are used to design such experience and to produce meaning.

3. Whether by aiming with a gun in a console game or by jumping down from a building in VR, in virtual realities what is represented on the screen comes logically almost after feeling it. Vertigo, closeness, frenzy, fear and so on are thus designed to be experienced through a first-person perspective simulating a phenomenological and somatic continuity between the user and the fictional world. Very simply, you cannot not have palpitations if a section of a game requires an extremely high degree of attention and to press buttons as fast as possible with a correct timing for a prolonged time. From a psychological and narrative point of view, in virtual realities users do not share an empathic fear with a fictional character: instead, they feel *self-threatened*. Whether this impression of “self” is partially due to traditional narrative strategies (such as the adoption of a first-person point of view) it is not possible to ignore that same visual strategies in movies (i.e. subjective shots) does have the same effect because the user’s visual system is not perceiving any threats inside his peripersonal space.

Interestingly enough, this brings us to a very recent work of Volli about the proper meaning of “virtual”. Indeed, far from not understanding these aspects, Volli is an author which show us why and how semiotics should study the objects that we call “virtual realities” in experiential terms. In his “Archeologia semiotica del virtuale” (2020), the author brilliantly underlines a semantic shift in the common use of the concept of “virtual”. Indeed, virtual was originally understood as a form of *potentiality*:

“Il medievale *virtualis*, però, risente ancora del significato originario, e va inteso come ciò che ha il potere, la potentia, per ottenere certi effetti, in particolare per realizzarsi come una certa cosa, ma ancora non l’ha fatto. Nell’uso scolastico essa si contrappone a “reale”, come *potentia* si contrapponeva ad *actus* nella terminologia filosofica latina classica, e in Aristotele *dynamis* (etimologicamente “forza”, “capacità di fare”) a *energheia* (letteralmente, “l’essere in opera”) e *entelechia* (ancora letteralmente, “l’aver raggiunto il proprio fine”) o addirittura *morphé* o *eidos* (“forma”).” (p.22)

However, the modern idea of a virtual reality is different which has to do with the “almost real”:

“Benché di evidente interesse semiotico, questa discussione ancora non si avvicina alla nozione di virtuale più diffusa nella nostra semiosfera, com’è definita nei dizionari più diffusi: “Simulato, ricostruito al computer e che appare come se fosse reale” (Sabatini/Colletti); e “Realtà virtuale, situazione simulata dal computer, con tutte le caratteristiche di quella reale, rispetto alla quale è possibile interagire || Comunità virtuale, insieme di utenti accomunati da interessi condivisi, in comunicazione tra di loro tramite Internet o rete di telefonia.” (p.28)

To explain this difference, Volli points out exactly at the conceptual heart of this shift for which virtual is a synonymous of “almost complete” and “illusory”:

“Vi è dunque un passaggio successivo, o meglio più d’uno. Nel corso della storia della parola, si è avuto uno slittamento, in particolare nella lingua inglese, che sarà decisiva per l’uso informatico: da “potenziale” si arriva a “being such in essence or effect though not formally recognized or admitted”, cioè il virtuale diventa ciò che è qualche cosa ma non è ancora riconosciuto o ammesso come tale. O lo è in maniera incompleta “though not actually or in fact” (testimoniato alla metà del Quattrocento, “probably via sense of “capable of producing a certain effect”⁸) cioè diventa una sorta di surrogato e di qui qualcosa sì, ma non del tutto: “almost complete”. [...] Un senso particolare di questa “quasi completezza”, che prelude all’uso attuale, sottolinea infatti nel virtuale quella dimensione dell’apparire ma non essere che Tomas Maldonado (1992) definisce polemicamente “illusorio”, non per denigrarlo, ma per valorizzarne la continuità antropologica. [...] Nel pensiero di Maldonado, insomma, “virtuale” va messo in serie con termini come “finzionale”, “fittizio”, “artificiale”, “simulato”, “rappresentato”, “illusorio” e ne condivide il destino. Non è qualcosa di incompleto, che però abbia la possibilità, la *dynamis*, per compiersi ed apparire infine dopo l’opportuna gestazione come ciò che potenzialmente è già dall’inizio. Al contrario l’illusorio designa qualcosa che solamente appare ciò che non è e non potrà mai essere, perché le manca la condizione fondamentale, l’esistenza. In sostanza — e in termini semiotici — si tratta di una menzogna, sia pure consensualmente accettata secondo la classica definizione di “sospensione dell’incredulità” che risale a Coleridge (1817, cap. XIV)[...].” (p.29)

Virtual, thus became to mean almost the exact opposite of what it was:

“È un salto logico assai notevole, che da “virtuale” come ciò che ha tutte le qualità per diventare “attuale”, porta a “virtuale” come apparente ma non reale, essenzialmente e definitivamente incapace di attualizzarsi”

And, as Volli claims, this new meaning directly connects the problem of the virtual with the old one of the lie although inside a modern perspective focusing, as in Artaud's vision of theater, on the *efficacy* of such illusion (p.33) through a very high grade of intensity of such representation:

“Ciò che Maldonado chiamerà “illusorio”, con i suoi riferimenti a quadri e romanzi, cioè la rappresentazione naturalistica, è insomma pensato da Artaud come superato dal teatro, in cui in gioco vi sono persone in carne ed ossa, il che lo porterebbe al massimo grado di “realtà”, grazie al suo “linguaggio nudo, linguaggio non virtuale ma reale”.[...] Stiamo insomma parlando di un grado particolarmente alto di intensità nella rappresentazione.” (p.33)

Volli, at this point, takes back this whole discussion on a semiotic level by making two claims. The first one is that both the cause and the effect of this “sense of realism” must be understood by completing Greimas' notion of *débrayage* with Eco's one of possible world:

“Per un semiologo è chiarissimo di che cosa si parli innanzitutto con queste descrizioni: di quell'operazione che trasferisce ogni narrazione dal piano dell'enunciazione a quella dell'enunciato (e poi ancora per incassamento, in caso di enunciazioni enunciate o di atteggiamenti proposizionali come sperare, credere, volere ecc. che a loro volta aprono nuovi livelli): nella semiotica contemporanea si è generalizzato l'uso per questo scarto del termine greimasiano *débrayage*. Ma già sul piano grammaticale *débrayage* è una parola d'azione, che denomina un'operazione e non il suo risultato. Per parlare di quest'ultimo, di ciò che il *débrayage* apre o crea, è conveniente invece far ritorno alla terminologia proposta da Eco nel 1979, quella dei “mondi possibili”. Non a caso nel libro dedicato alla messa in gioco che il lettore inevitabilmente subisce entrando nel testo narrativo per goderne, Eco riprendeva la nozione leibniziana di mondo possibile, riattualizzata dalla semantica delle logiche modali [...]”

Yet, at the same time Volli underlines how the concept of possible world is not able, by itself and as conceived by Eco, to help our analyses since it ignores the concreteness of these worlds:

“Dunque sul piano teorico la nozione di mondo possibile aggiunge poco o nulla all'intuizione e alla convinzione narrativa. Dicendo che l'ambiente in cui si svolgono *Promessi sposi* o *Supermario* è un mondo possibile con certi gradi di distanza dal nostro, non diciamo niente di nuovo, anche se precisiamo che Renzo e Lucia hanno la proprietà essenziale di volersi sposare o che l'abbigliamento preferito di Mario sono le salopettes blu. Questo modello ha dunque certamente dei limiti, il primo dei quali è di essere sì enunciato ma di non sapersi specificare in strumenti analitici precisi. Non abbiamo modo di decidere quanti mondi possibili siano generati da un racconto, soprattutto se vi comprendiamo modalità e atteggiamenti proposizionali; il loro “arredamento” è poco significativo, perché dipende da scelte stilistiche (per esempio il grado di dettaglio delle descrizioni) o tecniche (la risoluzione delle immagini).[...] Soprattutto la teoria dei mondi possibili non tiene conto del fatto che il significante dei testi narrativi è fatto di parole, lettere, immagini, pixel, inquadrature, ecc. e che il mondo che il lettore ne deduce è l'effetto di questi dati materiali, corrisponde cioè a un livello del significato ricostruito dal lettore a partire dai complessi significanti testuali di un romanzo, di un film o di un videogame.” (pp.35-36)

The second claims, which is consequent to the first, is that the problem of virtuality is, from a semiotic standpoint, related to the one of *iconism* and cannot be separated from the concrete sensible materials of virtual artifacts:

“È chiaramente assai difficile parlare di virtualità a proposito di una rappresentazione verbale. Per quanto dettagliate e magiche possano essere certe narrazioni e descrizioni, dalle battaglie dell'Iliade ai campanili che si inseguono *du côté de chez Swann*, difficilmente si potrebbe attribuire loro quel carattere di virtualità che ci interessa caratterizzare. È ragionevole pensare che “virtuale”, così come è inteso oggi, sia una specificazione della categoria dell'iconico, naturalmente con alcune caratteristiche distintive, come l'alta definizione, la produzione per via elettronica, l'interattività. Ma quel che conta di più, dal punto di vista semiotico, è l'iconismo. Non a caso Maldonado, nel saggio che ho citato sopra, accosta l'esperienza dell'“immersione” in un dispositivo virtuale all'“esplorazione” di un quadro. Certo, i dati materiali sono assai diversi, ma non è detto che il funzionamento semiotico lo sia.” (p.36)

Whereas the author highlights that a potential solution can be found in Peirce “Riformulando queste idee secondo una diversa terminologia, il rapporto dell'icona riguarda un referente preciso, perché non passa attraverso significati concettuali; ma questo referente può benissimo non esistere.” (p.38) he then points out that there is a critical lack of interest from semioticians to the specific issue of a conception of iconism in terms of degrees depending on the manifestation level:

“Un altro problema semiotico connesso che vale la pena di indicare qui è quello più specifico del virtuale, inteso nel senso consueto oggi. Ho richiamato prima la questione dei gradi dell’iconismo. È evidente che da questo punto di vista c’è differenza fra uno schizzo a matita e un quadro a olio, una pittura o una fotografia, un’immagine in bianco e nero o a colori, statica o in movimento, bidimensionale o tridimensionale, contenente o meno dispositivi che simulano la percezione come la prospettiva o il puntinismo, prodotta in stile naturalistico o meno, circoscrivibile (come una statua) o circoscrivente (come certe installazioni), fornita o meno di effetti tattili, uditivi, olfattivi, cinestetici (cioè di movimenti che sono percepibili dal fruitore attraverso il corpo, come in certe sperimentazioni di effetti speciali al cinema o più banalmente di certe “attrazioni” dei parchi giochi), ecc. Tutte queste diverse caratteristiche sono state sfruttate largamente a teatro, nei riti religiosi ecc. La semiotica si è occupata poco o niente di questa problematica, o rimandandola con Eco a “modi di produzione segnica” o rifugiandosi nel concetto di “illusione referenziale” con Greimas. [...] Il virtuale è evidentemente realizzato innalzando al massimo il grado iconico, in rapporto alle tecnologie disponibili [...]. (p.39)

And even more interestingly Volli correlates the efficacy of the moderns illusion of virtual reality not only with the possibility of a natural perception but also, through Maldonado, with interactivity and the user’s feeling of presence: “Il punto centrale qui è questo “inserirsi attivamente” dell’“osservatore”, che è il grande cambiamento introdotto dalla tecnologia informatica nella dimensione dell’“illusione”.” (p.40).

Finally, Volli defines as hyper-iconism this blending of different means through which this high degree of iconism and efficacy of the illusion is achieved:

“Quel che conta è il principio: un movimento compiuto nel “mondo reale”, che in esso sarebbe senza scopo senza il legame con un “altro mondo” che semioticamente è una costruzione enunciata, costruita attraverso un *débrayage*, in quest’altro mondo diventa un’azione precisa: il movimento del mouse sul suo tappetino diventa posizionamento di un puntatore su un comando dello schermo e poi la sua attivazione grazie all’uso di un pulsante; oppure un gesto di un videogioco; la rotazione del capo con gli occhi coperti da un visore modifica la vista del mondo finzionale; il joystick accelera o fa curvare un’automobile rappresentata e così via. Questa interazione permette al corpo dell’operatore di porsi come ponte o traduttore fra i due mondi, stabilendo un punto di vista, non importa se eterodiegetico o omodiegetico (Genette, 1972), in terza o prima persona, attraverso un “avatar” o direttamente. Comunque questo tipo di virtualità richiede una testualità aperta (Eco, 1962) nel senso preciso di non essere stabilita prima dell’intervento dell’interprete. La modulazione del *débrayage* esiste anche in testi letterari, almeno a partire dagli anni ’60 del secolo scorso (un esempio illustre è Cortazar, 1963). L’aspetto caratteristico del virtuale, connesso con il suo carattere iconico è la densità, la continuità e la molteplicità delle azioni possibili, e la concreta esperienza che esse producono: qualcosa di più di un’“illusione referenziale”. L’obiettivo di questo grado di iconismo non è solo quello di sembrare vero, ma di apparire come il mondo circostante in cui il fruitore-destinatario è incluso come attore–produttore. Questo intreccio di ruoli e di livelli narrativi e ontologici, già intuito da Maldonado, può ben essere chiamato iper–iconismo. Esso costituisce una sfida alla teoria semiotica, che attende ancora di essere affrontata in maniera sistematica.” (pp.40-41).

2.2.1 Ten criteria for a semiotics of experience in virtual realities

We can then integrate Volli's previous perspective on the experience and our clarifications on it with these more recent considerations on the virtual. We will then say that the semiotic of experience in virtual realities can be founded on ten criteria:

1. The inner semiotic pertinence of virtual realities as objects of study resides in the anthropologic dimension and cultural relevance of fictional worlds created through illusions made of signs (and conceived as communicative objects) to both "escape" from their physical reality and extend it allowing thus a deeper understanding their own world. In this sense, virtual realities are nothing new.
2. Inquiring on the experiential aspects of virtual realities means inquiring on the efficacy and effects through which these fictional worlds are creating a similarity with the non-fictional world of the user. This similarity is created both in terms of a *perceived* phenomenological continuity (through sensorimotor categories intersubjectively shared through embodiment and only successively informed by cultures) directly involving the senses (such as judging with the eyes the closeness of an object) in relation to the concreteness of the elements of manifestation (such as pictures) and in terms of logical continuity (through linguistic-narrative categories such as narrativity) instrumentally using the senses (such as using the eyes for reading the words of a novel) in relation to the more underlying content (the story or picture being about x).
3. The specificity of virtual realities reside in their hyper-iconism (high degree of iconism) which, through both specific technical means and very old communicative strategies, achieve the narrative effect of creating a *possible world* perceived as extremely realistic because such virtual world can simulate *properties of different kinds* (recognized as either phenomenological and logical, thus not more or less essential) emulating the *multidimensionality of the experience* in every day's life and allowing the user to be present in these worlds *as an actor*.
4. The analyses will thus have to separate a proper *narrative level* where the "realness" is given by the possibility to *act and be acted upon in a space and a time with other objects* and a proper *embodied* or *external* (in honor to Volli's idea of external time) level where hyper-iconism correspond to the specific means through which actors, actions, space, time and objects are accessed to, acknowledged and verified by mixing experiential aspects of *erfahrung* (knowledge by trial&error) and *erlebnis* (in virtue of an impression of immediacy, intimacy and familiarity related to his senses and body). Finally, these two levels also correspond to two different modalities of *projected subjectivity* (thus of enunciation): on one level he is the actor fighting with a sword because this position is granted to him by narrativity on the other he is consciously perceiving him as the fighter because while slashing with his swords on a cognitive level there is a naturally perceived visual and sensorimotor consonance between the movement made by his body and the one represented on the screen. Similarly, having learned the exact gestures to do something in virtual realities after several attempts and having felt not a general but a subjective vertigo by looking down the roof or the fatigue after a long fight, are dimensions of both *Erfahrung* and *Erlebnis* which have in common the fact that they share a *simulative value of truth through personal verification*. While the first level corresponds to Greimas' idea of *débrayage-embrayage* (as explained by Volli) the second one implies a user which is constantly aware of himself and of his reality (thus out of the text). The *débrayage* is helpful to grasp what the user leaves behind, but not what it brings with him.
5. We can postulate a semiotic correlation between the signs on the level of manifestation (*external dimension*) and the experienced meaning related to a believed possible world. As an example, a novel can explain that a car can run at the speed of sound and prove to the reader this by creating a narrative context where its speed allows

it to do incredible things and a specific use of punctuation creating a rhythm. Differently, an audiovisual product can “prove” this speed and represent this identical series of events by representing that car as an object impossible to follow with the viewer’s eyes, using blurring effects and/or constantly changing the camera shots to require him to constantly adjust his perception of space (and would probably do so with a highly rhythmed music in background). In addition to all of this, a videogame can let a player *be the pilot* by requiring him to process actions, space and time through an extremely difficult cognitive task of prediction and through a frenetic physical task of button combinations due to a very tight timing required to not lose. In the three cases the reader/viewer/player will have an experience of speed through a possible world since even in reality this experience of speed is a narrative and complex one and not merely a phenomenological (such as the visual distortion of objects) nor psychological (the cognitive load and perception of risk). The difference stands in the *natural effect* created with signs (thus a strategy) through which this speed is perceived and acknowledged (thus related to the user’s memory) as something which is gradually and ineluctably acting upon the user: nothing forces the reader to a fast pace, the viewer cannot visually follow the item even if it wants to (nor slow down the rhythm of music) but can nonetheless wait the next more “slow” scene, while the only way for the player of *Burnout*³⁴ to not tackle with speed is to lose.

6. The “safety line” granted by the semiotic methodology is that on the one hand this frees us from the difficulties related to facing the problem of meaning in terms of the medium and that on the other one this does not mean to postulate that there is a ontologically different phenomenological world directly understood and the another “logical-linguistic” reality that is instead interpreted through inferences, in fact from both the point of view of semiotics and cognitive sciences even perception is grounded on signs and inferences. Similarly, this does not mean to postulate that there are two different dimensions of reality (one sensible and one logic or narrative), since the only reality we consciously know and experience as human beings is a blended one. This division can be done in semiotics on the basis that, in a cultural artifact such a virtual reality, different *strategies* are used (and can thus be deconstructed) to simulate the different aspects from which we experience our non-fictional world. And these strategies are different because the conscious way in which we experience any kind of reality intuitively, though erroneously, marks these different aspects: we are aware of the interpretative process in act to give meaning to a painting but not of the one we are using to perceive it, we can hypothetically deny the truth of any verbal phrase but cannot stop seeing the two lines of Muller-Lyer experiments as different, we can logically understand the represented emotions of a character but have a harder time in explaining in such terms our own emotions and in “reasoning” them, we can rationally postulate that judgements are either right or wrong depending on their argumentation but can only shelter in relativism when we are cold and our friend next to us is not feeling cold at all, we may explain some discriminatory human behaviors by pointing down on culture and language but cannot explain through the critique of learning (and as we will see with Patrizia Violi neither in terms of semantics) the fact that people walk and grasp items, etc.
7. This last point, highlighting how we tend to believe some things more easily than others in relation to the means through which we have access to them, opens up the semiotic inquiry on hyper-iconism as a new form of rhetoric in virtual realities which is grounded on the simulation of our common idea of experience which both in terms of *erfahrung* (knowledge acquired through personal involvement and believed as sharable) and *erlebnis* (inner subjective knowledge almost unconfutable in virtue of its intimacy). Truth and intimacy are indeed some among the fundamental criteria that usually help us to distinguish meaning-making from meaningfulness in relation to the emotional impact that we feel inside us. Indeed, emotional and euphoric/dysphoric aspects easily sharable

³⁴ <https://www.youtube.com/watch?v=2SWaf1T2Jhk>

through this kind of strategies. The focus on experience in these terms is thus pertinent both for the formal inquiry of semiotics on narrative-linguistic effect such as the enunciation apparatus and for the social inquiry of semiotics on how texts convey specific ideas (ideology, rhetoric, and so on).

8. The semiotic pertinence of such “phenomenological” aspects is thus also due to the fact that they work in the multifaced and multidimensional context of a text, integrating narrative and cultural aspects. If palpitations in some cases may not be a choice, their meaningfulness can radically change if they are related to a racing game (Burnout) or to the intent of saving a fictional daughter (The Last of Us); if the feeling of closeness due to the presence of someone else in the user’s peripersonal space may be non-negotiable, its meaningfulness will radically change if this someone is a zombie or a dying mother (Dear Angelica). As we will claim, even the activation of sensorimotor cognitive pattern can activate semantics which can be used as metaphor to represent brotherhood as a value and may create sadness by representing the loss of a brother through a change in the required motor-coordination. Consequently, any analysis of a given virtual reality aiming to elaborate a *comprehensive* deconstruction of the experience cannot but include these different elements since they certainly have a role in the final interpretation of the text and in their experienced meaningfulness.
9. Consequently, to deconstruct the experience semiotics must not only integrate his own “schools” but also work together (or at least be acquainted) with neurosciences, psychology and cognitive sciences. Between the level of the biological/phenomenological activity and the one of the qualia, there is a middle layer where meaning is intersubjectively processed and understood: this level is the one which is properly semiotics and from which meaningfulness can be inquired. It is the level where a community of interpretant can agree on the fact that *Scream* (1996, Craven) is a scary movie, despite the diversity of the neural activities during the movies and the different shades and degrees of fear experienced by different viewers in relation to the own intimate dimension of their consciousness. Indeed, the new strategies used by the creators of virtual realities are absolutely grounded on intersubjective and interpretative means of meaning production (thus as language) since they are based on the common biology and psychology of users, from which then each one will have a subjective experience of *Erlebnis*. However, whereas it is reasonable to study this level with specific tools and queries, it is not justifiable to postulate its independence from the two other layers. Although such choice is not explicit in Volli, his own approach is grounded on different semiotic traditions and interdisciplinarity: an approach that we will treasure and will guide us all along.
10. Lastly, Volli’s view on the problem of iconism in terms of degrees depending on our concrete access to the “information” and interactions with it (such as a surgeon learning a movement by reading a description in a book or by making extremely similar movements in VR) opens up, at the light of all the literature on the efficacy of virtual realities (from professional learning to cognitive improvement), several issues for a more philosophical debate on the nature of our formal understanding and access to reality. But perhaps even more importantly it can keep us safe from both the risk of studying experience in reductionist terms (experience as only phenomenological) and of talking of virtual reality in terms of “simulacrum”, fake worlds and so on: ending up almost in denying the difference between a novel and a physical world.

This ten points are of course not a direct consequence of Volli’s work but are actually grounded on both our interpretation of it and on our *usage* of it. However, luckily for us, the author has already read this ten points and has expressed its agreement with us.

2.3 Ruggero Eugeni : semiotics of *erlebnis*

By focusing on the topic of the experience and by blending the knowledge of humanities with the one of cognitive sciences, this thesis aims to be a contemporary work renewing the semiotic approach to mediated realities considered as texts in which the sensorial dimension has a fundamental role in the processes of meaning-making. Yet, this idea is at least ten years old. Indeed, such perspective was already the one of Ruggero Eugeni's "Semiotica dei Media. Le forme dell'esperienza" published back in 2010 :

"Il concetto di esperienza si sta affermando in differenti campi di studio. A ben vedere si tratta di un movimento di un lungo periodo; la riflessione sull'esperienza permette oggi di riprendere e di ripensare una serie di ricerche che, da circa vent'anni, si sono concentrate su temi diversi: il corpo, la sensibilità, le emozioni, la coscienza, l'identità personale e così via. Al tempo stesso questo *experiential turn* ha permesso e permette il rilancio di un dialogo fra discipline differenti e, in particolare, tra scienze neurocognitive e scienze umane (filosofia della mente, estetica, antropologia, la stessa semiotica di cui ci occupiamo più direttamente)." (p.14)

"La svolta esperienziale nel settore dei media studies e l'idea di esperienza mediale costituiscono l'orizzonte di riferimento del mio lavoro. A partire da questa scelta e all'interno di tale orizzonte, faccio tuttavia alcune opzioni teoriche e metodologiche peculiari, che contrastano con taluni orientamenti di questo campo di ricerche. Queste opzioni si connettono al recupero di alcuni punti cardine della disciplina semiotica e dunque danno vita allo specifico progetto di una semiotica dell'esperienza mediale" (p.15)

Already in 2010, for Eugeni experience was not a specific semiotic apart from the rest but was at very heart of the Semiotics of Media:

"[...] la semiotica dei media è la pratica di ricerca che ricostruisce e descrive i modelli di costruzione artificiale delle esperienze mediali a partire dall'analisi dei materiali sensoriali che innescano, sostengono e articolano tali esperienze" (p.62)

What's more, the focus on the topic of experience was also related to the insufficiency of the traditional theories and methodologies: "

Gioca indubbiamente in questo movimento uno scontento diffuso per la teoria pensata e organizzata come una costruzione autoreferenziale, incapace di rendere conto della dimensione vivente e vissuta dei fenomeni indagati." (p.14).

And this new semiotics of experience is explicitly aimed to a critical intent:

"La semiotica dei media interviene proprio su questo punto: essa intende perseguire una strategia di ricerca che porti decisamente alla luce la natura progettata delle esperienze mediali- Il suo intento di base è **critico**: la semiotica dei media intende decostruire l'idea che l'esperienza mediale sia diretta, trasparente e "spontanea", per portarne alla luce la natura precostruita e seriale.[...] il suo obbiettivo è piuttosto quello di ricostruire e descrivere progetti di costituzione delle esperienze mediali". (p.58)

But what is exactly this experience? Eugeni highlights (p.15) three main points belonging to the media studies:

- A socially and ambiently contextualized experience
- An embodied experience lived through the body and the mind
- It is a first-person experience lived within the present of the subject

To which the author adds two more:

- This media-experience is the extension of our general and multifaced experience of the world which is in turn based on *interpretation*
- This media-experience is unique and artificial since it is *designed*, thus the work of the semiotician is to fight against the idea of media experiences as *natural* and against the transparency they claim to have

Furthermore, in continuity with Volli, the author highlights how two conceptions of “experience” exist: one intended as the knowledge obtained through the subject’s own life (in German “Erfahrung”) and one as a living and lived event (“Erlebnis”). Eugeni claims that the second one is the one at the center of his book (p.26), once more following Volli’s previous idea of the semiotics of experience. But he makes a very important clarification by explaining that, concretely speaking, it is not possible to separate the two: each lived experience is lived inside the story of the subject and is intersubjectively (p.27) and culturally conditioned (even the sensorial aspects of it) (p.27). At this point the author put the basis to understand each different facet of experience:

1. The socio-anthropological one (as just exposed in p.27)
2. The neurocognitive, divided into functional metasystems: perceptive, limbic, mnestic, motor, cognitive (planning and complex tasks). This facet shows that experience is a complex and dynamic phenomenon occurring inside the present of the subject (p.29) and which is not exclusively conscious (p.32).
3. The mental one related to the subject consciousness of the experience in both phenomenological and interpretative terms for which experience is an *experiment* (p.31).

A classification that the author sums-up in the following words:

“ La definizione e le descrizioni dell’esperienza ci hanno permesso di raccogliere all’interno di un ideale dossier una serie di caratteristiche differenti: l’esperienza è apparsa di volta in volta un fenomeno situato e incorporato, diretto e riflessivo, radicato culturalmente, implicante relazioni interpersonali, complesso e policentrico, qualitativo e intenzionale, animato da una logica interpretativa”. (pp.32-33)

For Eugeni the crossing point between all these different dimensions is the one of interpretation, represented as a spiral process of constant reconfiguration of the already known (medium and long-lasting memory) and presently lived (present memory), which is also why his work is fundamental for any semiotic inquiry. Indeed the “experience” is at his very heart grounded on a double placement of the subject between his ambient *niche* and cultural one, both giving him and exchanging elements to live this experience in a particular way (p.33). Yet, the experience is not determined by the *niches* but is a creative act interacting with them (p.33). Specifically, the author highlights three different interpretative configurations modelling our experience and occurring in succession (p.35):

1. The perception and acknowledgment of sensations related to the present experience, where the subject is almost “embedded” with the ambient.
2. The narrative logic ordering the first level and distinguishing a difference between the subject and the ambient, defining intentional objects and allowing for “scripts” and controlled interactions.
3. The syntony between the first-person subject and other subjects that he acknowledges and help him to better understand his own experience and enriching his own interpretation of it.

After having defined this general model of experience, Eugeni then defines the specificity of a media-experience. First of all, since the three interpretative configurations are occurring both in “presence” and through a medium Eugeni put the emphasis on the fact that both a concert lived and seen on Tv are *real experiences*. (p.42). For the author, the difference stands in two main points: the stronger planning of the experience and the multiplication of intentional objects. The former is related to the mediated nature of the sensorial data and content (the camera showing a particular point of the scene, thus depriving the spectator of a gaze), which in turns make it possible for the experience to be repeated. The latter refers instead to the difference arising from the distinction between a directly perceived world (the user in front of a screen) and an indirect one accessed through *discourse* (p.45). Although these characteristics are general, Eugeni points out that there is no such thing such as a single mediated experience but that each medium offer different mediated experiences (p.47) and thus talk about different forms of media experience depending on three criteria (pp.48-52):

1. The access to the sensorial material (pervasive vs situated) and interactions with it (automatic vs manual)
2. The organization of the discourse (open vs closed and linear vs interconnected)
3. The continuity and discontinuity between the direct world of the user and the discourse.

However, for the intent of our work this is perhaps the least interesting part since it has mostly to do with the study on media and experiences in general. What is far more interesting for us is how, in Eugeni’s perspective of experiential semiotics, the inquiry on experience must start from the very sensorial materials:

“ Dal momento che il progetto esperienziale viene veicolato dai materiali sensoriali erogati dai dispositivi mediali, la ricostruzione ipotetica di tale progetto da parte del ricercatore non potrà avvenire che a partire da questi stessi materiali: l’oggetto di studio assunto dalla semiotica dei media è dunque rappresentato dai materiali sensoriali erogati dai dispositivi mediali. (p.59)

Which however does not create meaning by themselves:

“ I materiali sensoriali non determinano “automaticamente” “da soli” l’esperienza mediale: essi innescano e guidano una serie di processi interpretativi svolti da un soggetto, all’interno dei quali le risorse percettive richiedono l’intervento di risorse memoriali e culturali. La descrizione del progetto di esperienza mediale si precisa dunque come una ricostruzione dei processi interpretativi (ivi compreso il richiamo di risorse memoriali e culturali) a partire dai materiali percettivi che li sollecitano e li guidano.” (p.59)

This sensorial facet of meaning is faced by referring directly to the theories of enactment, and multimodality for which:

- A. Perceiving is an action of creation/construction and not a kind of passive state (pp.77-78)
- B. Seeing an action that often correspond to a mental simulation of it (p.78)
- C. Different senses can be integrated in a same process and interact between them (p.78)
- D. Our mind is constantly aware about the states of our body through body schema and bodily maps of sensations (p.79)

Now, the role of these theories in Eugeni’s approach is that the interpretation of experience requires two separated moment, a first one acknowledging sensible *qualities* through “sensations” and a second one where these same sense define a field of intentional object that will be part of our second interpretative configuration (p.80):

“Nel modello di esperienza che stiamo proponendo, la sensazione è autonoma dalla percezione e la precede da un punto di vista logico. La rilevazione qualitativa delle risorse (sensazione) non richiede per sé la loro organizzazione intenzionale (percezione); la percezione al contrario basa il proprio lavoro di selezione e messa in forma su quanto rilevato dalla sensazione. [...] La sensazione costituisce un sistema di rilevazione e di iscrizione nella memoria a breve

termine delle risorse sensoriali e di alcune loro relazioni; tale sistema possiede il duplice vantaggio di essere veloce e di ampia portata: la sensazione fornisce alla percezione alcune risorse già parzialmente elaborate e altre al momento accantonate ma potenzialmente utili e integrabili. [...] i processi legati alla sensazione, ovvero la rilevazione e la qualificazione delle risorse disponibili da parte del soggetto, costituiscono dunque il primo strato dell'esperienza mediale [...] In base al nostro modello di esperienza, l'autonomia della sensazione non implica affatto il suo isolamento: al contrario, in base alla logica a spirale dei processi interpretativi che articolano l'esperienza, sensazione e percezione interagiscono reciprocamente mediante una **determinazione e rideterminazione incrociata.**" (pp.80-81, my bold)

Simply put, sensations will be part of our later and higher interpretative processes and must thus be considered, both as a prerequisite and potential of meaning, on the seven levels of analysis proposed by the author:

1. Detection of the sensible content in terms of qualities and diagrams
2. Logical ordering of the indirect world through situational maps and inferences
3. Discursive ordering of the indirect world between *fabula* and plot
4. Overlaying and connection between indirect world and viewer/user context
5. Overlaying and connection between fictional subjects and viewer/user subjectivity
6. Awareness of fictional subjects as subjects of the discourse
7. Acknowledgement of other non-fictional subjects as subjects of the user's experience

In Eugeni's view media-experience can be understood and must be inquired only by putting into relation the world of the user/viewer with the represented world. At each level something represented is actually done (enacted) by the viewer in several ways: from inferences to embodiment. Furthermore, at each level this "fictional world" cannot but reveal its own fictionality and artificiality although without losing its meaning. We are thus never into a movie nor outside of it, but rather what we call "movie" is a cultural artifact which is an extension of our reality, reproducing and faking several of its aspects and opening new possibilities related to this new "translation" differing from medium to medium. The meaningfulness of an experience does not stand in the text, understood as merely container of objective content, nor in the user, conceived as an individual shaping meaning freely from the outside (both in cultural, psychological and biological terms), but meaning actually stands *in between* and in the very processes involved, which starts from the most basic capacities related to perception and cognition since they are all involved in what we call "interpretation". A view which has also six main methodological and epistemological consequences:

- A. The need of an interdisciplinary approach to take into account the multidimensionality of meaning
- B. The no need for an experiential semiotics to completely abandon its traditional tools since in Eugeni's view experience has much to do with narration and communication (in accordance with Volli).
- C. The value of a first-person approach to the experience for its analysis (p.18, 60 & 64).
- D. The focus on the ways and means through which we can access an indirect/virtual world
- E. A layered model of experience reconstruction (p.66) where the sensible materials are configured in gradually more complex units of meaning and experience through interpretative processes.
- F. Whereas much of the semiotic tradition was focused on the relation between a superficial narration and its deeper and more abstract level, with this book the author reminds us that a different inquiry, centered on the embodied user, is possible and would also expand our knowledge of how we make sense of things and of the world.

Such general perspective, hoping that Eugeni would also agree to recognize it as his own, is the precious starting point and guiding star of all our work. Although we will not apply step by step his own methodological proposal, for reasons that will be discussed in the next subsection, our proposal is consequently based on the work of this author and can be understood as a *variant* and a *use* conceived for our specific goals.

2.3.1 Critique and adjustment of Eugeni's experiential semiotics

After praising so much Eugeni's perspective, it would be natural to think that we would apply to the letter his method and thus analyze virtual realities by examining the seven layers of the media-experience. Especially since the author explicitly states that the work we discussed was made to be very concretely used (p.13). However, there are four main difficulties for which we cannot apply such method and must use it in our own way:

1. A non-economic approach to analysis leading to non-explanatory results.
2. A focus on a phenomenological dimension and lack of interest for semantics.
3. A vision-based theory of enactment neglecting the specificity of motor involvement.
4. A misconception of digital games as a kind of interactive movies.

The important premise of these critiques (readers not interested in reading them can go directly to our rework of Eugeni's work by clicking [here](#).) is that they should not be considered as related to the author's book but to our own purposes which are different from Eugeni's both for the specificity of our object of study and for our interest in using the experiential aspects of a given cultural artifacts to inquire on a core meaning/values while, admittedly, Eugeni's work is not so much interested in doing so. Given these premises, we can now begin.

The first issue is extremely pragmatical and consists in the vast number of pages that the author uses to expose the relevance of the sensible materials by examining the first three/four shots of the opening of the analyzed CSI episode: around seven pages (excluding all the theoretical explanations) for the first ten seconds of a one hour and a half episode. If we think that a *short* digital game (such as *Hellblade: Senua's Sacrifice*) lasts around 10 hours, we can easily understand why we cannot apply a method based on a photogram-by-photogram analysis of the sensible materials. Even more so that even in a short game such sensible materials are highly subjects to variations both because of the hypertextual structure and of the possibility for the player to move himself the camera. Eugeni himself stops at ten seconds and then make some general considerations on the whole episode with a self-declared "fast-forward" (p.91), without really justifying why the sensible material after the ten seconds are not taken into consideration. Indeed, even in the specific part where the methodology is explained, the author expressly refers to the analysis of *parts* and choice of *segments* of experience:

- "Egli prende in esame i **materiali sensoriali** che, erogati da un dispositivo mediale, determinano una certa **porzione** di esperienza" (p.66)
- "Si tratta di scegliere i materiali sui quali si intende lavorare e fornirne una prima mappatura." (idem)
- "Per esempio se il nostro ricercatore ha deciso di lavorare sulle prime immagini del concerto televisivo [...]" (idem)

There is of course nothing wrong with analyzing only single segments, but from a scientific point of view the third and last part of the analysis, the one of the synthesis aimed to explain “in che modo le configurazioni che sono state prodotte agiscono reciprocamente all’interno di un progetto unitario [...]”(p.66) is compromised. So, if the goal of the analysis is a theoretical one aiming to prove that a certain experience is designed and contribute to meaning, then the methodology works fine because we do not need to prove it in every part. Similarly, if the goal is to analyze single parts of the experience representing particular techniques (such as the effect of a fly-cam on a concert) then this works too. However, if the goal is an inquiry on the overall experience, looking for a heart of meaning and values *through* the experience in its multidimensionality, then Eugeni’s approach is problematic. Furthermore, the results of this analysis are by themselves somehow disappointing for our own purposes. The first type of conclusion highlights the importance of the audiovisual design for the characterization of the *CSI*:

“Da un lato c’è l’**iterazione regolare** di configurazioni sensibili, sia tonali che ritmiche. [...] Dall’altro gioca un meccanismo di **variazione regolata** delle qualità tonali e delle loro configurazioni tipiche: vengono introdotti alcuni scarti e variazioni che rimangono però parziali e controllati. [...] In tal modo si ottiene un effetto di modulazione prodotto dal combinarsi di una costante variazione e di un fondo di costanza che assicura la riconoscibilità stilistica del telefilm e dell’intera serie *CSI*. Questo insieme di ricorrenze e modulazioni fa sì che l’esperienza sensibile procurata da *Grave Danger* sia ben caratterizzata e riconoscibile. D’altra parte si tratta di elementi che ritornano in tutti gli episodi delle serie e permettono di definire un profilo sensibile specifico e individuabile della serie *CSI*.” (pp.91-92).

A matter which is unrelated to our issues and our proposal. The second type of conclusion is aimed at underlining the experiential planning behind *Grave Danger*:

“L’analisi dello strato della rilevazione sensibile mostra dunque come l’esperienza mediale implichi già all’interno di questo snodo l’intervento di una forte **progettualità**. Nell’esperienza ordinaria le qualità sensibili compresenti all’esperienza sono numerose e la loro organizzazione può essere solo locale e provvisoria. Nel caso dell’esperienza mediale si assiste, invece, a una **riduzione** del numero delle qualità e delle configurazioni sensibili e a forme più rigorose e prolungate della loro **organizzazione** [...]. (p.92)

Although none of this can be denied, the question is: is there really someone *not* believing that such episode and that the resulting experience was planned? This brings us to highlight how Eugeni’s critical intent behind his semiotics of experience (p.58) is partially controversial. In fact, while the social (and political) value of such intent is undeniable in some cases (newspapers, photographic reportages, documentaries, newscast, and so on), this is not always the case. Proving that an episode of *CSI* is experientially planned is, by itself, arguably not really something that tells us unexpected about *Grave Danger*. The true importance of such a claim is more theoretical, and we will too critique for example the phenomenological explanations of the VR experience as Eugeni critiques the approach naturalizing the media-experience. But these temporary academic debates, in our opinion, should not determine the first and principal goal of Semiotics. This is where, for us, the planned nature of the media-experience is not something to prove but a starting point, a fundamental assumption, for the specific inquiry on both the meaning conveyed by a certain cultural artifact, a technology allowing such artificial experience and the human mind interpreting it. The third kind of conclusions is for us the most interesting since it has to do with the “metaphorical function” of the sensible materials and the way in which they are actual parts of the text contributing locally to meaning. This can be seen in several parts of the author’s analysis such as in chapter four and five:

“Per esempio nella quarta inquadratura (Nick ripreso all’interno dell’auto) la bassa luminosità che avvolge la scena si combina con una spazialità dimensionale ristretta e contribuisce a definire l’idea di uno spazio scarsamente percorribile” (p.88)

“ Da un lato i punti di svolta e le variazioni del mondo indiretto vengono accompagnate e segnalate da mutamenti e scarti delle qualità sensibili, sia tonali che ritmiche. Il brusco spegnersi della canzone country e i due lunghi movimenti di macchina (il carrello interno a Nick che scende dall’auto e la steady-cam) segnalano con un evidente salto ritmico l’avvio della costituzione della situazione.” (p.107).

However, even this kind of conclusions are not completely satisfying by themselves. First of all, they are sometimes related to descriptions that are arguably too much subjective and “poetic” such as when Eugeni talks about shots in terms of caresses and massages:

“[...] una sorta di veloce carezza visiva circolare sui propri oggetti (I palazzi notturni visti dall’alto), un “massaggio” effettuato dallo sguardo su una superficie levigata.” (p.89).

Secondly, it is sometimes unclear what is their *effet de sens* and thus why we should insert them in our analysis which is not an aesthetic one:

“ In altri casi le qualità si rafforzano reciprocamente in base a rapport di analogia: si assiste in tal caso alla costituzione di rime e richiami sensibili. Per esempio la qualità “liscia” delle superfici dei due edifici nelle prime due inquadrature rima con la continuità sonora del suono elettronico sullo sfondo. Infine, in altri casi si gioca un contrasto tra qualità compresenti: il grattacielo bianco e illuminato della prima inquadratura si distacca sullo sfondo scuro, mentre il colore del secondo grattacielo rima con quello della nota circostante.” (p.88).

Thirdly, it is sometimes hard to understand if the sensible materials are creating a metaphor allowing a certain interpretation, and thus have to be analyzed separately, or if we can make a metaphorical reading of them which is however unnecessary and does not change anything to meaning but have mainly an aesthetic role. A good example of this is the case of the torchlight scene which Eugeni describes as a metaphor of the detective’s search for truth:

“ Per esempio l’immagine ricorrente della torcia di Nick che fruga nel buio, accarezza gli oggetti indiziari via via individuati e li sottrae all’indistinzione del buio notturno è la figura di una procedura di indagine agita dal detective che gradualmente e pazientemente getta fasci di luce e di comprensione nella tenebra del mistero” (p.107).

In fact, the sensible materials would be the same in almost any scene representing someone in the night with a torchlight, and the metaphor of the search for truth seems to work mainly because we are watching a detective movie but would arguably not be valid in many other genres and situations. For all these reasons the work of the author is undoubtedly highlighting that movies are a form of art opening meaning to many possibilities but is not really justifying why a semiotician (especially one *not* interested in experience) should focus on these aspects to understand better a particular cultural artifact. In brief, Eugeni’s approach on the sensible materials requires a great amount of work and seems to be focused on interpretation in general terms and on the significance of media-aesthetics but not on their specific role on meaning-making (in the traditional ways in which semiotic is).

A very simple example can highlight this point, the different levels of the mobile game *Temple Run 2* (2013):



Without a doubt we have here both a common style and very different cse (different objects with different properties, different colors, etc.) but we would neither say that this can influence the meaning of the game nor that it is changing the main experience of the game as a *runner*. And of course, this is not something exclusive of *Temple Run* but a very common feature of digital games and especially of runners such as *Subway Surfers* (2012).

Of course, the six other layers of the analysis proposed by the author are more properly “semiotic” but if taken without the focus and importance of the sensible materials, they are not so much “original” in the sense that they do not constitute a new method to “follow” for a semiotician and grasp aspect of the experience that were already grasped by Eco and Greimas, authors explicitly referenced by Eugeni, even though the concept of experience was not central in their own words.

This brings us to the second difficulty about the almost phenomenological approach undertaken by Eugeni and the lack of an explicit semantic theory. A key point in the book is when the author explains the possibility to *recognize* a certain quality in the sensible material through previous knowledge:

“ in altri termini la rilevazione di una qualità implica la presenza, il recupero e la mobilitazione di una microunità di conoscenza sensibile che era già parte della mia memoria e delle mie competenze la chiameremo configurazione sensibile elementare (CSE).” (p.81).

Indeed, it is precisely on this point that a semiotics of experience can rejoin the whole semiotics but only by abandoning both the term of “CSE” and the focus on them. In fact, this term seems more appropriate to define this microunit from a cognitive, phenomenological or ontological point of view, not a semiotic one. First of all, cse seems to imply that, at each shots and during each second, the viewer of a movie is creating his conscious experience and interpretation of a cultural artifact from constantly recognizing all the qualities of all the represented “objects” without a specific criteria and without the any risk of misunderstanding. Now such a claim is very hard to believe not only from a semiotic point of view but also from a psychological one where such task would require a kind of superhuman capacity of focus, memorization and would be rather exhausting. Without a doubt these qualities could have been designed for the specific intent of creating a particular experience but thinking them “hypodermically” as part of the actual experience of any user (since they represent the equivalent of the literal plane of words from a visual point of view) is a totally different claim which requires a theory of interpretation.

Secondly, what the authors is naming *cse*, from a semiotic point of view and by focusing on its effect, is clearly a sign function in the relation between the world and the subject: a sign the meaning of which is stabilized (recognized, identified, formed) in function of the subject encyclopedia and context (knowledge). *Cse* can thus be also correlated with a more common term for semioticians: the one of semantics. Although “smooth” is learned without a doubt with means very different from how we learn “celibate”, it is, from a semiotic point of view, not different in nature. Precisely, semantic primes and descriptors (Goddard and Wierzbicka, 2002 & 2007; Wierzbicka 2006 & 2007) were exactly thought to explain our understanding, and thus the interpretative role, of semantic entries such as “smooth”. The issue of how semantic can be used for a semiotic of experience will be faced in the next paragraphs, but what is important for now is to understand that thinking *cse* in semantic terms and within an encyclopedic perspective allow us to connect Eugeni’s work with the foundational theories of our discipline. On the surface it is only a lexical change, not changing one bit the proposal and approach of the author: we can perfectly make the hypothesis of prime semantics existing thanks to forms, colors and sounds that are the *cse* from a phenomenological or ontological perspective. But it is actually an epistemological one with important consequences. The first of which is that we can now easily understand why immediately after Eugeni think *cse* in terms of *scripts*:

“In altri termini il riconoscimento è in realtà una riattivazione e le *cse* sono da considerare **micro-sceneggiature** sensibili: piccoli programmi di esperienza che mi permettono di rivivere certe sensazioni e di risentire certe qualità qualora si presentino determinate condizioni sensoriali.” (p.82) .

The second that we understand why such *cse* can be activated in absence of a direct sensation:

“In base a quanto detto sopra circa la natura multimodale delle CSE, comprendiamo infine che esse sono a riattivazione multipla: posso riattivare una certa configurazione e rivivere le sensazioni che essa reca inscritte a partire dalla sollecitazione di modalità sensoriali differenti. Per esempio la sensazione di “liscio” può essere riattivata non solo ogni volta che tocco il tavolo o ne percorro con la mano la superficie, ma anche ogni volta che guardo il tavolo” (p.82) and as a result of relations of completion, analogy, contrast (p.82) while being on the contrary “ignored” or “abandoned” in isolation.

Indeed, in Eco’s terms this would be precisely what narcotization and activations are: conditions for semantic entries and scripts to activate based on mechanisms such as the one of isotopy (analogy through repetition), a characteristic which also belong to the greimasian tradition.

Thirdly, whereas Eugeni’s *csc*, web of *cse* creating a major degree of complexity, could sound very unnatural for most semioticians, the idea that meaning comes from the interpretation of related semantic entries present in a particular configuration is the very basis of textual analysis and would have everyone agreeing on this point. Finally, what we are suggesting leave untouched Eugeni’s successive distinction between stable qualities related to exteroception called “tonal aspects” and dynamic ones related to proprioception called “rhythmic”, both potentially creating more complex and metaphoric configurations referred to by Eugeni as diagrams (p.85). Indeed, semantics and metaphors are well known to work together both in the perspective of cognitive linguistics and in semiotics. What we are highlighting here is therefore that while Eugeni seems to explicitly avoid the topic of semantics and using a concept of *cse* which may be displease several semioticians, he is actually applying on *cse* the gaze of a classic semiotician interested in meaning by starting from the analysis of intersubjectively acknowledged semantics and enriching *cse* and *csc* with all the literature belonging to well-known issues and meaning-making processes in semiotics. From a certain point of view this choice is reasonably cautious since *cse* and semantics are *not* the same thing, but nonetheless we think that a shift in a semantic direction is absolutely needed.

More importantly, such shift is perfectly coherent with the author's intent, that we deeply share, to account for the mental dimension of how experience is interpreted:

"L'attributo della sensatezza deriva dalla combinazione di differenti proprietà: le configurazioni, per essere qualificate sensate, devono essere valutate in quanto appropriate e pertinenti rispetto alla nicchia contestuale e agli interessi del soggetto rispetto ad essa; devono apparire relativamente complete, coerenti, unitarie, controllabili, maneggiabili e all'occorrenza modificabili dal soggetto; infine devono essere considerate in grado di spiegare e guidare comportamenti, scelte, orientamenti del soggetto." (pp.30-31).

We will come back on this two first issues later and propose our solution, but for now let's move on to the two other problems which are also connected to what we have just discussed.

The third matter is related to the neurocognitive paradigm to which Eugeni most often refers. Now, actually Eugeni never refers his specific claims on embodiment to a specific work but always to a general perspective sharing the idea of embodiment and enactment (with an accurate bibliography at the end of each chapter). Now, while such a general perspective exists and is certainly fruitful for semiotics and the study of experience, there are undeniably differences even between a single paradigm such as the one of enactivism (Ward, D., Silverman, D. & Villalobos, , 2017). It seems to us that, since the intent of Eugeni's was to encourage the study of the sensible materials across all media and on the basis of his bibliography, the view of the author is non-specific on purpose and is more generally closer to a neurocognitive approach based on vision and simulation such as the one of Giacomo Rizzolatti (Rizzolatti, Gallese and Fogassi, 1997; Rizzolatti, Fogassi and Gallese, 2001). This view is present all along from chapter 4 focused on cse to chapter 8 about the relation between spectator and characters (p.151).

However, this choice is also problematic at two separate levels: the different conception of meaning/understanding in semiotics and neurocognitive sciences (a more philosophical level) and the focus on non-specific aspects of actions (a cognitive one). Without going too much into details, we can say that in Rizzolatti's view the discovery of the mirror neurons corresponded to the "proof" that there are two distinct ways into grasping the world, one phenomenological and one logical:

"Il punto è che c'è una maniera di capire, quella iniziale, quella delle azioni comuni a me al cane e alla scimmia che lo capisco perché anch'io so farlo; ci sono delle azioni che le capisco come se fosse un processo fisico come capisco che la mela cade, cioè lì (indica il powerpoint) l'area visiva mi dice "il cane muove la bocca" e poi io faccio un ragionamento per cui dico "se il cane muove la bocca così vuol dire che abbia". Guardate che è un punto molto importante su cui torneremo magari dopo parlando delle emozioni, cioè la duplicità: possiamo capire in maniera razionale, possiamo capire in maniera fenomenologica."³⁵

While on a neurocognitive level this can perhaps be sustained without much controversy, the specificity of a semiotic approach is precisely to overcome such distinction (as we will see with Paolucci). Not only because mechanism such as guessing exists even on the very basilar level of perception (as we will see with Clark) but mostly by seeing in interpretation and more generally in language the proof that the signs-concepts through which we understand the world are multi-dimensional. And the necessity to overcome such distinction is not at all one wanting to oppose neurosciences but exists because semiotics works at a different level and more specifically at the one of the *hard problem* of the mentally and consciously experienced meaning through one's own subjectivity in relation to a given situation such as the one created by the sensible materials of a movie.

³⁵ Festival della Mente 2016 - Giacomo Rizzolatti, Antonio Gnoli (min. 30.33-31.14) <https://www.youtube.com/watch?v=bFLfhFGlORA&t=3312s>

It is a necessity related to both the complexity of our object of study and for the complexity that the concept of “meaning” as to us. This difference is very clear when for example Rizzolatti affirms that we understand pain or disgust by seeing and feeling it and not in an intellectual (logical) way:

“ Per esempio se io sono disgustato perché c'è un odore cattivo, ho una attivazione di una certa area. Se vedo una persona che è disgustata, mi si attiva esattamente la stessa porzione. Quindi il disgusto non è qualcosa che capisco intellettualmente “ah quel poveretto lì è disgustato” e la stessa cosa è stata fatta per il dolore “ah poverino ha del dolore” ma dentro di me soffro, ho il disgusto, quello stesso senso che ho visto nell'altro. Quindi questo crea una comunità di emozioni, e per quanto riguarda l'altro meccanismo di azioni, tra uno e l'altro: crea effettivamente l'empatia ”³⁶

This may be *genuinely* true from a neurological point, but on the interpretative level at which semiotics works this is *intuitively* false: from sadistic persons enjoying bdsm porn to batman's fans enthralled by their hero beating hordes of enemies³⁷ or even *Mortal Kombat* players punching adversaries for hours focused on learning their combos. It is a common experience that we may see pain and, despite whatever is going on in the brain, *consciously* experience pleasure or focus our attention on a totally different thing. Furthermore, we may also understand pain and disgust in many different ways as it is common especially in relation to mediated experience (where for example we may not have a convincing facial expression of disgust or suffering such as in an 8-bit videogame). Simply put there is no *a priori* reason to make the hypothesis of a 1:1 ratio between neuronal activity and mental activity, nor to reduce pain to a particular activation of the brain excluding the possibility to understand it in a logical way (such as sharing pain for one sided-love in a novel), and thus there is no *a priori* reason to make the hypothesis of a 1:1 ratio between neuronal activity and meaning in its semiotic sense (of course we are not implying, at all, that this is Eugeni's thought or intended view). While neural patterns may be constant, semiotics teaches us that the specificity of meaning resides in instability. Finally, while the experimental conditions of neurocognitive sciences are “clean” from both a cognitive, emotional and sensorial point of view (example: in Rizzolatti's study on disgust a student is focused only on his task in a clinical context idoneal to brain scanning), media-experience are “messy” both from the point of view of the spectator (I may be watching a sad movie while eating a delicious pasta, caressing the hand of the one I love and worried about my financial debts) and of the “input” (the 2010 movie “Sharktopus” has several scenes of people suffering while attacked by the shark, yet the terrible CGI, plotline, dialogues, acting and so on are very likely to make me consciously feel amused rather than empathically sharing the represented pain).

This difference is at the very origin of the hostility between humanities and neurocognitive sciences, even for semioticians denying that semiotics has anything to do with cognition or philosophy the problem is still there. This is why we just criticized Eugeni referring to cse as a term apparently outside of the problem of meaning understood in semiotic terms. In fact, a quality such as “smooth” may be objectively observable as a cse from an analytical point of view, but to include it as part of the viewer's interpretation, and thus to acknowledge its impact on meaning or even only as a relevant aspect of the viewer's experience, we still need a theory of the mind and of interpretation explaining not only that “smooth” is *semiotically recognized* through previous knowledge but also the criteria for which such content will be “fixed” in our mind (and not only memory) as relevant and understood under a certain *aspect* among many others.

³⁶ "Giacomo Rizzolatti e la scoperta dei neuroni specchio" (2012), un film di Gian Luca Bianco e Eugenio Alberti Schatz (min. 8.26-9.04) https://www.youtube.com/watch?v=87_6WJhWTms

³⁷ Now I'm always smiling | The Dark Knight https://www.youtube.com/watch?v=koADXiKl8_s

In fact, scientists such as Rizzolatti explicitly admits that science cannot explain what a person is *really* thinking and what is going on in the subject's consciousness:

“ Qui c'è da distinguere. Ci sono dei fenomeni che noi possiamo spiegare, ad esempio in fondo anche quello che ho detto io sulla percezione, sul senso dell'altro: sono tutti fenomeni psichici di altro livello, che (in cui) interviene la coscienza. C'è un solo fenomeno, in cui la maggior parte degli scienziati sono d'accordo, che non riusciamo a spiegare e che dal punto di vista tecnico è chiamato il problema dei qualia, di cosa io sento veramente dentro di me. Cioè quello che io so dentro, non c'è metodo di capirlo. Anche se io so che lei (indica il pubblico) sente del dolore, capisco che sente del dolore, ma il suo dolore non è identico al mio; perché ha avuto tutta una serie di condizionamenti diversi, perché soffre in maniera diversa... Quindi questo è un problema attualmente, quello che è stato definito da alcuni filosofi “the hard problem”, il problema di difficile soluzione, proprio non si sa come affrontarlo.”³⁸

The scientist here of course does not refer to the semiotic level of interpretation and is still within the perspective of a 1:1 ratio of non-equivocal content, but this admission is still very important since even on this level a difference on meaningfulness is postulated and can thus be hypothesized to exist even in more complicated situations. However, whatever the real ratio between neural activity and mental activity may be, we are absolutely convinced that this connection should not be ignored and has a potential role in the interpretation of media-experience. So, the true issue with the adoption of a neurocognitive approach to semiotic queries on interpretation and meaning is only that the neurocognitive evidence is not self-sufficient in explaining the central phenomenon of meaning interpretation and need consequently to be integrated with a hypothesis/theory of the mind and of signs. As we previously claimed: between the level of the neural activity and the one of the qualia, there is a middle layer where meaning is intersubjectively processes and understood: this level is the one which is properly semiotics and from which meaningfulness can be inquired.

Secondly, this same perspective, since it is grounded on vision and a general effect of intersubjectivity through imitation, is also in part putting aside the cognitive and mental specificity of *proper actions*. If on the one hand research such as the one of Rizzolatti and his colleagues proved extremely interesting factors related to the sensorimotor system such as the existence of action primitives (2001), on the other the focus was elsewhere. Now, without denying that even only by looking an action represented in a movie they are some processes related to these motor actions, we must still acknowledge the fact that grasping an item and seeing an object being grasped are not the same thing from a mental point of view. This acknowledgement comes not only from our own experience of the physical reality where grasping a glass comes with tens of sensations, calculations (related to space, speed, force, etc..) and thoughts (such as being careful) mostly absent from our consciousness when we see someone drinking in a movie (and especially if drinking is not the only action represented), and not only from virtual reality software where grasping a virtual item is experienced as something completely new respect to seeing it in a movie, but also from the theories of enactment and cognitive sciences themselves. For example, already in the foundational and fundamental book “ The embodied mind” (1993) the authors refer to studies showing some neural differences in the pattern of the “shadow of thought” (pp.76-77) when a same task is done with or without a motor action. More recently, sensorimotor information has also been proved to affect cognitive tasks related to problem solving (Fischer et.al., 2018). And more specifically we will use Torben Grodal's specific neurocognitive approach to motor-actions to explain part of the experience occurring in virtual realities. Thus, the adopted paradigm for which seeing and doing are almost the same is not a good one to take into account media-experience involving motor actions from the players.

³⁸ Festival della Mente 2016 - Giacomo Rizzolatti, Antonio Gnoli (min 47.45-48.50)
<https://www.youtube.com/watch?v=bFLfhFGl0RA&t=3312s>

This brings us to the fourth and last issue, which is about the specificity of virtual realities that are not fully taken into account in Eugeni's perspective and specific analysis of the game *Spore* (2008). In fact, whereas at the end of his book the author claims that even new digital media can be semiotically understood and analyzed through the proposed methodology (p.293), the actual analysis of videogames present a few difficulties and seems to be describing an interactive movie.

First of all, there is an odd claim about the player *choosing* which sensible materials have to be represented and which parts of the game will be manually activated and which will be automatic:

“Nel caso del videogioco [...] l'attivazione dell'esperienza nel mondo diretto è condivisa dal dispositivo e dal soggetto: quest'ultimo sceglie sia quali materiali sensoriali il dispositivo gli debba erogare tra quelli individuati come disponibili, sia se tale erogazione debba essere demandata completamente al dispositivo (come quando nel corso del gioco avviamo la riproduzione di un breve filmato) o se piuttosto la responsabilità della scelta debba tornare a sé stesso (come nelle sequenze di gioco “normali”). Di qui una posizione intermedia tra esperienze di attivazione **manuale e automatica**.” (p.293)

Now not only the player does not choose at all such things but is actually forced to witness some parts as a movie and other as gameplay, but once again talking about “sensible materials” is very disappointing from a semiotic point of view. Indeed, put in this way it could seem that the player is choosing things like colors, sounds, qualities or even pictures that determine his own experience. While in reality he is actualizing virtual phrases from a given database and in relation to a gaming context where, almost always, some *actions* are preferable to others for pragmatic reasons and because they make sense from a narrative (in the greimasian sense) point of view. Of course, such actions or events have to be represented through sensible materials, but without a theory of meaning this is a non-semiotically pertinent phenomenological question.

Secondly, Eugeni chooses to not do a full analysis but only to focus on the points that he highlights as specific of this medium: the modalities of logical ordering of the indirect world and the modulation of situational maps, the relation between the subject and the indirect world, the perception and ordering of the discourse by focusing especially on the format and metadiscourse. (p.293). Putting aside the third point which is more closely related to a debate on media different than ours, the first two points are extremely interesting but seems to fail in highlighting the specificity of digital experience and the reasons of their cultural relevance. Let's see them in detail. To explain the first point, at the beginning of his analysis Eugeni underlines the narrative aspects (narrativity, situational maps and inferences) that even a game such as *Spore* shares with other media:

Il videogioco presenta sotto questo aspetto la stessa dinamica di ordinamento narrativo del mondo indiretto che abbiamo visto all'opera nell'audiovisivo o in altre forme mediali; anche in questo caso un'esperienza che si svolge al presente viene trascritta in una mappa situazionale di ordine mentale: tale mappa da un lato permette di ricapitolare il passato, inquadrare il presente e prevedere gli sviluppi successivi, dall'altro lato viene costantemente aggiornata e rimodulata a partire dal monitoraggio della situazione presente mediante dispositivi di traccia che individuano gli snodi chiave e li trascrivono al suo interno.” (p.302)

Indeed, this is an important point which can justify why semiotics can and should study digital games and their experiences. However, what Eugeni is not pointing out is how such narration does not make fully sense from what is represented on the screen and is only truly meaningful to the player (once again this is absolutely coherent and reasonable since the author's perspective on experience is centered on the user and not on the text as a general cultural artifact). It is true that the author points out how the specificity of digital games resides in the fact that such narration was partially caused by the player's choices made through interactions.

However, he does not account for the fact that a narrative and experiential description such as the one of CSI would work in most virtual realities because interactions are gamified: subject to failure, discrete (such as making a step vs going somewhere), infinitely repeatable, explorative, etc. Interactions in virtual realities make sense for what they allow to do and are thus not merely choices. Instead, to explain how interactions make sense Eugeni talks about a “reconfiguration” and exteriorization”. Reconfiguration is described as:

“ In partenza il giocatore percepisce di svolgere una serie di semplici gesti (quali spostare il mouse sul tappetino, premere i tasti o girare la rotella) che gli permettono di scegliere e co-determinare quali materiali sensoriali gli vengano erogati dal dispositivo mediale. Tale percezione viene tuttavia riconfigurata nell’esperienza del gioco, e finisce per essere percepita dal giocatore come un proprio percepire con l’ambiente del mondo indiretto per co-determinare personalmente gli svolgimenti”. (p.302)

This description, on the one hand, seems very coherent with Volli’s previous idea of the virtual:

“Quel che conta è il principio: un movimento compiuto nel “mondo reale”, che in esso sarebbe senza scopo senza il legame con un “altro mondo” che semioticamente è una costruzione enunciata, costruita attraverso un *débrayage*, in quest’altro mondo diventa un’azione precisa: il movimento del mouse sul suo tappetino diventa posizionamento di un puntatore su un comando dello schermo e poi la sua attivazione grazie all’uso di un pulsante; oppure un gesto di un videogioco.”

On the other hand, however it presents some issues. Putting aside the already discussed problematic idea of the player selecting sensible materials, this description seems to claim that 1) controlling a character is an “effect of perception” coming from reconfiguration rather than a fact and 2) seems to deny the meaningfulness of the actions as well as the fact that they are designed to produce a certain experience. However, the player’s physical interaction is the actual and only cause (beside the existence of a code allowing for it, obviously) of a co-determination of the events represented on the screen and, differently than an interactive movie, are not premade on the level of the gameplay. On the contrary, Eugeni’s description seems more fit to describe what sometimes can happen when a little kid sees other playing videogames and wants to play too. In these cases, we can give to the kid an *unplugged* joystick and he can easily be convinced that “doing things with his fingers” is triggering the events on the screen even though it is a cutscene or someone else is actually playing. A real player, differently, is really manipulating a character in two different ways: first he can verify a causality between intended action, physical interactions and virtual world; secondly a game designed to go left by pressing up will *feel* intuitively wrong for neurocognitive reasons that are mostly absent from the just discussed neurocognitive approach of Eugeni’s. If we agree on the fact that we would not say that a surgeon operating with a robotic arm through a control device is “believing” or “reconfiguring” that he is acting in the other room with the patient, then the same should be valid for the players. The problem with the concept of re-configuration is that we have to recognize a first-hand primary configuration with a different purpose than acting into a digital world, which however both from the game designer point of view and the player point of view is the logically main and first one. Probably Eugeni talks about reconfiguration because of his own conception of interactions as means to reproduce sensible materials on the screen (a first configuration), and more generally of games as communicative products among others, but this conception is highly debatable and probably comes from the author’s usual object of study such as movies. It is unclear thus if the idea of reconfiguration can help us to grasp the meaning-making in a game, especially since a player is never forgetting the differences and purposes between actions in the physical world and the ones in the digital.

A different productive way to use the concept of reconfiguration could be referred to the neurocognitive phenomenon of neuroplasticity and consequently the experiential meaning of interactions in terms of prostheses, but this seems not to be Eugeni’s point.

Moving on to the subject of “exteriorization”, Eugeni very interestingly points out that the game offers tangible and multiple situational maps referring to three different temporal scales in which interactions are occurring: the actual moment (with the mini map showing the location of a character or the HUD showing current health points), the context of the moment and the more general overall time of the story. (p.303). The issue here is on the impact of this externalization on meaning and on the experience claimed by Eugeni:

“In altri termini, le mappe situazionali esteriorizzate permettono di vivere l’esperienza della produzione di un “evento”: una trasformazione irreversibile del mondo, personalmente agita ed esperita dal giocatore nel presente”. (pp.303-304)

Now, this is very problematic for the purpose of thinking this as a specificity of new interactive digital media or even only of digital games. In fact, *Spore* does not represent any other videogame and on the contrary is a very unique case study. Many games without all these different externalized maps exists: games without mini maps, without health bar, without menu showing the progression since the beginning, without levels, etc... Yet, there is no game in which the players are not living a present experience of irremediable transformations and unique events. The reasons for this are, once again, very trivial: in games (from *Tetris* to *SimCity* to *Doom* to *Just Dance* to *GTA* to *Mortal Kombat* to *Burnout*) players are making choices in the present by doing real physical actions (such as pressing a button) and by really perceiving a world (on the screen) and will see unknown consequences almost in real-time. How could they *not* interpret the virtual worlds as events and transformations related to them? Instead, Eugeni’s externalized situational maps are interesting for two reasons left untouched by the author:

1. They create an aspectuality of time and allow for a phenomenological projectuality (Vella, 2019, Zlatev 2018) which can have multiple grades: games with undiscovered parts of the map, high scores made only of 0s, levels up to 99 and so on are experientially different from a game such as *Doom* because they allow us to make articulated plans for the future in the present moment of the player.
2. Despite being externalized in multiple ways, actual situational maps are mostly absent from the text as an artifact. The reason for this is that the causes and goals behind these maps are often known only by the player, such as when the Eugeni decides to skip the main objective to explore a part of the map and get killed. Thus, from a methodological point of view, the analysis of virtual realities is radically harder and cannot be reasonably limited to what is represented on the screen. Finally, this also allows for a same text to have different represented values, such as the fact that the author chose to make a carnivore killing others but could have done something very different.

The second aspect examined by the author is the different relation between the player and the character of the indirect world with a distinctive *relational sync* (p.304). The idea here is that the reconfiguration makes it so that the player perceives himself as granted with agency and thus feel close to the character because he can determine him/it. The problem, however, is in the premise claiming that this happen because the other means of sync are less useful:

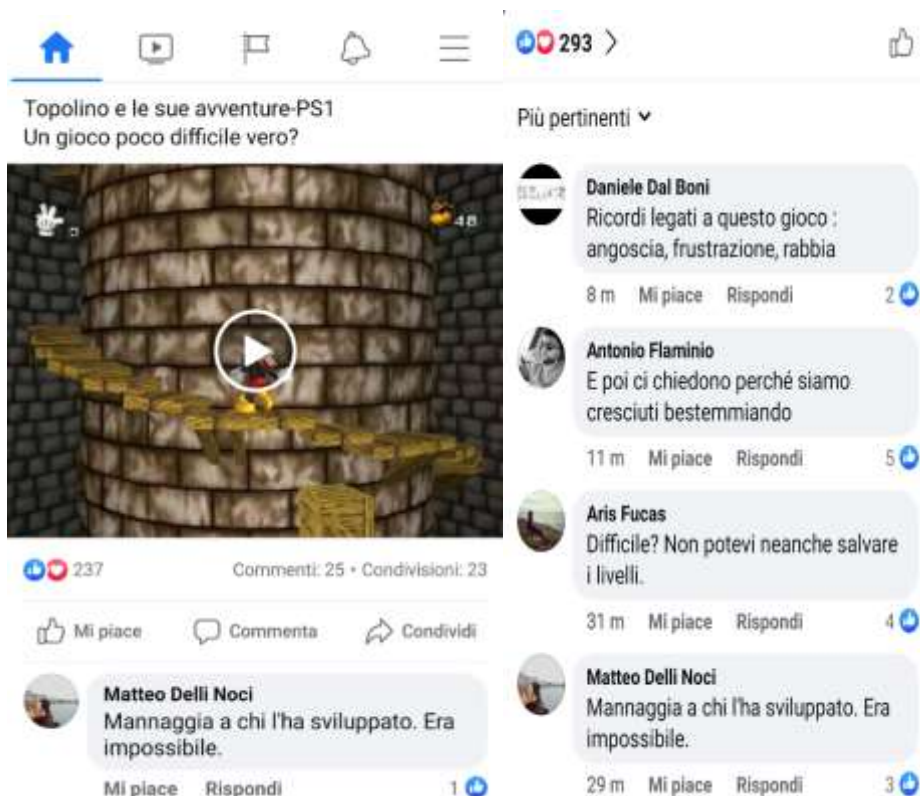
“In questo senso il meccanismo di consonanza somatica tra lo spettatore/giocatore e i personaggi viene aggirato oppure ha un peso minore.” (p.304)

“l’uso di soggettive visive e sonore rimanda a una condivisione di stati di coscienza contingenti, di mappe situazionali e di sfondi conoscenze e valori di più ampia portata. Tuttavia nel caso del videogioco questi aspetti, per quanto possano essere presenti, non sono strettamente necessari né sufficienti” (p.304)

Now such claims seem actually unjustified, especially if we look digital games in general and not only at *Spore*. For example, there is a whole literature on the importance of the body of characters in game design (Isbister, 2016).

Moreover, games offer possibilities of somatic closeness that are completely unprecedented: such as players being tired or in pain as the character represented on the screen (Metal Gear Solid 1, Torture Scene), enacting movement such as pressing a trigger or feeling something close to them in VR games. Finally, if cinematic subjective shots are for Eugeni examples of “radical inclusiveness” (p.157) then first-person shot in digital games, with the possibility to freely gaze upon the world and the absence of *montage*, should be highlighted as far more effective than any other media. So, the point is that, with the exclusion of facial expressions, digital games work as well as other media and borrow from them everything possible. The role of agency is of course very important, but on another level (the one of narration) and not for the reasons supposed by the author.

Finally, and coherently with what we have seen until now, Eugeni’s approach is mostly overlooking the fundamental aspect of digital games and virtual realities as texts requiring *effort and time* because of a precise *game design*. This aspect is fundamental in determining the actual experience of the player understood as a series of emotions and discoveries, unifying hundreds of player through a sort of collective memories for which *Mickey Mouse* is associated with anger³⁹:



With this we end our critique of Eugeni’s work, hoping to have proved why, despite sharing and treasuring his general perspective, we couldn’t use it in our own work. However, such critiques did not lead us to abandon the author’s perspective but rather to adjust it.

³⁹ The screenshots are taken from the Facebook fan page “SONY PLAYSTATION” with a post published il 27 settembre a2020 lle ore 13:06 on the following link:
<https://www.facebook.com/267362770114139/videos/1245584342455182>

The inquiry on experience and meaningfulness on virtual realities will thus:

A) Start from the assumptions that:

1. Experiences in virtual realities, in virtue of being media-experiences interpreted by an embodied user, cannot be understood within the contraposition of fake vs real.
2. Experiences in virtual realities are the result of a design replicating several and different aspects of how we make sense of non-media experience: from the perception of sensible materials to the logical criteria through which we organize what we conceive as events.
3. The meaningfulness of such experiences depends on the user's interpretative processes involved from perception to narration and which accomplish the double tasks of both *selecting pertinent elements* and *organizing the selected elements* in meaningful parts.
4. The meaningfulness of such experiences, differently from others created by different media, rely on the user's interactions both changing the elements on the expression plane and introducing new embodied elements of meaning.

B) State that the main goal of such a semiotics is to

1. Inquire on how the multiple aspects of meaning-making involved interact to create not only what is a media-experience but more importantly what is perceived by the users as an (often first-person) experience.
2. Inquire on how the multiple aspects of meaning-making involved interact to convey values and meanings in new ways and through strategies of selection and organization.
3. Inquire on the relation and differences between the designed experience and interpreted one, thus the conditions and causes for the transformation of a potential meaning.
4. Highlight, as result of the three previous points, the sociocultural relevance of both virtual realities as a medium and of specific virtual realities as cultural artifacts.

C) As an economic criteria and methodologic compass for its analyses, premise that:

1. The only meaningfulness that can be reasonably inquired by Semiotics is an intersubjective one, thus allowing us to prioritize the linguistic and embodied aspects while discarding others such as the author's intention or the user's individual psychology.
2. Given the excessive amount of "content" (from sensible materials to narrative events) and their variability (due to interactivity), the analysis should never start from zero nor be "total". Instead, the inquiry should always start *a posteriori* (either after having done the experience or after having seen a significant interpretation of it) and focus on specific thematic issues (how is x simulated) technical queries (what are the effects of this y interactions) or behavioral one (what is the relation between the simulation, interactions and observable outcome). This selection is done in order to determine and scientifically justify a major or minor degree of detail on the local segments of the experience and a minor or major degree of comprehensiveness of the single segments' content.
3. In narratively oriented virtual realities, it is reasonable to postulate that, in most cases, the sensible materials constituting the first layer of meaningful signs and triggering the first level of interpretative processes will be used to enhance the impression of *presence* and *coherence* of a given represented event. Therefore, the experiential research on virtual realities shouldn't study these two different levels separately and can orient the interpretative analysis of the sensible level on the basis of the explicit narrative content.

D) At the light of all the previous points, we theoretically propose to include the sensible materials and user-centered perspective as part of the analysis in the following way:

1. By extending CSE and CSC to the embodied and meaningful aspects of physical interactions needed to act in virtual realities.
2. By considering the sensible materials and their configurations as constituting the expression plane. Thus considering CSE and CSC as the phenomenological basis of the semiotic potential of a given virtual reality.
3. By acknowledging in the diversity of CSE and CSC used in virtual realities (vision, sound, movement) the intent of reproducing the characteristic multidimensionality of semantics (see the next chapter) and embodiment of the non-media experience.
4. By including CSE and CSC as meaningful parts of the user's interpretation only by postulating a criteria of pertinence, and thus of selection and attention, related to the overall content of the experience both in terms of literal content (represented on the expression plane and activated through interactions), intentions and goals.
5. By recognizing in the interpreted CSE and CSC the two different semiotic functions of semantics and enunciation. More specifically of 1) cognitively activating the equivalent of semantic primes which becomes part of the overall semantics of the text and of its relations 2) allowing a simulative first-person experience of the indirect world through effects of phenomenological continuity and somatic consonance with user's context and body.
6. By assuming that CSE and CSC, once interpreted as meaningful signs through a criteria of pertinence related to the user's experience, work as a *strategy of veridiction* of their specific semantics and enunciative effect which assume a certain *value of truth* in virtue of an *embodied testimony of the represented events* going from proprioception to emotions.
7. By affirming that cse and cscs need to be integrated within a semiotic model of narration proper to the digital textualities (elaborated by us in chapter three).

Finally, we can ground such statements on the observation of how the different sensible aspects applied to represent an indirect world have been used in previous media and especially in audiovisual products such as movies. We will thus conclude by making an example taken from famous mass-culture products: the fight between Neo vs Morpheus⁴⁰ in *Matrix* (Wachowski, 1999). Instead of making a detailed analysis, we will limit ourselves to highlight some of the intuitive ways in which the fight is experienced by the viewer in the sense that it is represented through *presence* and *coherence*:

1. The narrative structure of the fight is reflected by the music: drums and bells starting when the fight starts and marking specific end of movements (min. 0.55&56)
2. The “frenzy” of the fight is simulated by the rhythmized nature of both soundtracks
3. The theme of both martial arts and of the software simulations are present in the semantic content of the music (oriental-tribal sounds in the beginning and electronic sounds the second soundtrack)
4. The prolonged sound accompanying the slowing down of time during the moonsault after Neo's walk on the pillar (2.50)
5. The combination and fast succession of two close shots to represent the combination and fast succession of Morpheus sweep and thrust (min 1.56&57)

⁴⁰ https://www.youtube.com/watch?v=fhrNgXJ_n8

6. The little lift of the camera coordinated with Neo's jumping kick over Morpheus' head (min 2.01&02)
7. The subjective shot showing Morpheus dropping down on Neo as if on the viewer which sees the figure of Morpheus enclosing from a perceptive point of view (2.10&11)
8. The upside-down camera used when Neo "bends gravity" by walking on a vertical pillar (2.48)
9. The *abrupt* change and *enclosure* of shot when both Neo and Morpheus have *suddenly* their punch going *closer* to their faces. (min 3.58&359; min 4.33&4.34).

Here like in virtual realities the question is, however, if there is any semiotic relevance of such aspects which could very well belong to an aesthetic theory. After all, does any of such "metaphors" and "similitudes" changes the meaning or the values of *Matrix*? Certainly not. Not only that, but they do not even change the fight which could be perfectly described and understood without any of these. Finally, we can find such metaphors and similitude as pertinent only because of the more explicit content stabilizing the meaning: it would be impossible to associate the drums with a fight and even more to reconstruct the specific narrative structure of this fight from the music. However, Eugeni does not seems really concerned by the issue of the usefulness of the experiential level from a semiotic perspective and consequently does not justify his interest nor really explain how such aspects could be integrated in a more classic semiotic approach to analysis. On the contrary, we would like to end by highlighting at least three reasons for which such aspects are of semiotic pertinence:

- A. The experiential dimension shows a new intersubjective level from which a fictional world is understood through a form of indirect discourse between first and third person. It shows us not only how we can make of an indirect world, but more so how human being can make sense of *any* given reality in a variety of ways interacting between them.
- B. The embodied nature of such level, since it corresponds to a form of simulated phenomenological testimony, can reasonably be correlated to a *value of truth* and thus a rhetoric effect. Moreover, it also put the emphasis on the *emotional dimension* working also towards phenomena of *valorization* and *identification*. In other words, in virtual realities interactions and images work together creating meaningful metaphors based on the cognitive activity of the users, somehow blending the first and third dimension of rhetoric in movies (Eugeni, 2014)
- C. The cognitive semantics activated by experience cannot but be part of the "text" and thus create new configurations and isotopies which, in some cases, could be extremely important to explain how the meaning is interpreted.

Three reasons which clearly highlight the two different levels on which semiotic can and must work to inquire on the meaningfulness of virtual reality:

1. Considering the sensible materials, both represented by the screen and implied by the interactions, in semantic terms.
2. Considering the connection between the user's phenomenological reality and the fictional one in terms of extension and translation (*protheses*, a term used by Eugeni himself: 2020, p.72).

2.3.2 Beyond a medium-based typology of experience

A last point to discuss in relation to the fundamental work of Ruggero Eugeni is the relation between the specificity of the experience and the specificity of the medium. Indeed, ten years later his “*Semiotica dei Media*” and together with Valentino Catricalà, the author proposed a typology of the experiences which is explicitly based on the medium or, better, on the hardware involved in virtual experiences. This led both the authors to create a sort of scale of immersiveness starting from television and cinema and ending with mixed reality:

“The starting point is constituted by traditional media like cinema, video or television. In this case, spectators are mainly excluded from the device sensory flows management, and therefore they cannot decide neither the regulation of the points of perception of the diegetic world, nor the narrative developments within that world. We speak in this case of bystanding media, as the spectators find themselves playing the role of bystanders placed in front of a screen.” (p.71)

“We therefore find a first degree of development towards immersiveness in bystanding-immersive media. In this case, spectators remain in front of a screen; however, thanks to a series of instruments and prostheses (e.g., touch screen, touchpad, mouse, joystick, etc.), users can modify the flow of sensory elements delivered by the screen. This new situation allows them to transform both the points of perception and (possibly) the states of affairs of the diegetic world, thus regulating its narrative developments. [...] A third type of media devices further oriented towards immersiveness implies that subjects are wearing helmets or virtual reality glasses that isolate them from the world. Although they wear headsets provided with micro-screens and micro-speakers, users do not perceive these devices as such, and feel to be inserted in an alternative visual and auditory reality: we therefore have a first type of immersive media. More exactly, we speak here of moderate immersive media.” (p.72)

“Within moderate immersive media, we find two levels of immersiveness, according to the users’ freedom of movement — that is, the type of movement that transforms his or her point of perception with respect to the diegetic world —. In a first case, the users can only move in three directions without moving their body axis: in this state, called the three Degrees of Freedom or 3DOF, they can perform movements such as yawing, pitching and rolling. [...] The second level of immersiveness consists of a 6-degree of freedom (6DOF) state. In this case, the users wear not only headsets, but also suits equipped with sensors capable of tracking their movements in the space. The new equipment allows them to move freely in the virtual world. In addition to the three movements already described above, we also find forward or backward (sway), up or down (heave), right or left (surge) — and all the possible combinations between them —.” (p.73)

“A fourth and final degree of development is radical immersive media. In this case, users are not only able to move within a digitally reconstructed world enjoying 6DOF, but they can also see their and other subjects’ bodies. Users are therefore able to interact effectively with the environment that surrounds them, helping to define the narrative processes that take place within it. For this to be possible, we need to move from virtual to mixed reality.” (p.74)

“We can therefore summarize our typology according to the following table:

1. Bystanding media (cinema, video)
2. Bystanding-immersive media
 - 2.1. Opacifying devices (single or multiple screens) e.g., hypertexts, video games, interactive installations, CAVE, etc.
 - 2.2. Transparent devices (Augmented reality)
 - 2.2.1. Macro: apps for Smartphones, Tablets, etc.
 - 2.2.2. Micro: Google Glass, etc.
- 3 Moderate immersive media (Cinematic Virtual reality)
 - 3.1. 3DOF: basic cinematic VR e.g., Google Cardboard
 - 3.2. 6DOF: advanced cinematic VR e.g., *Carne y Arena*
4. Radical immersive media (Mixed reality)
 - 4.1. Reality-disguising devices e.g. The Void
 - 4.2. Reality-blending devices e.g., Hololens, Magic Leap’s Lightwear, etc.”

Such perspective, however, cannot be completely adopted by us as it is. In fact, we believe that, as we have already noted in his previous work, this view is mainly due to the lesser acquaintance (even only in bibliographical terms) of Eugeni with digital games. Indeed, not only videogames are described as “semi-immersive”

“The subsequent development of media accentuates this trend by creating boundaries between a pure visual experience and some forms that we would define as “semi-immersive”, typical of experiences such as the video games.”

But more importantly, they are put on the same level of hypertexts which requires no embodiment at all, despite recognizing a prosthetic level proper to such texts:

“Bystanding-immersive media such as multimedia hypertext, video games, or the different forms of augmented reality, maintain the perceptive alterity of the users, but introduce a practical aspect. The users continue to “attend” perceptive materials on a surface, but they can contribute to their determination by hand or arm prostheses e.g., touch screens, mouses, joysticks or, in some cases, more complex motion detectors. In this case, the users remain enunciatees, but at the same time assume a role of partial co-enunciators. This co-enunciation is normally haptic-perceptive (the users determine and transform sensory materials by using hand gestures: think of mouse, joysticks, touch screens, etc.). In some cases (e.g., the video game), we can also assist to a haptic-narrative co-enunciation: the users here are enabled to transform certain states of things in the system so to make the narrative development proceed within the indirect world, e.g. by achieving a certain level in a game⁴². In bystanding-immersive media, then, the subject is inserted in an enunciative configuration similar to the previous one; however, the possibility of co-enunciating the perceptive materials, both in haptic-perceptive terms (transformations of points of perception on the indirect world) and in haptic-narrative terms (transformations of states of things in the indirect world) introduce an effect of “almost-presence” with respect to the fictitious world. In this case, we can speak of a mode of Inanity (atonic orientation and tonic grasp).” (p.81-82)

In fact, VR videogames, which are one of the most important commercial and social reality of the VR technology, are oddly absent and in conflict with Eugeni and Catricalà’s list. More generally, the problem of such classification and approach is that it postulates a general concept of immersiveness which is precisely but not explicitly related to the hardware and heavily focused on vision while giving only a secondary role to other factors. Under this light, it would be a mistake to put digital games and VR experiences on the same level of “virtual realities” as we are doing all along this work. Yet, even without looking at more social or psychological factors of immersiveness, the sensorimotor involvement of digital games, adopted only successfully by VR, is clearly a form of embodiment and technological co-construction, depending however heavily on the software: *a same console can allow totally different games allowing for very different experiences (a puzzle-game and a fighting game) despite sharing a same level of visual immersiveness*. The point is therefore not to deny that, obviously, being on the Everest in VR and playing Super Mario are different experiences, but to be more cautious about the usage of the concept of immersiveness. A caution that comes from the natural tendency in many fields to automatically relate a higher degree of immersiveness with a higher degree of believability and therefore of rhetoric efficacy. A belief which constructs a false “myth” of VR as the ultimate empathy machine and to important mistakes at the very base of the scientific experiment on VR:

“A good example is a recent and important empirical study (Herrera et al., 2018) about empathy on “long term” (eight weeks) claiming that VR is somehow better than other media to produce this effect. When we closely look at the study we notice that reading is oddly defined as an activity involving our “visual system” since we use our eyes (Herrera et al., 2018, p.3) and that to obtain “objective results” the same amount of time was given to the participants experiencing texts on the issue of homelessness through “a fact-driven information intervention (Information), a traditional, narrative-based perspective-taking task (NPT), a VR perspective-taking task (VRPT), and a less immersive mediated perspective-taking task using a desktop computer (Desktop)” (ibidem: 21). Furthermore, the cultural background and personal beliefs of the participants were not considered as relevant and thus not taken into account.” (Giuliana and Alexiev, 2020, p.119).

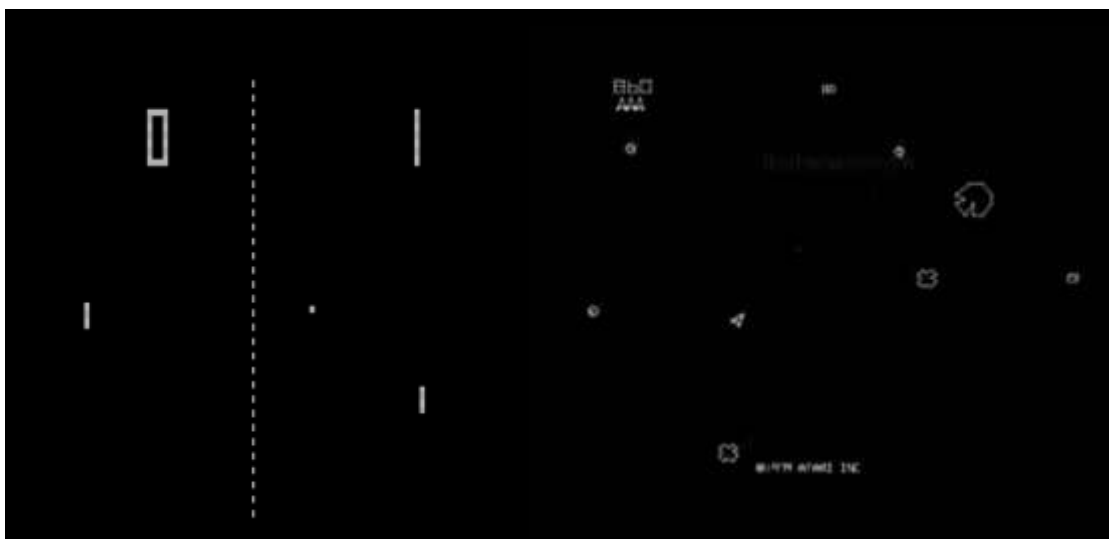
In conclusion, what we are claiming here is that, for the purposes of semiotics and more specifically of a semiotic of meaningfulness, a mediological approach to experience and immersiveness should be avoided in favor of an approach blending the sensorial dimension with all the others. Not for denying the difference of VR or XR experiences nor to claim that they are not meaningful, but only to avoid the risk of reducing the complexity and diversity of such experiences to their sensorial dimension. We will demonstrate this in chapter 5 with the application of our set of tools for the analysis of both digital games and VR experiences as a unique semiotic form, text and discourse of virtual reality. But before that, for the readers still unconvinced and/or wishing to explore the issue right now, we will face the topic of how the *experience of space* can drastically change inside digital games and of what are the main differences with how the space is perceived and experienced using VR technology.

2.3.2.1 Notes on the different spaces of virtual realities

To defend the choice of considering VR texts and digital games as virtual realities independently of their medium, we will here briefly explore how space can be experienced both inside digital games and VR. Differently from some previous works of semiotics in which the space of virtual realities was conceived only in logical-representative terms (Siabra-Fraile, 2009), here the basis of our demonstration is based on a three interdependent ideas:

1. Space is not only related to our sensorial perception of it but also to our acknowledgement and enactive (therefore also related to our agency) conception of it.
2. Space in games is not only visually represented but also used by the users to make fallible choice and inferences in relation to a given set of possible actions in this space.
3. The experience and immersiveness of space in virtual realities is a cognitive reality depending both on the visual access and to the logical operations/inferences allowed.

For the purposes of such discussion, we will ignore the come complex meaningfulness of space, such as the possibility for the user to create his own space (house, base, etc.), and only focus on the phenomenological dimension of such space in terms of continuity between the user's physical world and the fictional world, a continuity depending on three factors: visual representations, possible interactions and cognitive inferences related to the previous two factors. Finally, we will also ignore the idea of a foreground and background of space that will be examined later on for other purposes. Let's start with the beginning, Pong (1972) and Asteroids (1979)



Like most games of the early stage of virtual realities, these two texts present to the player a bidimensional space containing only the x and y axes. However, whereas in pong only the movement on the y axe is possible, Asteroids create a more tangible and realistic experience of such space which can be completely “traveled”. Furthermore, these spaces are completely given and revealed since the beginning. Even in the case of *Asteroids*, allowing to move from an edge to another, this space is clearly closed/delimited. Additionally, these spaces are places *inhabited* by a player that will visually recognize categories such as close/far in relation to the relation between his “avatar” (even in the case of pong) and the other objects. Finally, but extremely importantly, these spaces are made of *discrete* portions/segments requiring certain *paths* to be reached and in any given points the event (of a game over, for example) can occur. This is the very basis of the infinite textual utterances of digital games.

Although from a visual-sensorial perspective nothing has changed, the spatial experience of a game like Dr Jekyll and Mr. Hyde (1988) is somehow different.



Here the space is still inhabited, bidimensional and discrete, but it is no more disclosed and implies an idea of *progression*. Furthermore, there is a clear logical continuity between the anthropomorphism of the avatar and the user’s relation to space, with the possibility of exploring the space on the y axe only for brief moments through the action of jumping.

This brings us to *Super Mario Bros* (1985):



And even more to the western *Super Mario Bros 2* (1988) corresponding to the Japanese *Yume Kōjō: Doki Panic* (1987)



What happens here is that, although once again nothing seems different from other 2D games, the user has to *conceive* and *experience* the space differently in virtue of what will be known in the game design as a *verticality*. Given the possibility of a *vertical progression*, a possibility only determined by the design of the software and not in any means by the hardware, the users have to make spatial inferences/guesses/reasonings that are sensibly different from the previous case. All this is of course designed and in many case can follow a thematic line: in “*Disney’s Tarzan*” (2001) the experience of the virtual jungle is given by the non-linearity of levels such as “Coming of Age⁴¹” in which the player has to *wonder* and can *explore* what is behind, above and below him by both making inferential guesses and perceptual efforts discerning the various figurative elements which could lead to one of many “secret paths”



⁴¹ <https://www.youtube.com/watch?v=kZgg3d0Ci1k>

Following the same line, *Super Metroid* (1991) blends the visual access to the space of virtual reality with a conceptual mini map situating the user local position in a more complex and abstract topology that will be used to play and *explore*. Interestingly enough the experience of exploration, which is absolutely central in the pleasure of virtual realities and more specifically in their immersiveness, is here clearly a way between the disclosed space allowing a *projectuality* (more on this topic in chapter 3) and the progressive one.



A particular cognitive “device” that in a 2D game such as *Odin Sphere* (2007) allows for a circular experience of spatiality blending the idea of a continuous world and the more common linearity characterizing the experience of our previous examples.

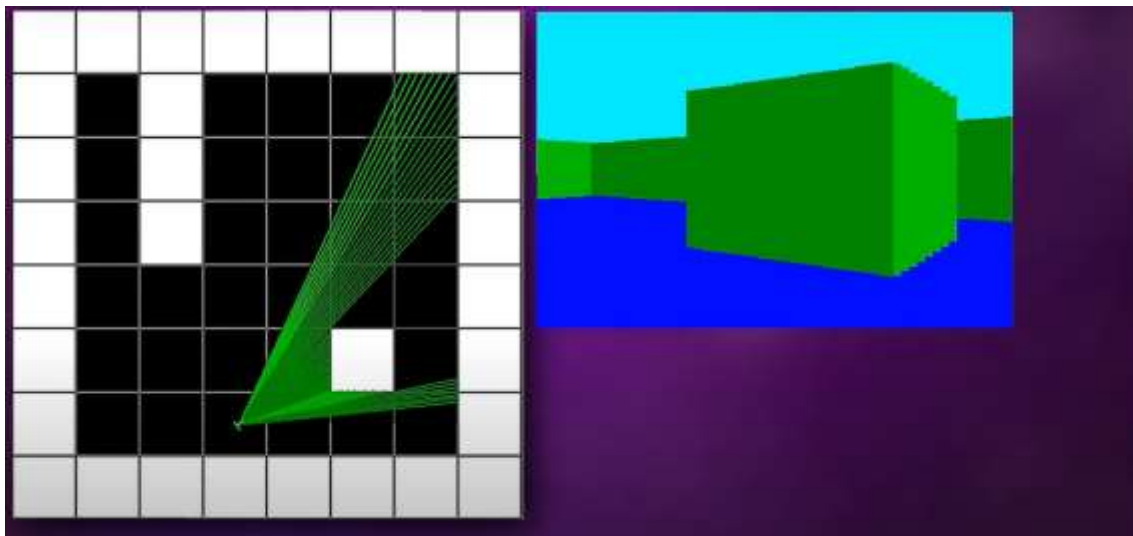


Finally, to conclude with the different spatial experiences of 2D games, the last and very important dimension of the virtual space is the relation between its discreteness and times. Time is indeed giving “density” and materiality to such space conceived and experienced as a series of segments. The most iconic example of this is perhaps the 1995 unreleased game “Desert Bus” in which “The objective of the game is to drive a bus from Tucson, Arizona, to Las Vegas, Nevada, in real time at a maximum speed of 45 mph (72 km/h). The feat requires eight hours of continuous play to complete.”.

But what about the third dimension? Well, interestingly enough one among the first and more popular immersive experience of a three-dimensional space in the history of virtual realities has appeared inside a bidimensional space and with dreadfully limited hardware. This is the case of Wolfenstein 3D (1992).



The 3D effect was due to the ingenious use of ray-casting, “firing” lines (rays) from the user’s point of view that will hit walls so that a distance will be calculated to represent the virtual world and space.



(picture taken from⁴²)

Yet, no matter what the “real” space was, the users recognized a continuity between their world and the virtual one through the visual and logical experience of Wolfenstein’s space, which depended of course also on the adoption of a first-person shot and of a maze structure with secret areas not only allowing *exploration* but also requiring very concretely *orientation*.

⁴² <https://www.youtube.com/watch?v=gYRrGTC7GtA>

However, this phenomenological continuity resulting in a semiotic effect of immersiveness was still only at its debut. The next installment of the same creators, *Doom* (1993), would drastically increase the effectiveness and believability of such virtual space as a physical one. On the one hand this was possible through a partially new hardware, although not from the point of view of how Eugeni's conceive the hardware to define a specific medium (i.e.: headset and trackers). But on other it was also a question of how the new hardware, corresponding mostly to a higher power of calculation, was used to create a new design of the levels. Fundamental factors of the new spatial experience of *Doom* were the texture of the walls, the different heights of floors and ceilings, the overall space which was no more based on a grid such as in *Wolfenstein*, the succession and combination of claustrophobic cramped spaces and big open spaces, the usage of different lightings. Furthermore, even the creation of several sprites for the still 2D pictures of monsters would allow to recreate the impression of different phenomenological profiles by moving around a given object and revealing different aspects of it. Finally, the unexpected practice of strafing⁴³ was also an interesting discovery made by the players that allowed them to move faster in this space and therefore to conceive such space in terms of different physics ruling it.

Which bring us to the third game of Id software, *Quake* (1996), which was actually the first one in real 3D and using polygons, and which unsurprisingly did not actually feel like a revolution of space perception and immersion in respect to *Doom*. In fact, the real novelty of *quake* in terms of continuity between worlds was the possibility to aim and look also on the y axe, granting "the ability to move the player's view both horizontally and vertically to see not only around the player, but also above and below."⁴⁴, something impossible in the previous examined titles although already invented in other games such as *Ultima Underworld: The Stygian Abyss* (1992). Space could therefore be also perceived in its *discrete height* in same terms of how the users make sense of the physical world. Of course, several other innovation were made, and also in relation to space exploration (such as rocketjumping), but none were deemed the history of digital games as key factors of immersiveness and experience of space.

Finally, a last first-person shooter to mention is without a doubt *Descent* (1995) which was among the firsts to employ what is known as "Six degrees of freedom (6DoF)" that "refers to the freedom of movement of a rigid body in three-dimensional space. Specifically, the body is free to change position as forward/backward (surge), up/down (heave), left/right (sway) translation in three perpendicular axes, combined with changes in orientation through rotation about three perpendicular axes, often termed yaw (normal axis), pitch (transverse axis), and roll (longitudinal axis)."⁴⁵. It is therefore extremely interesting to note how this specific term was introduced long before modern VR and how its semiotic *effect* has absolutely no need of the hardware (headset and suit) postulated Bolter and Grusin (1999, p.243) and endorsed by Eugeni:

"The second level of immersiveness consists of a 6-degree of freedom (6DOF) state. In this case, the users wear not only headsets, but also suits equipped with sensors capable of tracking their movements in the space." (p.73)

Here once again both the perception and the possibility of actions are determining a certain phenomenological and immersive experience of space and presence.

⁴³ <https://doom.fandom.com/wiki/Straferunning>

⁴⁴ https://doom.fandom.com/wiki/Free_look

⁴⁵ https://en.wikipedia.org/wiki/Six_degrees_of_freedom

This history of the spatial experience of virtual realities, between visual representation and cognitive operations involved, is of course not only about platforms or shooting games but developed in other genres such as the fighting games moving first to a visual 3D with *Virtua Fighters* (1993) and then to “real” three-dimensional space with *Battle Arena Toshinden* (1995) which allowed movement in the third dimension. Additionally, several games started to transform and play with the space such as in the case of *Fez* (2012). But without going on, our point about why a complex notion of immersiveness (or presence), including several aspects (point of view in the space, structure of the space, interaction in the space, etc.) should be preferred to a purely visual-sensorial one should be clear.

But then what about proper VR? Given that almost all the phenomenological qualities of the experience of space were already present thirty years ago, and that even more so more recent games gave us unprecedented experiences of spatial immersion both in survival games such as *Amnesia* (2010) and fantasy games such as *Skyrim* (2011) that made exploration a core value, what is the meaningful novelty granted by technological specificity of VR? After all, long before the modern headset of the Oculus we already felt and feared the image coming into us with jump scares, something exploited admirably by a game such as *Five Nights at Freddy's* (2014).



To answer to such question and moving on to our conclusions, we will briefly examine two VR games and two VR narrative/artistic products at the light of the cognitive facts about VR previously exposed.

The first interesting case to discuss is the hide and seek mini-game present in *Virtual Reality* (2017), an experience that I personally made and remember for its meaningfulness. Here the user is in a little greenhouse in the middle of a garden and must find the origin of a voice teasing him. To do so, he has to try to interact with several items put in front and around him: a broom, a vase, some gloves, a watering can, and so on. In regard to digital games, the space is by itself not really different from a first-person game and present on the contrary a lesser degree of discreteness since, as in many other VR games, movement in such space is based on teleport. The real difference stands however on the way in which the body is concretely used to interact with the items, manipulating them with arms and grasping them by gripping hands on the controller, with an unprecedented and unique sensorimotor hypericonism.

This is valid also for the way in which head movements are influencing the user's gaze, so that for example to see what is in a bucket the player has to go closer to it and concretely look down⁴⁶:



Whereas 3D games can recreate the phenomenological situation of 3D objects situated in 3D spaces showing several different profiles depending on the point of view and item manipulation, the realism of the VR as a “space” comes from the way in which the phenomenological profiles are *accessed* in what is felt as *natural* and *common* way (more on this at the end of this chapter). Finally, the perception of space in terms of closeness and distance is also cognitively altered in relation to the peripersonal space and of its key role in the manipulation of objects and action:

“Peri-personal space is located directly around the body and involves multisensory integration in the frontal and parietal lobes (Làdavas and Serino, 2008; Serino, 2019). Evidence suggests that peri-personal space representations are multimodal since they respond to visual information (Longo and Lourenco, 2006) and visuo-tactile information (Noel et al., 2015). Also, bodily dimensions such as body part size changes the size of peripersonal space. For instance, individuals with longer arms tend to have more peri-personal space (Longo and Lourenco, 2007). Peri-personal space has been divided into near and far space or the space within and beyond reach (Berti and Frassinetti, 2000; Witt et al., 2005). Here, reachability may be a perceptual metric such that everything that is reachable is perceived to be in action space (Witt et al., 2005). Tool use also seems to alter the perception of the environment bringing objects as perceived as farther away as closer and into the action space (Witt et al., 2005), although others have found that near peri-personal space appears to grade off from the body in that it does not abruptly end at arm's reach (Longo and Lourenco, 2006, 2007).[...] The studies reviewed suggest that tool-use shows characteristics of tool embodiment, such that peri-personal space extension is dependent on active (Farnè and Làdavas, 2000), goal-directed (Farnè and Làdavas, 2000), and functionally effective (Farnè et al., 2005) tool interaction. Other studies also support that during and after tool use, the peri-personal space is enlarged” (Schettler et.al, 2019, pp.8-9)

⁴⁶ <https://www.youtube.com/watch?v=vprPx7Y1bMM>

Zombie Riot (2017), our second case, is a classic and early VR shooting game where the player has to kill hordes of zombies.



Here the player is not allowed to move in any way and can only look around to shoot. Despite its simplicity and these limitations, the VR immersiveness is however absolutely present. Once again it has however not to do with how VR use 3D spaces, but actually on how inside such space we perceive ourselves and other objects. Indeed, the evaluation of the dimensions in terms of tall/small are felt as in continuity with our artificially natural line of sight. Additionally, when a zombie is close to us the visual immersion of the VR tricks our mind in recognizing such “object” as actually inside our peripersonal space (Rizzolati) and therefore the sense of danger that we have has no more only to do with the “game over” but is an actual biological one because an item recognized as dangerous is too much close to us:

“ Peripersonal space is the area directly surrounding the body, which supports object manipulation and social interaction, but is also critical for threat detection. [...] We combined fMRI measurements with a preceding virtual reality training from either first- or third-person perspective to manipulate whether approaching human threat was perceived as directed to oneself or another. We found that first person perspective increased body ownership and identification with the virtual victim. When threat was perceived as directed towards oneself, synchronization of brain activity in the human peripersonal brain network was enhanced and connectivity increased from premotor and intraparietal cortex towards superior parietal lobe. When this threat was nearby, synchronization also occurred in emotion-processing regions. Priming with third person perspective reduced synchronization of brain activity in the peripersonal space network and increased top-down modulation of visual areas. In conclusion, our results showed that after first person perspective training peripersonal space is remapped to the virtual victim, thereby causing the fronto-parietal network to predict intrusive actions towards the body and emotion-processing regions to signal nearby threat.” (de Borst et.al., 2018 & 2020).

Finally, it is interesting to note how the characteristic hypericonism of VR proxemics can be used in more artistic products, such as *Dear Angelica* (2017) and *Reaping Rewards* (2017) to create a “Lakoffian” (Lakoff and Johnson 1980) sense of intimacy (*closeness is intimacy*) and sadness when we feel that our personal space is so close to the one of a dying loved mothers or of a terminal patient. Hence, in conclusion, our proposal of abandoning a mediological approach to experience and immersiveness in favor of a semiotic one focusing on the concrete cognitive basis, such as the perception of a threatened peripersonal space, behind a certain experienced meaningfulness which is first of all culturally and narratively grounded. Movements and perceptions in virtual realities are therefore meaningful because in both world they assume an identity as *habits* of how we make sense of any given reality. This perspective can allow to avoid any reductionism of the several dimension of immersiveness in virtual realities without abandoning the unicity of VR in terms of self-centered perception.

2.4 Patrizia Violi: meaning and experience

This thesis does not discuss how a lexical unit assumes meaning in origin or in principle, on the ontological (relationship with the world), linguistic (relationship in the system) or cognitive presuppositions of the understanding of a given lexeme or signifier. Nevertheless, in our work we claim that virtual realities can convey meanings, through linguistic and non-linguistic forms, which are based on the possibility of interpreting certain contents expressed in the text. In this sense this thesis presupposes a semantic theory. Furthermore, in this thesis we make the hypothesis of meaning as experienced on the basis of a synthesis between tangible contents represented by signifiers and conceptual intangible contents activated through the physical interactions and logical operations required by a given virtual reality. Putting aside for now the problem of demonstrating that such mental content can be reasonably hypothesized to exist (a matter that we will discuss in the next paragraphs), the semantic theory that such a hypothesis presupposes must therefore be capable of explaining:

1. If linguistic and extra-linguistic reality, dictionary knowledge and knowledge about the world, intersubjective concepts and proprioceptive experience, can generally interact in the creation of meaning.
2. How the content activated by sensorimotor actions and cognitive tasks, since it is hypothesized to be a semantic one and there is no meaning without interpretation, can be reasonably guessed (since we have no access to it), stabilized and correctly interpreted.
3. By what means such a conceptual mental content, made of lexical entries such as “push”, can become part of what we consider the proper meaning of a text in relation to complex narrative themes and values.

One such theory is precisely that of Patrizia Violi in "Meaning & Experience" (1997), which is without a doubt a book about *meaningfulness* since it is highly interested in how we can concretely use language in very different ways and in relation to its indeterminacy. Despite the fact that the author's main focus is on the semantics of words, and thus that neither content conveyed through digital interactions nor virtual realities are ever mentioned, her inner perspective about language can actually allow us to *use* such a theory for our own purposes. Indeed, in the very first pages of her book the author exposes her perspective and the key arguments of such semantic theory:

“ In termini più asettici si potrebbe dire che l'ipotesi di base che guida tutta la mia ricerca è un 'assunzione generale sulla non autonomia della semantica. Sono molti i modi in cui il significato linguistico non è autonomo: non è autonomo perché non separabile dall'insieme delle nostre conoscenze, e quindi dalla nostra cultura, dalle nostre abitudini e usi sociali, da tutto ciò che in altre parole costituisce la sfera socio-culturale della nostra esperienza. [...] Se la semantica linguistica non è separabile dalle conoscenze culturali in senso ampio, nemmeno può essere considerata autonoma dall'insieme dei nostri processi cognitivi e di pensiero, quindi dai processi di categorizzazione, riconoscimento, comprensione. *Ciò implicherà un alto grado di integrazione fra procedure di descrizione propriamente semantica e altre dimensioni dell'attività cognitiva* [...] La semantica diviene così partecipe sia di una psicologia dei processi di comprensione e interpretazione, che di una etnografia della cultura, rivelando in questa doppia appartenenza la sua vocazione ermeneutica. Le ragioni profonde della non autonomia della semantica riposano su quello che è il nesso fondativo da cui prende origine il significato stesso, e cioè il suo legame indissolubile con l'esperienza umana.” (pp.4-5, my italic).

We can see here two key points, which will be discussed up to the end of her work:

1. Lexical units, or more in general expressed semantic entries, do not directly nor merely correspond to their meanings but are rather points from which meaning arise through possible inferences: “Le unità lessicali sono i luoghi di emergenza di complesse strutture semantiche soggiacenti; esse possono essere considerate come i punti di temporanea stabilità dell’universo semantico complessivo, universo dinamico e in continua trasformazione” (p.3). Which is why we cannot hope to understand what lexical units means by deconstructing them “alone”:

“ Potremmo dire che il problema centrale, nelle semantiche a tratti, è quello di trovare una risposta soddisfacente alla domanda “quali attributi vanno inclusi nella lista delle proprietà e su quali criteri è possibile operare una scelta?”. Se non si riesce a individuare una tale risposta, ben difficilmente il progetto teorico potrà essere salvato. È evidente infatti che ciò che noi sappiamo di un termine come uomo è estremamente più complesso dell’intersezione di MASCHIO UMANO ADULTO ANIMATO; virtualmente comprende tutte le conoscenze che possediamo dall’uomo di Neanderthal fino alla costituzione fisico-biologico dell’organismo umano.” (p.87).

2. Meaning and Language depend on our experience of the world “nel corso di questo libro cercherò di sostenere che ciò che interpreta i segni linguistici è sempre, in ultima istanza, il nesso con la nostra esperienza” (p.35), “ Il linguaggio non è un sistema in sé concluso; la sua semantica poggia sulla nostra esperienza de mondo e a essa costantemente rimanda. Per questo ogni teoria del significato non può che essere anche una teoria dell’esperienza umana” (p.75). An experience which has multiple levels, from culture to perception:

“ Pensare il significato come causato e motivato dalla natura delle nostre esperienze ha varie conseguenze, di cui forse la più rilevante consiste nel considerare come questione semantica cruciale il rapporto fra il linguaggio e l’universo non linguistico delle nostre esperienze sensibili; ciò significa ridare centralità semantica al rapporto fra lingua e mondo, ripensandolo però attraverso lo snodo cruciale costituito dalla percezione.” (p.5). Meaning is thus multi-dimensional: “il significato è in sé un oggetto complesso che investe varie dimensioni, e appare difficilmente riducibile a una sola componente” (p.12).

These two arguments are of fundamental importance for our work, for several reasons.

First of all they are the direct result of Umberto Eco’s perspective on meaning, which is the most referenced semiotician all along the book and since the introduction: “ Non si può pensare al segno senza vederlo in qualche modo caratterizzato dal suo destino contestuale, ma non si può spiegare perché qualcuno capisce un dato atto linguistico se non si discute la natura dei segni che esso mette in contesto” (Eco, 1984, p.16 in Violi, 1997, p.3). And, as we have already explained, both Eco and his legacy, especially through the work of Claudio Paolucci, are at the very heart of our thesis from a theoretical point of view.

Secondly, they rely on explaining linguistic facts and interpretation of language by relying on more than linguistics: “comunque si voglia definire la relazione di interpretazione [...] essa implica necessariamente un andare oltre ai puri rapporti linguistici”. Which has as a concrete consequence to look for meaning in the study of culture and of the mind:

“Accanto a questa non separabilità del sistema semantico dalle altre componenti del sistema cognitivo si può individuare un altro piano di non-autonomia della semantica, che riguarda piuttosto l’estensione e il tipo delle informazioni che debbono essere incluse nella rappresentazione semantica. Il problema è se sia possibile separare le conoscenze della lingua dalle conoscenze del mondo, isolando i significati linguistici dall’insieme delle conoscenze enciclopediche dei parlanti. Su questo punto paiono esserci pochi dubbi: la semantica cognitiva è per necessità e

vocazione enciclopedica [...]. E' forse questo, più della dimensione cognitiva e psicologica, l'aspetto che accomuna la semantica cognitiva, soprattutto in una sua componente, all'approccio semiotico" (p.50)

And, perhaps even more importantly, these different levels have a common dimension and a somehow similar language:

“ Ciò significa che esiste un solo e unico livello di rappresentazione mentale, la struttura concettuale, con cui sono compatibili informazioni linguistiche, percettive e sensorimotorie. Questa compatibilità fra diversi sistemi di rappresentazione, o moduli, è ciò che Jackendoff (1983) chiama Vincolo Cognitivo, intendendo con questo la necessità che le informazioni veicolate dai differenti sistemi di rappresentazione del nostro apparato cognitivo – linguistico, visivo, auditivo, motorio, cinestesico, ecc.. – siano compatibili le une con le altre e accessibili tramite regole di corrispondenza” (p.52)

“Molti parallelismi possono essere individuati fra strutture linguistiche e strutture percettivo-visive. In primo luogo entrambi i sistemi assolvono alla stessa funzione, quella di fornire coerenza, e la realizzano attraverso processi largamente simili” (Violi, 1997. P.55)”

“ L'opzione esperienziale sottende una lettura triadica del segno linguistico che non si risolve nella bidimensionalità di un sistema linguistico separato e separabile dal non linguistico. [...] Nell'accezione di realismo che intendo sostenere il significato si riferisce non a una realtà metafisicamente assunta, ma alla nostra esperienza della realtà, esperienza complessa e multidimensionale, insieme fenomenologica e percettiva, culturale, intersoggettiva e sociale. È la sua natura esperienziale che rende la semantica della lingua inseparabile dalle conoscenze del mondo: *gli schemi e le strutture attraverso cui diamo senso alle espressioni della lingua mondo non sono diversi da quelli con cui diamo senso al nostro essere e agire nel mondo*”. (p.211)

Indeed, such a similarity can ground our claiming that the meaning experienced by a user of virtual reality depends on the relationship between contents activated by the manifested elements of the expression plane (what is on the screen) and by the cognitive content triggered by both the required interactions and phenomenological position of the user. Yet, the integration of semiotics with cognitive theories of semantics, focusing on phenomenological and psychological aspects of meaning, is not made blindly but on the contrary the author is very often critical toward several proposals:

“Innatismo e universalismo sono aspetti complementari di uno stesso problema e presentano difficoltà di tipo analogo. Se non vi è difficoltà ad ammettere l'esistenza di qualche elemento innato e quindi universale nella cognizione umana, più controverso è stabilire il livello di ciò che viene definito innato. Quanto più sono i concetti specifici a essere considerati innati, tanto più l'universalismo diviene difficilmente sostenibile, data l'innegabile realtà delle differenze culturali, per non dire individuali” (p.62)

Nonetheless, her approach highlights several points of contact between a cognitive approach to meaning and a semiotic perspective, and not only the one of Eco but also to a structuralist one (p.62). Indeed, it does not give up on any key semiotic idea of meaning, from the concept of it as a relational value depending for some aspects on structural organization (p.254) to the one of narration (p.286):

Non si deve pensare che un simile suggerimento abbia un sapore troppo letterario; non sono solo i romanzi a essere dotati di una dimensione narrativa, ma anche le nostre azioni, dalle più quotidiane alle più complesse.” (p.131)

“In questo senso si potrebbe pensare all'azione come una sequenza che realizza la struttura minima di ogni struttura narrativa: stato iniziale – trasformazione – stato finale. Gli oggetti di base potrebbero forse essere definiti come le entità che individuano un'azione elementare e su cui si esercita un programma narrativo minimo.” (p.161).

Thirdly, experience act as a *mediator* in meaning:

“ Nella prospettiva che sto sostenendo il rapporto fra linguaggio e mondo è mediato dall’esperienza, in particolare dall’esperienza percettiva nel caso del mondo fisico; per quanto riguarda il riferimento al mondo concreto della realtà sensibile la generale indessicalità del linguaggio passa in modo cruciale attraverso la percezione” (p.73)

“ Se il rapporto fra “non sposato e scapolo” e *scapolo* ci appare di natura diversa da quello fra “miagolare” e *gatto* , ciò dipende dal modo diverso in cui la convenzione linguistica è legata alla nostra esperienza, a sua volta determinata dalla natura diversa dell’oggetto. [...] E quindi l’esperienza a essere diversa, non una misteriosa essenza delle diverse proprietà linguistiche.” (p.90)

““ Se la semantica di gatto non è la stessa di quella di triangolo o vergogna ciò dipende dal fatto che le nostre esperienze di gatti, triangoli e vergogna sono di natura diversa” (p.325).

This is another important point given that experience is at the very center of our work. Indeed, digital games or VR texts are very often described as experiences (differently from books or movies), and in our semiotic perspective this experience is an effect derived from the possibility to enact experiential aspects of meaning, of a “*muoversi intenzionale nel mondo*” (p.167), through sensorimotor interactions and logical tasks. Now, in “Experience and Meaning” such aspects are often specifically discussed:

“ Tutta la nostra conoscenza è conoscenza del mondo, che categorizziamo nel linguaggio, né si vede come potrebbe essere altrimenti. E questo non vale solo per mucche o gatti, ma per qualunque concetto, anche i più astratti. Un verbo come *smettere* sintetizza una certa particolare esperienza, in questo caso un cambiamento di stato, che è evidentemente abbastanza frequente e importante nella nostra vita da giustificare la creazione di una parola per designarlo” (p.93).

“ La priorità fra i tratti caratterizzanti il livello di base mi pare vada ricercata nell’aspetto funzionale: nei termini di Rosch gli oggetti di base sono quelli con cui noi interagiamo sulla base di un programma motorio *unitario*. [...] Tutte le sedie sono oggetti su cui mi siedo eseguendo la stessa sequenza di azioni, tutti i bicchieri sono oggetti da cui bevo nello stesso modo, eccetera. [...] È dunque una fenomenologia corporea a definire il livello di base, è a partire dal nostro corpo e dal suo muoversi nello spazio che si possono individuare unità discrete nel mondo che ci circonda e queste unità hanno maggiore salienza cognitiva e percettiva quanto più corrispondono a una interazione con l’ambiente.” (p.161)

“ Parlare di aspetto corporeo nel caso di concetti di base significa invece alludere a qualcosa di più profondo: è nella modalità stessa della nostra interazione con l’ambiente che il mondo prende forma e il senso si differenzia. [...] “ Se in una prospettiva whorfiana eravamo abituati a pensare la lingua come cerniera fra pensiero e cultura, ora il sistema linguistico assume una funzione di mediazione anche fra corpo e pensiero.” (pp.167-169).

“ Se “un essere umano corre” può essere considerato il caso tipico di *correre*, ciò avviene perché questa frase rimanda a una situazione di cui noi abbiamo conoscenza diretta, fenomenologicamente fondata. I verbi di movimento rientrano in quella classe che ho che ho chiamato azioni naturali per affinità con i generi naturali, la cui descrizione linguistica risulta impossibile senza far ricorso all’esperienza fisico-percettiva che la sottende. *Correre* non significa solo “muoversi velocemente”, ma rimanda a una particolare forma del movimento corporeo comprensibile solo in riferimento alla nostra posizione eretta e al nostro avere due gambe” (p.352).”

Fourthly, a great emphasis is put on the associative nature of meaning-making and interpretation, which is why context, frame semantics, equivalence, analogy and encyclopedia have such an important role all along this book:

“ In altri termini l’universo semantico complessivo di una lingua può essere concepito come un insieme di microuniversi semantici fra loro interconnessi e reciprocamente attivabili. Questa idea è stata confermata, sul piano della organizzazione mentale del lessico, da moltissime verifiche psicolinguistiche ed è alla base di molte teorie semantiche di ispirazione cognitivista come la *Frame Semantics* di Fillmore” p.43

“[...] Putnam dimostra efficacemente l’impossibilità di fissare un insieme chiuso di proprietà definitorie. Lo stereotipo, che corrisponde al significato concettuale attivato nella nostra mente dalle parole al linguaggio, non è basato su condizioni di tipo analitico, ma rimanda a una conoscenza del mondo di tipo chiaramente enciclopedico” (p.100)

“Semioticamente si potrebbe pensare allo schema strutturato come a una relazione che connette i termini a uno stesso *topic*, rendendo possibile la loro cooccorrenza in una sequenza narrativa. In altri termini il campo semantico, o schema strutturato, è innanzitutto un micro-universo narrativo, le associazioni essendo – anche – le possibilità di combinatoria narrativa. Non si deve pensare che un simile suggerimento abbia un sapore troppo letterario; non sono solo i romanzi a essere dotati di una dimensione narrativa, ma anche le nostre azioni, dalle più quotidiane alle più complesse.” (p.131)

“Con questa espressione intendo riferirmi a tutti quei casi in cui vengono attribuiti alcuni tratti semantici a qualcosa che in sé non li possiede, ma che li viene ad acquisire grazie al suo particolare inserimento contestuale”. [...] Il fenomeno della risemantizzazione semantica è una componente più specifica di quella generale plasticità che caratterizza il modo in cui il linguaggio cerca di descrivere la nostra esperienza; la descrizione non è mai un *mapping* uno a uno, secondo regole definite come predirebbero i modelli CNS, ma un riaggiustamento continuo che può subire distorsioni più o meno marcate” (p.150)

“Non vi è dubbio, insomma, che tutte le attività attraverso cui noi cerchiamo di dare un senso alla nostra esperienza – riconoscimento, interpretazione, inferenze e abduzioni, cioè i fondamenti dei nostri processi semiotici – implicano tutte il ricorso alla costruzione di categorie. La categorizzazione può così essere vista come il modo principale attraverso cui diamo senso all’esperienza, secondo le parole di Lakoff (1987).” (pp.154-155) and “i nostri processi di categorizzazione, e quindi di costruzione del significato, sono basati su un principio di somiglianza e analogia piuttosto che di identità” (p.173)

Words are “dispositivi inferenziali e abduitivi” (p.212) and meaning has thus a schematic nature (pp.281-283) which activates in our minds several frames (p.283) depending on the context. This is another critical point for our theory since we are claiming that very basilar semantic concepts enacted by the given tasks of a virtual reality, such as “holding” or “coordinating” can be associated with a given *theme* such as solitude or brotherhood to enrich the meaningfulness of the text. Furthermore, this also allows for experience in virtual realities to *feel* realistic although they are *inaccurate*, representing only some aspects of a given action or event.

Fifthly and finally, this dynamic, open and comprehensive perspective on meaning exposed in her Violi’s book has a counterpart in her great effort to explain all the means by which semantics can be stabilized.

“In altri termini il rapporto di interpretazione non è retto da un codice di correlazioni totalmente prefissato, ma piuttosto guidato da principi inferenziali che non sono tuttavia imprevedibili o casuali, ma seguono regolarità costanti” (p.174)

On this point, the author the author makes three fundamental distinctions:

1. *Essential properties* of lexical units, which are more stable although still conventional (p.222), versus *typical properties* of lexical units, which can be more easily erased. A claim which rethinks semantic traits in a dynamical perspective and outside of necessity (p.239). Moreover, essential properties can be further divided as belonging to *background* and a *foreground* (sensible to local negations) (p.316)
2. *Semantic competence* required for the correct interpretation of lexical units, which is punctually expected to be shared and agreed on (p.244) in a given cultural community (the association of whale with an animal) since it is culturally stabilized through time (p.246), versus *encyclopedic competence* which is expected to be shared only under certain circumstances (the association of the whale with the story of Captain Ahab and the property for this animal to be evil(p.249)). Importantly, competence consists in a referential competence related to the sensible experience: “Per concludere si può affermare con Marconi che, almeno per certi termini, la competenza referenziale è parte della competenza semantica, così come l’informazione percettiva è parte del significato. [...] Riconoscere un ruolo alla componente referenziale della competenza implica necessariamente uscire da ogni impostazione autonomista e intralinguistica del significato per ancorare il linguaggio alla nostra esperienza extralinguistica, assegnando un ruolo centrale di mediazione al sistema percettivo.” (p.267). And finally, the distinction between the two can only be made from an empirical and historical perspective (p.254)

3. *Historical versus perceptive versus functional* aspects or saliences (p.275) of lexical units which can be *activated* or *narcotized* depending on a given context and are almost always co-occurrent as in the case of manufacts which have perceptive and functional saliences which are influenced by culture (p.327). In this perspective which saliences can be considered standard and structural enough to create the “literal meaning” depends on the regularity of the contexts: “*La regolarità dei significati è la regolarità dei contesti [...] nessuna parola si dà mai fuori contesto, perché ogni termine è sempre indicizzato implicitamente a un contesto standard di riferimento, nel senso che il suo significato tipico è la rappresentazione di quella regolarità che emerge nel contesto standard*” (p.277). Yet contexts are not only something depending on the outside but can be created by the lexical units (p.278).

Finally, these four points highlight what are for Patrizia Violi the three fundamental dimension of meaning: the *positive* one (related to contexts and schema expanding meaning), the *contrastive* one (related to how meaning is a question of opposition) and the *narrative* one (related to the condensed content of lexical units).

To conclude, we should point out that we are here using the perspective of Patrizia Violi rather than applying her theory. Indeed, what the author does in “Meaning and Experience” is to highlight the experiential aspect of meaning in language to defend the idea that semantics cannot be understood only through language (non-autonomy of semantics), a claim sustained by several example which are all linguistic sentences and words. On the contrary, what we are doing here is claiming the linguistic aspects of interactive experience, although without ever denying the specificity of the sensible domain. At a first glance, this can seem the exact opposite. However, in our view the theory elaborated by Patrizia Violi is one about the multi-dimensionality of meaningfulness understood as something integrating different aspects of our relationship with the world through sign functions.

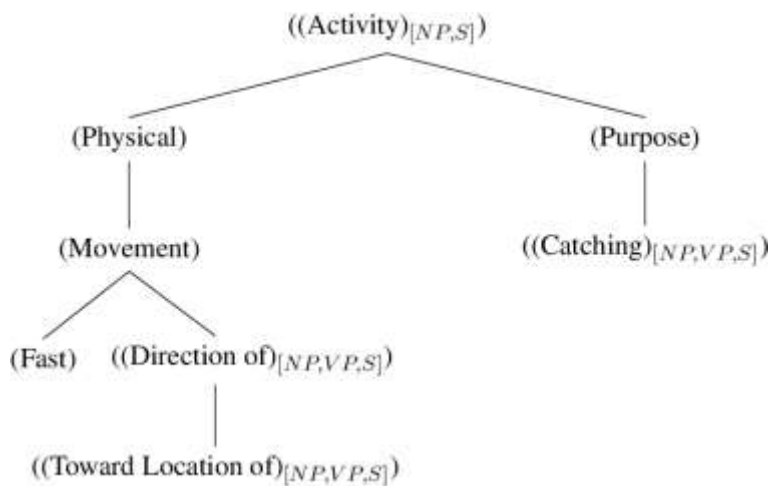
And luckily, for us, Patrizia Violi herself was kind-hearted enough to read our claims and seems to agree with us:

“ Ho letto con interesse le sue pagine e l'utilizzo che lei fa delle mie riflessioni semantiche (ormai di molto tempo fa!). Chiamarle 'teoria' mi pare troppo, ma lei ha colto perfettamente lo spirito del mio lavoro. Infatti, alla fine, quando dice che potrebbe sembrare che ci sia una contraddizione fra il suo argomento e le mie posizioni, ha perfettamente ragione a sostenere che in realtà stiamo sostenendo una tesi simile, affrontando forse il problema da due punti di vista diversi, quello linguistico e quello non verbale.” (Private Email, September 2020).”

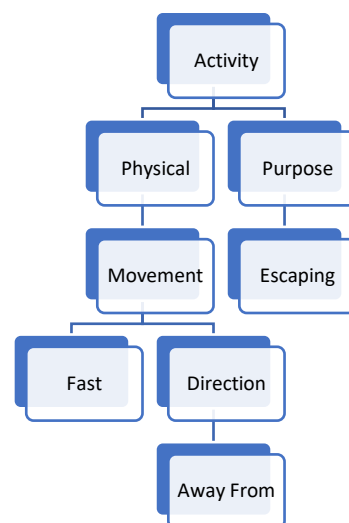
In this sense , this theory is perfectly able to ground our own claims about meaning-making in virtual worlds.

2.4.1 : Semantic representation of interactions and cognitive tasks

In the last paragraph we claimed that the digital interactions of virtual reality create semantic content in relation with the actions for which they are requested and to the effort they require. To further explain this claim, we propose to go back to one of the early model discussed by Violi and also present in the very recent “Meaning” of Caputo and Barbero (2018): the one of Katz (1963). Particularly, we will take the example of the lexeme “chase”:



Since we are not making any claim about a proper theory of the mind, the problem for us is not if this model can be a realistic way to conceive the inner or authentic human thought. The question for us is if this kind of model can be used to highlight what kind of semantic content is enacted by interaction. Two opposite answers can be given. The first one is affirmative, during a chasing scene the instructions in the mind of the player are very likely to be organized and represented in such a way. Moreover, this kind of schema can be easily adjusted to accommodate other events, such as being chased or escaping:



Finally, this works also very well also as a micro-narrative program.

However, the problem of such a model is precisely that it is not specific to interactive semiosis and extremely similar to a narration, in fact put into these terms this “instructions” are the same as the non-interactive representation of a chase. Let’s make a concrete example⁴⁷ by comparing two chasing and two escaping scenes. In *Resident Evil 5* (2009) at some point the protagonists are chased by infected villagers and must run away. In this case what the player *has to do* is to shoot with a minigun at all the pursuers. In *Mirror’s Edge* (2010), on the contrary, at some point the protagonist is chased by a helicopter and must run and jump from roof to roof to safely escape. What the player *has to do* is to move away from the incoming fire. A similar comparison could also be made by the chasing scene on the highway in *COD Advanced Warfare* (2014) and *Splinter Cell Conviction* (2010). So, the second answer would be no.

To grasp the differences, *what we need is thus an integrative model* that need to take into account the effort required to “chase” or “escape”, which is defined by the conditions of fallibility of the action and involves the sensorimotor dimension. From this point of view, we can see that

“Fast physical movement” *implies* a motor difficulty of “control” and open the scene/frame of *avoiding obstacles*

and that

“ Direction toward” *implies* a perceptive difficulty of “looking for” and open the scene/frame of “getting lost”

Now, in both the example of *Mirror’s Edge* and *Splinter Cell* the need to control the character and to correctly interpret the visual information of the space have some correspondence in the sensorimotor requirement depending on the controller, the point of view and the gameplay rules. This correspondence constitutes the referential illusion/effect which is typical of virtual realities but ultimately depends on a specific implementation. In fact, we have seen that the interactive scene of the escape in *Resident Evil 5* only narratively represents it and lack of this second dimension. Finally, this correspondence seems to be not only based on a richer phenomenological and encyclopedic ground but also open for *verbal syntagms* (from movement to control and avoid; from direction to look for and getting lost) to be both repeated and differently represented by different means, which constitutes a *multi-modal isotopy* opening, as we will see in the case of *Brothers* (2013), to the possibility of metaphorical meaning.

Concretely speaking, our methodological proposal is therefore to:

- 1) Look into the most recurrent gameplay mechanics and rules of a virtual reality, creating logical schemas of recurrent action
- 2) Put them into relation with the required sensorimotor tasks and effort to accomplish them, expanding the abstract schemas into phenomenological scenes and semiotic frames
- 3) Highlight linguistic analogies between thematic elements and expanded schemas, looking for both effect of referentiality (realism, immersion, etc.) and possible metaphors

Now, isn’t this contradictory with our previous claim of adopting Violi’s semantic theory which was explicitly *not* a componential one? There are two reasons for which we think that there is no contradiction.

⁴⁷ <https://www.youtube.com/watch?v=HYKkeqZ4kww>

First, one of the key point of componential theory is the idea of an inner symbolic language used to understand natural language (meaning), this is not at all our claim nor our objective.

Secondly, Violi was recognizing herself the possible existence of primitive semantics but criticized the idea to use them to understand all language and its uses. On this point we couldn't agree more since we are explicitly suggesting using such schemas *only* to grasp the possible added meaning of sensorimotor operations. Indeed even "escaping" or "running away" in such a schema is not really fit to represent any use in language: we could very well escape from our problems by sleeping or playing video games, without any reason to talk about something "physical" and "fast". And a similar case is also valid for an expression such as "chasing a dream".

Indeed, meaning making in a digital games very often rely on visual signifiers representing objects such as a book. That visual signifier will suggest some properties and some motor narrative program related to its corresponding lexical unit. However, only the possible interactions with it (reading it or throwing it as a weapon) will confirm or deny some saliences and partially redefine the object itself, they will tell us in what sense that book is a "book". This is of course also true for the represented actions in relation to their required interactions (pressing a trigger on a controller to shoot). Thus, in a virtual reality a realistic book or action will be one able to confirm, through experienced interactions, as many saliences and properties as possible related to the user's knowledge of the world and phenomenological situation.

With these considerations, we therefore conclude positively our hypothesis of inquiring digital games through the semantics implied in the interactions.

2.5 Claudio Paolucci: semiotics fundamentals of embodiment & prosthesis

In this chapter we have claimed that a semiotic of meaningfulness is a comprehensive one which must account for the actual experience of the player also in terms of his proven sensations and, more broadly, of the cognitive operations that arise from tasks and interactions which have a significative role in the production of meaning. To succeed in doing this, we affirmed that two main operations must be done. The first one is to consider such tasks and interaction in virtue of their cognitive semantic content, something that we have deemed as possible through Violi's perspective on semantics and overview of semantic theories. The second one is to start a real dialogue between semiotics and cognitive sciences to inquire on the neural/psychological/cognitive basis of semiotics effects due to the prosthetic requirement of virtual realities and, as we have seen through Eugeni, on their strong focus on embodiment and sensible content. But can semiotics do such a thing and is this dialogue actually viable, also from the point of view of the epistemological validity of semiotics to inquire on such themes? Claudio Paolucci is a key author in leading us to think so. The theoretical fundamentals of such idea were already present in his important work "Strutturalismo e Interpretazione" (2010) through the extensive usage of Peirce's semiotic theory claiming the intrinsic fallacy of any dual logic and thus the belief of triadic logic as foundation of the human reasoning. An idea that has the consequence of putting *mediation* as a key element of any attribution of meaning (therefore also related to perception and emotion) and asserting that immediate access to reality is, simply put, impossible. Since then, however, the author has dedicated important contributes on two specific topics which are central in this work:

1. The semiotic and semantic nature of feeling and thinking
2. The prosthesis in audiovisual work as access

We will now expose and comment them to explain how and why such works are fundamental for our dissertation both as an epistemological grounds and as a method.

2.5.1 Semiotics and cognition: epistemological ground of virtual experiences

Already in 2011 with his "The External Mind: Semiotics, Pragmatism, Extended Mind and Distributed Cognition" Claudio Paolucci not only highlighted the semiotic pertinence of some of the most recent cognitive theories, such as distributed cognition and external mind, but also affirmed that semiotics could contribute to non-semiotic debate:

"However, we will also claim that Peirce's cognitive theory, which is constitutively grounded on his semiotics, represents an appropriate epistemological frame for investigating some of the current problems that are central to the debate in contemporary cognitive science" (p.70).

Although in his work Paolucci faces theoretical issues which by far exceed in both complexity and pertinence the content of this thesis, there are some key ideas which are extremely useful for ourselves in relation to a crucial point of our methodology: the idea that "feelings" and "percepts" must be taken into account as an interpreted (coming from an interpretation) and generative semantic content (producing further interpretations) similarly (although not identically) to the visual representations on the screen. An idea which implies that:

1) Perception cannot be totally opposed to cognition, that what is *thought* and *felt* are part of a continuum.

2) This experiential aspect of virtual realities can be studied in terms of semantics both determined by and having an impact on the user's beliefs.

Two points which are precisely the position of Peirce that Claudio Paolucci reconstruct:

"Peirce asked if it was really possible to draw a cognition directly from the object, without any previous cognition in the phenomenological structuration of this cognition itself playing a part. Through numerous examples, Peirce denied this possibility and described it as one of his famous four incapacities (anti-intuitionism): witnesses are unable to distinguish between what they have seen and what they have inferred (CP 5.216). The third dimension of space and the continuity of the perceptual field are indeed not *seen* but *learnt*, inferred and reconstructed (CP 5219-223); also perceptions and sensations are not intuitions but complex forms of inference in which a series of complex predicates are replaced by a simple one (CP 5.266-309) etc." (Paolucci, 2011, 71)

"For the purposes of this work, I would thus like to show: i) how pragmatism is first of all a *semantic* theory which has to do with *cognition* while giving special attention to the meaning of *beliefs* (*meaning* and *beliefs* that are also the core of Peirce's "pragmatic maxims") ii) how in the pragmatism of Peirce, meaning is subject to the community and to the extension of thought in the environment (this is part of what Peirce calls the "social doctrine of logic" and of what he calls "conceivable practical consequences")" (Paolucci, 2011, 72).

Furthermore, Paolucci's reconstruction of the Peircean theory is also very useful for us since we will need to explain in our analysis how come immersivity and realism can be reached in virtual reality despite the obvious differences which are never really ignored by the player. An explanation that we have already based (in the previous section about space and immersiveness) on the idea of the relationship between *agency* and *habit*.

"The scientific method for the fixation of belief is indeed necessary because Peirce's analysis highlights a tendency to *attribute meaning according to that previous meaning which is sedimented in our habits and in our beliefs* and to act according to it, no matter it being true or not." (p.75).

"Peirce calls *interpretants* these previous (or following) cognitions that determine "the cognition which is present to the mind". He will describe these interpretants not as some entity located in the individual's mind, **but as something culturally and intersubjectively distributed in the community** (see CP 5.311)." (Paolucci, 2011, 72, my bold.)

Paolucci's work makes very clear in what sense we are inquiring on the experience from a phenomenological perspective interested in the "content" experienced by the player. Indeed:

"Peirce defines the phenomenon as "anything that becomes present to the mind"." (p.79)

"It is worth noticing how Peircean semiotics is grounded in phenomenology: cognitions are phenomena that occur to the mind and they are signs, that is elements that stands for other elements. Peircean semiotics is in fact a phenomenology (Phaneroscopy) elaborated to give account of cognition." (p.90)

"For instance, Clark's theory is a theory of the extension of the "mind", but it deals almost exclusively with "cognition", leaving aside all other phenomena that "are present to the mind" such as feelings, emotions, sensations and many other aspects of phenomenological experience. Peirce's position on this point is very clear and radical: also feeling, emotion, image etc. are forms of "cognition", as they are phenomena that are present to the mind, phenomena that can be carried back to the form of semiotics. In fact, they "can be reduced to the form of valid inference" (CP 5266-8) as they consist in the substitution of a series of complex predicates (all those internal and external dimensions that contribute to that feeling being present to the mind) with a simple predicate (e.g., the sensation of heat)." (p.91)

Finally, there is an evident connection between our starting question and what was for Peirce "the most fundamental of all questions: "in what consists the reality of the mind?" (CP 5.313)." (p.78)

2.5.2 Thinking and feeling through signs

Paolucci's belief (based on Peirce) that feelings and cognitions should not be so easily opposed is at the center of an important work of 2016: "Interpretare e sentire: un modello semiotico tra fenomenologia e scienze cognitive". Since the introduction the author is very clear about his claim and goal:

"L'idea forte dell'approccio semiotico, per altro in perfetto accordo con gli attuali dati empirici che vengono dalle scienze cognitive, dalla psicologia sperimentale e dalle neuroscienze, è che il sentire, nella sua triplice natura sensibile, estetica e percettiva, sia di fatto fondato sull'idea di interpretazione esattamente come lo è il "linguistico" o il "logico", per usare quella terminologia kantiana che fondava una differenza di natura tra due fonti della nostra conoscenza (sensibilità e intelletto) che si tratta di oltrepassare. Costruiremo quindi in questo lavoro un fiume teoretico capace di rendere conto di una continuità costitutiva tra estetico e logico, tra sensibile e linguaggio, tra percezione e livelli superiori della cognizione, affermando con forza che la cognizione presenta di fatto una struttura interpretativa a tutti i suoi livelli, indipendentemente dalla sua natura "sensibile" o "linguistica". (p.29)

But what is even more precious for our thesis is the choice of a critical approach upon which such theoretical claim will be built:

"Se la svolta linguistica del Novecento pensava al linguaggio come allo sfondo della nostra percezione del mondo, non per questo si devono negare le specificità del sentire, né tantomeno l'importanza della percezione e del sensibile. Quando questo è stato fatto, unitamente all'assoluta vaghezza in cui veniva caratterizzato il linguaggio - come se esso fosse qualcosa di evidente e i cui principi strutturali fossero omogenei e pronti per l'analisi filosofica senza ulteriore bisogno di studio semiotico - abbiamo assistito a un universalismo linguistico che costruiva mondi e realtà a scapito della pluralità delle nostre esperienze del mondo e della molteplicità degli accessi cognitivi a esso." (p.29)

Reading the word "cold" and feeling cold are not the same thing, and whatever linguistic properties such feeling can have they cannot be given for granted by looking at verbal language but on the contrary we have to think of language as something broader. An idea that he finds in Deleuze:

"Questa idea non ha allora niente a che vedere col linguocentrismo di Barthes né con l'idea di Lotman del linguaggio come sistema modellizzante primario, che ponevano entrambe al centro di ogni sistema semiotico il modello del linguaggio verbale. Si tratta qui di tutt'altro. Deleuze non sta affatto dicendo che ogni struttura deve fondarsi sul modello del linguaggio e che anche i sistemi non linguistici devono basarsi sulla struttura di quelli linguistici; sta invece dicendo che non esiste struttura se non di ciò che è linguaggio, e che dunque ogni linguaggio è essenzialmente una struttura e che dunque una struttura per sua stessa essenza parla, e cioè possiede un'essenza discorsiva, e non percettiva o presentativa." (p.32)

More generally, semiotics, for Paolucci, should be very careful about the risk of reducing the multiplicity and complexity of the real. Yet at the same time, the author highlights a second danger:

"L'attuale ondata di ritorno dei principi della fenomenologia nelle nuove vesti cognitive, con il suo radicale primato del sensibile e della percezione, mira spesso a riaffermare la possibilità **di una considerazione autonoma dell'esperienza, al di là dei filtri e delle mediazioni che i linguaggi vi proiettano**, ritornando così a una concezione stratiforme, quando non addirittura modulare, della cognizione e dell'esperienza del mondo, che è negata proprio da quei dati empirici su cui la si vorrebbe fondare. [...] Insomma, non solo l'estetico non è una forma intuitiva della conoscenza opposta a una forma discorsiva della stessa (così in Kant), ma esso non è neppure una forma pre-categoriale di complicità tra corpo e mondo su cui si installerebbe in seconda battuta il giudizio con le sue strutture logiche (così per la fenomenologia). L'estetico, il sensibile e la percezione sono forme interpretative e mediate di accesso al mondo attraverso il senso, in continuità radicale con le strutture cognitive di ordine superiore. (pp.30-31, grassetto nostro)"

We could of course not agree more with these two claims and polemical objectives. Indeed, at the heart of our thesis is the idea that virtual realities can be meaningful because of a plurality of experiences and of access to their content offered by the digital technology. A very traditional game cannot be understood without taking into account the sensorial involvement and embodied requirement, and vice versa the most advanced and "immersive" product for virtual reality experienced through a headset and a haptic suit cannot be explained only in terms of sensations

or perceptions (as it often happens). Furthermore, this experience must be understood as a meaningfulness which in its turn can be inquired, by our semiotic approach, in terms of semantic content granting meaning to a series of features which could be thought as meaningless and purely sensorial or perceptive. Another idea that is very close to Paolucci's:

“La grande differenza consiste innanzitutto in questo : là dove per un approccio semiotico è il senso che dà forma all'esperienza e ne rappresenta la condizione di possibilità, per un approccio fenomenologico è l'esperienza che è a fondamento del senso e ne determina l'emersione. Per un approccio semiotico, qual è quello che vogliamo proporre qui, **non si potrebbe nemmeno avere esperienza senza che una serie di strutture semantiche ne articolino le morfologie**. Queste strutture semantiche che danno forma all'esperienza sono di tipo categoriale e riguardano la percezione e la conoscenza sensibile tanto quanto riguardano il linguaggio e la conoscenza intellettuale.” (p.33, grassetto nostro)

A claim that he associates with Edgar Morin:

“Come nota Morin, infatti, ogni conoscenza opera attraverso una selezione dei dati considerati significativi e un rifiuto di quelli considerati non significativi: separa (distingue, disgiunge, traccia frontiere) e unisce (associa, congiunge, cancella divisioni); gerarchizza (ciò che è principale e ciò che è secondario, ciò che è essenziale e ciò che è accidentale) e compatta (in funzione di un nucleo di nozioni dominanti su cui si concentra ciò che è significativo), costruisce un interno e un esterno. Queste operazioni sono semantiche prima che logiche o linguistiche, perché i) ripartiscono ciò che è significativo e ciò che non lo è, e, in seguito, all'interno di ciò che è considerato significativo, ii) distribuiscono i gradienti di significatività (centro / periferia, iperonimo / iponimo etc.).” (p.33)

And that is perfectly coherent with Peirce's thought that we have already examined and that makes another strong comeback in this article:

“Tuttavia, con i saggi anti-cartesiani del 1868, Peirce non stava semplicemente dicendo che c'è significato anche nella percezione, stava ben più profondamente dicendo che c'è una struttura semiotica comune all'universo del sensibile e del percettivo (estesico) e a quello del “concettuale” (logico).” (p.34).

Indeed, the central value of Paolucci's proposal seem to be, at the end, a new approach to the *phenomenon* inside a theory, through Peirce's phaneroscopy, which can take into account both feelings and thinking as possible lies and semiotic constructions:

Sebbene sia Peirce che Husserl, Heidegger e Merleau-Ponty parlino di “scienza dei fenomeni” e diano la stessa definizione della disciplina, la fenomenologia peirceana è infatti profondamente diversa da quella di Husserl, Heidegger e Merleau-Ponty. Per tutti e quattro questi autori la fenomenologia studia infatti il fenomeno nel suo manifestarsi e nel suo venire alla presenza, ma è profondamente diverso il modo in cui questo stesso “manifestarsi” e “venire alla presenza” viene pensato. Laddove la fenomenologia europea è infatti fondata su di un «lasciar vedere da se stesso ciò che si manifesta, così come si manifesta da se stesso», la faneroscopia peirceana risulta invece fondata su di un rapporto complesso tra forme di visibilità e forme di dicibilità: qualcosa si fa presente e può essere visto sotto un certo rispetto, solo a patto di essere rimandato alla forma di dicibilità di un altro segno interpretante, che dice qualcosa su di esso, anche qualora questo non sia vero. Ben lontano dall'essere un «ritorno alle cose stesse», la fenomenologia di Peirce è **l'istituzione di uno spazio aperto di mascheramento che apre a un costitutivo gioco di credenziali, in cui ciò che si manifesta ‘dice’ di essere una cosa, ma può benissimo mentire**. Da qui la sua strutturazione semiotica, dal momento che la semiotica studia «tutto quello che può venire utilizzato per mentire». (p.40, grassetto nostro)

Virtual realities of all kinds are, in our opinion, the perfect object of study and observe precisely this. And we will prove it.

2.5.3 Prosthetic access to virtual worlds

In the two previous sections we have highlighted how Claudio Paolucci created the epistemological ground to sustain some of our most important claims regarding the possibility for a semiotic approach to explain key factors concerning both the emergence of meaning in virtual realities and the different kind of access to virtual worlds. However, without a doubt Paolucci's work seems, until now, more fit for a theoretical discussion than to be used as a methodological approach for the analysis of virtual reality. This is why we will now look at the second topic faced by this author and which will have a central value as in our analytic approach: the idea of prosthesis to face the issue of the apparent phenomenological continuity between the user's world and the virtual one. Paolucci is not the first nor the only scholar in the field of humanities and semiotics using the concept of prosthesis in the context of the audiovisual, digital technologies and virtual realities. However, we will focus exclusively on Paolucci for two main reasons. First of all, his approach is formally detached from the problem of immersiveness himself and therefore brings none of the problem that characterized many of the previous usage of such notion. One of the earliest examples of such misuse can be found in the work of the sociologists Frascini (2002), then used by Meneghelli (2007 & 2011) and several others. Indeed, Frascini intent was to distinguish between four main types of prostheses to explain the effect of immersiveness by focusing on the appearance of player's simulacrum, an intuitive idea that however lacked any proper scientific evidence to prove this correlation (for which a cursor would correspond to a lesser degree of immersiveness in respect to an avatar) and ignored the complex process behind the construction of the subjectivity giving birth to such immersiveness as well as the whole semiotic context. Therefore, it was completely ignored how the same cursor in *Lemmings* (1991), *Command and Conquer* (1995) and *Myst* (1993) are related to different narrative, cognitive and perceptual situations and represent different ways of acting into the world. The second reason is that Paolucci's notion of prosthesis comes from, includes and elaborates many of the previous semiotic reflections on such idea, such as Spaziante's (2013), Dusi's (2014), and even some of the more recent one such as Enzo D'armenio (2019): "La prima questione da affrontare concerne la natura di questi dispositivi: per la loro aderenza al corpo umano e la simbiosi che sviluppano nei confronti dell'esperienza possiamo partire dalla nozione di protesi." P.27

In his 2017 work « Prothèses de la subjectivité. L'appareil formel de l'énonciation dans l'audiovisuel » Claudio Paolucci focus on a simple but fundamental question:

« Il faut alors se poser la question fondamentale que la tradition sémiotique n'a, me semble-t-il, jamais posée. C'est-à-dire, quel est – s'il existe – l'appareil formel de l'énonciation dans l'audiovisuel ? Quels sont les embrayeurs de l'audiovisuel ? Existe-t-il au sein de l'audiovisuel un ensemble de formes audiovisuelles dans lesquelles la subjectivité se manifeste de façon privilégiée ? (p.56). »

After Examining Metz's critique of Casetti's "Dentro lo sguardo" and more generally of the idea of enunciation itself, the author discusses the original theory of Benveniste showing several flaws and finally proposes an alternative to both Metz "negationism" and Manetti claim that enunciation can exist only in verbal language.

To explain this alternative, he starts with a very interesting example of the videotaped video of Romney during the 2012 presidential campaign. He describes such perspective as

« Une caméra greffée sur le corps de la scène qui augmente les propriétés perceptives et cognitives de ceux qui se trouvent hors de la scène (nous voyons davantage, nous sentons davantage, nous en savons plus). Elle fonctionne en quelque sorte comme *une prothèse de l'énonciation*. »

And then refers to Lucio Spaziant 2013 article claiming something very similar :

« Dans cette situation textuelle, le mécanisme audiovisuel fonctionne comme une *prothèse* de l'écoute et du regard, une prothèse qui se comporte comme quelqu'un qui épierait derrière un rideau. Donc, plutôt que de nous arrêter sur le développement *simulacral* de la subjectivité, il nous semble plutôt, dans des cas comme celui-ci, que nous nous trouvons face à une *prothèse* de la subjectivité. » (p.61).

From this example Paolucci explicates his main thesis:

“J’essaierai donc de formuler la thèse centrale. Dans l’audiovisuel, et uniquement dans l’audiovisuel, à l’intérieur de l’énoncé, il y a des prothèses (pas des simulacres) de l’énonciation. Ces prothèses constituent l’appareil formel de l’énonciation dans l’audiovisuel.” (p.61).

Very interestingly, he directly and almost immediately refers to digital games to sustain his claim:

« Je pars d’une considération : la situation du discours oral en personne, d’où l’on extrait les embrayeurs linguistiques, est la situation du dialogue de la communication dans lequel nous nous exprimons nous-mêmes à travers notre corps, avec notre voix, notre subjectivité, notre être je-ici-maintenant. La situation de l’audiovisuel est tout à fait différente : nous envisageons des points de vue qui ne sont pas les nôtres et qui sont parfois plus qu’humains ou non humains (effets spéciaux, points de vue impossibles, sons disjoints de la vision, etc.) ; parfois ces points de vue nous donnent même des pouvoirs spéciaux (comme dans le cas du jeu vidéo, qui est un autre exemple extrêmement intéressant d’audiovisuel). Ainsi, l’énonciation dans l’audiovisuel aura par son essence un rapport avec un différentiel entre nos pouvoirs corporels / perceptifs / cognitifs *standard* et la manière dont l’énoncé les augmente, les diminue, les transforme, les module, etc. » (p.62).

Such conception is of course not new in Semiotics and was perhaps first extensively discussed by Umberto Eco in his “Kant e L’ornitorinco” (1997), to which Paolucci will explicitly refers at the end of the article (p.67) and in regard to the particular semiotic status of such prosthesis:

« Toutefois, ce qui est extrêmement intéressant pour notre discours sur l’énonciation est le statut sémiotique qu’Eco reconnaît aux prothèses. Selon Eco (1997 : 383) : « les stimuli reçus à travers une prothèse, du point de vue sémiotique, sont tout aussi pertinents que la perception normale de l’objet réel. [...] En premier lieu, chaque prothèse extensive et intrusive ne nous fournit pas de signes, mais uniquement des stimuli de substitution. » (p.68).

But in respect to Eco’s work, Paolucci offer us something even more precious and useful for our purposes. Indeed, for Paolucci subjectivity arise in audiovisual language in the difference between the perceptive and cognitive possibilities granted by text and the real ones, or better the usual ones, of the real spectator.

« La subjectivité dans l’audiovisuel se manifeste justement dans ce différentiel, dans ces diminutions/augmentations des possibilités perceptives / cognitives / narratives standard liées au corps et à la subjectivité de l’acteur empirique qui occupe la place de l’énonciateur et de l’énonciataire. Énoncer dans l’audiovisuel consiste à installer une série de positions actanciennes où les possibilités perceptives / cognitives / corporelles de l’acteur empirique qui occupe ces positions se retrouvent inchangées / diminuées ou augmentées par rapport à leur capacité standard. Je donne à ce différentiel le nom de prothèse et je dis que les positions actanciennes de l’énonciation dans l’énoncé (les places de ceux qui entendent, qui regardent, qui savent) ne sont pas des simulacres de l’énonciation, mais des prothèses de l’énonciation. » (p.63).

And, finally, this actually requires a cooperation and “cooperation” giving birth to meaning. In fact, the protheses *act on us*:

« Dans l’audiovisuel, l’appareil formel de l’énonciation est quelque chose que l’énoncé *fait* à l’énonciation, quelque chose que le texte *fait* au hors texte. **Ou mieux, si l’on préfère, c’est quelque chose que le hors texte *fait* avec le texte.** C’est la raison pour laquelle il fonctionne comme une prothèse. D’où sa *performativité* constitutive, qui est une caractéristique constitutive de tout appareil formel de l’énonciation (il faut rappeler que les embrayeurs dans le langage verbal sont les catégories très spéciales où « l’on fait des choses avec les mots »). Bien plus qu’une structure simulacrale, dans les textes audiovisuels, comme l’affirme Bruno Latour (1999), l’énonciation est un acte d’envoi, de médiation et de délégation à des points perceptifs / cognitifs / narratifs qui sont difficilement attribuables à des sujets pleins, à un *je* et à un *tu*, mais qui sont en revanche des prothèses *pour* ces mêmes sujets. » (my bold)

This theory thus allows Paolucci to think a non-simulacral theory of enunciation which is centered not around the subjects but rather on the events, and once again the author refers to digital games:

“Pensez aux points perceptifs diffus à l’intérieur d’une pellicule ou aux avatars du joueur dans un jeu vidéo : leur statut technologique n’est pratiquement jamais à l’image d’un sujet externe dont ils représenteraient le simulacre, mais il est de l’ordre d’une prothèse technologique qui en augmente ou en diminue les capacités. » (p.67)

Moreover, the very conclusion of this theory is based on the idea of “substitutive stimuli” which is perfectly coherent with our previous discussions on thinking vs feeling and which is extremely pertinent when we think at a technology such as VR.

« Et pourquoi est-ce que j’affirme que les prothèses avec leurs stimuli de substitutions sont les embrayeurs de l’audiovisuel ? Parce que c’est avant tout dans ces prothèses et dans ces stimuli de substitutions que la subjectivité se manifeste dans l’audiovisuel. Un corps, un sujet, une instance, quelque chose qui est je-ici-maintenant a des possibilités propres qu’un énoncé peut magnifier, augmenter ou diminuer. Dans l’audiovisuel, d’un événement à l’autre, d’une position de sujet à l’autre, l’énonciation varie ou laisse le différentiel de ces possibilités inchangé. Dans l’audiovisuel, cela ne se fait pas en construisant de façon mimétique un « quelqu’un » idéalement en mesure d’entendre / voir / raconter, mais en ouvrant des points perceptifs / cognitifs / narratifs qui installent des « stimuli de substitutions aussi pertinents que l’objet réel » (Eco 1997), bien qu’ils ne soient pas, bien entendu, l’objet réel. ». (p.69).

To sum up, at the light of Paolucci’s prosthetically oriented theory of enunciation in audiovisual language, we will have no doubt that the inquiry on a specific virtual reality will require to

1. Take into account the meaning emerging from the difference between the user’s cognitive situation and the one offered by the game
2. Take into account the very same stimuli coming from and through the prostheses
3. Separate the enunciative level of the player producing “sentences” from the one at the origin of the text creating, through the audiovisual, an empty position which will be occupied by the player

Indeed, these three points can all be confirmed and find further reflections in Paolucci’s 2020 article “Una percezione macchinica. Realtà virtuale e realtà aumentata tra simulacra e protesi dell’enunciazione”. An article which, as the title suggests, is specifically about virtual realities and is this of great interest for us.

First of all because the vision expressed in his work is strongly opened to the interdisciplinary debate, closely related to the theme of the experience and is connected with many authors that we will use in our work:

“La concezione dell’enunciazione qui proposta apre una semiotica dell’audiovisivo in direzione sia di una semiotica cognitiva del cinema (Buckland, 2000; Dagrada, 2014; D’Aloia & Eugeni, 2017), sia di una sua concezione enattivista (Sobchack, 1991) o di simulazione incarnata (Gallese & Guerra, 2015), in quanto tutte queste prospettive hanno tentato di comprendere il modo in cui le formazioni enunciative del testo orientano il posizionamento esistenziale dello spettatore e la sua esperienza, con particolare attenzione a quella percettiva, sensibile e mediale (cfr. Eugeni, 2010; Dusi, 2014; D’Aloia & Eugeni, 2017).” (p.55)

But, more precisely, because since the beginning of the article we find a very surprising and important statement:

“A mio parere, la specificità semiotica di Realtà Virtuale e Realtà Aumentata consiste infatti nel loro tenere insieme in modo inedito un funzionamento simulacrale (che è proprio dei linguaggi naturali) e un funzionamento protesico (che è proprio dei linguaggi audiovisivi) del loro apparato formale dell’enunciazione.” (p.44)

Whereas we have just seen Paolucci affirming that audiovisual language was not simulacral, here we have a slightly different idea:

Con “apparato formale dell’enunciazione” (appareil formel de l’énonciation), Benveniste (1966) intendeva quelle forme del linguaggio che erano sì appartenenti alla lingua, ma che non avevano nella lingua il loro statuto pieno e che, quindi, per funzionare, dovevano essere interpretate fuori dal linguaggio, in una concreta situazione di presenza attoriale da lui chiamata “enunciazione”. È esattamente questa situazione di enunciazione che la RVA sa simulare all’interno del suo enunciato con un’impressione di realtà che non ha alcun credibile precedente, grazie al fortissimo “effetto di presenza” che è proprio del suo dispositivo (cfr. Noë, 2012; Peer & Giachritsis, 2012).” (p.45).

Thus, for our author simucrality in virtual reality is a fact, which is also proved by the very same terminology used to describe products such as videogames

“ Sebbene di fatto Metz sembri aver vinto quel dibattito a livello accademico — visto che nessuno crede che nell’audiovisivo esistano degli equivalenti degli “io” e degli “egli” — a livello di immaginario culturale la posizione “deittica” di Casetti è ancora certamente quella più praticata, tanto che espressioni come “immagine soggettiva in prima persona”, ma anche “sparamutto in prima persona” o Action RPG in “terza persona” sono ormai norma attestata.”

However rather than going back on his footsteps, Paolucci is telling us here something very important about virtual reality using certainly the audiovisual language but being a more complex heterogeneous and syncretic mix:

“Da qui la mia tesi centrale: la Realtà Virtuale e la Realtà Aumentata tengono insieme una modalità “simulacrale” e una modalità “protesica”. Da un lato, simulano nell’enunciato la situazione della sua enunciazione con un effetto di presenza che nessun altro linguaggio ha mai saputo approssimare con la stessa impressione di realtà, dall’altro potenziano le nostre capacità percettive, cognitive e corporali, installando delle vere e proprie protesi dell’ascolto e dello sguardo. L’apparato formale dell’enunciazione di Realtà Virtuale e Realtà Aumentata è dunque un ibrido tra quello dell’audiovisivo e quello del linguaggio. **La sua originalità deriva quindi dalla forma originale del suo sincretismo, capace di tenere insieme linguaggi eterogenei.**” (p.46, my bold).

Additionally, Paolucci introduces, through Pinotti, another important idea about virtual realities:

“È come se queste immagini, proprio mentre si manifestano come tali, tengano anche un discorso silenzioso su loro stesse, in cui negano di essere ciò che a prima vista possono sembrare: più che “rappresentare” sembrano “presentare”, “rendere presente” o “presentificare”.

A claim which makes perfectly sense since the particularity of virtual realities is the possibility for the player to create events through interactions. By using Pasolini, Paolucci then explains that the kind of perception and “presentation” offered by these new technologies is something unique:

“Nessun uomo percepisce in semi-soggettiva, tanto che questo tipo di sguardo, per esistere, deve passare attraverso la mediazione di alcuni delegati tecnici, che allestiscono un punto di vista macchinico che lo spettatore del film può occupare, installandosi nella posizione di soggetto aperta dall’enunciazione nel linguaggio cinematografico. Come rendere conto di questa “visione impossibile”, che accade soltanto nel concatenamento tra un occhio e un cine-occhio? Proprio per il suo non aver alcun equivalente nella percezione naturale, Pasolini (1972:176–7) faceva allora riferimento a un’analogia linguistica e diceva che se si può dire che un’immagine “soggettiva” è un “discorso diretto” e che un’immagine “oggettiva” è un “discorso indiretto”, allora un’immagine “semi-soggettiva” è un “discorso libero indiretto”. [...] Nella soggettiva libera indiretta (immagine semi-soggettiva) non c’è nessuna persona che guarda: è uno sguardo macchinico non riconducibile a nessuna persona, per quanto terza o impersonale. Se la prima persona definisce il soggetto, il concatenamento tra l’occhio e il cine-occhio definisce una protesi della soggettività (cfr. Paolucci, 2017a & 2020): un “non-io” attraverso il quale l’io vede di più di quello che potrebbe vedere.” (pp.49-50).

We have here one important points which will be useful for our analyses: virtual realities are special because they can offer unique semi-subjective situations and prosthesis, because they can recreate non-subjective forms of subjectivity.

As we have seen in the last article, in part this is due to how the enunciation works in audiovisual language:

“Il linguaggio audiovisivo non allestisce infatti dei simulacri di persone, spazi e tempi all’interno dei suoi enunciati, ma installa delle protesi che possono modificare le capacità percettive e cognitive degli attori empirici che vengono a occupare le posizioni di soggetto allestite dal testo.” (p.50).

But there is something more to this which related to the specificity of virtual reality in trying to recreate the original condition of enunciation:

“Si pensi ad esempio ai simulatori di volo dell’aquila per visori 3D o PlayStation VR: da un lato ci restituiscono nel campo del visore il becco dell’animale, per evitare all’attore umano che occupa la posizione di soggetto aperta dall’enunciato il così detto motion sickness, ma, dall’altro, restituiscono un’esperienza animale che è possibile solo ed esclusivamente attraverso i punti di prensione protesici allestiti dall’enunciato (e di fatto impossibile nel puro spazio dell’enunciazione). Come abbiamo visto, già Pasolini insisteva su esperienze percettive che erano esclusivamente macchiniche, e cioè possibili soltanto attraverso l’enunciato cinematografico. La coabitazione di questo tipo di esperienze “protesiche” con una logica mimetica di tipo simulacrale definisce a nostro parere la specificità di Realtà Virtuale e Realtà Aumentata, così come di ciò che Pinotti (2017) chiamava an-icons. [...] Nell’audiovisivo, l’apparato formale dell’enunciazione era un “apparecchio”, qualcosa di macchinico capace di modificare il corpo attraverso protesi. Nella Realtà Virtuale e nella Realtà Aumentata, questo apparecchio formale dell’enunciazione con la sua struttura protesica, che è proprio di tutti gli audiovisivi, è ibridato con aspetto simulacrale in cui l’enunciato è capace di restituire in un modo mai visto prima la situazione di enunciazione, creando un effetto di indiscernibilità tra i due spazi. In questo sincretismo, in questa originale forma di ibridazione enunciativa a livello dell’apparato formale, si può ritrovare la specificità semiotica di Realtà Virtuale e Realtà Aumentata, che funzionano tenendo insieme una logica protesica e una logica simulacrale.” (pp.59-60)

To our previous three points we can then add the following two:

1. Inquire on the forms of semi-subjectivity mediated by the machinic vision granted
2. Inquire on the relationship between simulacral and prosthetic mechanism to create effects of presence and of distance.

And with this, thanks to Claudio Paolucci’s work of the last ten years, we now have both a solid epistemological ground for our semiotic analysis and some essential issues to inquire on when studying a particular virtual reality.

2.5.4 Prosthesis and enunciation

Paolucci’s theory of the prosthesis is further discussed in his 2020 book “Persona: Sogettività nel linguaggio e semiotica dell’enunciazione”. Here he resumes what we have already seen by explaining in what sense we can speak of “prosthesis” in semiotic terms through the notion and theory of enunciation:

“Nell’audiovisivo, e solo nell’audiovisivo, l’enunciato contiene protesi (e non simulacri) dell’enunciazione, che ne costituiscono l’apparato formale. E perché possiamo dire che ne costituiscono l’apparato formale? Gli embrayeurs sono unità appartenenti alla forma del linguaggio (e costituiscono perciò un “apparato formale”), che per funzionare devono rimandare a qualcosa fuori dal linguaggio. Per questo non hanno lo stesso statuto delle altre forme linguistiche: sono unità linguistiche, ma puntano a un “fuori” da cui dipende il loro funzionamento. Per Benveniste, questo “fuori” era appunto la situazione di discorso, in cui si poteva individuare l’enunciazione come locuzione. Nell’audiovisivo, l’analogo della “situazione di discorso” rimanda a un soggetto percettivo incarnato che è fuori dall’audiovisivo (nel salotto di casa, al cinema, con un gamepad in mano o un visore VR sugli occhi ecc.) e a cui l’audiovisivo fa qualcosa.” (p.264)

Until now we have examined the “efficacy” and unicity of virtual realities in terms an effect of hypericonism (Volli) simulating, through sensible content and experiential semantics (Violi), a phenomenological continuity between the user’s physical reality and the represented one (Eugeni). We can now go further and add that this effect of hypericonism and simulation are the result of a prosthetic enunciation using the expression content of a given text to *refer* to something non-linguistic (the situation) and *outside* and of it from which the *inside* meaning *depends*.

This reference very concretely *acts* on the user by granting him an otherwise impossible *access to the fictional world from a certain point of view on it and through a certain knowledge*. This reference to the outside is however different from a verbal simulacrum like:

“ Dear reader, if you are reading this thesis I am really sorry for you”

Or

“ Gianmarco was looking at the glowing red keyboard of the black 15.6 gaming PC and feeling the air coming from the underlying vents of his laptop”.

In fact, in the case of audiovisual texts such as virtual realities the user’s *extension* is not only cognitive and narrative but also *perceptive*:

E cosa fa l’audiovisivo a questo soggetto percettivo incarnato che è fuori dall’audiovisivo? Nel momento in cui viene a occupare le posizioni di soggetto installate dal testo, lo dota di protesi, che nell’audiovisivo funzionano come punti di prensione percettiva, cognitiva e narrativa. Con “punto di prensione”, intendiamo un evento interno all’enunciato che consente a chi è fuori dall’enunciato di percepire cose che possono essere percepite solo attraverso il testo. Per questo funziona come una protesi. (pp.264-265).

Therefore, in virtue of the centrality that the phenomenological access to reality has for human beings, we have a critical shift: semiotics talks of prosthesis as a *discursive logic of continuation* opposed to a simulacral *textual logic of the substitution*. Now the question is: what is the difference between conceiving this continuity as phenomenological and as semiotic? Why bother to make such distinction and why are we talking about different logics? The critical difference and necessity stand in the idea that such continuity is re-constructed from the text:

L’enunciazione audiovisiva destruttura la triplice organizzazione di default delle percezioni, delle affezioni e delle cognizioni proprie dello spazio dell’enunciazione per allestire una serie di punti di prensione interni all’enunciato che le ristrutturano attraverso protesi specificamente audiovisive. (p.265).

Henceforth, in the consequent conclusion that such continuity is an effect deriving from a *communicative strategy* and illusive (*lying*) “device”. In prosthetic enunciation we perceive the represented/virtual world *as if* we could directly stare at him, *as if* there was almost no mediation, and therefore *as if* we were there ourselves with our bodies. In this sense the experiences of virtual realities can be studied as *experiences of augmented and altered subjectivity* grounded precisely on the *differences* between user’s world and the presented one:

La soggettività nell’audiovisivo si manifesta proprio in questo differenziale, in queste diminuzioni e in questi aumenti delle possibilità percettive/cognitive/narrative standard, che sono legate al corpo e alla soggettività dell’attore empirico che viene a occupare il posto dell’enunciatore (foyer) e dell’enunciatario (cible). (p.266)

The interest of conceiving such *exo-subjectivity* within a semiotic perspective on enunciation is to understand this effect in its double articulation. On the one hand subjectivity is felt as the result of a sensorial immersion validating our phenomenological habits and inferences in terms of modal continuity: we see with our eyes, hear with the ears and so on. On this point the semiotic inquiry will aim toward two main issues which are at the center of this chapter: the possible lies and the means of sensorial translation in terms of neutralization and salience of differences.

On the other hand, subjectivity is the direct result of an agency granted by the materials of the text (Malafouris 2013 in Paolucci 2020 p.270) resulting in what is perceived as an *act*. Here a simple example should make this double-articulation very clear: when in a VR headset we visually reveal the left portion of the virtual world by moving our head to the left we witness the *presence* of VR technology as an *experience* both in terms of 1) embodied sensorimotor congruence granted by the visual feedback confirming a phenomenological habit (when we turn our head) 2) possibility of *gazing* in this world, of acting in it, of revealing it through the utterances constituting the text itself and confirming our semiotic mode of *existence*.

From which the potential of this semiotic prosthesis in terms of *experience of the virtual grounded on a real transformed into a potential through the enunciation and consequently creating an empty place occupied by the empirical user*.

A concept which is actually far simpler than what it looks: in a movie we can *virtually experience* blindness *as subjects* because our *real* non-blindness involving the *potential* of perceiving a total blackness on the screen. (something well exemplified by Paolucci's analysis of Perfect Sense in C 6.8). Therefore, the unique semiotic approach to the experience of the virtual as 1) a transformation and modulation of the real on the basis of sign potentialities of meaningfulness granted by the *ratio*. 2) an act and event of co-enunciation and co-determination of the textual content. To the second aspect of enunciation will and to subjectivity be dedicated a substantial part of the next chapter, while in the last part of the current chapter we will now look outside of semiotics to see some major points of contact with our proposal and the interdisciplinary interest for the topic of the virtual experience.

For now, however, we can conclude by highlighting an immediate and notable benefit of Paolucci's from a methodological point. While in the past the simulacral and pronominal take on enunciation had pushed the semiotic analysis toward a correlation between the formal representation of the point of view (subjective, objective, etc..) and the represented content, as in Casetti, we can now take into consideration the key concepts of subjectivity and objectivity in relation to the *relation between sensorial access to the information and action*. An idea which is additionally be perfectly coherent with Buckland's idea of objective shot in films being embodied in the body of the spectator (2000, p.49). Therefore, we are no more "obliged" to consider that a videogame in first person is interpreted by default as more "personal" than one in third person which would theoretically be non-subjective. A claim going against the common sense of the users and players of virtual realities that say "I" equally with avatars in third person, first person, top-down view and even when moving a cursor on the screen.

Indeed, the design behind the choice of a camera in virtual realities has always to do with the way in which the player will subjectively solve problems and be aware of the virtual world (Haigh-Hutchinson, 2009, pp.50-52). This relation between vision and action is iconic of the virtual prosthesis which precisely enhance our capacity of grasping the world as in Eco's concept of magnifying prosthesis (1997). Now, if we look at his fundamental distinction between three main kinds of prosthetics, we can very interestingly notice how digital games, though audiovisual language and interactions, work in two ways: since we have no other access to the virtual world they work as *substitutive* prostheses, but at the same time since we are the ones making sense of them through our original sense they also work as *extensive* prostheses allowing us new possibilities. So, the new semiotic approach will be able and will have to examine the subjective meaningfulness of a virtual experience in terms of substitution and magnification by putting into relation the given point of view given with the context of required actions (from inferences to motor involvement) required. A possibility which, as we will prove in our analysis of *Everything* (2017) in chapter 5.4, is of critical importance and can drastically increase the value of semiotics.

2.5.4.1 Prosthesis in and out of semiotics

A good way to evaluate the value of Paolucci's notion of prosthesis from an interdisciplinary standpoint can be to examine how this notion has been used in the last years in the research on cognition and in relation with the topic of embodiment. Most of the evidence behind the semiotic theory are of course tested on the basis of meaning-making attribution coming from textual analysis and linguistic theory, moreover Paolucci's focus is on language and subjectivity rather than on how cognition work, so it is a fundamental to ask up to which extent Paolucci's usage of the notion of prosthesis is metaphorical and "tradable" outside of the specificity of enunciation. To do so we will examine a very recent overview made in 2019 by Schettler, Raja, and Anderson titled "The Embodiment of Objects: Review, Analysis, and Future Directions". First of all, this idea, related to the hypothesis of our mind making sense of something external *as if* it was something belonging to it, is not new. Is it still used and valid? The answer is yes.

"Is it possible to "embody" external objects, such as prosthetics or tools, that is, to treat or regard them as in some important sense actually part of our bodies? Most of the literature concludes that people can extend the borders of the physical body to temporarily incorporate different prosthetics, such as rubber hands, into their body image (i.e., their conscious beliefs regarding their bodies; see Botvinick and Cohen, 1998; Ehrsson et al., 2004, 2005, 2008; Tsakiris and Haggard, 2005; Tsakiris et al., 2006; Marasco et al., 2011; D'Alonzo and Cipriani, 2012; D'Alonzo et al., 2014; Collins et al., 2016), and certain external objects, such as tools, into their body schema (i.e., their unconscious knowledge of their bodies and its capacities; see Cardinali et al., 2009b, 2012; Sposito et al., 2012; Baccarini et al., 2014; Garbarini et al., 2015). Several studies indicate that there are surprisingly few constraints on incorporating objects into either of these two kinds of body representations. In fact, along with using real life tools, even imagining using tools can cause them to be incorporated into the body schema (Baccarini et al., 2014)." (p.1)

We have thus an empirical ground to trust Paolucci in regard to the general claim that in a given situation (such as in front of an audiovisual product or in the setting of the rubber hand experiment) our mind can potentially be tricked, through sensorial means and more specifically through visual exploits, in substituting or forsaking its own capacities with something *presented to it from the outside that is interpreted as inner*. This is a fundamental starting point which bring us to the second point. Paolucci's idea is not only based on the idea of perception but also on the idea of action through the notion of performativity. His claim is that first, the text (the outside) does something to us, and then we do something with it *as if* we were somehow part of the possible world by sharing some points of view. But are this agency and phenomenological projection something related to embodiment? Once more, the answer is yes:

"Writ large, the embodiment of objects and tools may be defined as the sense that those objects and tools has become "part of us" in a similar way that our limbs or our fingers are parts of us. More specifically, the embodiment of objects and tools includes the sense of ownership, the sense of agency, and the sense of self-location (Kilteni et al., 2012), which often are characterized as affective, motor, and spatial embodiment, respectively (de Vignemont, 2011)." (p.2)

It must be noted, however, that in the empirical studies this agency is mainly studied and conceived in motor terms, something which is not specific of Paolucci's proposal:

"The sense of agency or motor embodiment corresponds to the situation where an object or tool "is processed in the same way as a part of one's body for motor tasks" (de Vignemont, 2011, p. 87). Measures of motor embodiment are more often used in virtual reality and tool embodiment studies. If "the motor system takes the properties of [a tool] into account as properties of the effector in planning, then [it] is embodied" (de Vignemont, 2011, p. 86). Underlying the sense of agency is a modulation of the body schema. For instance, after tool use there can be consequences on free hand movement kinematics (Cardinali et al., 2009b)." (p.2)

Whereas several features of the semiotic prosthesis can include some of these aspects of embodiment, we can find here, and once again as we have already highlighted with Eugeni, a lack of interest for the sensorimotor dimension related to the manipulation of tools which are an essential part of the experience of virtual reality and of any theory of embodiment:

“Tools are different from other objects since they are associated with specific manipulation-actions, such as grasping a hammer and manipulating a nail, used to reach for objects, and used to sense one’s surroundings. This suggests a major role for the sensorimotor system in tool embodiment. They are also different from other objects since individuals typically lack a sense of ownership toward a tool.” (p.7)

“As a caveat, it is important to note that the embodiment of objects and tools from the point of view of radical embodiment is not essentially different from the one already reviewed. At the end of the day, the radical embodiment of objects and tools also consists of taking extra-somatic parts of our environment to be proper parts of our body. The differences with the framework based on body representations come from the very characterization of such an embodiment in non-representational terms and from some radical consequences that follow from this move.” (p.11)

Third point: the prosthetic theory of enunciation is not based on the idea that prostheses act “singularly” on our brain in terms of single functions and single regions activated accordingly with what is offered by the specific medium. Simply put, the audiovisual involvement and prosthesis can suffice to recreate and trigger a wider array of effects regarding the many ways in which we make sense of any given reality. In some sense Paolucci’s approach is synaesthetic, prostheses can allow us to do things such as *seeing the hearing* (as the case of the telephone examined in Perfect Sense) and more generally through a single sense can generate a whole experiential dimension in virtue of the given textual configuration including narration as well as emotions. The basilar question is then if, on a more general level, there are scientific evidence on embodiment working in terms of sensorial and cognitive interdependence. Again, we can say that it is so:

“It is worth noting that the three senses of embodiment are not independent from each other. For example, brain studies and movement disorders seem to show that there is a mutual relationship between affective embodiment and the motor system (Schütz-Bosbach et al., 2006; Della Gatta et al., 2016; Burin et al., 2017; Fossataro et al., 2018). Affective embodiment requires multisensory integration within a fronto-parietal network. This network includes an important area for the interaction between affective embodiment and motor system, the ventral premotor cortex (Ehrsson et al., 2004; Makin et al., 2008b; Blanke et al., 2015). [...] Additionally, affective embodiment and some aspects of spatial embodiment, such as proprioceptive drift, reflect different components of the multisensory integration process (Ehrsson et al., 2005; Longo et al., 2008; Makin et al., 2008a; Rohde et al., 2011; Martinaud et al., 2017).” (pp.2-3)

“Given these results, the rubber hand illusion illustrates that a non-bodily object can be incorporated into both the body image and schema. [...] Due to the need for a stable body image, the real hand becomes disembodied and the non-bodily object becomes part of the body image. This results in the body (somatosensory) schema being modified since touch is often reported to be felt in the rubber hand (Botvinick and Cohen, 1998; Durgin et al., 2007). The model proposed by Botvinick and Cohen (1998) understand this phenomenon in terms of the malleability of the body representation caused by multisensory processing. [...] Rubber hand experiments have also elicited a sense of ownership with visuo-thermal stimulus patterns (Trojan et al., 2018), without vision (Ehrsson et al., 2005; Petkova et al., 2012), and without touch by using a laser pointer (Durgin et al., 2007). Thus, the phenomena are clearly more complex than can be accounted for by simple visuo-tactile integration, and researchers have accordingly moved beyond simple tactile stimulation.” (p.5)

Fourthly, since it is mostly based on audiovisual products and since it comes from a “discipline” rooted in narration, there is a clear connection between the semiotic prosthesis and the recreation of a given *point of view*. Yet is this point of view relevant in the case of embodiment? The answer is mostly yes (as we have already seen in the case of the peri-personal space perspective), although with some exceptions.

“Finally, it is important to note the influence of perspective for embodiment although it is still a matter of discussion. On the one hand, some studies have suggested that the firstperson perspective is important for embodiment (Blanke and Metzinger, 2009), which seems to be confirmed in rubber hand experiments (Pavani et al., 2000; Kalckert and

Ehrsson, 2012; Bucchioni et al., 2016) and full body virtual reality experiments (Petkova and Ehrsson, 2008; Slater et al., 2010; Petkova et al., 2011; Maselli and Slater, 2013). [...] On the other hand, others do not observe significant differences between first and third person perspectives for embodiment (Pomés and Slater, 2013).” (p.3)

Here we must highlight two main points. 1) Paolucci’s theory of prosthesis does not grant any specific or special “power” to a given perspective such as the first-person shot. The scientific evidence therefore suggests that from a methodological point of view aimed toward the textual analysis (which is not the author’s intent) could develop specific tools to take into account these differences. We will see in the next chapter that Eugeni, on the contrary, accord great importance to the first-person shot. 2) The fact that other research denies a difference between perspectives seems to actually confirm Paolucci’s choice from the point of view of a general theory of embodiment.

More generally, by working on the level of meaning-making a semiotic take on the prosthesis is necessarily grounded and aimed toward complex and multidimensional effects that can be mostly related to *higher cognitive processes*⁴⁸. But is this prosthetic effect also verified on such level? It would seem so:

“Neuropsychological evidence also confirms that the body image and body schema can be affected by inanimate objects. In one case, a brain-lesioned patient did not experience a sense of ownership toward their arm, hand, and wedding ring on the hand. However, when the ring was removed, the patient viewed it as their own (Aglioti et al., 1996). **Such findings indicate the body image can be affected by higher cognitive processes.** [...] **A different model to explain the rubber hand experiment’s results is the neurocognitive model, which emphasizes a role for multisensory processing and higher cognitive functions** (Tsakiris, 2010). Under this model, the rubber hand illusion results from bottom–up processing of multisensory inputs and top–down processing or stored representations of one’s hands. The sense of ownership is due to three critical comparisons.” (p.5, my bold).

“The results seem to confirm that the plastic changes of peripersonal space and the body schema “depend on the experience of controlling the course of events in space through one’s own actions, i.e., the sense of agency” (D’Angelo et al., 2018, p. 1).” (p.11)

The fifth issue is if Paolucci’s semiotic theory, despite focusing far more on the processes related to prosthesis than on effects such as embodiment, can be positioned inside one of the two main approach of embodied representation or radical embodiment. The answer is that, although not specifically discussing the issue, the author’s position does not postulate nor require a body-based representation or model allowing for prosthesis to work in terms of body image and schema:

“The body image is often characterized as a cognitive appraisal, perception, or evaluation of one’s own appearance and body shape, and the related or resulting affect (Levine and Smolak, 2014). The body schema, in contrast, is a non-conscious neural map of the spatial relations among the body parts and the body’s motor capacities. The body schema is a plastic representation (Giummarra et al., 2008; Gallagher, 2013) and is constantly updated due to incoming sensory input (Dijkerman and de Haan, 2007; Giummarra et al., 2008). [...] “Some authors defend the existence of a unitary body representation that must encompass the features usually attributed to body images and body schemas as distinct representational entities (de Vignemont and Farnè, 2010). Support for this interpretation comes from the self not being experienced as many separate body parts, but as a single whole-body representation. This is important since the brain might resolve sensory conflicts by checking the compatibility of multisensory input with a prior body representation, which determines what can and cannot be embodied” (p.3).

⁴⁸ “Higher cognitive functions refer to multidimensional executive and control processes characterized by being voluntary and highly effortful. These functions include the ability to evaluate, organize, and reach goals as well as the capacity to flexibly adapt behavior when confronted with novel problems and situations. Selective and executive attention, cognitive control, and working memory have been considered as some of the main higher cognitive functions, with developmental improvements in these abilities promoting concurrent improvements in other cognitive domains.” Pedro M. Paz-Alonso, Silvia A. Bunge, and Simona Ghetti, 2014, Emergence of Higher Cognitive Functions: Reorganization of Large-Scale Brain Networks During Childhood And Adolescence.

And neither does it focuses on action-based and non-action-based systems:

On the one hand, the dyadic model takes the body schema to be an action-based sensorimotor representation, and the body image to be a non-action-based body representation (Gallagher and Cole, 1995; Rossetti et al., 1995; Dijkerman and de Haan, 2007). (p.3)

Therefore, Paolucci's approach and Peircean background seems to be closer to the position of what is known as radical embodiment:

"The framework of radical embodiment does not appeal to the concept of body representations to understand the way objects and tools can be embodied. In general, radical embodiment takes cognitive systems to be a kind of complex, self-organized system in which many components interact with each other to give rise to a given cognitive ability (Van Orden et al., 2003; Chemero, 2009; Cavagna et al., 2010; Anderson et al., 2012). The different components of these cognitive systems extend through the brain, the body, and the environment; and, in this sense, object and tools of very different kinds may be parts of cognitive systems and, therefore, may be embodied in those systems just insofar as they are properly coupled to them." (p.3)

Finally, several of the studies partially grounding Paolucci's proposal both in and out semiotics have proved to be successfully replicated (pp.6-7) and enhanced in the context of virtual realities and specifically of VR technology:

"These studies may be taken as preliminary evidence for virtual tool embodiment. Similar to object embodiment, virtual reality paradigms have the potential to further expand on how flexible the body schema is and what constraints there are to embody a tool. Virtual reality can easily stretch a tool past its original size to see the effects on peri-personal space and the body schema, while also discovering the tool's breaking point of no longer being a functioning tool for a task and the associated brain changes." (p.11)

Therefore, our choice to apply Paolucci's perspective on virtual realities seems justified and reasonable also from an interdisciplinary point of view.

In conclusion, despite Paolucci's intellectual aim being radically different than most of the empirical studies on the brain and the mind, we can find a similar background and several points in common between a cognitive and semiotic conception of the prosthesis. Whereas such empirical studies cannot and should not be used to prove the semiotic validity of Paolucci's proposal (and vice-versa) this allows for a fruitful discussion and encouraged us in using such perspective as a methodological guidance to explain some phenomenon of meaningfulness occurring in virtual realities.

2.6 Semiotics and cognitive sciences

In the previous sections we have:

1. Highlighted a deficiency in the semiotic theory and methodology about the consideration of empirical and experiential phenomena related to the involvement of brain and body in the interpretative processes triggered by cultural artifacts such as videogames and VR.
2. Used Ugo Volli's view on experience and virtual realities to determine the semiotic relevance of such phenomena in terms of their *effects* on the attribution of meaning and simulation of phenomenological continuity (hypericonism).
3. Borrowed Ruggero Eugeni's experiential approach to meaning making focused on both the sensible materials and the cognitive operations made by the viewer connecting the user's world with the fictional one.
4. Referred to Patrizia Violi's claim on semantics depending on experience to deconstruct the experiential involvement of the user (through sensible materials, cognitive tasks and motor actions) in semantic terms.
5. Endorsed Paolucci's proposal of a semiotic continuity between feeling and thinking and his notion of prosthesis to examine the enunciative level and simulated phenomenological continuity of audiovisual experiences such as digital games and VR in terms of user's access and actions.

In quite a few part of such discussion we have already introduced references to empirical studies of the brain and the mind which seems to go in the same direction of our proposal. Namely, that, to grasp the meaningfulness of the experience of virtual realities, the characteristic apparent phenomenological continuity should be inquired by semiotics both from the point of view of its constitutive processes and consequences: the *lies* it comes from and it creates. Which actually correspond in 1) partially denying such continuity by highlighting it as mediated and semiotically constructed 2) and complexifying a sensorial and material take on such continuity by introducing non-phenomenological elements grounding perceptions, feelings, emotions and so on. In synthesis, our proposal is defending the idea of virtual realities as *third* places *blending* dimensions in opposition to several scholars seeming to conceive them as *second* realities *connecting* dimension. This difference is perhaps minimal, yet it is extremely significant and pertinent for a semiotic approach and methodology since it is fundamentally related to Eco's (2000) claim about translation consisting in saying *almost the same thing*. This should not however be confused and misunderstood as a complete negation of such continuity or as a way to assert that virtual realities are an exclusive or primarily field of research for semiotics. In fact, to describe such mediation and construction we need to be extremely aware of all the good reasons behind the statement of this phenomenological and cognitive continuity for which virtual experiences are often interpreted as mostly real. This brief section is therefore dedicated to such purpose and will abandon both semiotic authors and the semiotic theory to discuss some of the findings and theories that can ground a semiotic approach to virtual realities. In addition, this part also wants to connect the semiotic inquiry with the great social interest of virtual realities in terms of real brain activity and of real learning. A common example is the case of driving⁴⁹:

"Castrol and Need For Speed Payback created a contest which "involved Luke Woodham, a pro drift racer who competes in Europe, and Theo Thomas, a gamer with a sizable following on YouTube. They competed to see who could set a faster time in a point-to-point race across a dirt road in the desert, using identical Ford Mustangs. But there was a catch—all the MW on the cars were blacked out. To see where they were going, they had to rely on a camera mounted above and behind the Mustang, replicating that particular gaming POV." The performances of the two were extremely close and alike."

⁴⁹ <https://arstechnica.com/cars/2018/04/bringing-need-for-speed-to-life-with-real-cars-complete-with-gamers-pov/>

Which sometimes can even result in saving lives:

“10-year-old Gryffin Sanders faced a life-or-death decision last week when his great-grandmother suddenly passed out at the wheel of the car, which was driving at 60 miles per hour with their family inside. Luckily, Gryffin already had some experience behind the wheel — on his Nintendo Wii. In an incredible story of heroism and lightning-speed decision-making, 9news reports that Gryffin first tried unsuccessfully to wake his grandmother up after she’d “passed out while in mid-sentence.” When that didn’t work, Gryffin told 9news, “I just took the wheel and drove it into the ditch.” While the boy’s family marvelled at his dextrous feat, Gryffin credited his racing experience while playing Mario Kart with giving him the knowledge and confidence to take charge of the situation.”⁵⁰

Facts which are not simply recurrent in the news since the early 2000 (“Hans Jørgen Olsen, a 12-year-old Norwegian boy, recently survived a moose attack by feigning death, “just like you learn at level 30 in World of Warcraft.” ⁵¹) but which find evidence also in the most recent scientific literature with a particular focus on the VR technology (Grimshaw, 2014). Especially in front of so much news of both patients⁵² and surgeons⁵³ training and learning through videogames and VR experiences which were not specifically designed to do so (*Wii Sports* and *Super Monkey Ball*), semiotics cannot but inquire on the very means of these effects of “translations” between diverse reality. In fact in many cases, virtual realities are nowadays the very place where we learn things for the first time thanks to the amazing simulative capacity: think of driving simulators⁵⁴.

To do so, this exposition will be organized in three parts. First, we will expose some significant studies on neural and cognitive activity in virtual realities which will highlight both the points of continuity and discontinuity related to the cognitive and perceptive activity of the users. Therefore proving through a non-semiotic approach the semiotic claim of virtual realities saying almost the same thing and are perceived through guesses. Secondly, we will examine a recent cognitive theory of Clark and Miller endorsing the idea of perceptions being guesses informed by various forms of knowledge of both lower and higher cognitive activities. Therefore, proving that what occurs in virtual realities is not “exceptional” since it is mostly how our mind works; which makes our proposal even more plausible both inside and outside semiotics. Thirdly, we will investigate Prinz’s theory of emotions to highlight 1) how a semiotic approach to virtual realities in terms of simulated phenomenological continuity and bodily-based guesses granting meaning to the experiences can find confirmations in more empirical studies and 2) how such approach can allow semioticians to consider even the emotional dimension of the virtual experiences and of their meaningfulness. Finally, it must be noted that this section is somehow different from the previous ones. In fact, the research and authors mentioned will not be concretely used in our analysis. Moreover, the research and theories exposed are far from being exhaustive. Even worse, they are lacking: an author such as Andy Clark deserved a chapter on his own and not a discussion of merely one page on a single 2017 paper. The motivation of this chapter stands mostly in the actual conflict between semiotics and some other disciplines, a conflict which we would like to end. The three following sections all have in common the aim of highlighting an impressive number of points in common, of similar conclusions on how we make sense of reality reached via totally different objects of study and methodologies. Certainly, from an argumentative standpoint, these points in common can increase the scientific validity or at least plausibility of our proposal. However, nobody ever asked a semiotician to ground his theory of meaning-making on brain imaging. Therefore, there is clearly more than an epistemological preoccupation and necessity behind these lines. This “more” is precisely the intent of opening sealed doors that have been closed almost by mistake in the last thirty years.

⁵⁰ <https://www.kotaku.com.au/2015/05/kids-mario-kart-skills-help-save-family-from-fatal-car-crash/>

⁵¹ <https://www.wired.com/2007/12/boy-survives-mo/>

⁵² <https://www.bbc.com/news/10357453>

⁵³ <https://www.nytimes.com/2005/02/24/technology/circuits/we-have-to-operate-but-lets-play-first.html>

⁵⁴ https://www.youtube.com/watch?v=O66BY2O_1O8

2.6.1 Three cognitive evidence of a semiotic hypothesis

Since the beginning of this chapter we have tried to make three simple yet fundamental points.

- A. Semiotics cannot ignore the empirical/experiential effects of virtual realities depending and acting on the user's body since they are part of the process of meaning-making.
- B. These effects are of semiotic relevance because they are *not* the direct result of a sensorial immersion depending exclusively on the medium, instead they are *felt* because they are first of all *interpreted* and therefore the phenomenological continuity is a *lie*.
- C. A+B cannot but lead a semiotician to conceive virtual realities as third realities blending and translating the elements of the physical world and of the virtual one. The virtual is therefore a modulization of the real in terms of potentiality.

Yet do we have any empirical proof about this? Actually, we have several.

First of all, the general idea and acceptance of the interrelation between mind and body to grasp the sense of any given reality is now thirty years old (Varela, 1991) and has been philosophically sustained almost eighty years ago (Merleau-Ponty, 1945). This idea has proved in several ways “how thought (mind) and action (body) are deeply integrated and how they co-produce learning and reasoning” (Klemmer et al., 2006) and the most recent researches underline the cognitive importance of performance in digital interactions. Working in this direction, some works in the game studies have already classified the different way in which this embodiment can occur and have an impact (Melcer & Isbister, 2016). Moreover, for the enactivist and SMT theory (Degenaar & O'Regan, 2015) there can be no cognition without actions and interactions, to the point where it is exactly the interaction with an environment that enact a world and that it is only through interactions that we can grasp and understand contents. It is so generally accepted that actions and interactions have a decisive role in cognition, representation and in the meaning-making process. Also, gestalt scholars already eleven years ago noted how “Gameplay and narrative work together towards a common goal, a macro gestalt the player experiences during a game reading” (Brown, 2007) and the constructivism theory goes in the same direction being often quoted as the epistemological fundaments of interactive storytelling (Lughi, 2015).

However, for obvious reasons it is impossible to examine here in details the specific debate and the evolution of the embodied theories of the last years. Instead, we will briefly examine three very concrete evidences related to:

- Space and Orientation
- Movement and Motion Sickness
- Cognition

Let's begin with space and how the users of virtual realities make sense of it. In an interesting research of 2015, a team of researchers compared the neural hippocampal activity of rodents in VR with the one occurring in the physical world. This was done to evaluate the role of visual cues in the usage and creation of navigational maps that living beings use to orient themselves in the world and “that encodes the spatiotemporal relationships between the position of the subject in the environment, its movements and the location of sites of reward.” (Hébert et.al., 2017).

Their starting point was therefore that:

“ During real-world (RW) exploration, rodent hippocampal activity shows robust spatial selectivity, which is hypothesized to be governed largely by distal visual cues, although other sensory-motor cues also contribute. [...] To determine the contribution of distal visual cues only, we measured hippocampal activity from body-fixed rodents exploring a two-dimensional virtual reality (VR).”

The reason for which this is interesting for us resides in the fact that the experiment had an unexpected result: although the same hippocampal region was activated for the cognitive task of navigation, therefore proving our point A and explaining in biological terms the phenomenological continuity, the neural pattern was sensibly different inside these same regions and suggested a lack of knowledge about the rat self-position. Therefore, proving our point B about that fact that we make sense of virtual realities *almost* as the physical ones and unconsciously reorganizing our cognitive means of grasping the world.

“Compared to that in RW, spatial selectivity was markedly reduced during random foraging and goal-directed tasks in VR. Instead we found small but significant selectivity to distance traveled.” (abstract)

To put it more simply in the words of the main investigator interviewed in 2017:

“ Compared to the real world, 60% of neurons of the hippocampus shutdown in virtual reality. Same rat, same reward. He seems perfectly happy. [...] This abnormal activity pattern that happen in the hippocampus, can it rewire the brain in some funky way, so that it has long-term consequences?”⁵⁵

Happy as the rats, the users of virtual reality may seemingly see, move and orient themselves in a 3D space as they do in the physical world, and yet actually they are not.

A second interesting case is related to movement and motion sickness. A well-known issue with VR is the so called motion or cybersickness involving nausea and cold sweating. What is extremely interesting for our discussion is that this phenomenon is related to a sensorial conflict originating in the difference between the user's body in the physical world and the virtual perception of such body:

“Neural mechanisms responsible for MS are still poorly understood. Currently, the dominating “sensory-mismatch” theory suggests that MS develops when conflicting signals are received from the spatial orientation senses: the vestibular system, the eyes, and the nonvestibular proprioceptors (2, 3, 38).” (Gavgani et.al., 2018, p.1670)

Indeed, the perception of movement is not only a matter of vision but involves different physiological sensors that must communicate to the brain that we are moving: when the information between such sensor does not match, the issue of motion sickness raises. In sustain of point A, this conflict and its effect of sickness is non-specific of virtual realities and has been recently described as identical both when it has a “real” cause and when it is triggered by the medium of VR:

“With this approach, we demonstrate that symptoms and physiological manifestations of the two conditions are identical.” (Gavgani et.al., 2018, p.1670)

However, whereas the “real” motion sickness has physiological causes, perfectly healthy individuals can suffer from cybersickness in VR precisely due to the non-continuity between their body and their virtual one. Therefore proving our point B. To prove that such perspective is not only valid in VR but also apply to digital games, the next case that we will examine is the of the cognitive involvement and improvement of the players.

⁵⁵ “How Does VR Rewire Your Brain?” , Mashable, https://www.youtube.com/watch?v=wLz_sCXcEBw

In one of the earliest study on the positive effects of videogames from the point of view of perceptual and motor skills, Bavelier and Green showed already in 2003 how action games could have several benefits on gamers such as:

- Better distinguishing smaller details
- Better distinguishing scales of grey
- Better visual attention
- Better visual tracking
- Better cognitive multitasking

Despite some critiques to such original findings⁵⁶, since then Bavelier and her team have followed the same hypothesis of research for now seventeen years in a row and always came to the same conclusion:

“Over the past two decades, a large body of research has examined the impact of playing one particular type of video game, known as action video games, on cognitive function. This work has demonstrated, in both correlational and intervention work, positive relationships between action video game experience and performance on a host of perceptual, attentional, and cognitive tasks. Overall the various published meta-analyses have offered largely convergent evidence – generally finding that action video game experience (in both cross-sectional and intervention work) is associated with increases in cognitive skill, but that certain subdomains of cognition (e.g., perception, top-down attention, etc.) are associated with disproportionately large effects.” (Benoit, Bediou, Bavelier and Green, 2020)

Playing certain digital games, therefore, has nothing to do with a simulation in terms of a “fake experience” but on the contrary is an activity which is in perfect continuity with the players innate cognitive and perceptual capacities up to the point that humans can be trained through videogames for a lasting improvement of such skills. But about our points B and C? First, the fact that such cognitive improvement has been proved only in action games is a clear sign of the centrality of cognitive tasks and that the sensorial access to a given virtual reality is a critical prerequisite but not a key factor by itself. Secondly, the cognitive and perceptual situation of videogames is of course “artificial” and therefore requires the brain and mind of the players to “adjust” up to the point of developing new behaviors: the access to a first-person shooter may seem immediate and natural but of course it is far from being so. Whereas in the last cases about VR neuroimaging was proving an uncommon neural activity and the main investigator was wondering about possible long-term effects, Bavelier’s studies are proving these effect also from the point of view of brain scanning and activity:

“A recent fMRI study revealed less increase in the frontoparietal, top-down attention network in AVGPs as compared to NVGPs when the attentional load increased during a visual search task (Bavelier, Achtman, Mani, & Föcker, 2012). A possible interpretation is that attentional networks may be less taxed in AVGPs than in NVGPs as the task becomes more difficult, due to a more automatic allocation of attention. Indeed, reduced brain activation and its relation to higher automatization have also been documented in other studies. [...] In addition, both brain imaging and electrophysiological data provide evidence for more efficient filtering of irrelevant information in AVGPs during attentionally demanding tasks (Bavelier et al., 2012; Krishnan, Kang, Sperling, & Srinivasan, 2013; Mishra, Zinni, Bavelier, & Hillyard, 2011; Wu et al., 2012). In these experiments, unattended task-irrelevant stimulus features were observed to elicit less activation in AVGPs than NVGPs suggesting better filtering of distraction or disruption sources, at least under the high load conditions used in these studies. These functional changes may be accompanied by structural changes with one study reporting gray matter changes in the left dorsolateral prefrontal cortex, a part of the attentional network, in experienced video game players (although no specific game genre was specified) compared to nonvideo game players (Kühn et al., 2014).” (Föcker, Cole, Beer and Bavelier, 2018, p.3)

“Interestingly, during the processing of visual stimuli, the connectivity between top-down brain areas and perceptual areas was strengthened in AVGPs, maybe a signature of higher attentional control.” (Ibidem, p.15)

⁵⁶ <https://www.nature.com/news/2011/110916/full/news.2011.543.html>

Indeed, it is interesting to note how neural differences between gamers is nowadays broadly accepted in overall scientific literature (Palau et.al., 2017) interested in the effects of virtual realities on:

- Attention
- Visuo-Spatial Skill
- Cognitive Overload
- Cognitive Control
- Skill Acquisition
- Reward Processing

Finally, it may be interesting to note that such improvement is not always “direct” but may correspond to an improvement in learning processes themselves:

“When the target motion pattern was consistent over trials, gamers improved with a faster rate and eventually outperformed non-gamers. Performance between the two groups, however, did not differ initially. When the target motion was inconsistent, changing on every trial, results revealed no difference between gamers and non-gamers. Together, our findings suggest that video game playing confers no reliable benefit in sensorimotor control, but it does enhance sensorimotor learning, enabling superior performance in tasks with consistent and predictable structure.” (Gozli, Bavelier, Pratt, 2014)

In conclusion, the few studies examined seem to encourage both our specific methodology based on the relation between senses and tasks and our more general perspective on virtual realities.

2.6.2 Perceiving reality through predictions

“Molti parallelismi possono essere individuati fra strutture linguistiche e strutture percettivo-visive. In primo luogo entrambi i sistemi assolvono alla stessa funzione, quella di fornire coerenza, e la realizzano attraverso processi largamente simili” (Violi, 1997. P.55)

Summing up what we have just discussed, we can say that our claim about the phenomenological continuity being mostly a semiotic effect can potentially find an empirical ground in the evidence about neural activity and physiological reactions in virtual realities displaying both uncommon pattern during the “experience” and uncommon behaviors after several immersion in them. The brains and bodies of the users involved in virtual realities are doing their best to match what they know from the previous physical world with the new one and to translate the differences between the two dimensions to make sense of the virtual reality. And, despite the translation not being flawless, they actually do a pretty good job since a phenomenological continuity is indeed perceived on several levels. This result is of course due to the fact that virtual realities are communicative products designed as translations and copies of the physical world, using the natural semiotic potential of the human mind and of language such as in the case of audiovisual prosthesis. In any case, there is therefore no such thing as a direct perception of a virtual world and most of the sense that we grant to it comes from stand outside of it both in relation to what occur in real time (the perception of movement) and what occurs in more general terms (our more general knowledge about the world). There are very good reasons to claim, thus, that virtual realities are *guessed* and that such guesses are informed by both the user’s mind and by what the games do to the user in terms of cognitive, sensorial and psychological involvement. But is this something exclusive of virtual realities? Not really.

The idea of perceptions being guesses informed by various forms of knowledge of both lower and higher cognitive activities is indeed at the center of Andy Clark and Mark Miller’s recent proposal (2018) on predictive processing as model of perception. Since this thesis is however not directly involved in a discussion about how we make sense of the world in general terms, we will limit ourselves in reporting the most interesting parts of Clark 2017 exposition⁵⁷ of such theory which is both coherent with our view and also explicitly referring to the specificity of some form of embodied information in terms of veridiction and higher trust (therefore, in our terms, of the rhetoric power of virtual realities). No conclusion and no further discussion will be offered, and therefore readers not interested in this theory can directly skip to the next chapter.

“Perception is a combination of top-down knowledge-based prediction and bottom-up (incoming) sensory evidence.” (1.32, slide)

“To see a complex structured world of interacting objects is to deploy world knowledge (in the form of a “generative model”) to try to construct the incoming sensory signal for itself, using stored probabilistic knowledge about the world” (1.53, slide).

“You might say: our brains try to guess what’s out there, and to the extent that that guess matches (hences ‘explains away’) the evolving sensory data, we perceive the world. (min3.45, slide)

“ So, when I look at all of you in this room, what I’m seeing, you know, bunch of people, different kinds of clothes and so on, and this is just my best multi-level guess, this my best multilevel that successfully accommodates incoming sensory information” (min 4.30)

⁵⁷ <https://www.youtube.com/watch?v=OS3RM3F8YmE>

“That guessing is informed, at every level, by **self-estimated uncertainty** (‘precision’). This **weight** different prediction errors signals according to how **useful and reliable** (for that task in the current context) they are estimated to be” (min 4.39)

“ Suggestion is that the brain integrates information from all the outward-looking sense with information from all the inward-looking ones (channeling information about heart-rate, blood sugar, levels, states of all the viscera and Musculo-skeletal system, etc) to deliver a best-guess predictive grip on the overall ‘organism relevant’ state of affairs.” (min 9.30, slide)

“interoceptive evidence is **typically important** and known with **great certainty = accorded high precision**” (min 11.36)

“ usually, interceptive information is **good** information that properly informs reason, action and choice.” (12.28, slide)

“ the brain predicts the flow of states of muscle spindles, tendons, and joints that the action demands, and the resulting errors (since those states are not yet actual) are systematically quashed by moving the body so as to make that flow of prediction come true”. (min 18.00, slide)”

“ our action-guiding proprioceptive predictions are themselves caused by even higher-level and longer time-scale predictions – predictions about our own future behaviors and future states. These entrain actions when good opportunity arises” (min18.39, slide)

“PP provides a powerful mechanism for crunching together external and internal sources of information in a way that reveals the organism-relevant states of the world. This is a world of affordances, and a world permeated by affect. But there is now no deep (‘kind-like’) divide between inner entities corresponding to emotions and to reasons/beliefs. Instead, there is a simply incoming evidence (interoceptive, proprioceptive and exteroceptive) that, given our priors, delivers the predictions that construct percepts and select actions.” (min 28.12, slide)

2.6.3 Embodied meaningfulness: Prinz's gut emotions.

The interest in the means by which meaningfulness can be experienced in digital texts has led us to blend a semiotic theory of and perspective on meaning-making with a theory on the cognitive embodied modality of meaning-making. Yet understanding such meaningfulness, why digital games matter to us and move us, would be impossible to explain without taking into account the ways in which the players can be emotionally involved. This topic is once again not new and has been for long at the very center of the debate on the emotional effects of cinema by looking at a variety of experiential condition such as the immobility of the spectator as psychological persuasion tool (Stam, 1999, p.162) or at the impact of an actual perceptive activity in front of a dream like representation (Stam, 1999, p.167). Additionally, this topic is also central in the studies on digital games where both visual and interactive aspects are deemed as capable of conveying specific emotions in both broad psychological terms (Isbister, 2006) and in relation to specific emotive states such as the sadness and despair requiring a form of slow interaction (Zagalo, 2017).

In addition to such existing literature, we will look at one cognitive and embodied theory of emotions capable of grounding both some of these ideas and of our proposal: Prinz's concept of emotions as "gut reactions" (2006). Without a doubt the choice of an author and a theory for which "emotions are perceptions" (p.255) and "Emotions are states in the somatosensory system." (p.224) can seem odd, to say the least. Prinz somatic-functional view of emotions (p.211), for which emotions have mostly to do with physiological states and neural activity, can look like a form of reductionism that is not only uncommon in humanities but also very often unwelcome. However, Prinz is anything but a reductionist and is very clear about his position for which:

"When an emotion is felt, the feeling literally is the emotion. Feelings are brain states in perceptual systems. [...] But this does not mean that I defend a feeling theory. First, emotions can also occur unconsciously. Second, all emotions carry information. They are never mere feelings." (p.242).

It is no coincidence that in the previously mentioned work of Andy Clark, he precisely refers to such author and this now 16 years old book⁵⁸. Indeed, Prinz's view is extremely interesting to us for a number of different reasons.

First, Prinz has a kind of "semiotic perspective" of perceptions for which they are far more than bottom-up inputs:

"Roughly put, perceptions arise in us from outside of the brain. This is a good starting place. I think it is a necessary condition of a perceptual state that it consist of states that can be activated bottom-up. A mental state that could only be caused by act of voluntary mental effort would not count as perceptual. But bottom-up control cannot be the essence of the perceptual. First, many perceptual states can be generated by acts of voluntary mental effort. Mental images can be defined as perceptual states that are activated top-down. Second, it is possible that some nonperceptual states can be activated bottom-up. Certain compulsive thoughts may qualify. After decades of cultural indoctrination, an American patriot may internally mutter "God bless America" as a reflex response to seeing the flag." (p.222).

Furthermore, in his view perceptions are inferential ("multiple inferences are needed to go from the luminance arrays provided by the eyes to the three-dimensional structural descriptions provided by high-level vision.", p.225), they grasp observable properties that often require a position in the world and are thus relational ("Perceiving that an object is about 10 feet away involves the use of various other pieces of information." p.226), they can compel to act by putting in discussion the rigid distinction between output/input system and more generally they cannot be reduced to domain of what is felt, which lead Prinz to affirm that:

⁵⁸ Andy Clark: Happily Entangled: Emotions Cognition and the Predictive Mind: <https://www.youtube.com/watch?v=OS3RM3F8YmE> (min 7.35)

“Now it is popular to argue that reason and emotion are inextricably bound (e.g., Damasio, 1994; de Sousa, 1987; Elster, 1996; Frank, 1988; Green span, 2000). Emotions, like higher cognitive states, can be perfectly rational.” (p.237).

When we look at the complexity and richness of perception in Prinz’s view, claiming that emotions are perceptions stops being problematic. Additionally, for semioticians this perspective is kind of familiar, since Peirce’s writings about feelings seem to go in a similar direction as we have seen. This of course doesn’t mean that Prinz is “Peircean”, they are undeniable differences, but Prinz’s view is something that can be used by a Semiotician with a certain ease and that allows for a dialogue.

Secondly, Prinz take in high regard the impact of culture on emotions since he admits that “embodied appraisals are culturally informed” (p.142) and further explains:

“The point is that cultural differences in emotional behavior can affect the somatic concomitants of our emotions. If these concomitants determine nominal contents, and nominal contents contribute to the identity conditions of our emotions, then culture can influence our emotions” (p.143).

Moreover, for Prinz not only culture can influence emotions through somatic concomitants but also by influencing the mental content involved in emotions:

“The real and nominal contents of a blend differ from the contents of its components. Since cultures can foster blends, culture can impact the contents of our emotions. If emotions are individuated by their contents, and contents are determined, in part, through cultural influences, then culture can play a part in the construction of emotions. When cultures lead to emotional blending, they make a constitutive contribution.” (p.145).

He does that even by referring to the notion of *habits*, which is of course very familiar to semioticians:

“I have been arguing that culture can exert constitutive influence on emotions in three ways. Culture can set up habits of the body, promote blends, or lead to the creation of calibration files. Habits of the body can influence the nominal content of an emotion, and both blending and calibration can yield emotions with new, culturally determined, real contents. Many of the arguments for constructionism that were dismissed earlier turn out to support the case for these forms of cultural influence. The major problem with standard arguments for constructionism is that they rest on erroneous theories of emotion. Once those theories are corrected, the arguments can be redeployed with some success”. (p.150).

This position goes as far as claiming that:

“An emotion that has been culturally tuned may look just like one that has been set up by our genes. To see the difference, one must see how the elicitation conditions of that emotion have been transformed over time. Such an emotion should not be called cultural or biological, because it integrates these two seamlessly.” (p.158)

Finally, Prinz interest in emotions as bodily states and changes is extremely pertinent in the case of digital simulations such as videogames and VR games. Indeed, we have already discussed and highlighted the fact that, from a semiotic point of view, the specificity of digital games resides in two main common features: the involvement of the players’ body through interactions and a phenomenological subjective position for which the causality of the actions can always be referred to the reader of the text. In regard to the physical involvement, it is evident that it also has an impact on our body from a physiological point of view. For example, when a section of a game is designed to be solved by rapid button mashing in a highly stressful situation, we simply have no other choice than having our heart racing unless we chose to not play the game or do not care about not losing (with this lost being usually relevant not in narrative or competitive terms but first and foremost because it represents real effort and time of our life, our most limited and most precious resource).

This physical involvement is also true when a section of a game is designed to be slow paced, helping thus the player in being more sensible to sadness, as it has been argued in the game studies literature (Zagalo et.al, 2006 & Zagalo 2017) about *Heavy Rain* (2010). Now, since Prinz final sentence is that “The heart pounds with significance” then the logical consequences of interest for a semiotic theory is that digital simulations such as videogames have the possibility of creating significance by this kind of involvement.

Even the latest technological investment and improvement to recreate realistic facial expression in digital games seems to follow this path of “compelled/induced emotions”. Now of course here someone could argue that both novels and movies can make our heart race in the same way, and so that our claim is misleading. This objection is however easily refutable by observing the difference in the prerequisites and the means by which the last level of *Super Mario Bros* (1985) and a movie like *Psycho* (1960) can make our heart race. It is however true that some genres directly aim at this kind of involvement without having to rely on interaction: let’s think of disgust and arousal in pornography and splatter movies and even at erotic literature and novels such as Palahniuk’s *Haunted* (2005). Nonetheless the differences should be still very obvious, with the emotional states of the latter cases still depending on highly complex and partially cultural dependent interpretative decisions (it is very hard to imagine a movie or book which is sexually exiting, and thus triggering a racing heart and blood flowing, for any human being on earth). On the opposite, anyone of us can experience a *set of feelings* by playing *Street Fighter II* (1991) on hard difficulty (still with the beforehand mentioned exceptions). Establishing the fact that the “first person” physical involvement of the player through interactions is a unique mean of meaning-making belonging to digital simulations is important, but it does not mean that videogames are somehow “better” than other forms of cultural artifacts at conveying emotions. First of all, the concrete presence of a change in the body is not the only possible way to experience emotion. Indeed, since the beginning of his book Prinz refers to Damasio (1994) in underlining that:

“Damasio emphasizes the possibility that emotional response can occur in the absence of bodily changes when brain centers ordinarily associated with bodily change are active. The brain can enter the kind of state it would be in if various bodily changes had taken place, in the absence of those changes. This is analogous to the supposition that we can form a visual image of a red apple when our retinae are not being stimulated. Sensory areas of the brain can be activated endogenously. Damasio calls the pathway that leads to endogenous stimulation of somatic brain areas the “as-if loop”: when this pathway is used, the brain functions as if the body had been perturbed in an emotionally relevant way.” (pp.5-6)

An idea that he sustains:

“The theory of emotions that I have proposed says that emotions are internal states that register changes in the body. It is consistent with this proposal that those states sometimes occur in the absence of the bodily changes they are designed to detect[...] This proposal is similar to Damasio's (1994) suggestion that the brain contains as-if loops.” (pp.71-72)

Moreover, direct physical experience is also not the only way by which emotion or bodily changes can occur, which is underlined in a brief but significant note about Rizzolati’s mirror neurons in possibly allowing for indirect motor response (p.229). Finally, Prinz theory do not look at digital games but make explicit references to the sadness that can be felt by reading a novel (p.235).

All these points should be enough to spare us from making any kind of qualitative comparison between a medium being better than another and should instead encourage us in focusing on the different means by which we can be emotionally involved by them. Which lead us to a simple but absolutely central following question: why, as scholars of culture and meaning, should we care about physiological states? And the answer is: *veridiction*.

The possibility for games to trigger in such a way emotional states correspond to a new dimension of realism and immersion in fictional situations. It is indeed very hard to doubt of our guts since perceptions, and more generally speaking bottom-up inputs (p.222) and often unconscious process (p.202), are in some sense designed to be a kind of preferential way to understand the world: “emotions are primarily designed to carry information about core relational themes.” (p.202).

As in the case of optical illusions cited by Prinz (p.82; p.235) even when we know that we are in front of a deceptive effect we still cannot stop to naturally see it as “true”. Anyone with fear of heights (such as myself) experiencing to fall in VR simulation knows this far too well: the idea of suspension of disbelief seems to belong to a far and almost forgotten past. And since in Prinz’s view emotions are no different than perceptions, being perfectly susceptible to long lasting and “undeniable” illusions (p.235), inquiring meaningfulness in digital texts such as videogames must take into account the specific means by which this illusion can be achieved. Once again we put here emphasis on “specific means”, in fact when Prinz refers to emotive illusions he refers to novels and not games. To better understand the difference and this specificity we have to look further in Prinz’s theory, but we also need to look at the second features of digital simulations: the recreation of a subjective causal point of view. For the author emotions cannot raise without a dialogue between the subject and his world:

“On the view that I have been defending, having an emotion is a way of perceiving one’s place in the world.” (p.221).

Now this positioning is granted by the possibility of perceiving internal states in a similar way in which we perceive objects of the outside worlds, but we do not directly nor merely perceive bodily changes or mental states:

“Emotions involve bodily states, but they do not represent bodily states. They use bodily states to represent organism-environment relations. Fear, for example, uses the body to represent danger.” (p.190).

Having consciousness of such states require for Prinz the fundamental ingredient of attention (p.211), but the consciousness itself is not even needed for emotions to occur. To defend this position, in his book Prinz spend a great time to achieve is definition of emotions as *valent embodied appraisals* (p.178). In the context of this thesis, we cannot debate thoroughly this definition, but we nonetheless have to understand that for the author:

“Embodied appraisals are mental states that represent core relational themes by registering bodily changes that cooccur with those themes. The theory implies two ways of individuating emotions. We can individuate them by the bodily changes they register (their nominal contents) or by the core relational themes they represent (their real contents). Sadness represents irrevocable loss via some patterned response in the body. Every emotion has both kinds of contents. An alteration in real or nominal content would be an alteration in the emotion.”. (p.143)

Moreover, a core relational theme is defined (by referring to Lazarus) by saying that: “A core relational theme is a relation that pertains to well-being” (p.15) but is specified by Prinz as “what our emotions represent. But core relational themes need not capture the inner structure of emotions or the inner structure of any mental states that lead up to our emotions.” (p.66) and further:

“If this proposal is right, it shows that emotions can represent core relational themes without explicitly describing them. Emotions track bodily states that reliably cooccur with important organism-environment relations, so emotions reliably cooccur with organism-environment relations. Each emotion is both an internal body monitor and a detector of dangers, threats, losses, or other matters of concern. Emotions are gut reactions; they use our bodies to tell us how we are faring in the world.” (p.69).

To make this definition even more clear for our readers, one example given by Prinz can be helpful:

“One can generally find a common theme behind the range of things that elicit any given emotion. Consider a number of things that might cause sadness: a child's death, a report on political crises in the Middle East, a divorce, being fired, a rejection letter, a low grade, misplacing one's favorite sunglasses, a bad weather forecast, and so on. These elicitors range from the tragic to the trivial, and they involve utterly different kinds of events. Still, they are alike in one respect: they all involve the loss of something valued. [...] It makes sense to say that sadness is elicited by loss, where loss is defined as the elimination of something valued. This analysis explains why different things sadden different people. The sadist who smiles at a child's death is not sad, because he does not value the child's life. But, should the sadist lose something he values, such as the freedom to prey on victims, he will become sad too.”. (pp.61-62).

Indeed, Prinz refers to another author in distinguishing between a formal and particular object of emotions.

“Emotions can be elicited by actual environmental conditions impinging on an organism or by imagined conditions, as when an emotion is caused by contemplating a future event. The conditions (real or imagined) that elicit an emotion can be referred to as its objects. Invoking a distinction from scholastic philosophy, Kenny (1963) points out that emotions can have two kinds of objects. A formal object is the property in virtue of which an event elicits an emotion, and a particular object is the event itself. The death of a child can be a particular object of one's sadness, but it causes sadness in virtue of being a loss. Being a loss is the formal object of sadness. Emotions represent their formal objects, not their particular objects. An episode of sadness may concern any number of distinct particular objects, but the sadness in each episode represents loss.” (p.62)

Prinz actually reflects critically over this distinction and put emphasis on the fact that:

“While there is a sense in which emotions are directed at particular events, that does not mean that they represent those events, or anything else for that matter. The events are represented by mental states that combine with emotions. When I am sad about the death of a child, I have one representation of the child's death and I have sadness attached to that representation [...]. The sadness doesn't represent the death. Saying that my sadness is *about* the death does not mean that my sadness represents the death; rather it means that the death is what has caused me to become sad. I can continue to think about the death after my sadness subsides, and I can continue to be sad after my thoughts of the death subside. The mental representation of an emotion's particular object can be doubly dissociated from the emotion it elicits. [...] Rather than saying that sadness represents things that are sad to us, we can say that sadness represents loss (or some disjunction of closely related properties, including loss, privation, defeat, and so on). Loss is not a state of an organism. It is not a bodily condition. Nor is it something purely external. The case of the sadist shows that something only counts as a loss relative to what an organism values. **Loss is a relational property.** It is the elimination of something valued by an organism. **Sadness represents the elimination of something valued by me.**” (p.63, my bold)

Such distinction will then be completed by a distinction between what Prinz calls *real content* and *nominal content*:

“Just as concepts of dogs' track dogs via furriness, fears track dangers via heart palpitations. Emotions are embodied. They represent core relational themes, but they do so by perceiving bodily changes. Core relational themes are the real contents of emotions, and bodily changes are their nominal contents.” (p.68)

For the purpose of this work, we will put apart the problem of emotions as non-representations, which perhaps belongs more properly to other disciplines. Likewise, we cannot thoroughly discuss the mechanism of real and nominal contents. But as semiotician we can only be struck by the way in which in Prinz's view emotions works as a result of a somehow formal and logical structure assigning values to relational items. It is precisely this idea of “value” that is going to be central in our thesis since for us meaning in digital games almost always happens as a result of an economic system based on time and effort traded to act upon valued semantised digital items. Additionally, in Prinz theory we will even find axiologies, named by the author as *valence markers* and that act as reinforcers of behaviors:

“In addition to embodied appraisals, every emotion seems to have what can be termed a “valence marker.” On this revised model, sadness is a compound state, containing both an embodied appraisal that detects loss and an activation that represents the loss as something negative.” (p.163)

“When I think about having a chocolate soufflé, I recall my past experience, and the IPR prods me to value the option highly. When I think about seeing another movie by the director whose last product bored me to tears, the recalled INR tells me to skip it. This is very much like Damasio's (1994) suggestion that emotions serve as memory markers, which factor into decision making. In choosing a course of action, we anticipate the emotional consequences of our actions. In this way, valence markers can impact both present and future behavior. They influence the future in virtue of their ability to influence the present.” (p.174)

Now, as we have already said Prinz admits that even basic emotions can be influenced in such a way that they can occur in relation to different content:

“Basic emotions are innately tuned to certain properties (call these basic contents). But they can be recalibrated to pick out new properties (call these derived contents). Two emotions that have the same nominal contents can have different real contents because real contents can be specified in terms of innate dispositions or learning.” (p.158).

In this could reside one cause of the issue of endless possible interpretations of a given text and at the same time of the common interpretation of a same text. But more importantly, we can finally see a formal difference in the experience and thus in the meaningfulness of digital games compared to novels or movies. In fact, in most games “loss” has only secondly to do with the particular object and is first and foremost a loss *per se*. The reason for this is that in games (those in which you can lose, and so not in all of them) a loss is first of all a loss of time and efforts, which are not culturally variant objects among players nor valued by proper interpretations. To make a concrete example, and also to give a moment of breath to our reader, let's consider the following memes:



These pictures refer to the 1997 game *Final Fantasy VII* made by Squaresoft, a game in which at the end of CD1 a main and playable character named “Aeris/Aerith” dies. There are many senses in which the death of this character can be represented as a loss and so can create an emotion of sadness, as it would in a movie or in a novel. But there is one which belongs exclusively to the domain of digital simulations, and it is the one for which the player who have chosen to play with this character have spent tens of hours and some relevant cognitive efforts to level her up (make her stronger by playing repeatedly with her in the team instead of other characters). For those players loss is a “basic fact” and their emotions in regard to her death goes beyond the proper object of such death. Another intuitive proof of this can be found in many interpretation of the game *Dark Souls* (2011) given by players and streamers, and so not by some academic figure using complex tool for critique. In many of them it is common to find the idea that the game is about the way in which humans can face difficulties, up to despair, without giving up. The fact that such interpretations come from a game renamed for its punishing difficulty is hardly a coincidence and can perfectly be explained when we blend an economic theory of meaningfulness (that we will expose in the next chapter) with Prinz theory of emotions. In the second case study of this thesis we will focus on the impact of different economical system of values on meaning, but for now we are only interested in the fact that, if Prinz is right about how emotion works, they are exclusive emotional mechanisms in digital simulations and games: bypassing proper objects belonging to the manifestation level (FF7 case) and acting directly on nominal content through direct (vertigo in VR by fooling the visual system) or indirect (heartbeat through button mashing and a cognitively stressful situation) involvement of the players bodily state cooccurring with explicit semantic entries on the manifestation level (and thus solving the problem of the different real content with similar nominal content). Finally, since in Prinz’s theory the consciousness of emotions requires attention which in turn is based on representational levels in the working memory, the fact that a high number of studies seem to give to working memory a central role in games (Waris et al., 2019) could also play an important role in the production of **highly believable** emotional states in players. Of course, and once again, we must distinguish between the means of this emotional involvement and its result: the death of a levelled-up Aerith is a loss probably closer to frustration for a bad investment than what we use to interpret as sadness and the despair experienced in *Dark Souls* is without a doubt significantly different than the one that we can experience by reading Dostoevsky’s *Notes from the Underground* (1864). Similarly, the state of “genuine rage” that a player can enter after hundreds of failed attempts at the *Impossible Game* (2009) would probably not convince Nussbaum (2004) that games are better than literature for the emotional flourishing of the individual. The important point for a semiotic theory of meaningfulness in digital simulations is that, through cognitive-physical involvement and a first-person causality, such texts can rely on what we could define *perceptual and emotional shortcuts to basic meaning* which, as real spatial shortcuts, often lacks in complexity but shines for their efficiency and trustfulness (which is why we commonly use *Maps* in a carefree way). And since these emotional shortcuts are both “hidden” and designed to be coherent with the intended message and/or representation of a game, they are a consistent part of the reader’s experience and sense of realism, acting thus partially as an *embodied rhetoric*. Simply put, a good designer will have all the good reasons of the world to induce a pounding heart in the last encounter of a fighting game, and whereas in other texts such as movies this will be reached by narrative means (the suspense, the low odd of victory, etc.) and filmic techniques (slow motions, rapid sequences from different angles, and even close-up on the worried audience’s faces which by the way already depends on neurocognitive involvement) in digital games this can also be reached by simpler but in some sense more effective ways that depends on interactions and the cognitive and physical involvement of the player.

Moreover, because of the phenomenological first-person causality, the beating heart and swelling (and sometimes swearing!) of the player in a fighting game acquires a new dimension of immersiveness and realistic likelihood of the experience (as if he was *really there really doing that*). This is what in the previous page we defined as “veridiction”. At a first glance this issue could still seem mostly unworthy of attention for most scholars in the humanities, but, as we will see in the last part of this thesis, it can also have an impact on historical beliefs such as the Apollo 13 landing on the moon. Emotions are key part of the simulated digital experience and meaningfulness, and they are also of a specific *kind* in such texts. This “kind” of emotional experience stand exactly in the middle between literature and what happens in the spectacle “Honey, I Shrunk the Audience” (1994) during which real hidden water sprayers worked to simulate the presence of the viewers in front of a man sneezing. Moreover, from an historical point of view it is perhaps also the best alternative to dynamic photorealism which, after the invention of perspective, is/was the other dominant fictional technique of veridiction used by photography and cinema (for which any movie that we see as to do with a dimension of *testimony*) and on which many semioticians inquired (Barthes, 1982). In some sense, digital simulations are closer to cinema than other cultural forms of expression precisely because both acts on their viewers as technologically mediated forms of immersive embodiment: let’s think of the cognitive role of faces, music and unexpected sounds, the dominant role of the visual system and its related cognitive involvement (for which speed can be represented both with a character running on a blurred background or with extremely fast movements of camera and changing of angles recreating a situation that is impossible to follow and predict for the viewer). Simulations, like games, have seemingly taken everything from these characteristics and substituted the visual testimony given by photorealism with an embodied form of testimony relying on both interactions and the involvement of real time and effort of their viewer.

In sum, what Prinz gives to us is precious since it allows an interdisciplinary and empirical ground for our claim on how meaning-making occur in virtual realities in a particular way through interaction and becomes cognitively and physically meaningful for the player. More specifically, Prinz argument justifies two of three core elements of our proposal: meaning in digital games as an embodied matter and meaning in digital games as an economy (chapter 2). Finally, the two features that we underlined as characteristics of digital games (the involvement of physical interaction and the creation of a subjective place anchored by causality) are both explainable and spendable through Prinz’s theory of emotions as perceptions of our relation with the world.

2.7: Torben Grodal's experience and cognition

To conclude this chapter, we will now examine two significant works of Torben Grodal about digital games. The reasons for such choice stand in the fact that this author 1) belongs to the studies on audiovisual products 2) is not a semiotician 3) criticizes the semiotic approach 4) ground its own methodology on biology, psychology and neurosciences 5) is directly interested in the meaning of game 6) conceives games as simulation of real experiences. In this sense, he represents an interesting mix of everything we have discussed up until now and is the perfect example of both what semiotics was lacking and of what is missing from any approach excluding a semiotic perspective. Additionally, and through an interesting coincidence, the Italian version of his 2010 book "Embodied Visions" was introduced by Ruggero Eugeni which has been fundamental in this first part and will be so once more in the next. In his introduction, the semiotician exposes the three main "new approaches" to films and spectators, studies which were born as a reaction and in opposition to the semiotic theory: as mind (computational), body (phenomenological) and organism (neuro-biological). Then he points out how Grodal belongs to the last one and, although of course we do not share the same position, makes a very simple yet important statement which can explain very well why we are interested in his perspective:

"La comprensione del film (sostiene Grodal memore del proposito di Metz citato sopra) si spiega solo come un processo unitario che integra percezione, cognizione ed emozione." (p.4)

This integrative approach is indeed the one that we are proposing inside semiotics, although at the *conditio sine qua non* of not reducing the complexity of perceptions, cognitions and emotions. A reductionism characterizing many scholars, such as Grodal as we will see. Nonetheless, Eugeni himself recognizes the interest of such approach for the humanities:

"La questione diviene allora la seguente: l'adozione del punto di vista naturalista, fisiologico ed evolucionistico effettuato da Grodal, permette effettivamente di portare alla luce aspetti altrimenti "invisibili" dell'esperienza spettatoriale e della costruzione dei film? A nostro avviso la risposta è positiva: la "naturalizzazione" dello spettatore, pur con le ambiguità e insufficienze che abbiamo segnalato sopra, ha permesso a Grodal e ad altri neurocognitivisti del film di tematizzare alcune questioni centrali dell'esperienza di visione del film (il gioco reciproco di cognizione ed emozione, il ruolo dei meccanismi immediati della percezione, le dinamiche delle relazioni con i personaggi e tra gli spettatori, le forme di organizzazione minimale del racconto, ecc.), che le precedenti teorie del film non avevano saputo tematizzare adeguatamente." (p.10).

Additionally, and lastly, Eugeni highlights how for Grodal (as for us) meaning is explained in terms of relations and access to a fictional world:

"Ciò che più conta tuttavia è che la individuazione delle differenti soluzioni non sfocia in questo volume in una tipologia di generi cinematografici, quanto piuttosto in una tipologia delle relazioni con il mondo diegetico per il tramite del personaggio: ecco dunque definirsi uno spettatore distaccato, un simulatore immerso, un simulatore saturo e un interattore, in una scala da un grado minimo a uno massimo di "immersione" [...] ." (p.6)

A focus which is, somehow paradoxically, pushing Grodal toward a semiotic perspective and therefore allowing, at least, a dialogue:

"Se poi guardiamo più da vicino l'opera di Grodal, l'impressione che si manifesti in lui l'onda lunga delle teorie semiotiche e strutturali si fa ancora più forte: penso al ritorno, che ho già messo in luce sopra, delle grandi questioni del come e del perché si guarda un film; penso alla centralità dei processi narrativi e alla ricerca di invarianti, di "temi" e "motivi" intertestuali, di schemi narrativi canonici; penso al ruolo rilevante del cinema americano classico nella messa in luce di caratteristiche metastoriche del cinema (per esempio nelle analisi psicanalitiche che Bellour faceva dei film di Hitchcock); penso soprattutto a un modello di spettatore più predeterminato (in questo caso dai vincoli specie-specifici che agiscono sul cervello umano, maturati ne corso dell'evoluzione) che capace di determinare la propria esperienza." (p.11)

2.7.1: Virtual realities as real-life experiences

“Stories for Eye, Ear, and Muscles. Video Games, Media, and Embodied Experiences” (2003) can seem an odd choice to conclude an entire chapter about how semiotics can give a fundamental contribution for the study of virtual realities. In fact, since the beginning of his article Torben Grodal seems to be very unfriendly toward a semiotic approach and humanistic explanations of virtual realities:

“ Such descriptions have some advantages, but also problematic consequences, because phenomena such as “story” or “narrative” are then only defined in relation to their media realizations, not by their relation to unmediated real-life experiences and those mental structures that support such experiences. This raises special problems for describing mediated activities such as virtual reality and video games because these activities are in several dimensions simulations of real-life activities. Media representations are better described as different realizations of basic real-life experiences. [...] Such an approach provides many advantages for describing video games, because, as I will argue in detail in the following, video games and other types of interactive virtual reality are simulations of basic modes of real-life experiences. This also means that cognitive psychology provides many advantages as a tool for describing video games compared with a semiotic approach; even if games may be provided with some symbolic signs, most of the game activity consist in seeing, hearing and doing in a simulation of a real-world interaction.” (pp.129-130).

However, as we have explained, the strength of a semiotic approach resides precisely in a non-distinction between real and unreal: narrativity, semantics and interpretations (three key semiotic themes) are part of our real-life experience, they are cognitive facts studied by semioticians in texts but not because they belong only to cultural artifacts. Through Paolucci we have seen that “seeing, hearing and doing” have a semiotic dimension since, contrary to the common phenomenological claim, they are not at all unmediated nor unrelated to signs (in their Peircean meaning) and interpretations. Thus, Grodal’s idea of semiotics is in the best-case scenario sixty years too old and in the worst case bounded to an idea of semiotics as “discipline of symbolic signs” that never really existed. Thus, even though Grodal is mainly interested in mental structures supporting such experiences understood as simulations of real-life activities, a dialogue is actually possible since we are too absolutely convinced that meaning in virtual realities cannot be explained without inquiring on the real-life experience simulated in them. But the difficulties don’t stop here. Immediately after the beforementioned part, he also defines a story as “ a sequence of events focused by one (a few) living being(s); the events are based on simulations of experiences in which there is a constant interaction of perceptions, emotions, cognitions and actions.” (p.130) and refers to several region of the brain to explain why we can understand them:

“The primary story-regulating brain structures are probably located in amygdala-hippocampus.” (p.130). Furthermore, this idea of what a story seems to be explicitly opposed to the structuralist conception of it: “ Narrative models, such as those of the French structuralists that dominate narrative theory, do not concern themselves with the brain implementation of narratives and cannot account for the intimate relation between perception, emotion, and action in narrative structures.”(p.132).

Indeed, Grodal claims that virtual realities should better be understood through the “flow model” that he already used for the cinema in his previous work *Moving Pictures*:

“The basic story experience consists of a continuous interaction between perceptions (I see a monster approaching), emotions (I feel fear, because I know or feel that monsters are dangerous), cognitions (I think that I better shoot the monster), and an action (the actual motor act of shooting that changes the motivational emotion fear into relaxation).” (p.131)

This notion of story could then seem problematic, but is it really? No. In fact, the author himself explains that stories are not merely a question of “body” but of its interaction with signs and languages representing them:

“Our experience of stories exists as representation of exterior worlds and they may be described as such, but **at the same time** they are body brain- internal processes that need to follow the innate specification of that platform.” (p.130, my bold).

“Language has certainly been important for communicating such story experiences and has been a superior tool for the retrieval of and the complex manipulation of the basic experiences. **But a purely linguistic model may seriously impede descriptions of those media like video games** that rely on a series of nonverbal skills.”(p.133, my bold).

I put in bold his “at the same time” and “purely linguistic” because this is precisely the point of connection between semiotics and several cognitive disciplines . In fact, semiotics is in absolutely no position to deny the importance and truth of the anatomical and physiological presuppositions of something like narration. A semiotician is simply a scholar which, having the human society as a main object of research, is far more interested in the meaningfulness, in the different interpretations and changing values of certain stories, than in what regions of the brain are involved while reading any story. Semiotics in this sense studies meaningfulness which is the result of an intersubjectively experienced difference in the final production coming from a same process (such as the cognitive one), a difference requiring to take into account variables such as culture, story and languages. However, as the theoretical ground exposed until now in this chapter has proved, a semiotic theory of meaningfulness has all the good reasons to be interested in the *interdependency* between internal cognitive structure and the “exterior” content represented through words, pictures, sounds, etc. Finally, and amusingly enough, Grodal has no idea of how much “semiotic” he sounds like when he affirms that:

“The story-mechanisms in the brain provide the superior framework for our experience of events by integrating perceptions, emotions, cognitions and actions. When going to the supermarket, for instance, a micro story in our mind tells us that we have left home because we desired to buy vegetables, that we are now at the entrance of the mall and tells us our ideas of how to find the grocery store.” (p.130)

The difference of course is that, having to recreate these stories from the place itself studied as a “text” and not having to prove the cognitive origin of narration, a semiotician has to use a narrative model completely different from the cognitive one referred by Grodal. In this sense although the two research programs (of cognitive psychology and semiotics) have undoubtedly very different goals and paths, at some point they can coincide inside the woods of narrations (Eco, 1994). Actually, the author himself is aware of a general conception of a story, such as the semiotic one, that could be acceptable even from his perspective but he critiques how such generality is often used by scholars to still explain narration through verbal language:

“In principle, Ryan follows Jakobson’s very prudent semiotic definition of stories as something that can be manifested in many forms and that is not defined in relation to one medium and her general description of narrative avoids a series of “linguistic” traps. Nevertheless, the verbal form seems to be the central one for her.” (p.135).

In conclusion, Grodal seems to be hostile not towards our discipline but toward how some of our scholars have studied and conceived digital games mainly as linguistic and simulacral (rather than simulative) objects. This is however not our approach. Now that we have overcome some interdisciplinary difficulties, we can focus on the author’s most important ideas that can both confirm and enrich our own approach. These assertions are four:

1. Virtual realities have such immersive power because of a first-person motor and sensorial involvement of the users.
2. The simulative power of virtual realities depends on the embodied cognitive involvement of the users in terms of agency grounded on the “real-life” logics and patterns
3. A key factor in the believability of the virtual as the real stands in the temporality related to the player’s embodied agency
4. The overall result of motor involvement, agency and temporality is a first-person experience which cannot but be perceived as real and, in some sense, personal.

We agree on each of these, but let's see them a little bit more in detail. The first one is related to the embodied dimension of meaning as a narration:

"The story experience need not have any verbal representation, as the ability to "hold" the story in consciousness (including ideas of future possibilities) that is important for prolonged action patterns can take place on a nonverbal perception-emotion-motor-level [...] Thus, video games and some types of virtual reality are the supreme media for the full simulation of our basic first-person "story" experience because they allow "the full experiential flow" by linking perceptions, cognitions, and emotions with first-person actions. Motor cortex and muscles focus the audiovisual attention and provide "muscular" reality and immersion to the perceptions. Even visually crude video games such as Pac-Man (1980) might provide a strong immersion because of their activation of basic visuo-motor links. [...] Many language-based story-descriptions have derailed descriptions of video games (and films) because they ignore the fact that semantic meaning is based on concrete perceptions and motor patterns, not on some abstract "semantics," kept in place by verbal signifier" (pp.132-133).

Indeed, we cannot but share the author's interest for the motor dimension of meaning and as the very basis of the simulative experience reached through interaction:

" By providing an "interactive" motor dimension to story experience the computer adds a powerful new dimension to the possibility of simulating first-person experiences. The motor link is still primitive compared to our capabilities to physically interact with a real-life environment [...] However, eye and ear will not only be linked to an activation of the premotor cortex (as in previous media) but also to a full motor cortex and muscle activation. Like cinema, the video game screen predominantly simulates perceptions of spaces and objects that are present to the senses, but they can be influenced by actions. In several respects, then, video games are, as mentioned, the medium that is closest to the basic embodied story experience." (pp.138-139).

Additionally, the immersive effect related to the simulative dimension of embodiment is also, as in our view, creating a hybridization between forms of third and first person:

" Mediated fictions are mostly enjoyed from a "perceptual" third-person perspective that eventually is simulated mentally from a first-person perspective, whereas many types of playing are enjoyed from a first-person perspective even in its motor dimensions" (p.141).

Indeed, although from a semiotic point of view it may seem not very interesting that "Watching John Wayne shooting an opponent only demands crude models for actions, not precise motor programs for grasping the gun and aiming precisely. But in video games such activities often demand rather detailed cognitive maps and motor skills, and playing therefore often requires extensive training of necessary skills". (p.139) Such dimension is defined by Grodal as a textual complexity and richness which is often undervalued and has a great importance in the construction and experience of a story:

"Similarly, the complexity of the active control of story development in video games is in conflict with other dimensions of complexity. Playing video games demands a detailed richness and specificity in cognitive maps of spaces and opposing agents, of causal inferences that do not only have to be vague premonitions as in films or novels in which the author/director is in control, but precise ideas in order to work. The perceptions have to be fast and precise, the motor control coordinated with the perceptions, and thus the computer story demands the acquisition of a series of procedural schemas." (p.147)

Therefore, the semiotic inquiry starts when we inquire on the possible influences of such cognitive and embodied involvement on interpretations. Grodal himself offers us on this point two precious suggestions: events of virtual realities activated in such a way present a 1) effect of realism 2) effect of subjectivity and 3) semantic role. This concretely opens our inquiry on three points:

- A. Nonverbal aspects of virtual realities add a sense of reality and subjectivity, thus work a strategy of veridiction
- B. A comprehensive analysis of virtual realities requires to look at non the nonverbal content and specifically in terms of motor actions
- C. If such nonverbal content is related to semantics, then it must have some influence on the meaning

The second important statement is that the well-known interaction, nonlinearity and repetition (such as trial & error) of digital games can, too, be explained in cognitive terms and in relation to real-life experiences rather than as “textual inventions”.

“In a real world as well as in simulated worlds our influence is limited by the general design of that world: we follow roads, tunnels or career tracks, and obey rules, but within a given framework we may alter some elements, take different roads, build houses, and so on. The only necessary condition for experiencing “agency” and interactivity is that our actions make a difference. (p.142)

“However, linearity is not a product of Western metaphysics but based on very fundamental features of the world, of action, and of consciousness. An experiential flow is—unless totally unfocused—a linear process in time. At the same time, linearity is a mental representation of the essential features of the world; that it exists in time, and that time is experienced as linked to irreversible processes. Such processes are represented mentally by concepts like cause and effect. The sun begins to shine and then the snow melts. The arrow pierced the heart, and then the person or animal died. The man entered the tunnel, went through and came out on the other side of the mountain, and so on. Lakoff has shown how such causal links are universally represented by source-path-goal-schemas. By playing a film backward, it becomes obvious that our whole conceptual machinery is based on such linear processes, based on concepts of causality that we share even with animals [...] However, we need to distinguish between story experience and story world affordance, because a given story world or game world may afford one or several story experiences. The experience of the way in which a game/story world affords one or several story experiences is however not an a-linear experience, but an insight into the difference between an “experiential route” and a game world as a “map,” that is, a system of multiple linear routes” (pp.145-146).

Video games are based on learning processes and rehearsals and are therefore stories in the making, sketches of different stories, different coping strategies. [...] In several respects, video games provide an *aesthetic of repetition*, similar to that of everyday life. A film is mostly experienced as a unique sequence of events, and we do not learn the physical outlay of a given simulated world very well, we are carried from space to space. In everyday life, however, we repeat the same actions over and over in order to gain mastery. When we arrive to a new city or a new building we slowly learn how to move around, and if we want to learn to drive or bike, we exercise those skills until we have acquired the necessary procedural skills. The video game experience is very much similar to such an everyday experience of learning and controlling by repetitive rehearsal. [...] The repetitive and interactive nature of video games leads to changes in the function of central devices in the emotional experience of “narratives,” namely *curiosity*, *surprise*, and *suspense*.” (pp.147-148).

The whole next chapter will be dedicated to how a new model of “text” is allowing such features, an issue actually not really faced by Grodal and which is exquisitely humanistic since these aspect are actually simulated not through the “eyes, ears and muscles” but through textual configurations. Furthermore, these characteristics allow the experience of virtual realities to have different phases influencing the meaning, the pleasure and immersion:

“The video game experience consists of different phases. The first time a game is played, it is experienced with a certain unfamiliarity; the world is new and salient and poses challenges and mystery. By playing the game numerous times, the game world will become increasingly familiar. The peak result of such a learning process may be a trancelike immersion in the virtual world, because of the strong neuronal links that are forged between perceptions, emotions, and actions. But the end result of the learning process is what the Russian Formalists called *automation*, and what psychologists might call *desentization by habituation*. The virtual world becomes predictable, it loses its visual and acoustic salience, and the player will probably stop playing the game at this stage. Thus, this aesthetics of repetition is based on the sequence: first *unfamiliarity and challenge*, then *mastery*, and finally *automation*.” (p.148).

Clearly, there is here a point of contact with Eco’s theory of possible worlds since for Grodal the simulation itself depends on the relation on a beforehand world working as a primary model:

“We do not “consult” Doom in order to find out what information the producers of that game have provided, we play the game in order to get an experience that is a simulation of the way in which we might act in a hypothetical world. Our primary model is the way in which we experience interaction in a real world.” (p.142).

This concretely opens the semiotic analysis of virtual realities on two main points:

- A. Agency in terms of enunciation and therefore in direct relation with the database
- B. Simulation in terms of habits, narrative inferences and guesses

The third one is related to the temporal dimension of audiovisual language, involving both the topic of destiny (once again) and of agency. For Grodal, virtual realities are real experience because they require/allow to be cognitively situated in a present tense and to look forward to a future, something which cannot be understood inside the paradigm of these texts as representation.

“It is important to point out that the basic story experience must be described as taking place in the present, the experiencer is situated in a “now” that is anchored in the memory of a past that causes and informs the cognitions, emotions, and actions directed toward the future”.[...] Theoreticians have focused on story mediation and left out those aspects of stories that the French structuralists called *l'enoncé*, the story as such, in order to define “story” as a discursive phenomenon (*l'énonciation*). They have further tended to define stories as being based on a “retelling” or “representation,” not as an experience that takes place in a progressing present.” (pp.113-134, grassetto nostro).

“Tragedies and melodramas are however a variant of stories because they rely on passive emotions and/or third-person emotions. For such stories, pastness, decidedness, and fatality is important in order to block a present-tense experience that would make the passive acceptance of the inevitable and painful more difficult, that is, make the transformation from first-person to third-person emotions more difficult. [...] Films make it possible to cue and simulate an experience that is close to a first-person perception (either directly by subjective shots, POV-shots) or from positions close to the persons, contrary to the fixed and distant perspective in the theater. The focusing and framing of persons, objects and events simulate and cue the working of our attention. The representation can furthermore represent various aspects of reality with photographic verisimilitude. As an audiovisual media, the dominant temporal dimension is the present tense; we directly witness the events.”(pp.137-138)

Putting aside Grodal's classification of media in relation to the present or past (which from our point of view is not very convincing), this is another key point perfectly coherent with our choice to adopt Paolucci's non simulacral theory of enunciation. Moreover, this requires us to take into account a theory of projectuality (Zlatev, 2018; Vella, 2019) and to further inquire on the nature of enunciation.

The fourth and last point is that virtual experiences are by definition anchored in subjectivity, a claim made also at the light of the recent discovery (at the time of the paper) of mirror neurons:

“Furthermore, the nucleus of the story experience is the first-person experience, because third person perspectives are—from an evolutionary point of view—expansions of a first-person point of view even down to the level of motor activation. We infer how other people experience things by extrapolation from our own experiences, using for instance the so-called mirror neurons.” (p.133)

For the author this shift of perspective is central especially in relation to the understanding of the emotions offered by virtual realities.

“The way in which verbal representations enhance the possibilities for taking a third-person perspective on stories also greatly enhances the experience of stories that rely on certain third-person emotions, like empathy. The most fundamental emotions like love, hate, jealousy, curiosity, sorrow, and fear rely on a first-person perspective for a full experience of these emotions. But emotions also may be simulated in a third-person perspective in which these emotions are modulated by empathy, like pitying the tragic hero or admiring the superhuman hero. [...]The centrality of motor control in video games makes emotions supported by sympathetic reactions based on coping more probable than emotions supported by parasympathetic reactions based on acceptance and relaxation, and first-person emotions more probable than third-person emotions” (pp.135-136).

And is more specifically related to the user's cognitive activity in terms of coping:

“In a video game, however, curiosity takes the form of explorative coping. The game only develops if the player performs a series of explorative actions. This self-controlled exertion of active agency is a central fascination in one type of game segment. However, other segments, especially in shoot-'em-up games, are based on the experience of personal agency as being dynamic coping by interacting with other dynamic agencies, from monsters to gravity, in a simulated real time. Explorative coping and dynamic coping provides two distinct experiences of agency as control and agency as playful interaction with other dynamic agencies.” (p.149)

“That video games are based on repetitive playing and on interaction has important consequences for the emotional experience in comparison with films. The player’s emotional experience is a personalized one. When a viewer is observing, say, how a monster is approaching a character, the possible arousal in the form of fear is not linked to the personal coping potential of the viewer, the viewer has to vicariously identify with the coping potentials of the endangered film character. The viewer cannot personally come up with specific coping strategies; like the rest of the audience, the viewer can only hope for a positive outcome and eventually make some more personal predictions. But a player of a video game is personally responsible for the outcome of such a confrontation. It is the player’s evaluation of his own coping potential that determines whether the confrontation with a monster will be experienced as fear (if the evaluation of his coping potential is moderate), despair (if he feels that he has no coping potentials), or triumphant aggression (if he feels that he is amply equipped for the challenge). This entails that the emotional experience will vary over time, because of the learning processes leading to a change in coping potentials. The first-time player of a game may feel despair, the more experienced player may feel a little fear, whereas the master will feel triumphant aggression. Furthermore, different players will have different emotional experiences, linked to their different expertise, although such devices, like options for playing the game on different levels of difficulty, make it easier for the unskilled player to get some of the emotional experiences of the more skilled.” (p.150)

Once again we can see here a point of contact with what we have seen about the problem of subjectivity in virtual reality. Furthermore, we already see here the direct relation between subjectivity and emotions as seen through Prinz theory of emotions.

Consequently, any research on virtual realities will need to take into account

1. How the user’s subjectivity will be mediated and manipulated creating new forms.
2. How such “delegated” subjectivity influences emotions

In conclusion we can see how Grodal’s approach is extremely interesting for a semiotic of meaningfulness in virtual reality. Nonetheless, this does not mean that all the author’s arguments can be accepted. In fact, there are several critical points which all depends on Grodal’s non-inclusive approach to virtual reality and more generally to experience in media. Particularly:

1. His classification of all the media between “past” and “present” tense is not particularly explained nor justified by either research, corpus analysis or extended bibliography. Thus this “typology” is not really convincing and is such an important claim that it would have required an entire book instead of few pages.
2. Likely, other assertions about media experiences seems to be too superficial and to ignore the complexity of the interaction between humans and cultural artifacts. For example: “The experience is thus in some respects similar to the way in which we enjoy music—musical appreciation is also strongly based on repeating the listening process until it has reached a stage of automation.” (p.148). Then how could we explain the fact of loving and continually listening that particular song that we know by heart or that particularly movie seen one hundred times?
3. When facing texts that are not virtual realities Grodal seems to ignore his own warning about the difference between the text itself and its experience: “However, we need to distinguish between story experience and story world affordance”. (p.147) In fact, in several parts he seems to imply that the difference between a book and a game is based on the finished work: “The activation of the central action-motivating or curiosity motivating emotions demands that a given point in the story is simulated with an open, undecided future. If the hero with certainty is going to fall in the pit there is no reason to feel fear or to simulate active coping in order to avoid the danger, but just to feel a distanced pity.” (p.137). However, from an experiential and interpretative aspect (more simply, from the reader’s point of view) there is no such thing as a story in which there is a certainty about the hero falling into a pit.

4. Similarly, to the previous point, it is also by reducing the experience to a cognitive one that he finds as “obvious” that there is no difference in the interactions with the game’s world (p.142) So, while Grodal’s theory is very accurate to explain virtual realities through his own cognitive perspective, it is not to explain the meaningfulness experienced in digital games nor several behaviors occurring in such digital worlds.

All in all, Grodal is almost totally ignoring that digital games are platypuses, their complex nature as well as the complexity of their interpretations, and is almost getting rid of the expression level making the same mistake as the scholars he criticizes for reducing virtual realities to verbal texts. Moreover, as it is, the level of generality of Grodal’s cognitive approach makes it impossible to explain a particular meaning experienced in a particular virtual reality. But before claiming that Grodal’s approach is incomplete without a semiotic perspective, we need to look at another and later work of Grodal.

2.7.2: Embodied semantics, ratio & isomorphism

In the last article that we examined, Torben Grodal gave us some useful theoretical tools to acknowledge several nonverbal yet meaningful dimensions of virtual realities related both to the cognitive activity required (coping strategy, learning, spatial exploration, repetition) and to the embodied features of virtual realities (inputs activated by sensory-motor actions, audiovisual language, digital nature of the simulation). However, applying all these concepts to a concrete and comprehensive textual analysis may seem rather complicated because of their distance from the notions used to analyze the expression level and of their generality. Luckily for us, five years later and in the second volume of the same Routledge book series “Video Game Theory Reader”, Torben Grodal teamed up with Andreas Gregersen to write a second article that would use that same perspective by concretely looking at some games.

In “Embodiment and Interface” the goal of the authors is to:

“apply this idea of the embodied mind to examples of body-mapping within the realm of video games that map specific aspects of our physical actions to a virtual body in a virtual environment: different control schemes map different aspects of action onto different virtual bodies—all of them take our specific physical embodiment into account in order to produce specific experiences of embodiment” (p.66).

To do so, the authors begin with precisising two different ideas of embodiment:

“We will refer to embodiment in two somewhat different, but related ways. One entails conceptualizing the human body as a physically existing, biologically-evolved entity. The other entails our experience of ourselves as embodied beings and our mindful experiences of the world due to our embodiment.” (p.65).

Ideas that have a consequence which is extremely interesting from a semiotic point of view and even more so for our work: the idea that the lived/experienced body is linked to the physical one but cannot be reduced to it:

“ The “lived body” in Merleau-Ponty’s terms is thus not independent of the physical body, but it certainly is not reducible to it, either.” (p.66)

Then by referring to Gallagher’s *Body*, they follow the distinction between embodiment as agency and body ownership:

“ In normal embodied interaction with the environment, these two aspects are fused and operate pre-reflexively: We experience ourselves as instigating agents and we feel that the acting body is our own. Ownership of our bodies, but not of agency, is also in place when we are patients rather than agents—we know, for example, that it is our body that is being pushed down the stairs, even though we do not feel any ownership of action. We can thus distinguish between ownership of action (agency) and ownership of body.” (p.66)

And, starting from this distinction and still following Gallagher, the authors take as central notions the ones of body image and body schemata:

“A body image consists of a system of perceptions, attitudes and beliefs pertaining to one’s own body. In contrast, a body schema is a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring.” (p.67)

On the one hand this allows them to explain agency and presence in cognitive terms and coherently with some of the very recent research that we have already exposed:

“In a summary of neurological studies related to agency and ownership, Gallagher and Zahavi conclude that a sense of agency depends upon both higher-order intentions to perform an action, the motor commands issued, and proprioceptive feedback. Psychologist Daniel Wegner and others have argued that a sense of agency has a tendency to increase body ownership.” (p.67)

While on the other, this serves as the main theoretical ground to expose their perspective on virtual realities:

“Following this, we would argue that interacting with video games may lead to a sense of extended embodiment and sense of agency that lies somewhere between the two poles of schema and image—it is an embodied awareness in the moment of action, a kind of body image in action—where one experiences both agency and ownership of virtual entities. This process is a fusion of player’s intentions, perceptions, and actions. [...] Interactive interfaces and game systems may selectively target and activate the auditory, visual, somatosensory, and proprioceptive systems. The extent to which an embodied sense of agency, ownership, and personal efficacy is fostered by games is very much a question of overall design including interface design.” (p.67)

Coherently with Grodal’s previous work, the starting point of such reflection is based on the framework of cognitive sciences in terms of neuroplasticity and perception through action:

“In embodied experiences related to video games incorporating virtual environments, there seems to be two related but different issues involved each of them due to different neurological structures. The first is the oft-noted flexibility of our embodiment; we are easily able to include parts of our environment into our intentional projects as clothes, canes, and even automobiles may become integrated parts of our embodied activity (Merleau-Ponty). Neuroscientists have identified specific structures that are plausibly responsible for this flexibility of the body schema to incorporate tools and other objects, including those virtually represented. Bimodal neurons, that normally keep track of both somatosensory areas of hands or shoulders together with the visual field close to these areas, apparently enlarge their visual field to include tools while keeping this visual field tied to the body parts in question. [...] we feel a clear sense of both agency and ownership with tool extensions that we are thoroughly familiar with. [...] The other issue is the well-known fact that observing other agents who perform bodily actions tends to activate parts of one’s own motor system—and if the observing person also performs a motor action herself, the movements may be congruent or incongruent; the latter phenomenon is usually called motor interference.[...] The idea that perception and action is intricately linked is a main tenet of both classic phenomenology and modern cognitive science, and it has gained further support through the hotly debated mirror systems or resonance systems tied to the motor systems.” (p.68)

Yet, despite all the differences in both the aims and epistemology of Grodal and Gregersen, here again semiotics can find some very interesting assertions. First of all, a general principle of intersubjectivity which works both in physical reality and in the virtual one.

“Such “shared circuits”-approaches argue that we are fundamentally intersubjectively attuned to the movements of other bodies. Thus, modulations in our embodied experiences may come in several interacting streams from the body (somatosensory and proprioceptive) and (audio)visual information related to motor pattern stimuli from outside that activates mirror neurons. Both of these systems may come into play when experiencing embodiment effects in relation to virtual environments. One allows us to feel our own body extending into the virtual environment through a kind of virtual tool-use, the other activates our own motor system as a response to observed motor patterns.” (p.69)

Secondly, and most importantly, a specific causality between the digital technology and the experience of embodiment of virtual world. The specificity of the digital technology used to interact, such as the presence of discrete button and the possibility to use body inputs, seems to have a determinant role:

“One of the fundamental conditions that govern our interactions with video game virtual environments is that our actions are mapped onto the game system by various technological means, since we cannot physically manipulate the virtual entities directly. Such physical input devices [...] are designed to provide a more or less straightforward coupling with the constraints inherent in the biological human body, and as such they provide affordances, such as lifting, grasping, and pushing. When coupled to a properly programmed game system, however, they also provide a mapping functionality that allows us to perform a wide range of actions in relation to that game system and its virtual environment. Importantly, this means that the combination of controller and game system provides both physical affordances and intentional affordances, the latter often designed to yield a sense of augmented embodiment.” (p.69).

Under this light, the experience of virtual reality must be studied by looking both at the inside cognitive tasks and at the outside motor one which depends very concretely on the device used:

“Wii-remote departs from other standard game industry interfaces in that it combines the elements of the standard controller (discrete button presses and joystick movements), with something much less discrete, namely, the seeming ability to take actual body movement as input. In reality, and just like standard controllers, the Wii-remote does not actually map actions or actual body movement, but rather a set of state changes in the control system. [...] An almost completely unified design intention seemed to be behind many of the launch games using this new type of controller, namely that of isomorphic relations between an existing (and non-minimal) P-action motor domain and a virtual one, with a direct mapping of real movements to virtual movements: a tennis stroke executed in the living becomes a tennis stroke on the virtual tennis court, and so forth. This control scheme enables the player to experience his own embodied interaction through both postural and, to a lesser extent, somatosensory input.” (pp.72-73)

The “real” of the virtual, from a cognitive and motor point of view, is therefore achieved first and foremost through metaphors grounded on a notion which is very dear to semiotics: isomorphism.

“It may be a banal observation that video game characters cannot touch us in a purely somatosensory way, but when one considers some of the design intentions behind motion sensing and body mapping, it becomes clear that interfaces facilitate certain isomorphisms related to agency but not others. As motion sensing and other technologies increasingly allows body schematics to be isomorphically mapped to a game space, we take another step in making embodied interaction fundamentally asymmetric: dishing out blows, blowing kisses, and petting one’s virtual dog becomes eminently possible when one opens up this other channel of input with regards to the system, but the reciprocity in these actions is not facilitated by the interface setup: input to the system may be in the tactile modality, but system output serving as input to the player may not.” (p.80)

Indeed, behind Grodal and Gregersen’s idea of meaningful primitive action any semiotician will recognize the basis for a sign function:

“ We will distinguish between primitive actions meaning actual body movements and on the other hand actions in the wider sense: moving the index finger (to pull a trigger) is a primitive action, whereas discharging a firearm is an action. For the present purposes, a primitive action (P-action) is thus defined as merely a movement of the body. A given P-action may be part of many different actions, and an action may be constituted by different P-actions—there are many ways to skin a cat, as the saying goes.[...] Applied to gaming, **we perform a wide variety of game actions by performing P-actions in relation to control interfaces**: The resulting state changes in the controller are mapped to the virtual environment. [...] **There is an arbitrary relation between P-action, the mapping, and its effects as relayed by the audiovisual feedback**. In Halo 3, a move of the index finger will blow up a nuclear reactor, and in Wii Tennis a full swing of the arm will merely return a tennis serve.” (p.70, my bold)

In other words, since pressing a button correspond to an action which is both performed and represented on the screen, and since there is a certain *ratio* between the motor action and “fictional” action, the inputs required to interact in a virtual reality are not, from a cognitive point of view, meaningless. This becomes even more clear with the authors’ own words:

“Action mappings are often arbitrary in that you push buttons with your thumb to virtually jump or swing your arms—as opposed to any real jumping or swinging of arms or hands in physical space—but they can be said to provide a minimum of natural mapping in so far that the application of force in P-action may correspond to application of force in the virtual environment. Thumbsticks allow for a slightly greater degree of *motor isomorphism* and this is often exploited: forward locomotion of an avatar will almost invariably be mapped from a forward movement of the stick, and so on. This makes for motor congruence in the case of both avatar and virtual object movement. One might also note that certain domains of virtual action may make this correspondence even more direct, as in the case with games that include operating virtual firearms fired by index triggers—light guns, of course, take this principle to its logical conclusion.” (p.71)

Interestingly enough, even in the most primitive this *ratio* is never really on a one to one and seems to rely in part on what in semiotics we could refer to an interpretative cooperation:

“The WASD movement keys corresponds to movement changes in congruent directions, but in actual control, the key-operating fingers are usually not moved in any direction but down, and a forward movement of the mouse does usually not make the avatar move forward, but rather changes the virtual camera orientation—on a game controller this usually done via a thumbstick.” (p.72)

“Physical force and force dynamics are central to our understanding of the physical world and thus, to a wide extent, our engagement with the world. A basic problem with the Wii remote and many other game controllers is that true force feedback is impossible to implement in controllers of this kind, and in a nutshell, this yields a dissociation of sensory experience: in the games launched with the console, the actions depicted were, among others, using a racket to hit a tennis ball, using a sword to kill gangsters or smite mythological enemies, using a fishing rod to catch fish, and using fists to hit another agent in the face during a boxing match. Once again, the aim seems to be immersion through isomorphic movement patterns, and in most of the examples, the Wii-remote becomes a stand-in for a virtual tool that is grasped and handled in similar ways to the physical counterparts. But, this makes for some tradeoffs in the different kinds of information delivered by the perceptual systems.” (p.76).

Isomorphic inputs and command schemes are thus realistic only *in some respects* and, in semiotic terms, *under some respects*.

“While the standard controller schemes couple minimal P-action with maximal audiovisual feedback, the Wii-setup makes for a kind of incongruent motor realism—the sense of ownership of the real body is high because body schema processes are activated, but both the sense of agency and transfer of ownership to the virtual space may be hampered severely, since **what you feel and what you see does not add up**.” (p.76)

And other content and cognitive patterns will “fill the gap”, such as the audiovisual feedback:

“ So, even although relatively slow and visually-guided actions may not be possible through “vision for action” in relation to virtual environments displayed on screen, the actual ease of control in such games as Wii Tennis and Wii Baseball makes it highly plausible that other systems, possibly tied to vision for perception, are perfectly able to execute a kind of visually guided action based on allocentric, distal cues outside the peripersonal space. Furthermore, if the Wii-remote—or other input devices using similar, but more advanced technology—could be made to deliver a more nuanced action individuation and map these accordingly, interesting and quite complex artificial conflict patterns might be the result.” (p.75)

“The visual feedback of doggyish gratitude and playfulness that we get when petting a virtual Dalmatian in Nintendogs (Nintendo, 2005), for example, may, via synaesthetic networks, activate emotions and even low-level tactile sensations.” (p.81)

Finally, all this can also be used to analyze the unique way of virtual realities to convey thematic content, such as in the case of *Ico*:

“One could also apply considerations of interface choice to the problem of theme in games—a kind of interface aesthetics with regard to the connection between embodiment, interface, and thematic content: How well would a different interface and its physical affordances serve the intentional affordances of a given game?” (p.78)

“ One could nonetheless argue that, considering the importance of the emotional themes of solitude, bonding, and attachment, some of the constraints inherent in the game system setup serve the game quite well aesthetically. There is no question that Ico is just as much a character as he is an avatar, and the highly arbitrary mapping nature of the PS2 controller makes sure that the actions of player and avatar stay detached as far as P-actions go. Moreover, the game thrives on our interest in and empathy with the couple’s predicament, and one might argue that Ico is doubly abandoned: both by his tribe and, albeit to a lesser extent, by the player who is forever situated outside Ico’s action space. The minimal interface relations thus helps keep the player suitably detached from both the girl and the boy in the virtual space. So, if one were to translate ICO’s control scheme into motion sensing, one might gain immersion in one game mechanic, but at the same time it may alter the game as a whole in a direction adverse to the overall cognitive and emotional theme of the work as it stands on the PS2.” (p.79)

In conclusion, although Grodal and Andersen work on embodiment and its cognitive causes in relation to interfaces may not be of immediate pertinence for a semiotic approach, it allows us to elaborate a very important hypothesis for our analysis of virtual realities. Indeed, as semioticians, we can acknowledge here a bond between motor *isomorphism and isotopy* and thus consequently the hypothetical possibility for inputs to bear semantic meaning through sign function and *metaphors*. Exactly as explained by Eugeni about movies, it turns out that such approach can highlight phenomena related to meaning-making that couldn't be explained otherwise and are therefore of great interest for semioticians. Yet, even in this second work the critique we made before are still mostly valid. Furthermore, Grodal's own interpretation of *Ico* is not completely convincing. Indeed, it relies on something that his disciplinary approach cannot prove: a kind of determinism between a cognitive-embodied distance related to the physical interface and a psychological-narrative detachment of the player. More so it ignores, several aspects of the games for which the player may feel attached. We are not saying that he is wrong, but rather that games are complex artifacts that cannot be explained only by looking at a single aspect: a task which, we believe, needs a semiotic perspective.

2.7.3 Semiotic reinterpretation of Grodal: the case of *Ico*

At the light of these two works, and as an overall conclusion about how semiotics can include in its own methodology and for its own purposes several new elements that have a key role in the conveying of meaning, we can now try to "rethink" Grodal's approach under a more humanistic and semiotic perspective. We will do so here by looking at the same and previous case study, the one of *Ico* (2001). So, the main interdisciplinary and culturally relevant question is the following one: how can a game such as *Ico* convey the meaning of solitude and even be an experience of it for the player? A semiotic approach, which has treasured the hints and notions of a different approach such as the one of Grodal, is now able to give its own answer which is unique not for metalinguistic reasons or since it is opposed to others but because it aims to introduce the maximum degree of complexity by including different forms of knowledge on meaning-making. This answer consists in a two-steps approach.

First of all, this solitude is a question of representation and narration, in continuity with the previous media. In fact, this solitude is chronologically speaking a literal one exposed through the introductory cutscenes and the overall representation of a single actor moving alone in a silent and overwhelming space. This is a fundamental point which cannot be denied. However, in virtual realities the role of represented narration (both in terms of narrativity and of content of the fabula) is actually to work as an *interpretative ground* for an embodied and experiential dimension of the theme of solitude conveyed through metaphors for "eyes, ears and muscles". The meaningfulness of *Ico*'s sense of solitude therefore can be hypothesized to come from the quilting between

- The explicit story and visual representation
- The audiovisual point of access assigned to the player
- The main mechanics of the gameplay, both in terms of cognitive tasks and motor involvement

With both the choice of a third person camera often afar from the character and the possibility for the player to move his gaze around the world as a narrator rather than as *Ico* himself, from an audiovisual point of view we clearly find a figure of *detachment*, opposed to the idea of avatar/embodiment of many games, which is coherent with the main narrative topic and representation of solitude. Additionally, since in digital games the point of view is also always a point from which the player will make decision and act, the phenomenological discontinuity between avatar and player is even more highlighted by the designer's choice.



Nonetheless, if we can talk about detachment and distance in relation to this point of view it is, from our perspective, only because of solitude as our main interpretant since many other games share a similar camera but not the same interpretative effect.

Finally, the meaningfulness of the game is also strongly based on the central mechanic of the gameplay for which Ico must always hold the hand of the princess. This mechanic is understood from a semiotic perspective as a series of *ratio* (Eco, 1975) between:

1. A given conscious action undertaken depending on the game's rules: In *Ico* the player must hold the hand of the princess to protect her as central and therefore repeated mechanic.
2. A conscious and often isomorphic sensory-motor corresponding p-action depending on the game's mapping: to hold the hand of the princess the player must hold the "x" button and thus must face a minor difficulty.
3. An explicit content, in linguistic and narrative terms, represented on the screen in real-time: the sentence "Ico is holding the hand of the princess and protecting her"
4. A general theme or set of values defining the identity of a particular text and allowing for cognitive tasks to work as metaphors in virtue of their embodied semantic content which is stabilized (holding and not pressing) and "pertinentized" as meaningful (holding is selected as a relevant interactive figure among many others): holding vs solitude, holding = protect.

The combination of 1 and 2 is a *ratio facilis* creating an *effect of referentiality* contributing to the sense of realism and immersion which are based on intangible signs. In this specific example pressing a button is a proper action (holding) creating a form of intersubjectivity between the player and the character. Interestingly, this is in clear opposition with the figure of detachment priorly examined but somehow narcotized by the main isotopy of the game.

The combination of 1, 2 and 3 is also a *ratio facilis* which, however, involves different dimensions of meaning-making and thus can be understood in terms of *truth value* between the semiotic and philosophical tradition of studies on meaning (Violi, 1997, ch.1). The player knows that what is linguistically represented is true and "really" happening because some aspects of that action are simulated through embodied interactions.

The combination of 3 and 4 is a *ratio facilis* creating a semantic *isotopy* contributing to convey and ascertain the game's intended content based on explicit tangible signs. Both by looking at the interpretative and generative theories of meaning, equally grounding meaning in the recurrence of contextualized semantic entries, we have no serious reasons to doubt that this form of meaning-making occurs.

The possibility of associating 2 to 4, of holding a button to actualize a complex semantic entry or to move a camera in such a way to represent the figure of *distance*, is a *ratio difficilis* unique to meaning making in virtual realities. This possibility makes it so that the theme of solitude and protection in *Ico* can be excruciating in relation to the cognitive and sensorimotor effort required by the game, that conceptual values in virtual reality can be not only represented but *proved*.

We therefore have in *Ico* four different levels of the isotopy of solitude/detachment:

- solitude, abandon and detachment as explicit content of narration through words and pictures
- distance and detachment as a point of access to the virtual world and in relation to the main character
- a *minimum* degree of embodiment in relation to the motor congruence (left is left, acting is acting, etc...) which is simply needed to be able to play. Indeed, it is easy to find on google⁵⁹ several players complaining about the controls of *Ico*, proving that the sense of physical immersion and embodiment with the character were not a priority for the creator.
- A constant motor and cognitive task of “holding”, “not letting go” and “keeping together” as a central value of the gameplay experienced in first-person by the player, and therefore an effort *against solitude/detachment* which are conditions of failure with the whole emotional impact implied.

Simultaneously, each level activates a different *aspects* of the semantics of the core theme and a different logic through which the solitude/detachment is recognize as negative. This way, the progressive embodied involvement of the player goes hand in hand with the meaningfulness of what is represented: the audiovisual, the motor and cognitive capacities used to succeed are all intersubjective means used to form the fictional experience as a first-person experience. After tens of hours playing *Ico*, holding the hand of the princess becomes part of the player's motor habits and of what is obviously important. As we will see in the next chapter, this is mainly due to the fact the core narrative theme of virtual reality is almost always bounded through effort to two objects of great value for the empirical player: it's time and energy. This way the loss of the hand is a loss which has absolutely nothing of fictional since it is a loss for the player, with all the possible emotional consequences that we have seen with Prinz. This is why the dramatic moment at the end of the game comes with a gradual *loss of the interaction* learned by the player: the princess keeps losing *Ico's* hand on the bridge while escaping and lastly will be transformed in a statue that can no more be “held” leaving the protagonist alone.

59

https://www.google.com/search?bih=666&biw=1536&hl=it&sxsrf=ALeKk03GExBjKxkM2UIQ76cubB4IEHqtsQ%3A1609154080978&ei=IL7pX9uSO4_CkwXSxIQg&q=ico+controls+are+terrible&oq=ico+controls+are+terr&gs_lcp=CgZwc3ktYWlQARgAMgcIIRAKEKABMgcIIRAKEKABMgcIIRAKEKABMgcIIRAKEKABOgQIIxAnOgQIABATogoIABAWEAoQHhAToggIABAWEB4QEzoCCAA6BAGAEEM6DQgAEMcBEKMCEBQqhwI6CAgAEMcBEK8BOg0IABDHARCvARAUEIcCOgIILjoHCAAQFBCHAjoFCAAQywE6BwgAEAoQywE6BAGAEAA06BgAEAA0QHjoGCAAQFhAeOgoIABDHARCvARAToggIABANEB4QEzoFCAAQzQI6BAGhEBVQhwlYvxxglSloAXAAeACAAXSIAfQMkgEEMTUuM5gBAKABAaoBB2d3cy13aXrAAQ&sclient=psy-ab

The result of all this is a semiotic form of immersion and subjectivity, which by far exceed the sensorial and yet depends on it, resulting in a new rhetoric which is exclusive of virtual realities.

In respect to Grodal's approach, we believe that the difference of our semiotic take on is evident and notable. First of all because it includes and quilts together several dimensions which have each their own way of working and yet creates all together the meaning. But most importantly because the cognitive-embodied-emotive content is reconsidered inside an interpretative perspective focusing on what can stabilize, through semantics and isotopies, the metaphorical meaningfulness of a point of view or of motor controls. In our view what is "felt" in virtual realities is always interpreted and need a semantic-cognitive ground to be recognized and distinguished: without a visual representation, falling and jumping and VR may *feel* exactly the same. This is how even primitive actions and feelings, which are by themselves meaningless, can potentially act as signifiers in a given semiotic context.

This implying, therefore, that we can both analyze the cognitive aspects triggered by the interactions in semantic values with narrative impact and that we can analyze the narration itself in terms of non-linguistics and non-narrative semantics experienced through the gameplay. There is therefore no "bottom-up" or "top-down" order of priority, but the meaning is conveyed through parallel paths that intersect and converge toward gameplay/interactions that is the catalyst and hub of what we could call "interpretative processes" in a broad sense. And these same processes act as mediators and stabilizers of the content conveyed through very different perceptual systems and forms of knowledge of the users. And yet, our approach is in no way opposed to Grodal's but actually includes it in a broader perspective refusing the dominance of an element (such as the muscles opposed to the story) in favor of an idea of meaningfulness as a result of interdependent parts. Finally, we can also see how this approach is not throwing away nor abandoning the specific object of study of the semiotics since it is focused on narration, texts, discourse, rhetoric and metaphors as a general form through which meaning arise in the human's culture, body, mind and life. In other words, there is here at stake much more than "understanding" *Ico* or doing a general videogame critique. In fact, our approach is in continuity with the work of other semioticians who inquired on similar aspects of meaning-making in the field of visual semiotics, such as Piero Polidoro (2019), both in relation to the interdependence ("stratification") of different textual levels (2019, p.58) and is more generally in continuity with the semiotic tradition which has extensively reflected on the condition of possibilities of metaphors (2019, p.9).

With this example we hope to have demonstrated through a concrete case study both the interest and specificity of how semiotics can study the meaningfulness of virtual realities by including key aspects of experience and embodiment that were mostly excluded in the past. This is however only half of our proposal, which will be completed in chapter three.

2.7.3.1: Possible critiques to a semiotic reading of Ico

A more inclusive approach taking into consideration more dimensions of meaning is not simply "better" but actually inevitably brings both epistemological and methodological issues. In other words, our explanation is a more problematic *guess* in respect to Grodal's explanation of how solitude is experienced in *Ico*. Therefore, we decided here to face four critique that could be made against our own reading.

The first critique that could be made is that the game *per se* is not making the semantic and thematic connection that creates meaning, so thinking that the player understands such connection through the game is unfounded and unreasonable. Given for granted that while playing at *Ico* the

player will constantly thinking both “ I must hold her hand” and “ I must keep holding the x button”, and so that we have a repetition of the “hold” entry in our subconscious cognitive activity, hold by itself cannot be deemed to be significant enough and meaningful enough to sustain our claim. This of course is not exclusive of *Ico*: primitive actions and sensorimotor tasks of virtual realities can only activate explicitly very simple semantic entries.

However, we have already faced this problem with Patrizia Violi that explained very well how what is explicitly expressed, such as a word, is not *the* meaning but rather a walkway *to* meaning, an invite to inference driven by the context in which a given sign is acknowledged:

“Le unità lessicali sono i luoghi di emergenza di complesse strutture semantiche soggiacenti; esse possono essere considerate come i punti di temporanea stabilità dell’universo semantico complessivo, universo dinamico e in continua trasformazione. [...] In quanto condensazioni semantiche dotate di un certo grado di stabilità sincronica le parole possono effettivamente essere viste come vere e proprie passerelle per la nostra attività inferenziale, punti relativamente fermi da cui muovere ipotesi nel processo di comprensione e attribuzione del senso al testo” (Violi pp.3-4).

The second critique is that we are putting together very different aspects of our mental life and semiotic activity into the world. Why should a physical or cognitive effort have anything to do with semiotics and meaning? Meaning, transversally to the semiotic paradigm, has to do with differences and relations, not with effort. This second point will lead us to expose in the next chapter the semiotic perspective of Kristian Bankov which, by focusing meaning as the result of an economy, will allow us to talk about effort also in semiotic terms through the notions of *scarcity*.

The third critique more radical, is that we have no empirical proofs of what is happening inside our mind, that concepts such as “holding” even exist and can be activated, and even less so that the player is experiencing a given theme by blending the concepts represented on the screen and the ones experienced while playing. To such critique we can give two answers. The first is that the critique is absolutely right, and that it would be reasonable to never talk about the mind about meaning making since we have no clear access to its actual content. Our proposal is without a doubt a hypothesis or even better a *guess*. The second answer is that, if we accept the risks of making that guess, we can find some evidence in the studies in cognitive sciences that we have already discussed.

The last one is not about our reading itself but about its possible extension to prove the general validity of our approach and theory. Choosing *Ico*, a videogame of the 2000, as last case study to close this whole chapter may be a controversial choice from the point of view of the “actuality” of semiotics. Similarly, the two articles of Grodal were all written before 2010, and therefore could seem outdated. Finally, choosing a digital game to talk about virtual realities in general may look like a problematic generalization ignoring the specificities of VR. So, the concluding question is: is the content of this chapter able to take into consideration also the latest VR experiences together with the new devices used to interact in such virtual realities? And the answer is absolutely positive: if we chose *Ico* it was actually because it was a more complex case, and not at all because it was “easier” for us. First of all, in our chapter on semiotics and neurosciences we have already seen the metaphorical potential of embodied aspects, such as how the physical closeness in terms of perception of peri-personal space can be used to simulate an emotional closeness in products such as *Dear Angelic* or *Reaping Rewards*. Secondly, by shifting semantics to the embodied cognitive level, and therefore granting it an independence from what is purely linguistics (words, symbols and so on), we have assured a broad use of our theory which is independent from the media itself. Coming back to *Ico*, the motor action of “holding” can be realized by the users both through the controllers of the Oculus and through a mobile phone. The difference will only be in the *referentiality* of the motor action, in its impression of being more or

less identical to the user's world in term of consciously experienced phenomenological continuity. This difference is of course a relevant one from an aesthetic point but is not a critical one from the point of view of meaning-making.

2.8 Enjoying insignificance : embodied habits and meaningfulness

A very last issue must be discussed before reaching our conclusions, and it is the one related to the *insignificance* of virtual realities. In many of our examples we have chosen texts with a theme and “imaginary”, sometimes even with a rhetorical intent and narration. And yet, the pleasure of virtual realities is often undeniably immediate, purely related to the interactions itself and to the impression of being into a series of moving images. Can a semiotic theory take into account also these aspects? Two different answers can be given. First of all, virtual realities may be enjoyed for a variety of reasons, and of course not all of them are pertinent for a semiotic inquiry. There are for example many psychological features and mechanism which are related to why we spend some much time and effort into them (Argenton and Triberti, 2013). However, there is indeed one aspect among these which belongs to the semiotics field: the one about the meaningfulness of everything *obvious* occurring within them and which is even required. In some cases, it may be the naturality through which we grasp an item in VR, in others the pleasure of controlling (Grodal, 2000) and manipulating with ease digital objects in videogames. Furthermore, in all cases it also regards the fundamental *repetitive* cognitive and motor tasks which are involved to act in such artifacts. Whereas inside this chapter we have highlighted several reasons about how this effect of naturality is recreated, to end this chapter a further reflection is needed about the inner meaningfulness of such naturality regarding mostly a proper form of phenomenological activity and an embodied form of interaction and manipulation. This meaningfulness is, from a semiotic standpoint, directly related to the conflict of virtual realities being digital places in which are stranded and somewhere in which we feel to be *oddly at home*. The inner value of such naturality is, in other terms, not reducible to an impression of reality in narrative terms but rather in aesthetic ones: acting in them though the embodied *habits* of every day's life is a way to feel as ourselves. More than this, it is a way to rediscover through estrangement the significance of what was deemed as insignificant, not even acknowledged as possibly different or construed, such as the series of gestures to do a certain action. To better understand the relevance of this aspect, the work of reference is here Landowski's 1998 article “Pour L'habitude”. Here, the semiotician clearly highlights how most of the semioticians close to the greimasian traditions seems to endorse what could be defined as almost an ideology of meaning as narrativity: something breaking the habits, the exceptional event, the loss of something justifying a change, and so on. From which the romantic idea that everything habitual is basically meaningless, even draining semantics from the world and erasing the subject.

“[...] il tran tran di tutti i giorni, vero e proprio oceano d’“anestesia” dal quale il soggetto non può che emergere per un istante appena, per poi rituffarsi ancora più in profondità” (1998/2000, p.336)

In opposition to such perspective, Landowski offers several example of how what is habitual and *iterative* (p.338), on the contrary, is often deeply meaningful, deeply related to the subject's identity and a key factor in feeling comfortable in a new context (p.339). Even more interestingly, with the example of dancing and horse riding, he explicitly introduces both the dimension of embodied learning and of the sensorimotor activity (pp.340 & 342). The somatic dimension together with the iterative one, therefore constitute an aesthetic layer of meaningfulness exceeding

the principles of narrativity and which can find their root in both the Peircean concepts of *habit* and the sociological one of *habitus*⁶⁰.

This dimension should therefore be absolutely considered for a semiotic inquiry.

2.9: Conclusions

At the light of all that we have discussed, we can highlight two different kinds of conclusions about the involvement of the body and the perception of an experience in virtual realities: one more methodological and one more theoretical.

From the methodological point of view, the analysis of a given virtual reality should look at:

1. Motor Congruence & Isomorphism = Sense of Presence, Sense of Realism (Illusion of Referentiality and Simucrality)
2. Motor Prediction Patterns & Learning = World Knowledge
3. Interoceptive & Proprioceptive Alteration = Emotional Beliefs

In the first case, which is the most common and simple, we will look at the ways in which the different ways in which a game can create a sort of cognitive correspondence between what is represented and what the player must do. These ways of course depend on the technological possibilities granted by specific digital platform and controllers which transform representation in simulation (Jensen & De Castell, 2009). For example, “going to the left” may correspond to:

- Moving a Joystick to the left in an Arcade
- Pressing a button on the left of a numeric pad (Colecovision)
- Pressing the left directional button (PlayStation One)
- Turning a Wheel to the left
- Moving an analog stick to the left
- Swiping to the left on the screen of a Smartphone as in *Subway Surfers* (2012)
- Tilting the smartphone on the left as in *Temple Run* (2011)
- Making a real step on the left in VR as in *Shattered Light*⁶¹

Each of these are not cognitively indifferent although of course the last and the first one have different degrees of referentiality.

The second case is not independent from the first but represent a more complex case since it involves the combination of several in-game actions, and thus of motor tasks, in relation to the learning process of both gamified features (rules and objectives) and body movements. On this second level we will find what we will define as *embodied thematic figures* requiring more complex tasks which in their turn can be coherent with the game’s theme. Some examples can be: *Combination* in fighting games, *Coordination* in platforms, *Precision* in first person shooter.

Finally, the last aspect regards a whole set of cognitive metaphors realized, similarly to Lakoff and Johnson’s Model (Lakoff and Johnson, 1980), through interactions and perceptions which are related to an emotive modalization of the user:

- Slow IS Sad

⁶⁰ A further reflection on the relation between these two terms can be found in Lorusso 2015

⁶¹ SCARED OUT OF MY MIND - Shattered Lights | VR The Champions
<https://www.youtube.com/watch?v=zAeyxnmWnQ>

- Slow IS Caring
- Fast IS Anger
- Close IS Intimate
- Close IS Danger
- Loss (of time/energy) IS Loss

Part of the theoretical conclusions are already published in a recent contribution (Giuliana and Alexiev, 2020) but let's expose them very briefly through three main points which should led the semiotic inquiry on virtual realities:

1) Virtual realities appear as in direct phenomenological continuity with the user's world and in this sense are experienced as extensions of both the user involved and of his world. However, a detailed analysis of both the technical characteristics of virtual realities and of their contents reveal how this continuity is actually reached though interpretative co-operation, semantic grounding and other semiotic strategies at the root of the immersion and sense of presence. The strength of their meaningfulness and enjoyment resides in this impression of non-mediacy while their "truth" resides in their being a third world grounded on knowledge and prior experience.

2) The addition of such seemingly phenomenological continuity, which is actually semiotic (since it rely on translations, metaphors and semantic groundings), constitute a first-person form of experience beyond agency which implies rethinking the meaningfulness of virtual realities through the Lacanian distinction (1973) between real and reality ("reality" is shown [se montre], the "real" is proved [se demontre]). The mediation behind such effect constitutes a semiotic form of prosthesis for which the experienced involvement of subjectivity is far more than a mere question of senses.

3) Through such addition, the inner yet external value of these experiences stands in the fulfillment of a certain utopia of the self and of the body which finds it emblematic figures in the pleasure related to re-enactment of certain embodied *habits*. More importantly, the complexity of the body's and embodied meaningfulness implies that we already find the three kinds of continuity (phenomenological through percepts and feelings, narratological through semantics and sociological through habits) inside the single layer of the specific interactivity required by virtual realities.

3. Virtual realities as digital pla(y)types: a new textuality

In the second chapter we have faced the issue of defining and justifying the experience of virtual realities as a semiotic object of study. We have tackled with the problem of including into a semiotic theory the sensible, cognitive and more generally embodied and non-linguistic dimension of such experiences without falling into any kind of reductionism and in consonance with other disciplines. At the heart of our chapter was the semiosis arising from relationship between body, language and mind: the idea of virtual realities as third blended places where the insignificant acquires significance. To this query we offered a solution to explain in semiotic terms the phenomenological continuity between physical and fictional-possible world by highlighting its role in terms of intersubjectively grounded semantics and of veridiction resulting in an effect of first-person testimony. A theoretical result which proved to be useful for the textual analysis of virtual realities and for a more general inquiry on a new form of discourse.

However, despite the embodied features of virtual realities and especially of VR being the most known, they are actually not the most characteristic from a semiotic point of view. From frenetic first-person shooters filled with perceptive and motor congruence played on a console to VR experiences of being stranded in space giving us literally gut emotions and sickness, virtual realities are often conceived mostly as visually beautiful roller coasters. Which is also partially explaining the substantial disinterest of many scholars of the humanities for such texts. On the contrary, in this chapter we will prove that even a sensorially sensational futuristic racing game such as *WipEout Omega Collection* (2017) or a game titled *LSD: Dream Emulator* (1998), have textual characteristics which are of great anthropological relevance and represents a substantial alternative to the dominant cultural form of the novel that inspired the whole semiotic apparatus and perspective. This should not be completely unexpected to our readers since in the previous chapter we have already introduced notions such as effort, time, energy and projectuality which are also at the heart of experience of virtual realities, of the immersion, of the pleasure and emotions, and have little to do with embodiment and so on. Still, these notions remain to be explained. To do so this chapter is dedicated to virtual realities as both a form of play and as digital artifacts presenting a different model of narration, two aspects which were of almost no importance in the previous chapter. Most importantly, this chapter will focus on our claim of virtual realities as products containing parts of the means of their own production and therefore on the outstanding degree of authorship granted to the users/consumers of virtual realities.

Once again, this will mean facing new issues for the traditional methodology of semiotics:

1. The inclusion of the mathematical heart and economical dimension of virtual realities, apparently meaningless and yet working as a catalyst for meaningfulness.
2. The analysis of texts which have literally an infinite series of possible variations of the content represented on the expression plane, almost denying narration as *destiny* and which find their main value in the syntactic dimension rather than in the semantic one.
3. The centrality of the often-unexpected practices of interactions and production allowed by them.

A challenge, the one of studying all kind of digital games as texts and of finding something interesting to say about their properties, which actually doesn't regard only semiotics but concerns most of the humanities and is especially hard when facing genres such as multiplayer games:

"[...] analyzing or discussing multiplayer-focused games in a rigorous fashion requires using methods derived from the social sciences such as in-depth interviews, questionnaires, and tools of ethnographic and social research in general. This is mainly due to the fact that the communities of players interacting with multiplayer games are usually more interesting than the design of the games itself. The so-called "meta," namely the set of emergent strategies, practices, assumptions, and beliefs produced and shared by a community of players of a game like *Dota 2* greatly surpasses the formal properties of the game in complexity and interest." Fassone, 2017, p.10.

Nonetheless, we will see that semiotics is actually perfectly fitted to succeed in such task and can bring original and fruitful results. To put it ironically, semiotics is actually perhaps the only discipline able to explain why creating a custom sexually desirable avatar can be commercialized as transforming a dream into reality and bringing it into the real life of the users:



Yet, since our new topic regards the formal properties of virtual realities conceived as texts, the first step should be to identify precisely what a virtual reality is. Since the beginning of this work we have broadly referred to virtual realities by considering both digital games and VR experiences. However digital games suffer from a well-known critical taxonomical indeterminacy which regards both the incredible diversity of their design (compare: *Tetris*, *Just Dance*, *Planescape: Torment*, *the Sims*, *Candy Crush*, *GTA*, *Full Tilt! Pinball*, *Mortal Kombat*, *Nintendogs*, *Journey*, *FIFA*, *It's Quiz Time*, *Fruit Ninja*, *Microsoft Flight Simulator*, *DOTA* and *Heavy Rain*) and of their experiences and uses:

“A second reason for the taxonomical indeterminacy of video games is that in most cases, when we want to discuss them we may really be thinking about wildly different things. For example, a software engineer may characterize video games as a specific type of software; a player as a subset in the larger category of games (in which they may include sports, tabletop games, party games, etc.); a patron of the arcades in the 1970s and 1980s as an electronic relative of a pinball machine; an executive in a large studio as another form of big budget entertainment, akin to blockbuster movies; an independent game designer as an artistic form of expression. Video games are all of this and possibly more. And, as media history teaches, they are destined to become something else as the pressures and tensions imposed on them by designers, producers, critics, scholars, and, more importantly, players, mold them into new forms. Reducing this multiplicity of definitions to a single duality is a hard task, but what might be said is that video games are always, “ontologically both objects and experiences” (Sicart 2009: 29–30). [...] In this sense, video games are both video games and video games, meaning that they are at the same time designed audiovisual media objects, and peculiar instances of play. ” (Fassone, 2017, pp.9-10)

It is for this reason that in this thesis we are not claiming that anything called a digital game or a VR experience is an alternative to the traditional narrative model of meaning, but instead that most of the objects belonging to these categories present formal properties that constitute a new form of discourse. Virtual reality is therefore, from a semiotic standpoint, this specific and unique discourse which is underlying within virtual realities as concrete objects of the cultural world. Even more concretely, this discourse is characterized by a new logic behind both the production/representation and the reception/interpretation of a given set of utterances/signs. This new logic regards especially the reconstitution and extension of the reader/user’s subjectivity by occupying inside the text the position of an embodied and empowered *witness*, which is why these objects are often defined as simulations. As a discourse requiring specific possibilities of meaning-making, virtual reality therefore both encompasses these texts across their remarkable diversity (including the diversity of the media they rely on) and surpasses these texts in the sense that other genres (such as the VR experiences, which are undeniably different from traditional games) or media may as well present such discourse. A concrete text can therefore be defined and studied as a virtual reality, in conclusion, when it includes the ten characteristics postulated in our introduction. It *must* be a:

- 1) software based cultural artifact witnessed through computational means.
- 2) presenting an aesthetic of indeterminacy, impossibility, hyper-iconicity and opacity.
- 3) requiring the user’s effort in terms of fallible agency, economic reasoning and physical involvement.
- 4) which represents objects and events existing in a non-physical and discrete space and time.
- 5) influenced by the player’s intervention both from the inside (interactivity) and the outside (the code) of the text.
- 6) who has a primarily role in the co-production of the utterances constituting the expression plane and the narrative layer of meaning.
- 7) with a mirroring consequence on narrativity.
- 8) and who can and often must verify by himself the causes, properties, states and possibilities related to these object and events.
- 9) which are accessed and acted upon through prostheses simulating a phenomenological continuity between the user’s physical world and the virtual one.
- 10) and producing consequently a hybridization between linguistic and non-linguistic forms of intersubjective access to reality that ends up in being interpreted as a first-person experience.

With this, hopefully convincing, clarification we can now reveal the structure of this third chapter. 3.1 discusses of both the similarities and differences between traditional texts and virtual realities. To overcome the analytic issues, we examine the distinction between a first layer of the text called “first-order authorship” characterized by more stability and a second one related to the user’s activity defined as “second order authorship. A key author to understand this first layer of meaning is the semiotician Kristian Bankov, which will help us to highlight several key factors of meaningfulness in virtual realities such as the user’s projectuality through the notion of an economy of meaning.

The key semiotician of the second part will instead be Claudio Paolucci since the “gameplay” or interaction will be conceived as a form of enunciation and parole, and this author has recently published a book precisely on the meaningfulness of such acts. In 3.2 we will examine virtual realities through the perspective of the semiotics of the game, and more precisely the recent works of Mattia Thibault and Vincenzo Idone Cassone on such topic.

This will help us to highlight both the first-person dimension of virtual realities through gamified simulation and mirrored narrativity of the very act of playing. In 3.3, similarly to what we have done in chapter 2 with cognitive sciences, we will look outside of semiotic to see inside game studies if our proposal could be also validated and find further groundings. We will therefore examine the works of Aarseth, Bogost, Fassone and Juul on such issue and we will find several points in common. Finally, in 3.4 we will examine the digital aspects of virtual realities in terms of digital culture and here the main semiotician of reference will be Ruggero Eugeni with his “La Condizione Post-Mediale”, although the semiotician Massimo Leone will also have an important role in such discussion.

3.1 Virtual realities as texts

3.1.1 Virtual realities as texts and cultural artifacts: ten criteria

“In software culture, we no longer have “documents,” “works,” “messages” or “recordings” in twentieth-century terms. Instead of fixed documents that could be analyzed by examining their structure and content (a typical move of the twentieth-century cultural analysis and theory, from Russian Formalism to Literary Darwinism), we now interact with dynamic “software performances.” (Manovich, 2013, p.33)”

Given their peculiarities, it is a reasonable question to ask ourselves if virtual realities can be studied by semiotics as texts and more generally by the humanities. To such query we answer positively and justify this claim with the following criteria:

1. They are objects with given paratextual and peritextual boundaries, which are created by human communities at a given historical moment through the use of knowledge and tools aimed at creating a communicative-experiential project through signs and meanings.
2. They are cultural artifacts that, by virtue of their historical location, are the reflection of a given reality external to them and can therefore represent socio-cultural values according to axiologies that are coherent or dissonant with their local and/or global context of production.
3. They are artifacts whose meaning is manifested to the users through an autonomous interpretative and enunciative activity that cannot be reduced to the initial communicative project and which can therefore produce unexpected and even opposite interpretations with respect to the initial intent. Therefore, they can be considered as common lazy machines that require an active interpretative collaboration of their reader in order to make sense of them⁶² by filling the empty spaces through narrative scripts, implicit logics and cultural inferences.
4. They are cultural artifacts that can often be narratively and culturally deconstructed. *Super Mario Bros* (1985) can be seen as a story with a protagonist, opponents, helpers, a main antagonist, etc ... A beginning, subsequent moments, moments of tension (all times that Mario risks the game over when he performs an action) and an ending. Encyclopedic scripts can then be found (the man ventures to save the woman in danger) on an anthropological basis (man against the dragon) and values (reunification as a happy ending).
5. They are objects circulating inside the semiosphere, filled with intertextuality and in constant dialogue with everything else that is not directly a virtual reality.
6. They are objects that be studied both for their former properties as well as for their sociological (and socio-semiotic) dimension.

⁶² Let's think of how in *Megaman* (1987) when the protagonist (humanoid figure with two black points instead of eyes, one of which is much larger than the other, and without a nose) is hit, it becomes almost transparent, emits three small clouds of smoke and “flashes”. While the enemies in turn, after being hit by some white balls thrown from Megaman's arm and accompanied by a strange electronic sound, first transform into a white sphere and then disappear completely from the screen, sometimes leaving a huge giant head of the hero. All this ensemble of seemingly senseless signifiers and utterances are nevertheless translated with the greatest ease.

7. They are cultural artifacts which includes the classic forms of culture (writing, music, visual representation, acting) and which have inherited from them many characteristics and their language (perspectives, fade-outs, division in chapters, characters and so on). The creation of complex virtual realities therefore requires to combine the original works of actors, artists, musicians, writers, and so on. In this sense, they are *everything* that a text can be.
8. They are objects belonging to the anthropological dimension and activity of play (Huizinga, 1938) which was also of significant philosophical interest (Gadamer, 1960) and which has transversally crossed the different cultures and human communities time (Caillois, 1958).
9. As many other products of the visual culture, they are objects phenomenologically influenced by the specific technologies through which they are used (such as playing a game of fighting between robots on a wristwatch and playing it in the arcade cabin of *Mobile Suit Gundam: Bonds of the Battlefield*, 2006) and semiotically determined by the digital technology on which they depend. As such, they lend themselves to cultural investigations aimed at studying the relation between the meaning of their representation and their techniques
10. They are cultural artifacts which, as a result of the previous point, owns a unique aesthetic and, since the whole is more than the sum of its parts, work in a clearly distinctive way.

3.1.2 Virtual realities as texts: metalinguistic concepts

The legitimacy of a semiotic approach to virtual realities as texts also comes from the pioneering work that, between the 90's and 2010, was done by semioticians to apply to digital games many metalinguistics concepts that had been used on other forms of texts such as novels and movies. The Italian school of semiotics was particularly prolific from this point of view, with the books of Maietti (2004) Meneghelli (2005 & 2008) that can be regarded as especially insightful and representative of the more narrative approach to such texts. Since the perspective of this early semiotics of virtual realities was mostly considering digital games as visually represented interactive stories, in which the relevance of interactivity was mainly the one of partially altering through agency the narration represented on the screen and to create through choices opportunities to “empathize” and “be immersed”, practically every semiotic concept could be applied. Pictures/Images could be analyzed in terms of semantics, the structure and process of the gameplay could be both formalized in greimasian terms and culturally explained through encyclopedia (frames, scripts, intertextuality, and so on), the visual point of view constructing the user's subjectivity could be described through Casetti's semiotics of cinema in terms of *débrayage*, and so on. Additionally, some semioticians were particularly interested in the media-inspired theme of transparency with the key themes of the interface (and of the consequent existence of different spaces of representation) and electronic writing of hypertexts: Ruggero Eugeni and Fausto Colombo (1996), Alessandro Zinna (2004) and Eugeni (2010) are three of the most notable examples. Finally, northern semiotics had a similar approach to a greimasian approach to games (Post, 2009) but also and more specifically related to the interest in digital games conceived as sign-systems studied from the inner informatic language: here the work of Andersen (1997) is perhaps the most representative. Although in the end this “comparative” approach did not suffice by itself to prove (or perhaps better convince) the importance of a semiotic contribution to the study of virtual reality (neither outside of semiotics nor inside of it), it was nonetheless a necessary first step and must be a foundation stone of any further work on such object of study. Even more recent work seems to follow still today this line of research (D'Armenio, 2014). In fact, the similarities were, and actually are, astonishingly numerous and cannot but encourage a semiotic approach as well as a conception of virtual realities as proper texts. Having dedicated our whole master thesis to the analysis and critique of these parallels, we will here instead only briefly expose four intertwined key concepts developed and used transversally during these years that will be fundamental for our own work and more specifically for this chapter:

1. **Expression:** Referred to Hjelmslev organization of the several linguistic layers behind meaning-making, the Expression can be used to describe the phenomenological level where the sensible/tangible materials (words, pictures and sounds) of digital games are manifested and that constitute the basis of the content's interpretation.
2. **Game & Play:** Inspired by both Saussure's distinction between *Langue* and *Parole* and Eco's introduction to Huizinga's *Homo Ludens* (1938), the Game was described (Meneghelli) as the abstract system of possibilities used by the player to produce through a *process* on the screen/expression *syntagmatic* chains of signs/signifiers such as “Mario ran and jumped”.
3. **Co-Enunciation:** Inspired by Eco's idea of interpretative cooperation (1979), and in some sense as a consequence of the opposition between Game and Play, this terms was used to

name the player's *productive* and *performative* role as a creator of utterances during the *Play* within an already enunciated set of utterances (example: the enemies on the screen controlled by the AI, the visual background representing a particular place, the music and so on). Interestingly, in this regards the player appears as both as the enunciator and the enunciatory, almost as if the player was writing a story in the screen that had to be read and interpreted (and liked!) by himself. Finally, the idea of a game-specific kind of textual cooperation is in continuity with previous attempts of semioticians to create a visual-specific form of cooperation (Polidoro, 2017) to better explain meaning-making in such texts.

4. Subject and Object: Inherited from Propp and Referred to Greimas narrative formalization of the meaning-making process, these terms were used both to describe the proper actants of the fictional world (example: the main character of the story is the Subject looking for an Object that need to be acquired) and the relation between the Play as an Object acquiring meaning because of the Player acting on it (transforming it) as a Subject which is however also transformed by the object from a “passional” standpoint in terms of euphoria and dysphoria.

3.1.3 Main issues and a discarded brilliant solution

The next question is then about how the classic textual methodology must change to take into account the unique characteristics of digital simulation and which present serious analytical issues when compared to other cultural artifacts such as novels, movies, theater plays, spectacles, paintings or songs. These differences are mostly due to the fact that they are games and to their technological specificities, and can be resumed in the following issues:

1. The expression level of the text, constituted by the chain of signs and utterances represented on the screen and that is usually the basis of the textual analysis, must be co-produced in real time by the actions and choices of the players which depend on an “invisible” digital database plus on a set of combinatory and conditional rules. Considering the possibility for this database to contain an almost unlimited number of singular entries and considering the combinatory and conditional possibilities exponentially augmenting the quantity of possible utterances, there is no guarantee that the analyst will ever know all of them and thus that he will ever know everything about the expression plane. As we will demonstrate, a character simply walking in a straight line from a point A to a relatively close point B can have infinite textual occurrences. A key evidence of this can be seen in the fact that sometimes years or decades are needed for something, both wanted or unwanted, to occur on the screen: new combos⁶³, narrative event⁶⁴, perfect runs⁶⁵, hardest modes⁶⁶, codes⁶⁷, easter eggs and so on. Indeed, even the creators of digital games often cannot have a direct control on the concrete actualization of these texts, let’s think of Pawel Wojs, lead battlefield artist of *Total War: Rome II*, explaining how “We had a possible 170000 battle locations, and testing each one of those is just unrealistic”⁶⁸. More specifically this co-enunciation is highly subject to variations both as a result 1) of a beforehand designed communicative and expressive project (different endings, labyrinthic and hypertextual topology of the virtual spaces, dialogue options, customization and editors) 2) of games as a genre (trials & errors, scores, difficulty, grinding, backtracking) 3) of the continuous data processed independently by the game to animate the virtual world (procedural generation, flexible AI behavior, dynamic weather, adaptive and/or generative music systems). In reference to Eco (1962) and as exposed in 1.3.4, this is what we call a *principle of indeterminacy*. This indeterminacy is fundamental in the perception of virtual realities as evenemential experiences: where real events, potentially no more reproducible or that could have never occurred, can be witnessed.

⁶³ <https://compete.kotaku.com/street-fighter-ii-wizard-discovers-new-combos-26-years-1793605126#:~:text=Street%20Fighter%20II%20Wizard%20Discovers%20New%20Combos%2026%20Years%20After%20Release,-Ian%20Walker&text=Players%20have%20had%2026%20years,in%20the%20legendary%20video%20game.>

⁶⁴ <https://www.polygon.com/2017/1/5/14184452/elite-dangerous-first-contact-aliens-thargoid>

⁶⁵ <https://www.nintendoenthusiast.com/ninja-gaiden-no-damage-run-achieved-after-over-30-years/>

⁶⁶ <https://www.youtube.com/watch?v=Cx4RlkzPuys>

⁶⁷ <https://www.resetera.com/threads/secret-big-head-code-discovered-in-ps-vr-worlds-3-years-later-london-heist-easter-egg.115081/>

⁶⁸ How Total War: Rome II's Ambition Was Almost Its Undoing | War Stories | Ars Technica. Min 4.30-4.40

2. The sum of all the possibilities granted by virtual realities does not represent a coherent text: this is totally opposed to what we are used to with a protagonist that is either a male or a female, either young or old, that is either brave or a coward, that either survive or dies, that is either dressed with a smoking or a t-shirt, that is either stereotypically good or evil, that either goes right or left, and so on with each of these variables traditionally having a strong impact on the meaning. Therefore, the indeterminacy of virtual realities often becomes the cause of another principle of impossibility (Deleuze, 1988, p.79). The 1985 *Super Mario Bros* is a text in which it is both true that the hero rescued the princess and failed to do so, that his adventure started by going straight or by jumping up, and so on. More than that it is a system in which both contradictory variables are allowed and foreseen. This condition of conflict is both true among different users, among different sessions of a same user and inside a single session.
3. With virtually unlimited updates and patches, the database and content of virtual realities is itself potentially everchanging even without considering the user's intervention. Therefore, raising the problem of how to apply to such dynamic texts (Zinna, 2004, p.11) a methodology conceived to analyze a given and closed portion of the world.
4. The expression plane is subjected to data processing, which however is far from being perfect. Bugs and glitches are a common example of how what appears on the screen and the events that occur may not have been designed nor intended. More generally digital games and virtual realities can have so many variables involved that it is simply impossible for their authors to be in total control of the expression plane.
5. The relevance of the differences among all the possibilities offered is often to do more with a logic of syntactic differentiation than with semantic implications. We would hardly say that a same and identical text in which the user's avatar can wear fifty different haircuts has fifty different meanings. As a consequence, the expression level very often does not present an a priori narrative nor semantic ambiguity but requires to always include a meta level where the performance of the human player is taken into account as well as the rules of the game. In this sense, as we will see with Aarseth, players are not readers and games are not narrations.
6. Many virtual realities have apparently little to do with narrations and stories, from *Tetris* (1984) to *Just Dance* (2009) and the VR *Job Simulator* (2016). The only relevant narrativity of *Pong* is actually the one of the simulation "played" by the users striving to achieve a given and often personal goal.
7. The traditional causal and temporal logic behind the representation of events is completely different, even when compared to games. This occurs also in virtue of the digital technology, more specifically of 1) the almost infinite possibilities of sequential writing, reading and erasing (input + state/variable/values check, data/information storage and serialization, data/information reading and deserialization) plus 2) of the loop structures of data conditions and variables 3) and of the possibility of a scripted antagonist-agency ruled by non-human actors, and of the commonly adopted user oriented experience-narration (any single player mode). Imagine rolling a dice in monopoly and acknowledging that you would have to go to jail: your friends would hardly be happy if you claimed that you will just reroll to have a better outcome. Even in a single player game such as a Solitaire, you usually do not go back to a bad move that

you made 10 minutes ago and then replay all the game until you win by going back and forth. On the contrary this is often the correct and designed way to experience digital worlds and simulations. Even a digital solitaire will feature the unlimited “undo” feature. Additionally, time in digital simulations is both static and dynamic: things are constantly moving and occurring around the player, the real time of the player is also of course passing, yet the time of the level will very often simply *wait still* for the player or can be paused.

8. As a consequence of the previous points, many virtual realities do not have a proper end, even in game which does not present any *postgame* content, and once again this has nothing to do with the possibly endless interpretations of a given cultural artifacts. Additionally, even the most basic and “narrative games” can require an indefinite amount of time to be finished, depending on the player’s will and ability.
9. From an historical point of view, the expression level was also strongly influenced by the technological limitations of both the CPU and the memory. As an example, it would be absurd to look for any meaningful explanations of why the 1988 *Battle Chess* had white pieces opposed to purple pieces when played in a RGBI non-composite mode but red in composite mode.
10. The expressive plane very often presents interactive elements belonging to the interface and not having a fundamental role in conveying the intended content but has instead a functional/pragmatic role for the player. In this sense the traditional inquiry on the strategies to create an effect of transparency and subjectivity is less relevant and the analysis of the expression plane must consequently change.
11. Adding all this to what we have seen in the last chapter about the user’s embodiment, digital simulations are texts in which the third person discourse is almost impossible. Although in the common language terms such as “first-person” and “third-person” games or experience are used, the agency involved in games and simulations drastically change this traditional opposition. Even when represented “from the outside” the gaze of the player is still present in the virtual world and deeply anchored to a subjectivity. There is substantially very little difference between first and third person in the modes of beliefs, of witness, of will, and the only explanation for the actions of a character always are the ones of the player.
12. Neither the rules of the game nor the physical actions required for the co-production of the in-texts utterances are explicit on the screen, yet they are fundamental part of its meaning. As an example, we would hardly understand the meaningfulness of the game *We Dare* (2011) by looking only at the screen showing cute little characters flying in the streets and ignoring that two players that are spanking themselves with their controllers in hand.
13. The digital nature of these cultural artifacts allows the more expert users to manipulate the texts both from the inside (glitches, programmed cheats such as the Konami code, debug mode) and from the outside (mods, cheats based on the values processed by the computer) to an extent where the original game can be very different from the modified one. As an interesting example, in 1991 Nintendo sued a company (Lewis Galoob Toys) which produced a cheating device (Game Genie) by claiming that it was creating a

“derivative work” violating the copyright. Additionally, virtual realities reside inside the semiosphere and acquire great importance also as interpretations/uses of texts created by the first audience to a second audience through practices such as streaming, e-sports, speed running and modding. From this point of view it may be also rather complex to identify which is really the text the analyst is trying to examine.

All the difficulties we have highlighted are obvious to anyone trying for the first time a game such as the first *Super Mario Bros*. Yet, they are also somehow paradoxical since, both as players of games and as spectators of VR experiences, and differently from media such as cinema or literature, the interpretation of meaning is usually not a problem for us. So how does all this complexity end up in the renowned *banality* of virtual realities? The most elegant answer to such problems, which regards both the epistemology and methodology of semiotics, has been given by the semiotician Gabrielle Ferri already in 2007.

“Se un videogioco non è né un ipertesto né un singolo testo chiuso, coeso e coerente, allora è necessario sviluppare una proposta di metodologia semiotica che si presti a rendere conto delle sue specificità. Ciò che propongo è di considerare i videogiochi come “macchine narranti”, non testi ma dispositivi semiotici per la produzione di numerose occorrenze testuali (testi-partita) differenti e indipendenti tra loro.” (p.3)

By describing digital games as “narrating machines”, each single “gameplay” is a different text presenting a higher degree of coherence and which is produced by a “matrix” of semiotic elements. In this way, the issue is brilliantly resolved by separating the matrix, the text and the activity of the players as three complementary although different objects of semiotic inquiry.

“Si tenterà quindi di delineare una descrizione dei meccanismi semiotici del videogioco in quanto macchina narrante, suddividendoli tra “matrice interattiva”, “testo partita” e “istanze cooperative e competitive”. (p.3)

Among these, the real new element is without a doubt the matrix which is divided in separate aspects: figuration, narration, semantics, axiologies and strategies:

“La matrice è un agglomerato semiotico sovrabbondante, precedente alla formazione del singolo testo partita e che contiene già tutte le risorse semantiche, narrative, figurative e strategiche che saranno poi attualizzate nello svolgimento dell'attività ludica. Si tratta di un oggetto semiotico complesso, nel quale si riconoscono differenti funzioni e differenti istanze, tra cui condizioni di vittoria, comandi e link, repertori semantici, valoriali, figurativi, strategici.” (p.3)

“In definitiva, la matrice è il luogo dello scontro di più istanze strategiche, tra cui quella del giocatore, mantiene traccia delle azioni precedenti dell'avatar e degli anti-soggetti, produce un testo partita come conseguenza dei comandi impartiti dalle istanze in gioco, tenendo anche presente le mosse compiute in precedenza. Tale testo partita, contemporaneamente, costituisce la base per la selezione dei successivi comandi da impartire.” (p.11)

Finally, a key element that we will highlight later is also the capacity of the matrix to present the *traces* of the user's doing

Despite the efficacy of this brilliant solution, in this thesis we will use it as only as a main inspiration and not really as methodological guide. There are two main reasons for this. The first one is that Ferri's answer is mostly based on an idea of competitiveness in games:

“ Si gioca ad un videogioco, salvo casi particolarissimi, per vincere.” (p.4)

On the contrary, understanding the meaningfulness and experience of virtual realities requires to approach games from the broader perspective of playfulness (Thibault, 2020) and of aesthetic immersion.

The second reason, more philosophical so to speak, is that Ferri's division somehow makes it impossible to highlight the inner characteristic of virtual reality as a form of discourse grounded on key figures requiring "incoherency" and openness, such as impossibility, indeterminacy and rewriting. A second reason which has extremely concrete reasons since, despite the amazing quantitative diversity of utterances offered by a single virtual reality, we do not experience each "play-text" as a qualitatively separated experience. From the standpoint of the players they belong to a same narrativity (let's think at the learning in both logical and embodied terms) and from the textual point of view they all acquire their meaningfulness as variations and possibilities within a defined structure (think of "new game plus", selection and creation of different actant-subject, and so on). Actually, even very different texts may be extremely similar experiences through the belonging to certain genres (i.e., Rogue-like, Souls-Like, MMOPRG, Rhythm game, Metroidvania, etc.)

By choosing, for the first time inside the semiotics of games and VR, a different epistemological background based on interpretation and absence rather than the greimasian narrative signification and non-transcendental structuralism (Paolucci, 2010), closure and coherency are no more for us a *conditio sine qua non* of the inquiry on meaning and we can now highlight new aspects related to the meaningfulness of virtual realities.

Ferri's solution is therefore not wrong at all, and in fact our own solution will be strongly inspired by his view but is simply not entirely adequate for the study of meaningfulness. In the next sections we will explain in detail our own approach, but for the time being let's look at a concrete example of the *odd* complexity of virtual realities by using Ferri's own key notion of "matrix".

3.1.2.1 : Concrete example of an odd complexity: Prince of Persia (1)

To prove these difficulties we will take as an example the 1982 game *Prince of Persia* which should apparently not pose any problem for the textual analysis. Indeed, Prince of Persia is:

1. An offline game
2. Designed for a single player
3. With only one scripted ending
4. With only one protagonist non-modifiable by the player
5. With a non-modifiable external point of view
6. Requiring a finite amount of time
7. Based on a simple *fabula*
8. Made as a succession of linear narrative events
9. Represented in a 2D Space
10. Played with few input keys
11. Based on relatively few possible actions

So, first of all let's give a minimal definition of what a story usually is from an interpretative point of view. We will say that a story is usually experienced by the reader/spectator/player as a series of consecutive utterances representing

- A particular Subject / Actant (physically and sociologically defined)
- In a particular state (physical & psychological)
- In a particular place
- Doing or enduring a particular action
- For a particular goal or reason
- At a particular moment
- From a particular point of view

Finally, we will claim that we usually identify something as a different text or version of a previous text when one or more of these elements change or when their order is different.

If we agree on this extremely simplistic definition of what a story is and of how we identify the difference between two texts, then we can now go back to our Prince of Persia (PoP from now on) and see in what sense digital games are oddly problematic. We will now try to see how many different texts or versions of it we can identify in it.

To keep everything simple and clear we will look only at the first screen and first few seconds of actual gameplay, that our reader can see here:



At a first glance we can see that PoP is a text based on:

1. A virtual space (the level / environment both in its entirety and, as it is experienced, as a series of smaller interconnected spaces), already realized/produced by the game and over which the player has no power. This space is made up of discrete units of distances (the floor to be covered includes demarcation lines that make you think of as boxes) that are passable differently.
2. A series of pre-designed events that are meant to somehow oppose the progression of the character in this space and/or to partially determine his behavior in such a space: the upper route leads nowhere and in the lower part of the screen the floor will fall opening new possibilities of exploration.

Then, the character is acting in such a space through the possibility given to the player which are:

3. To move in four different directions (forward, backward, down, up) provided by the matrix system that the character / player can and must follow "freely" to move
4. To execute five different movement actions (walking one square forward, running two squares forward, jumping, running jump two squares forward, crouching) provided by the matrix system that the character / player can use "freely" and that allow to cover differently the discrete units of distance that he has to cover.

Consequently, by looking at a game like *Prince of Persia* we can affirm that the minimum requiring for such a text to acquire some meaning is related to the player intentional co-enunciation (creation of utterances made by actualizing specific virtual units among others) of the main character in space.

We will then immediately notice that a first factor of variability of a matrix text depends on its own "hypertextual" structure. In a certain version of the game the prince, at the beginning of the story, can go up immediately while in another version he can go down immediately:



We could therefore make a first hypothetical claim about *virtual realities being matrixes of texts* (Ferri, 2007):

- I. *In a matrix-text there are n versions of the same text that depend both on the n alternatively possible paths and on their possible successions (not only up and down, but also first up and then down or first down and then up).*

However, unlike other matrix-texts such as the "old" gamebooks, the specificity of digital texts lies precisely in being able to offer an even deeper level of variability and an even greater freedom of enunciation. In fact, in PoP the player does not have to, only choose a direction but must use some physical keys (on the computer or controller, it does not matter for now) to implement and represent on the screen a chain of single movements to reach the end point of a given path.

So, let's see how the level must be divided into its *discrete units*, which by convention we will indicate as “squares” and which we have here numbered in red



Even by reducing the movement to two, walking (about 1 square) and running (about 2 squares), and given that the overall space can be divided into what we have defined "squares" (single delimited portions and on each of which it is possible to perform one of these two actions) which (still simplifying) are of a total of 3 + 4 (path upwards) or 4 + 5 (path downwards), we see that already in the first screen all the hypothetical possible versions of PoP are:

Down path:

- 1) The prince uses eight actions of walking
- 2) The prince uses seven actions of walking and 1 of running
- 3) 6-1
- 4) 5-2
- 5) 4-2
- 6) 3-3
- 7) 2-3
- 8) 1-4
- 9) The prince uses four actions of running and hit the wall

Upper path:

- 1) The prince uses seven actions of walking
 - a. The prince uses six actions of walking and 1 of running
- 2) 5-1
- 3) 4-2
- 4) 3-2
- 5) 2-3
- 6) 1-3
- a. The prince uses four actions of running and hit the wall

We therefore have not two possible versions of the text of PoP but, referring only to the first seconds and simplifying a lot, rather seventeen versions of different utterances related to the

different possible ways of traversing some spaces (1-4a, 4b-8b and 5 ° -9 °) thanks to discrete actions. We will then modify our previous hypothesis and say that:

- II. *In a matrix-text there are n versions of the same text that depend on the n discrete movement actions that can be enunciated by the player and that are alternatively possible in some given spatial points that can be traveled.*

But the versions are actually even more. In fact, the player must not only choose which actions to use and how many to use, but also chooses all possible combinations. That is, there is a possible version of PoP in which we will have the actions in the following order:

Walk-Run-Run-Run-Run

And at the same time there is one in which will be:

Run-Run-Run-Run-Walk

As we can see, the combination of actions in space is identical (4racing-1walking), but as spectators we will easily recognize that they are two different versions of the same text. Applying the mathematical rules of permutation⁶⁹ we see then that the number of possible versions is:

$$\text{Move x Space Action Available} = 2^{14} = 16384$$

We will then say that:

- III. *In a matrix-text there are n versions of the same text that depend on the possible combinations of motion actions and permutations of orders of motion actions that can be enunciated.*

From the previous points there is a natural consequence relating to the time axis. Since the player's movement actions inevitably also take time to perform, both internal (story time) and external (game / text time), the versions produced by the same matrix text also diverge in terms of representing some identical situations which however occur at *different times*. First of all, a player who will only use combined running actions will reach point 9a earlier than one who will only use walking actions. Furthermore, since among the possible actions there is also inactivity, this means that the same chain of actions can take place at a different time if for example the player (as often happens in games) takes more or less time to scan the space while standing, stopped at a given point.

Since time in games is typically an infinite resource, coinciding with that of the player, this leads to an actual infinite series of enunciative possibilities. However, given that in PoP the narrative time is instead finite (one hour) and made discreet through a timer, these possibilities are instead limited with the character who can perform an action of walking from square 1 to square 2 in a variable time frame ranging from 1 second to 3600 second (1 hour) and this in a proportional way with the decreasing of the possibilities in relation to the minimum time necessary to reach a given spatial point.

We must thus once again change our definition and say that:

⁶⁹ (thanks to the help of a mathematician friend Simone Zuppiroli)

- IV. *In a matrix-text there are n versions of the same text that depend on the possible combinations of movement actions and permutations of orders of movement actions that can be stated in relation to their possible temporal actualizations.*

At this point, the problem of the meaning and insignificance of the sentences that make up all these different versions of the same text obviously arises. And the problem only gets worse when we realize that there is a further factor of variability linked to what we will now call the fallibility and creativity of the player. In thinking about our sequences and combinations of actions we have in fact so far hypothesized a player who, taking into account the need to reach the end of a path to progress in the game, and also taking into account the limited time the player has to overcome each screen, you carry out your chains of actions without hesitation and in an economic way (we will return to this aspect later) going straight to the point. Yet nothing prevents, in a text like PoP, the player from reaching box 7 on the upper floor, then returning to the first and then reaching the last one at the bottom, and then going up again and so on. In some cases such syntagmatic chains can occur due to the characteristic fallibility of the player's actions and choices: he no longer finds the way, misses a jump or ends up in a dead end and has to go back, or much more simply he stands still in a square while choosing which path to take and calculating the various dangers. In other cases still similar sequences may be necessary: a given box activates a mechanism that opens a door that was previously closed in an area where the hero was previously. Finally, in other cases, such actions may instead originate from the creativity of the player who in a certain sense plays with the game: he wants to test it, he explores it with curiosity regardless of the conditions of victory or defeat, he makes a deliberate one. a use to then use the recording of the match as a comic video on YouTube, etc. Much of the significant potential of digital games consists precisely in allowing the player to actualize sentences using discrete actions in unnecessary and creative ways that is not directly caused by a particular rule to follow to pass a given test. In fact, since the player acts on a text already stated, even his most apparently senseless actions become subject to interpretation when they are represented, but we will return to this aspect in more detail later. For now it matters that, without changing our previous definition, this increases the number of different versions of the text and, potentially, its interpretations exponentially. Although in this example we only focused on movements for commodity of exposition, we can easily define movements as *virtual actions* of a certain type among others (example: extracting a sword, drinking a mixture or parrying in PoP). And so we can then conclude that:

In a matrix-text there are n versions of the same text which depend on the possible combinations of virtual actions and permutations of orders of actions that can be stated in relation to their possible temporal actualizations in a pre-stated space.

This definition of a matrix-test is however still incomplete since it was based on a single textual evidence specifically chosen to reduce the complexity of our example and to extend to the validity of such definition to the whole textual category of digital games. But if we take into account other common features of games, we can see that there are many virtual elements that have an unquestionable impact on the meaning of the text but that exceed the notion of action: let's think of shifting from third person view to first person, changing the color of a car or selecting it among others, selecting a level, and so on. Thus, we will say that:

A matrix text can be distinguished from other text types by its ability to create n versions of the same text in relation to the possibility for its reader to actualize through an enunciation some of its virtual elements in unnecessary ways and moments which nevertheless becomes meaningful in the moment in which these relate to the necessarily pre-stated portions of the text.

What we have just seen is extremely interesting since, although having thousands of different enunciates which are a serious problem from an analytic point, we would probably not say that the first few seconds of *Prince of Persia* can change the overall meaning of the game or are problematic from an interpretative point of view. It is in this sense that videogames are oddly problematic for textual analysis, somehow suggesting us that the concrete actualization of the enunciates are almost equivalent and leading analysis to focus on the game main scripted narration and/or on the interactions and mechanics of the game. However, these concrete enunciates are unquestionably what is concretely experienced and interpreted by the player and what will result in possible different interpretation of a text.

3.1.2.2 : Concrete Example of an odd Complexity: *Prince of Persia*, (2)

Still looking at *PoP* and taking now in consideration the numerous fallible challenge that are present in the entire game, we can see that, differently from the mere movements in space, they can determine a different narrative version of the text under two main different aspects:

1. Macro-narrative variables of Sanction:

- The hero saves the princess from Jafar,
- The hero dies (after the game-over screen the player therefore leaves the game),
- The hero dies in several places but in the end he saves the princess
- The hero dies several times and does not save the princess anyway
- The hero does not die but still fails to save the woman in danger in time

2. Macro-narrative variables of Performance:

- The hero passes all the various tests (i.e., jumps, fights, races, and space riddle resolutions to progress in space beyond gates and dead ends) with ease and goes straight to his goal without hesitating.
- The hero passes all the various tests with great difficulty, after multiple attempts: he seems to be constantly lost, falls, crashes into walls and struggles to find the right path.
- The hero passes some tests with ease and others with difficulty
- The hero fails to pass a given test and get stuck on a certain point.
- The hero avoids / escapes from some specific tests (fights are not mandatory)
- The hero overcomes the final battle with extreme ease
- The final confrontation with Jafar is difficult and includes moments of tension

Two main dimensions which implies also a temporal variability:

- The adventure is short (speedrun, about 15 minutes) and seems rather frenetic
- The adventure is of medium duration: between 20 and 40 min seems fluid and continuous
- The adventure is long lasting: between 40 and 60 minutes and have different rhythms

As is evident, we see how *Prince of Persia* can easily lend itself to updating various texts that by cultural convention we would be used to classify in different genres: from the stereotypical action (with the fearless and capable hero) to the comic (the inept and cowardly hero) and up to the dramatic (the hero who despite his best efforts is unable to do what he set out to do).

Even from the point of view of the experience of use it is clear that, from the representative point of view (i.e. ignoring both the player's experience and the vision of other players who are aware of the difficulty of the game), PoP can seem so "compelling" (with many moments of tension, the improvement of the hero and the final victory) as boring (a text in which the hero passes all the tests with extreme ease in 15 minutes) and even meaningless (the hero who for sixty minutes tries and fails to pass the same test). Readings that are totally inverted if instead the text is read from a performative point of view (absolutely compelling if finished in 15 minutes without ever losing). Finally, it is clear that these versions also lend themselves to different interpretations from the point of view of their values: if the stereotypical prince of the story fails to save (to the point of being able to seem a real imbecile) the stereotypical woman in danger, well then that our story is no longer so stereotypical and leaves us in a somewhat paradoxical situation. Finally, we can also look at sensible narrative shifts in meaning if we at how the different version could have the same main character although being represented in very different ways (different clothing, weapon and even ethnicity).



In conclusion, we see once again how the odd complexity of digital games can be a serious issue since *Prince of Persia* is not a text but mainly a machine to produce several different versions of a main fabula.

3.1.2.3 Virtual reality as “odd texts” in visual and literary arts

A doctoral thesis on virtual realities should have begun with a “state of the art” about the notion of virtual, of reality, of virtual reality and about the relationship between fiction and reality. However here is the problem: such approach would have required me at least a year of research and could have constituted by itself a whole thesis. In our chapter on experience, and especially though the works of Ugo Volli, we have somehow tried to indirectly remediate to such embarrassing lack. Nonetheless, the points four and seven of 3.1.1, related to the points of continuity between virtual realities and precedent cultural forms of fiction, put together with the exposed difficulties of analysis require us to briefly face such issue.

First of all, let’s repeat ourselves (2.1) to be extremely clear on a point : there is an evident commercial rhetoric on the idea of videogames of VR products as “unique experiences”, “second lives”, “immersive dimensions” and so on. The very history of humanity is an history about the insufficiency of our physical dimension: an history of how we have continuously expanded and rewritten reality, expressed our interiority by impressing it on outside surfaces and sharing it with others, increased its value and highlighted its meaning through narration since the very first and founding myths of any society. More importantly, Umberto Eco has uninterruptedly pointed out how the culture and more specifically narration is a way to “steal memories” from others, resulting increasing our own life and living multiple lives independently from the “quality” of such texts:

“ Perché quel tanto di vita che si conquista leggendo non discrimina tra grandi opere d’arte e letteratura d’intrattenimento. Fanno parte della mia vita la scalinata di Odessa dell’incrociatore Potëmkin e inseguimenti alla diligenza visti nel più smandrappato dei film Western [...] ma in fondo fanno parte della mia vita anche vicende non romanzesche, storie di dinosauri, il modo in cui madame Curie ha scoperto il radio, o alcune domande millenarie sul mondo. Non fatevi ricattare da chi vi dice che bisogna leggere solo i libri importanti, ho ricordi intensi e bellissimi di libri forse scipiti ma che mi hanno nutrito lunghi pomeriggi di eccitazione e sono grato a tutti coloro che scrivendo per me mi hanno concesso una vita talmente lunga che non riesco a ricordarla tutta in un colpo e deve ricordarla a rate.” (Eco, 2002, Dipartimento di Filologia Classica e Medioevale - Università degli Studi di Bologna, Aula Magna di Santa Lucia)⁷⁰

It is for this reason that our work is fundamentally one against the vagueness of many terms which are still today at the center of the scientific literature, such as in the case of “immersion”. Now, as we will see later with Jesper Juul, virtual realities are unique artifacts precisely because they present an unprecedented blending of games with narratives. At the same time, as we have seen in this chapter, virtual realities do not really make sense as narration or as a visual text. So it becomes an essential part of our discussion to understand which are the main representative characteristics that are present in virtual realities and that therefore allow us to legitimately study them as text in the broad semiotic sense. Similarly, it becomes essential to look at how other scholars had to face the issues raised by this new form of textuality for our own methodology and epistemology.

To do so, we will briefly examine the main idea of two significative books: Tomàs Maldonado’s 1992 “Lo real y lo virtual” (of which we will examine only the first chapter) and Marie Laure Ryan 2001 “ Narrative as Virtual Reality” in its 2015 revision.

⁷⁰ <https://www.youtube.com/watch?v=EJnbpWnMbD0>

The first work, since the introduction, directly puts into relation the technological development (back in the 90's!) with the idea of virtual reality itself as well as on the means through which we represent reality. For Maldonado, the inquiry on such virtuality must start with a philosophical reflection on the dematerialization of the world: a hypothesis denied by Maldonado and, as we have proven in the previous chapter, he was certainly right in doing so:

“Non c'è dunque scampo al vincolo della fisicità. Si possono creare, come dimostrano ampiamente gli ultimi sviluppi dell'informatica, filtri e diaframmi che, a livello percettivo, sono in grado di allontanarci dall'esperienza diretta della fisicità. Ciò nonostante, è irragionevole congetturare, come qualcuno si azzarda a fare oggi, che gli uomini, nel loro vivere di ogni giorno, potrebbero alla lunga sbarazzarsi definitivamente della elementare e persino, si dice, troppo rozza e ingenua esigenza di voler sempre e comunque toccare con mano le cose di questo mondo. In verità, manca ogni parvenza di prova che ciò effettivamente possa avvenire.” (p.8, 2015)

Secondly, Maldonado emphasizes the need to understand both the desire and enjoyment of virtual realities, a question at the very center of our thesis:

“La questione tuttavia non si esaurisce qui. Rimarrebbe da capire come mai esista oggi una diffusa, e sempre più ossessiva, smania per i mondi evanescenti, una voglia febbrile di proiettarsi, almeno illusoriamente, nel rarefatto mondo delle non-cose. Un mondo questo che, nell'odierno immaginario collettivo, assume certo la forma di una dematerializzazione, anche se più corretto sarebbe parlare di una fantasmagorizzazione. Perché, sebbene le cose in quel mondo trasognato perdano la loro materialità, le non-cose risultanti sono sempre vissute, tutto sommato, come simulacri di cose. O meglio: come se si trattasse di corpi senza corpo. Fantasmi di corpi. Fantasmi di cose.” (p.10)

“La nostra è stata definita una civiltà delle immagini. Si può accettare questa definizione, anche se, a ben guardare, tutte le civiltà sono state civiltà delle immagini. Questa definizione sarebbe più vera, se aggiungessimo che la nostra è una civiltà in cui un particolare tipo di immagini, le immagini trompe-l'oeil, raggiungono, grazie al contributo di nuove tecnologie di produzione e di diffusione iconica, una prodigiosa resa veristica. Ciò appare chiaro con l'invenzione della fotografia e poi, in modo più evidente, con quella della cinematografia e della televisione. La conferma più incisiva viene, oggi, dall'avvento della grafica computerizzata, soprattutto se si pensa ai suoi ultimi sviluppi finalizzati alla produzione di realtà virtuali.” (p.41)

Thirdly, for Maldonado there is a causal relationship between the phenomenologically experienced realism (even in movies) of such represented impossibility and its believability, from which the possible doubts about our own reality:

“Ma lo stupefacente, talvolta prodigioso realismo della rappresentazione che il mezzo filmico (o filmico-televisivo) ci fornisce, cambia, e non poco, la natura del nostro straniamento. Benché sappiamo sempre che siamo dinanzi a una finzione, non ne siamo ora tanto sicuri. L'incredibile diventa più credibile. Suggestisco di non sottovalutare la rilevanza di questo fenomeno. Il tema della maggiore credibilità attribuita alla finzione, della quale la finzione dematerializzante è solo un caso, è inscindibile da quello attinente al ruolo che stanno assumendo nella nostra cultura le tecniche, sempre più sofisticate, della rappresentazione del mondo visibile.” (p.11)

“La posta in gioco è alta: si tratta di passare dalla curiosità percettiva alla curiosità epistemica.” (p.35)

“Nel campo della ricerca scientifica – pura e applicata – la modellistica virtuale si sta dimostrando un potente mezzo di conoscenza. Si tratta di un ruolo forse meno ambizioso degli esempi appena menzionati, ma probabilmente, ritengo, di maggiore consistenza, e tutto sommato di maggior futuro, in quanto vuole essere soltanto (e niente meno che) un più efficace dispositivo di simulazione osservativa. Vale a dire, un dispositivo che, a differenza di molti degli strumenti finora in uso nei laboratori, consenta una più completa, più articolata e più accurata osservazione dell'oggetto simulato.” (p.64)

Up to the point in which the persuasive power of realistic simulations, which was described by him since the beginning as “discriminated” by the history of the cultural critique of art, becomes for Maldonado an ethical problem in terms of a possible conditioning of the users:

“Viene qui subito da porsi il seguente quesito: e se domani si presentasse alla porta, per così dire, un nuovo Skinner – lo Skinner dell'era del computer – che celebrasse precisamente questo mezzo come il miglior dispositivo di “condizionamento strumentale”? Non vorrei escludere questa eventualità.” (p.66)

A topic which is once again in direct continuity with our main interest in first-person experience as a particular form of knowledge and veridiction. More importantly, it is precisely in virtue of the history (p.12) of such means that, Maldonado claims, we can fully understand the nowadays virtual reality. In this sense, postulating that virtual realities cannot be studied as texts would mean to postulate that they belong outside of such cultural, philosophical and technical history.

Of course, a main difference between our approach and Maldonado is that his main interest is clearly about high-fidelity, therefore with a high degree of realism, images:

“Ma quali sono le motivazioni storiche di fondo di una simile scelta? Perché la nostra civiltà – per intenderci: la moderna civiltà eurooccidentale – a un certo punto imbocca la strada che la conduce a identificarsi con una cultura, come l’attuale, in cui le immagini ad alta fedeltà hanno un ruolo, se non unico, di sicuro dominante? Perché il passaggio da una cultura un tempo basata solo sulla oralità e la scrittura a una cultura basata anche sulla stampa viene accompagnato dalla dirompente adozione di un sistema di rappresentazione visiva così congegnato?” (p.13)

On the contrary, we have already seen that the “naturalism” of virtual realities has to do with the whole embodied experience and we will see later on especially with the simulation of several aspects of the physical world such as temporality. Nonetheless, images certainly are part of our arguments and Maldonado interpretative approach to phenomenology is actually especially pertinent with our semiotic and multi-dimensional approach:

“È pressoché un luogo comune rilevare che il nostro agire percettivo non è né passivo né neutrale. Si tratta sempre di un agire fortemente partecipativo. Va aggiunto però che è partecipativo in quanto è selettivo.” (p.14)

“Non c’è dubbio che per ri-conoscere qualcosa, il soggetto deve conoscere ciò che è rappresentato. Vale a dire, deve aver avuto precedentemente esperienze percettive con l’oggetto in questione. E ciò non riguarda solamente le immagini figurative, ma anche il nostro rapporto diretto, non mediato dalle immagini, con la realtà. [...] Non è detto, infatti, che esista un iconema, e solo uno, atto a sorreggere efficacemente il processo di riconoscimento. Diversi osservatori possono privilegiare iconemi diversi. Nell’esempio della persona amica, alcuni possono privilegiare la sua andatura, altri il suo modo di vestire. In sintesi: possiamo ammettere che il riconoscimento di un’immagine può anche avere luogo quando i dati accessibili all’osservatore siano scarsi o distorti, purché sia salvo quel particolare iconema che un determinato osservatore privilegia come tale. È altrettanto vero, però, che la rappresentazione verista, indipendentemente dal fatto – lo abbiamo visto – che per il riconoscimento possa di solito bastare un iconema, fornisce a tale scopo maggiori possibilità che non una a basso tasso di realismo.” (p.27 & 32)

And even more so if we consider how the role of the third dimension, which is almost synonymic with virtual realities, is also a central part of the realism of images as in the case of the trompe l’oeil:

“Il trompe-l’oeil segna quel momento, assai importante, in cui la gioia dell’appropriazione dell’immagine speculare finisce per identificarsi pienamente con la gioia dell’imitazione. Eppure, il trompe-l’oeil, in quanto immagine che raffigura, ad alta definizione, una realtà tridimensionale su un supporto bidimensionale, ha un limite che non può oltrepassare. Mi riferisco al fatto che questa modalità di rappresentazione è stata sempre legata a un virtuosismo prevalentemente manuale. Ovvero: un virtuosismo artigianale della virtualità.” (p.40)

Fourthly, through his reflection on mirrors, which is by the way in explicit dialogue with Eco’s, the author offers us both a confirmation and a wonderful metaphor of what we have defined as a hybrid position between first and third person: the one of the user seeing himself as both the *distal* and *proximal* object of the representation:

“Il ruolo dell’osservatore, finora perno del sistema, appare adesso incerto. In quanto il soggetto che percepisce è al contempo oggetto percepito, l’osservatore non è più in grado di cogliere ciò che è proximal e ciò che è distal. Egli stesso è proximal. Ma anche distal, poiché si può arguire che, per lo specchio, l’osservatore funge a conti fatti da fonte luminosa, o almeno che svolga vicariamente tale ruolo.” (p.37)

Another point of difference here is however the rather critical approach to virtual reality of Maldonado, for which they are mainly a distance and escape from reality. Something of which the author is perfectly conscious and that he admirably problematizes:

“Infatti il moderno (occidentale) sciamano sogna di poter raggiungere lo stato di trance senza dover pagare (di persona) nessun pegno alle tribolazioni proprie delle pratiche iniziatiche. Ovvero: uno stato di trance che consenta di avventurarsi nel sacro senza abbandonare le delizie del profano. Nelle realtà virtuali egli scorge, per la prima volta, una possibilità concreta in questo senso. Temo che ci sia del vero.” (p.46)

“Non escludo che questo mio atteggiamento, assai critico nei confronti delle realtà virtuali, possa trascurare nei fatti un importante aspetto della questione. È giusto sostenere che l’emergente cultura della virtualità (o, se mi si consente, dell’ipervirtualità) debba prefigurare sempre e comunque una sorta di irreversibile straniamento nel nostro rapporto con il mondo reale? In altri termini: è corretto escludere, in linea di principio, che la frequentazione delle realtà virtuali sia in grado di contribuire a un arricchimento, e non sempre a un impoverimento, del nostro rapporto conoscitivo e in ultima analisi operativo con il mondo reale? [...] La questione sollevata concerne ciò che è stato chiamato il Valore conoscitivo dell’immaginale” (pp.49-50)

Nonetheless, he, as us, considers them actually proper “experiences” and highlight the duality of such objects :

“Alla domanda: “Le realtà virtuali sono esperienze?”, io non esiterei a rispondere affermativamente. Sono consapevole che, così facendo, mi espongo all’accusa di flagrante contraddizione nel mio modo di trattare l’argomento. Da un lato, denuncio il fatto che, a parer mio, le realtà virtuali ci allontanano dall’esperienza; dall’altro, sono disposto ad ammettere che esse cadono, per dirla con le medesime parole di Dennett, all’interno e non fuori dei confini dell’esperienza. È vero, i due assunti non collimano tra loro. Si dimentica però che la contraddizione è nello stesso oggetto esaminato.” (pp.50-51)

Finally, the author also considers the challenge that virtual reality represents for semiotics and hence highlighting how, despite the history behind virtual reality, the textual methodology of analysis needs to be updated:

“Per dirla in breve, la semiotica che fa del convenzionalismo a oltranza, non l’unico, ma certamente uno dei suoi elementi più caratterizzanti. Il che si manifesta, con estrema chiarezza, nel modo in cui essa affronta i problemi riguardanti l’iconismo. Per questa semiotica, le immagini iconiche visive sono dispositivi di natura prevalentemente convenzionale. Dispositivi testuali, o semplicemente testi, testi che acquistano un senso solo tramite una griglia di lettura interpretativa arbitrariamente prestabilita.” (p.52)

“Di fronte alle nuove immagini digitali, in specie quelle virtuali, novità forti nel campo della produzione iconica, sorge spontaneo chiedersi: reggono ancora gli strumenti greimasiani?” (p.52)

“A ben guardare, l’emergere delle realtà virtuali pone alla riflessione semiotica problemi di tutt’altra portata. Ora siamo dinanzi a una sfida più diretta, più incalzante. E la posta in gioco è alta.” (p.53)

“Si deve tener sempre presente il peso inerziale che, al riguardo, può avere (e di fatto ha) la matrice semiolinguistica della semiotica, il suo legame troppo stretto con la linguistica strutturalistica. La verità è che la semiotica comincia a essere vittima di questa matrice.” (p.53)

“Talvolta ho la sensazione, e non credo di essere l’unico, che la semiotica, per questo e per altri motivi, sia rimasta intrappolata in esercizi formalistici senza sbocco, rinchiudendosi, e sempre di più, in una esasperante pirotecnica gergale. Il risultato è davanti agli occhi di tutti: una semiotica che gira intorno ai misteri reali (o presunti) della significazione, trascurando l’assillante mondo della comunicazione. Se questa è la realtà, come io credo sia, varrebbe la pena di imboccare, con coraggio, la strada del rinnovamento. A questo scopo, le immagini virtuali costituiscono senz’altro un materiale prezioso.” (p.54)

“Mi auguro che, per questa via, si possano creare le condizioni per una svolta verso una semiotica della comunicazione. O meglio, per dirla con Habermas, verso una semiotica dell’agire comunicativo. Una semiotica che privilegi la dimensione pragmatica, e in cui dovrebbero occupare un posto di primo piano tutte quelle semiotiche che, da sempre, la tradizione semiolinguistica ci aveva abituato a guardare con sospetto, come indesiderabili escrescenze della disciplina. Tra queste, non solo la stessa semiotica della comunicazione, ma anche, per esempio, la semiotica dell’immagine e della percezione.” (p.54)

The second work will be instead the 2015 revisited edition of “Narrative as Virtual” (2001) written by Marie-Laure Ryan (which thanks to an admirable work of the authoress will be exposed mainly though the first 10 pages introduction containing all the key ideas and perspectives). What interest us here, as a complement to the issue of virtual reality as texts in virtue of their “realistic” means of representation, is the narrative dimension of virtual realities related to the characteristics of immersion and interactivity.

But first things first, this book must be a little bit contextualized. Revised and republished in 2015 to be updated, this book was indeed unfortunate since one of its starting point is somehow the failure of the proper VR technology and utopia:

“Indeed, as I revise this book in 2015, VR has mostly disappeared from the headlines, replaced in the collective imagination by applications of digital technology that affect our lives much more directly, such as mobile computing, social networking, and augmented reality. It is only in the form of virtual online worlds, which are technologically a far cry from what the pioneers of VR envisioned in the last two decades of the twentieth century, that virtual reality continues to fascinate us.” (p.1)

Little could the author know that one year later, in March 2016 with the release of the Oculus Rift, VR would see a “second spring” (Radianti et al., 2020) and reappear once again in the headlines. However, ironically this is absolutely not detrimental to her argumentation since such “failure” is a way to reaffirm her critical reflection on the features of immersion and interactivity from the perspective of both semiotics and literary theory:

“Approaching VR as a semiotic phenomenon, I propose in this book to rethink textuality, mimesis, narrativity, literary theory, and the cognitive processing of texts in the light of the new modes of artistic world construction that have been made possible by recent developments in electronic technology. VR has been defined as an “interactive, immersive experience generated by a computer” (Pimentel and Teixeira, *Virtual Reality*, 11). As a literary theorist, I am primarily interested in the two dimensions of the VR experience as a novel way to describe the types of reader response that may be elicited by a literary text of either the print or the electronic variety. I propose therefore to transfer the two concepts of immersion and interactivity from the technological to the literary domain and to develop them into the cornerstones of a phenomenology of reading, or, more broadly, of experiencing art.[...] My purpose is twofold: to revisit print literature, specifically the narrative kind, in terms of the concepts popularized by digital culture, and, conversely, to explore the fate of traditional narrative patterns in digital culture.” (p.1)

Such approach is extremely interesting since whereas Maldonado focused mainly on hyper-iconism in relation to the visual dimension, Ryan focuses on the relation between immersion and playfulness which belongs to the history of literature:

“The history of Western art has seen the rise and fall of immersive ideals and their displacement, in the twentieth century, by an **aesthetics of play** and self-reflexivity that eventually produced the ideal of active participation of the appreciator—reader, spectator, user—in the production of the text. [...] In pre-Renaissance times, painting was more a symbolic representation of the spiritual essence of things than an attempt to convey the illusion of their presence. Its semiotic mode was signification rather than simulation. [...] In the literary domain, no less than in the visual arts, the rise and fall of immersive ideals are tied to the fortunes of an aesthetics of illusion, which implies transparency of the medium. The narrative style of the eighteenth century maintained an ambiguous stance toward immersion: on one hand, it cultivated illusionist effects by simulating nonfictional narrative modes (memoirs, letters, autobiographies); on the other hand, it held immersion in check through a playful, intrusive narrative style that directed attention back and forth from the story told to the storytelling act. The visibility of language acted as a barrier that prevented readers from losing themselves in the storyworld. The aesthetics of the nineteenth-century novel tipped this balance in favor of the storyworld. Through techniques that are examined in greater detail in chapter 4 of this book, high realism effaced the narrator and the narrative act, penetrated the mind of characters, transported the reader into a virtual body located on the scene of the action, and turned her into the direct witness of events, both mental and physical, that seemed to be telling themselves. Readers not only developed strong emotional ties to the characters, they were held in constant suspense by the development of the plot. The immersive quality of nineteenth-century narrative techniques appealed to such a wide segment of the public that there was no sharp distinction between “popular” and “high” literature: wide strata of society wept for Little Nell or waited anxiously for the next installment of Dickens’s serial novels. The rest of the story has been told many times: how literature, cross-fertilized with the New Criticism, structuralism, and

deconstruction, took a “linguistic turn” in the mid-twentieth century, privileged form over content, and emphasized spatial relations between words, puns, intertextual allusion, parody, and self-referentiality. [...] As happened in the visual arts, **immersion was brought down by a playful attitude toward the medium**, which meant in this case the exploitation of such features as the phonic substance of words, their graphic appearance, and the clusters of related or unrelated senses that make up their semantic value field.” (pp.1-4)

Whereas the aesthetics of immersion implicitly associates the text with a “world” that serves as environment for a virtual body, the aesthetics of interactivity presents the **text as a game, language as a plaything**, and the reader as the player. (p.10)

Such history can therefore on the hand highlight two important points. First, in parallel to Maldonado’s exposition of the discrimination of hyper-iconism from the cultural critique, Ryan highlights the discrimination toward immersion:

“While interactivity has been celebrated by the early theorists of hypertext as a liberation from authorial power and from the linearity of language, the concept of immersion has suffered a vastly different fate, at least until the late 1990s. If we believe some of the most celebrated works of world literature, losing oneself in a book, or in any kind of virtual reality, is a hazard for the health of the mind. Warnings about the ravages of immersion appear as early as in the first great novel of European literature. “In short,” writes Cervantes in *Don Quixote*, “he so immersed himself in those romances that he spent whole days and nights over his books; and thus with little sleeping and much reading, his brains dried up to such a degree that he lost the use of his reason” (58).[...] According to Jay David Bolter, the impairment of critical consciousness is the trademark of both literary and VR immersion: “But is it obvious that virtual reality cannot in itself sustain intellectual or cultural development. ... The problem is that virtual reality, at least as it is now envisioned, is a medium of percepts rather than signs. It is virtual television” (*Writing Space*, 230). And further: “Losing oneself in a fictional world is the goal of the naive reader or one who reads as entertainment. It is particularly a feature of genre fiction, such as romance or science fiction” (155).” (pp.5-6)

Secondly, by putting the playfulness at the center of such discussion she highlights many of the textual characteristics that are problematic for a classic textualist methodology:

“Meaning came to be described as unstable, decentered, multiple, fluid, emergent—all concepts that have become hallmarks of postmodern thought. Though this game of signification needs nothing more than the encounter between the words on the page and the reader’s imagination to be activated, it is easy to see how the feature of interactivity conferred upon the text by electronic technology came to be regarded as the fulfillment of the postmodern conception of meaning. Interactivity takes the ideal of an endlessly self-renewable text from the level of the signified to the level of the signifier. [...] Whereas the reader of a standard print text constructs personalized interpretations out of an invariant semiotic base, the reader of an interactive text thus participates in the construction of the text as a visible display of signs.” (p.4)

It is easy to see here all the points in common between our work and hers. Additionally, she also shares with us the same anti-metaphorical intent about the main notion on the topic of virtual reality:

“Judging by their current popularity in both theory and advertising language, the terms virtual and virtuality exert a powerful magnetism on the contemporary imagination, but as is always the case when a word catches the fancy of the general public, the meaning tends to dissolve in proportion to the frequency of use. In its everyday usage the word virtual is ambiguous, used in the sense of (1) “imaginary” as well as (2) “depending on computers.” (p.7)

“We all know instinctively what interactivity consists of in a computer program—submitting input and receiving output—but it is much harder to tell what it means to feel immersed in a virtual world and how digital technology and interface design can promote this experience.[...] The term immersion has become so popular in contemporary culture that people tend to use it to describe any kind of intensely pleasurable artistic experience or any absorbing activity. In this usage, we can be immersed in a crossword puzzle as well as in a novel, in the writing of a computer program as well as in playing the violin.” (p.9)

And this critical attitude towards terminology brings her to actually suggest to us a tripartition of virtual which of great interest and continuity with our perspective:

“I have suggested here three distinct senses of virtual: an optical one (the virtual as illusion), a scholastic one (the virtual as potentiality), and an informal technological one (the virtual as the computer mediated). All three are involved in VR: the technological because VR is made of digital data generated by a computer; the optical because the immersive dimension of the VR experience depends on the reading of the virtual world as autonomous reality, a reading facilitated by the illusionist quality of the display; and the scholastic because, as interactive system, VR offers to the user a matrix of actualizable possibilities.” (p.8)

But perhaps even more importantly, brings back the essence of immersion to a principle of narration in phenomenological terms:

“For a text to be immersive, then, it must create a space to which the reader, spectator, or user can relate, and it must populate this space with individuated objects. It must, in other words, construct the setting for a potential narrative action, even though it may lack the temporal extension to develop this action into a plot. This fundamentally mimetic concept of immersion remains faithful to the VR experience, since the purpose of VR technology is to connect the user to a simulated reality. It applies to novels, movies, drama, representational paintings, and those computer games that cast the user in the role of a character in a story, but it does not apply to philosophical works, music, and purely abstract games such as bridge, chess, and Tetris, no matter how absorbing these experiences can be.” (p.9)

“Whether textual worlds function as imaginary counterparts or as models of the real world, the reader mentally constructs them as environments that stretch in space, exist in time, and serve as habitats for a population of animate agents. These three dimensions correspond to what have long been recognized as the three basic components of narrative grammar: setting, plot, and characters. The “poetics” proposed in chapter 4 associates these narrative elements with three distinct types of immersion—spatial, temporal, and emotional—and analyzes the narrative devices that favor each of them.” (pp.9-10)

“Yet Roland Barthes, whose vision of a plural text has deeply influenced hypertext theory, viewed plurality as incompatible with narrativity. Was he right? Can narrativity, a reasonably solid structure, be maintained in a fluid environment in which sequence cannot be controlled by the author?” (pp.11-12)

An intellectual move which is directly connected to the cultural reevaluation of immersivity itself and, exactly as in our case, is sustained by a fundamentally interdisciplinary perspective:

“Since the mid-1990s, fortunately, the tide has been turning on the concept of immersion. Interest has come from New Media theorists, such as Janet Murray, who regards the experience as essential to the aesthetics of the electronic medium, and from game designers, who depend on immersion for commercial success. Among literary scholars, Jean-Marie Schaeffer makes immersion into the cornerstone of a theory of fictionality, and Werner Wolf regards it as an essential component of what he terms “aesthetic illusion,” an experience that can be provided by both literature and the visual arts. Meanwhile, psychologist Keith Oatley developed a concept of mental simulation that could be seen as responsible for immersion. This increased focus on immersion can be attributed to several sources: the waning of the influence of “textualist” schools on literary criticism (i.e., schools that describe the literary text as a system of signs held together by horizontal relations between signifiers, neglecting vertical relations to a world), the rehabilitation of popular culture, embodied theories of cognition (to be immersed is to take a virtual body into an imaginary world), the rise of interest in emotions (empathy with characters is a major source of immersion), and advances in cognitive science and brain imaging that reveal the neurophysiological basis of mental simulation (the mirror neurons system).” (p.6)

As for Maldonado, there are however some differences between our proper semiotic approach and hers. Among these the most important is that, exactly as Maldonado, the authoress is mainly interested in a reflection on art and aesthetics almost in detriment of the simulative capacity of proper games:

“and conclude by considering what is (for me) the ultimate goal of art: the synthesis of immersion and interactivity. This book, then, is as much about virtual literature—literature that could be—as about existing texts.” (p.7)

“In chapter 6, I look at digital texts that **reject world aesthetics in favor of game aesthetics**, thereby ostentatiously preventing immersion. The result, I argue, is deliberate dysfunctionality, a phenomenon that can be observed in many different domains: the domain of code, the domain of applications (such as e-mail or graphic programs), the domain of games, the domain of interface, and more fundamentally, the domain of language. **By emphasizing play at the expense of mimesis**, these texts enact a conceptual aesthetics that subverts the mode of signification embodied by language. Can these texts still be read, or are they meant to be simply looked at?”. (pp.10-11, my bold)

“Throughout this book I have regarded the combination of interactivity, immersion, and narrativity as the formula for total art.”(p.250)

To conclude, although their works would have been worth of a far more in-detail discussion, we can find in these key authors all the good reasons to:

1. Conceive and study virtual reality as a form of text
2. Develop new tools and perspectives to analyze them
3. Ground on embodiment, playfulness and digital technology such update
4. Put virtual reality at the center of the debate on contemporary culture

Hoping to have therefore convinced you of the validity of our approach, we can now move on to the concrete proposal to overcome the oddity and difficulties of virtual realities.

3.1.4 Reducing variability: pragmatics of interactivity

We could sum-up most of the previously mentioned issues by saying that virtual realities are difficult to analyze as texts mainly because of the excessive number of alternative utterances that can occur on the screen in a same moment of a given *fabula* or semio-narrative process (term which can be used to refer as the event occurring during the second minute of Super Mario as well as during the second minute of *Tetris*) and that depends on the user's interaction. Indeed, if the reader becomes an author, if the software behavior determining the utterances is partially unpredictable and if the proper object of study is constantly changing, then we can no more study virtual realities as texts since each one may generate an infinity of different texts. However, the variability of the virtual text is actually not absolute and has its rules: the infinity of the possible utterances represented is only quantitative and not a qualitative one. Inquiring on meaning-making, and especially on meaningfulness, requires thus to understand how does the variability of these cultural artifacts work.

A first step for semiotics is to consider virtual realities, this odd mix of simulative games and open-narration, as communicative products. Granted that virtual realities are communicative products with communicative intents, the previously exposed difficulties for the textual analysis can be reduced by seeing how interactions should follow some rules of *communicative usefulness*:

1. Since digital interactive texts lack an expression plane of already present and coherently organized enunciates, which are otherwise the minimum requirement for any meaning-making process to exist, we define *useful* any feature related to the possibility of *producing* such enunciates through interactions. Consequently, *usefulness* here is defined *in opposition to the end or absence of communication*.
2. Since digital games are computational systems that process the information in a static and/or cyclic way, which is typically an *entropic* state of narration and information (repeating again and again the same enunciate), we define *useful* any features related to the paradigmatic or syntagmatic possibility of *creating* new, uncommon and original series of enunciates *opposing an entropic state of communication*.
3. Since digital interactive texts lack an independent progression from a beginning to an end, and reaching this end requires the actual investment of an *indefinite* amount of the player's real lifetime and energy, we define as *useful* any feature *reducing* the effort and time requirement for progression and thus *in opposition to the staticity of the communicative experience* which is another entropic state.

We will call these *the communicative, aesthetic and pragmatic values of interactions*. Values which assume meaning when put in relation with the potential *absence, cyclicity and stillness* of virtual discursivity. These values should however not be considered as Grice's maxims of good communication (1975) but should rather be used to partially predict the reasoning behind a user's interaction. In fact, these norms are more often than not violated, but always in favor of one of the three previous points. Let's make two examples:

- A. A player may violate the second rule by doing again and again the same thing (farming) to obtain something powerful or useful for the purpose of winning more easily, therefore in favor of 1&3.
- B. A player may appositely die or play on a very hard difficulty, violating 1&3, to see something new appearing on the screen and to also experience the artifact in a new way (therefore in favor of 2).

3.1.5 Reducing variability: first-order authorship

A second step is to reduce the variability by outlining the several parts of the text or experience that constitutes a 1) intentionally designed 2) pre-made 3) coherent and potentially self-sufficient 4) non interactively alterable (excluding mods) section of our artifact.

Let's look at some of the most common example:

1. Epitext (Lore): The written information in a booklet (Super Mario) or official website (League of Legends)
2. Paratext (Titles): The title of the game and of its chapters (such as in Death Stranding)
3. Text (Videoclips): The cutscenes (often introducing and ending the experience, even in a game such as Tetris) and fight animations scenes (such as the attack in the *Super Robot Wars* series),
4. Text (Events-Dialogues) non-optional and branched dialogues and gameplay events (such as meeting Oak and Gary at the start of *Pokemon Blu*)
5. Text (Actions): The allowed agency of the player's avatar (in the 1996 *Tomb Raider*, Lara croft can run, climb, jump, use guns but cannot play guitar nor cook a pie).
6. Text (Event-Rules): The succession of events depending on the rules (in *Crash Bandicoot 3* the first boss can only be beaten by hitting him three times, can only be hit one time after a series of jump, and after each hit will require Crash to avoid a series of running lions).
7. Text (Setting): The spatial (the cave and temple at the beginning of Lemmings) and historical-temporal (an alternative 1960 where the Nazis have won the War in Wolfenstein: The New Order) reference where the gameplay will occur.
8. Text (Database): The names and mathematical values associated to the game's items (Such as the car named "Suzuki Escudo Pikes Peak Version" with a top speed of "411 kilometers per hour (255 mph)" in Gran Turismo 2)
9. Text (Artwork): The style of the game (The cartoonish style of XIII), its music and the visual representation of some of the game's objects (the appearance of the bosses in *Shadow of The Colossus*)

All these elements are an example of how an interactive experience try to secure their meaning by establishing *stable semantic traits, coherent narration and encyclopedic references*. These are fundamental part of *any* given virtual reality and will be referred to as *first-order authorship* (FOA) of virtual texts that can be studied separately without many issues.

But most importantly, a semiotic of meaningfulness inquiring on virtual realities will focus on two interrelated aspects:

- 1) The recurrence of socially relevant content across different FOA in virtual texts
- 2) The dialogue between FOA and user interaction as a form of interpretation

In fact, although mods and cheats can influence some of them, modification of FOA always occur *after* a first encounter with the intended meaning of the game. To make a concrete example: the mod (more on this in 3.4) substituting the dragons of *Skyrim* with *Thomas the Train* is not only absurd but also amusing precisely because of the awareness of this substitution. In this sense, the main original and intended elements securing the meaning of a certain digital text is never truly absent and is the base for the dialogue between players and creators. From a methodological point of view, this also implies the FOA is going to be the first part of the text analyzed.

3.1.5.1 Kristian Bankov: economy of meaningfulness

Whereas many of the FOA elements of virtual realities do not represent an issue for a traditional semiotic approach, there is nonetheless one key element that must be added to any proper inquiry on a given virtual reality or on a series of them. This new aspect is related to the mathematical nature of virtual realities and even more so to their general gamified system of rewards-victory. Indeed, in games numbers and rules are used to generate values, reasonings and behaviors (strategies) which work as arguments of a given discourse and interpretations of the world when contextualized within a certain portion of encyclopedia. To make the simplest example possible: it is certainly not a coincidence that altruism and parsimony do not reward the players of Monopoly. Similarly, it is extremely common for digital games of all genres and periods to have some form of “trade” allowing the player to acquire *desired* virtual items through a form of virtual currency that must be *earned*. Games are often designed as systems of resources (health, mana, coins, bullets, units, food, time, and so on) that need to be traded, invested and used with care. Finally, both the effort to acquire what is wanted and the pleasure of virtual items obtained are a key part of what is deemed as the “experience”. The question is then how such aspect of virtual realities can be included within a semiotic methodology and perspective. In fact, even outside of semiotics there has been somehow little interest for the meaningfulness related to the amount of “work” (learning, time, trials, etc..) required by games. All the hypertextual theories of digital games, focusing on narrative architecture and space of exploration, are a clear example of this. Even outside of academia and within the public debate, the stereotype of games as something non-serious, and therefore somehow easy and immediately satisfying, is still dominant.

The solution to this issue can be found in Bankov’s economic perspective on meaning, which was first used/adapted by us back in 2018 from his work “Scarcity and Meaning: towards a Semiotics of Economic Transaction”. In this paper, the author was not going against textuality nor explaining something related to virtual realities but was nonetheless clearly interested in both an economy of experience and in the concrete usage of signs and values:

“If “How to do things with words” is the slogan of pragmatics, “How to get things with signs” should be the slogan of transaction semiotics.” (p.2)

“An inspiring study on the monetary history of the major regions of the world shows, among other things, that money and finance are crucial for “the ability of humans to imagine and calculate the future” (Goetzmann 2016: 2). Such a statement launches an important bridge between philosophy and economics, encouraging the semiotically enlightened reader to explore the consequences on the side of semiotics that are left unexplored by the author of the study [...] The bartering subject acts economically with regard to a short-term project where his/her present resources (tradeable goods) and future needs are planned with the intermediation of an expected exchange” (pp.4-5)

This interest, rather rare in the panorama of semiotics, was the reason for which we guessed that it could be the right one to explain the new interactive logics of virtual realities where users, and especially players, are almost constantly calculating the best interaction to progress and act in the game. “Best” here must be understood not only in terms of winning or losing but more generally as a way among others to pursue their own objective of the game (which as we will see can also be losing or messing around). But the most important concept in Bankov’s early theory of semiotics was without a doubt the connection between *meaning, work, trust and scarcity*:

“Various metals, ornaments and shells were among the most evolved forms of commodity money and they gradually changed the logic of the money sign. The utility function was substituted by the scarcity principle and we shall see why this principle is so important for the present considerations” (p.5)

“The money sign is a carrier of value which is always scarce in respect of the needs and desires of people. Money, to keep its value, must be scarce as well and must correspond to the objective scarcity of production. So, a crucial part of our trust in the economic system, even when we are not aware of it, is the scarcity of money in circulation. As soon as the amount of money in circulation increases considerably, people assume a higher propensity to have property and provisions rather than money, and the prices increase. When this happens, our trust in money declines, it loses value and meaning together with our trust.” (p.8)

A connection which acquires meaningfulness in relation to the most precious resource of our life: time.

“behind each transaction of value there is a transaction of time, or rather an economically temporalized time.” (p.11)

First of all, Bankov highlights through Heidegger how the meaningfulness of scarcity depends on the scarcity of time:

“In the core of the authentic concept of time in *Sein und Zeit* is “the thesis of the primordial finitude of temporality.” (Heidegger 1996 [1927]: 330). “Primordial” would mean that the comprehension of the problem of time is not a question of knowledge, but a mode of being and such a mode is inescapably being-towards-end with predilection of the future in respect of the present and past. According to Heidegger, such conditions of finite time for our existence – the finitude of temporality – allows all other every day or scientific temporalizations of time, which are inauthentic (as the circular one). It precedes them, it is their condition of possibility (250-252, 331). *But this finitude is something quite close to the notion of scarcity.* This finitude is the scarcity of time which every human being has to face, the unavoidable end of our life which eventually comes. If we follow Heidegger’s analysis of the primordial finite temporality, such a condition determines the meaning of all things that fill each one’s existential project. Now, economic discourse seems to be a completely different universe; but if we look at the definition of scarcity, actually some homology starts to appear: “Scarcity is the fundamental economic problem of having seemingly unlimited human wants in a world of limited resources”. *According to my proposal here, what is at the core of economic value is the condition of perpetual struggle with scarcity/finitude in which primordially our being is situated.*” (p.12)

Secondly, this phenomenological dimension of meaning related to time is put by Bankov in relation to time through the work of Paul Ricoeur showing how there is a strong connection between the time of the reader and the narrative.

“In his fundamental work *Time and Narrative* Paul Ricoeur provides us with the notion of emplotment, which puts together the temporal perspective of the hermeneutic phenomenology of Heidegger and the theory of narrative (Ricoeur 1984). Emplotment is about how the human’s ongoing experience with reality assumes narrative form thanks to its temporal constitution. The content may vary from culture to culture, from epoch to epoch, from individual to individual, but narrative emplotment is what makes the world accessible to human purposes.” (p.13)

Finally, in real life the value of the commodity resides in the *trust* in the future and is forever uncertain:

“But let us see why “trust inscribed” captures the essence of money. It means that the value of money is not, for example, an intrinsic property of the money sign as mercantilists and many others thought about gold. Nor is the value of money in incorporated labour, as Marx proposed. The value of money comes, instead, from the trust we have in the future of the whole economic system. The value is a common bet among the interested economic actors that the trade between the available goods, services and any other product of our work will meet our future needs and desires. Money – and, more generally, finances - are the regulative principle of the bet, the means that makes it possible. [...] “Long term economic predictability, which is the origin of global wealth, depends on the stability of the value of money. And that stability is not given for granted.” (p.8)

This perspective allows us to understand how the rhetoric power and hyperrealism of virtual realities also comes from the simulation of a system of sign-values based on trust and scarcity requiring the user’s time and allowing the user’s projectuality. Virtual realities are systems *simulating scarcity* that are able not only to have their users work hard for a commodity to achieve goals (such as buying an expensive house) but also creating social differences among the different users.

“Artificial Scarcity” is indeed often a hot topic inside the gaming community, as in the case of the following 2018 article about *Player Unknown's Battlegrounds* (2016)⁷¹:

“Artificial scarcity raises aftermarket values for ultra-rare cosmetics.”
“It's not a huge surprise that the latest test server update for the insanely popular PlayerUnknown's Battlegrounds on PC expands the game's free and paid loot crate system. Despite recent controversy over the practice, loot crates remain one of the most efficient ways to monetize a huge player base and encourage players to keep coming back for a regular drip of Skinner box rewards. What is surprising is just how uncommon some of these new cosmetic items are. In fact, the rarest free items in PUBG's new crates will only show up for the average serious player once every 80 years, while the rarest paid items will require an average of nearly \$1,600 (and five years of dedicated play time) to unlock.”

In this sense, virtual realities are made of digital items and signs which can theoretically be infinitely reproduced but, as any players who has ever cheated knows very well, such infinity correspond to a significant loss in the meaningfulness of the experience. Economies influence so much the experience of virtual realities, by creating purposes and projectuality, that in some cases buying everything correspond to the total loss of purpose and bringing players to conclusions very similar the one that they can have in real life:

“I have almost every car in the game, every property I can own. A yacht, all the businesses, and over \$100 million in my account. Do you know how fun the game is when you get to this point? It's NOT. I have absolutely nothing to play for anymore. The thrill of buying something after weeks of grinding is no longer. I spend my playing time lonely, trolling others in a Hydra, and picking off randoms with an explosive sniper rifle from a rooftop. It's lonely. It's boring. It's terrible. Everyone in the game cries, "I want monies! drop money!" But when you have it all, it's terribly depressing. The game is almost ruined for me. There is absolutely no joy left in doing anything. **The old saying "money can't buy happiness" rings true even in the world of Grand Theft Auto.** And apparently you can include "picking off randoms with an explosive sniper rifle from a rooftop (in GTA)" onto the list of things that can't buy happiness.”⁷²

Additionally, it also helps us to grasp one of the main reasons behind our idea of virtual realities as *utopias* since they are systems allowing for an unprecedented level of trust: users can invest time and effort to pursue their desires without ever having to worry about something like the one that occurred to the grandmother of Tsutomu Uematsu⁷³ which saw how the value she worked so hard for became completely worthless with the 1945 soviet invasion of Sakhalin nor about economic crisis drastically increasing the price of a given resource.

Bankov's semiotic of transaction applied to virtual realities therefore requires a methodology of analysis that must thus consider:

- A. The resources represented in a given virtual reality and their functions
- B. The degree of transparency of the systems in relation to the use-value of a given valorized virtual value or item.
- C. The relationship between resources and desires obtainable through trade
- D. The distribution of these resources to understand their values and social meaning.
- E. The effort required to obtain such value in relation to the finitude of the users' real time and energy

⁷¹ <https://arstechnica.com/gaming/2018/01/the-rarest-new-pubg-items-show-up-once-every-80-years-on-average/>

⁷² <https://mashable.com/2017/08/07/gta-rich/?europa=true>

⁷³ Hope invites | Tsutomu Uematsu | TEDxSapporo : <https://www.youtube.com/watch?v=gBumdOWWMhY>

More generally, the semiotic inquiry of virtual realities will be enriched with and by the following fundamental concepts:

- **Effort:** The consumption of time and energy of the user to acquire a certain virtual item (car, weapon, dress, house, and so on), narrative outcome (good ending) or social status in multiplayer games (i.e.: becoming the leader of one of the top guilds in WoW). The term can also be used in relation to the violation of the communicative values (such as through repetition) and in relation to experienced negative I-emotions (such as through failure). As we will see in 3. this term comes from Espen Aarseth (1997).
Time example: In *Bully* (2006) if the player is caught for his misbehavior, he must mow a lawn through a boring mini game which consumes the real time of the user.
Energy example: In *Metal Gear Solid* (1998) when the character is tortured the player must press the buttons with so much speed that he will be physically tired.
- **ObjectofDesire:** Any given virtual item, narrative outcome, aesthetic production or social status that can be obtained through effort and is not granted. This term is chosen as a complementary aspect of the ObjectofValue (Ov) in the Greimasian terminology.
- **Transparency:** The possibility for the player to invest his effort and to trade resources while knowing 1) the outcome and precise advantage of his investment 2) the existence of all the virtual world's items and resources. More generally, it can be referred to the amount of information available to the user to make a choice that could have negative consequences in terms of effort. As we will see, different degrees of transparency exist.
- **Trust:** The degree of stability inside a given system of values, for which 1) what was obtained in the past will not risk losing value and 2) the effort required to obtain a certain object of desire will not increase. Offline and non-updatable games present the highest degree of trust possible, while online multiplayer games typically the lowest grade.
- **Scarcity:** The rarity of a given odd, whether because of limitation (in the main story of *Bloodborne* only one "Blood Rock" originally existed) or extremely low chance of appearance (In *Borderlands 2*, the chance of getting a perfect variant of the shield "Hide of Terramorphous" is approximately one in 100.000.000). Scarcity as a key function in the evenemential nature of virtual realities, increasing indeterminacy.

Lastly, these concepts will then establish a perspective to inquire the virtual items in terms of *use-value* (reduction of effort to accomplish something, example: a car so fast that any race is easily win), *labor value* (the amount of work needed to obtain something: example a sword that has a 1% possibility of spawning inside an infinitely farmable chest) and *trade value* (the possibility to trade a given item in relation to both its use value and labor value).

3.1.5.1b Economy and interactivity as experience in digital culture

Our application of semiotics of transaction to virtual realities was at the time approved by Bankov but not yet formalized by himself, something that changed this year (2021) with his new work “The Fall of Textuality and the Rise of Interactivity”. In this new work meaning as an experience is once again focused and put directly into relation with interaction: “We may say that *interactivity transforms information into experience*.” (p.1)

For Bankov this is something possible only when abandoning a textualist ontology and embracing both the idea of meaning as scarcity and of the digital as new form of narrative:

“Our proposal is to place interactivity as the ontological principle of a paradigm for digital semiotics, not because of the psychological consequences, but because of the deep shift in the formal conditions of meaning it brings. In digital culture, language is no longer the lord of semiotic phenomena, the latter is *the communicative disposition of the culture holders*. The language is there, together with an incredible variety of visual, audio, kinetic and other expressive forms. But it is a different kind of temporality that determines the syntagmatic chain of meaning making. In the textualist perspective, the theoretic grasp is based on the immanent relations inside fixed texts, which are later projected over a cultural reality that is supposed to have a sedimented pattern of occurrence. In digital culture there are no cultural sediments, there is no time for long lasting habits to take place before the new ones are requesting adaptation. The cultural logic is that of the participation in a mediated flow, where the battle for meaning and recognition of our digital existence meets *the scarcity of time and attention* of those we are addressing. [...] My proposal here concerns a shift in the epistemic setup of the problem of semiosis, which unites forces with those researchers on the side of semiotics who take seriously in consideration ludologists’ critique (for instance Ferri 2015), but trying at the same time to preserve the theoretic integrity of the science of signs. In a very unexpected fashion though. The main point is that the *textualist approach* is inapplicable (or at least unsatisfactory) to the interactive communication in general and to video games in particular. Such claim goes against the most successful attempts so far for semiotic analysis of video games and the textualist ontology of Paris School, defined in its utmost expression by Gianfranco Marrone (2010).” P.2

Digital games are indeed an explicit metaphor for a new type of narration founded on economy:

At the time of Shakespeare and, later, of the textualists, the whole world was a scene where what was taking place was previously written as text; today we may imagine the whole world as a videogame where each player’s participation depends on the availability of resources like lives, time, power etc. *The cultural logic of the digital age is economic and not linguistic as it was before*, in the same way one story may work as a linear narrative and be experienced (rather than interpreted) as a videogame in a completely different way. One thing is to produce sense, playing with the dead body of the text; another is to be inside the narrative and qualification, performance and sanction to depend on your decisions, skills and management of scarce resources.” (p.2)

Moreover, Bankov highlights the importance of the *production* of the text and goes in our same direction in regard to the meaningfulness of what is obtained:

“it is far more pertinent for the sake of analysis to identify a formal equivalent of *productive performance* and *consumption of resources*. [...] Ludoproduction (i.e., the gameplay) occurs through ludoproduktive sequences or rounds, each of which can be subsumed to *semioeconomic formalization*. Castronova, an influential author of video game analysis shaped the slogan “scarcity is fun” and I think that it expresses my point quite well (Castronova 2001: 14-16). Each ludoproduktive sequence is established by determined ludoproduktive goals (Tetris: to complete number of lines; Space invaders: to shoot all alien ships; Puckman: to eat all of the dots; Minesweeper: to uncover all the squares without mines; etc.) and resources to achieve those goals. [...] The generative trajectory of ludoproduktivity, which is still to be designed, should follow the different levels of scarcity constraints, which the gameplay faces, from the most abstract level like playing for fun, for money, for recognition, etc., to the utmost concrete resources on disposition for concrete ludoproduktive sequences “inside” the game.”

And, finally, Bankov’s own proposal is directly aimed the study of digital culture:

“In such context my suggestion is to consider the advent of *digital culture as a transition* from writing culture to the formalized interactivity of video games. And here I do not envision dystopian scenarios of science fiction, where entire societies are ruled by totalitarian regimes as giant video games. My point is that the logic of semiotic translation of the offline everyday life through interactive digital technologies is commercial, economic and algorithmic, in the same way

in which in video games in higher level of formalization basic economic operations of scarcity management are *simulated* for fun. The method of inquiry should be the same – semioproductive or semioeconomic and not textualist. Digital culture is implicit gamification of everyday life where scarcity is not only for fun, but real condition of the whole structure of social fabric.”

Indeed, this textual novelty is directly related to digital technology and culture:

“The apparent continuity with the pre-digital expressivity pushed many new generation semioticians to face video games with the existing textualist tools, proved to be of great efficacy in passed times. The results are not satisfactory, and not only from my point of view.” (p.2)

“A first step would be to establish that interactivity is the essential aspect of digital culture every time we have cultural experience mediated by a digital technology.”

While we of course endorse and are encouraged by such perspective, we nonetheless slightly disagree with two main aspects of Bankov’s argument

1. The idea that textualism should somehow be abandoned, while in our proposal it must complemented and integrated. More generally, whereas the author seems to deny the possibility for a structuralist logic of the difference to grasp the construction of meaning-making in experience, we will prove that the economics of most virtual realities follow such principle of difference to grant an identity to their entries.
2. The choice of “interactivity” as a main notion, a vague term that we will propose to abandon in the next section.

Despite these two critiques, Kristian Bankov’s own theory of meaning will be used by us to complete the traditional semiotic approach and particularly to highlight the *valorization* occurring in virtual realities.

3.1.5.1.1 Economy of differences and sociosemiotics

The semiotic analysis of the economy of a given virtual reality can have fundamentally two main goals. The first one is to discover what kind of cultural units, like the social value of “family” in *Children of Morta* (2019), is both proposed as desirable and valorized in a given text, which then allows for a second inquiry on if it is a recurrent one in other texts circulating in a certain portion of the semiosphere. The second aim is to observe and understand how the users react, interpret and behave in such economies.

In this sense, by following the definition given by Santangelo in the introduction of his “Sociosemiotica dell’audiovisivo” (2013), it is an inquiry aimed toward understanding society:

“Sociosemiotica, una disciplina che, d'altra parte, si pone proprio l'obiettivo di comprendere il significato socialmente condiviso dei propri oggetti d'indagine” (p.13)

“il significato dei testi non è da ricercare solo nei testi, ma nell’interazione tra la struttura dei testi stessi e lo sguardo di chi li interpreta, rendendoli, per l’appunto, significativi [...] ciò che diventa interessante, allora, è capire perché certe interpretazioni circolino all’interno di un determinato contesto culturale: anche l’esistenza di certe pratiche interpretative ha infatti un senso, che deve essere indagato.” (pp.13-14)

However, in this thesis we are not offering a truly sociosemiotic approach but rather the instruments to conduct such inquiry. To do so, the first thing to acknowledge is that most virtual realities allowing both a positive (euphoric) closure (such as reaching the end of the level, obtaining something desired, having an high-score, etc.) and a negative (dysphoric) one (game overs, unwanted narrative outcomes, excessive effort to reach a certain goal, etc.) include a series of “choices” that at a first glance can be broadly classified as either good or bad for the purpose of obtaining whatever is offered as valuable in the text and whatever is desired by the user. Obviously, good choices will correspond to positive axiologies and bad choices to negative axiologies.

These axiologies, or more simply put this “things” that are demonstrated as useful coherently with the previously highlighted pragmatic values, regard three main classes of objects:

- Performative Capacities: A console fighting game, a VR shooting experience and a PC turned base strategy game and an MMORPG encourage the players’ learning in different ways and rewards them for different behaviors.
- Meta-Logical Capacities: Depending on the text, a certain virtual reality can offer a stronger a weaker reason to discover and exploit untold/hidden rules, the mechanics related to the digital nature of the artifact and so on.
- Cultural Figures & Cultural Units: any kind of semantic content explicitly represented and fundamental to win or progress: cars, guns, animals, gold, clothes, and so on. But also any kind of explicit narrative or value.

Since this usefulness is based on the inner and non-modifiable mathematics and rules of the game, it rightly belongs to what we defined “first-order authorship” and is a very solid ground for meaning-making.

However, after that we observe and accept this, we are now in face of three main issues:

1. One of the fundamental properties of virtual realities is precisely that, mainly because of their syntactic indeterminacy, they do not present a dual logic for which one choice is right and the other is wrong. On the contrary, often many different choices are designed as potentially all rights depending on the users' preferences.
2. A second fundamental property is that virtual realities are based on playfulness which, differently from the more traditional and formal concept of "game", is usually beyond the idea of winning/losing. Additionally, playing also encompasses a form of autotelic semiosis for which the player decides its own goal and therefore can determine different forms of "usefulness"
3. Surely, the desires of the users come before the interactions and choice inside the virtual realities. Thus, it is unclear how this layer could properly belong to an external authorship postulating what the user must aspire to acquire.

The answer to the first issue is that the elements of virtual realities acquire their identity very semiotically within a system of inter-definition. Inside these systems each element usually has a certain degree of convenience for a certain purpose in relation to all the other possible alternatives. As an example, each car of *GTA V* has different statistics of maximum speed, acceleration, handling and so on and so forth. In addition, each car has a certain aesthetic and belong to a certain category/classe (supercars, off-road, etc.). In a fantasy game the same logic would apply for armors and spells, in a shooting game for firearms, in a life-simulator such as *The Sims 4* (2014) for furniture and items such as the different violins⁷⁴, in a medieval strategy game for troops, in the VR spatial simulation of *Elite Dangerous* (2014) for spaceships, of players in sports game, etc. Finally, a last and fundamental criteria is the expensiveness and rarity of a given elements in terms of effort. As we will see later with our case study, these elements constitute a real network generating the meaning of both the text and of the experience.

The answer to the second problem is that, despite their claims, virtual realities are actually pretty closed and limited systems allowing a rather limited range of "purpose". Even by looking at the most extreme modification of the files ("mods", more on this later) we can see how such modification rarely invent new purpose and almost always modifies features which were already present. This does not mean that the players cannot do surprising things, such as organizing an online funeral in *WoW*⁷⁵ and recently for a victim of Covid-19 in *Final Fantasy XIV*⁷⁶. And yet, even in this case we can easily see how such funeral is fundamentally a gathering of avatars inside a world precisely designed for this activity. Differently from other artistic artifacts with semantic indeterminacy, the infinity of possible utterances in virtual realities allows for few qualitative variation of what is represented on the screen.

Finally, the third issue is precisely the point of interest for a semiotic inquiry since the continuity between worlds is not only phenomenological but also sociological. Not only the objects of desire are taking from mass-culture, from the bodies of celebrities sold in *Second Life* (2003) to the most expensive cars of *GTA V* online being often modelled on the most expensive cars of the real world (example: The Grotti X80 Proto based on Ferrari), but even the very logics of a consumeristic and competitive society described by Baudrillard (1970) can all be easily recognized. This can also explain why it is possible to be shamed in virtual realities by being strip naked and of all our

⁷⁴ https://sims.fandom.com/wiki/Violin#The_Sims_4

⁷⁵ <https://www.thegamer.com/world-of-warcraft-most-infamous-events/>

⁷⁶ <https://globalnews.ca/news/6832247/coronavirus-video-game-funeral/>

possessions⁷⁷. In this sense, virtual realities are all but fictional in implementing mechanics which are a copy-cat of our every day's life. So much that, in the case of virtual realities where the real wealth of the player can make a difference in virtual worlds and create real class divides:

"Last week, Bethesda revealed a premium subscription service for *Fallout 76*. Things started rough with glitches erasing player supplies and private servers that weren't all that private after all. Now there's another problem: growing tensions between regular and premium players splitting the community on economic lines and creating a burgeoning class war in digital Appalachia. Underneath this is a debate between players over what is or is not "pay to win," with an ongoing argument that's spilling into the game itself. Reports of players attacked for having premium status and hunkering down to defend themselves from normal players have captured attention on social media and Reddit, though these stories haven't been corroborated. Regardless, it's clear that *Fallout 76*'s community is split."⁷⁸

This can however be also used as a tool for social critique and reflection as in the case of *Death Stranding* (2019) in which the "like" is at the very center of the mechanics and narrative.

As a last note, several doubts could arise in relation to the idea of a meaningfulness of economies in virtual realities.

Firstly, not all digital games present a system of "buying" and this even more rare in the case of VR. This point is however easily resolved by looking at the pragmatic values that we already highlighted: there is absolutely no need of currencies, shops or even of a proper inventory for the valorization of something, both on the level of the performance and of the representation, through effort and time in relation to some kind of pleasure and rewards.

Secondly, not all forms of economic valorization seem actually meaningful: is the fact that a bazooka is more costly than a gun, a Lamborghini more than a Fiat (Gran Turismo 6), a super monkey more than a dart monkey (Bloons TD6), particularly meaningful? Of course not. It would be absurd to deny that such values depend on the continuity between real social world and the virtual one in terms of possibility and plausibility. Nonetheless, there are three other ways to look at a possible meaningfulness of such network of differently valorized cultural elements. First, in texts with a symbolic narrative each element can be seen in terms of semantics, which is what we will see in our analysis of *Dark Souls*. Second, this very continuity can be inquired by both a sociological approach and an intertextual perspective. Lastly, the structure of values will determine the possibility of a second authorship through enunciation, through the possibility of making a "worse" choice, as we will see in the next section.

Thirdly, different texts often present similar valorization of both cultural elements and behaviors. It is for example very hard to think at a virtual reality not encouraging "exploration" or "perseverance". Does that mean that such virtual realities all share the same meaning? Absolutely not. The inquiry on the valorization is never an abstract one but must be put into relation with the whole semantic structure of the texts, therefore being able to highlight meaningful isotopies or metaphors. In addition, this recurrence of valorization may also highlight an interesting path of research on the notion of "genre".

⁷⁷ <https://www.polygon.com/2015/5/6/8559503/guild-wars-2-cheater-banned-video>

⁷⁸ <https://kotaku.com/fallout-1st-is-creating-a-class-divide-among-fallout-76-1839423973>

3.1.5.1.2 Economy, narration and aesthetics

One of the best reason to consider the economy as a central part of the FOA analysis is perhaps the direct relation between a given reward-system and the “beauty” or at least interest of the utterances on the screen. As it has already been noticed, virtual realities are designed to reward the users for certain “choice” not only in terms of points and wins, but also aesthetically:

“In alcuni casi, ad esempio in *Sniper Elite 3*, l’headshot è premiato non soltanto con un maggior numero di punti, ma con una vera e propria sequenza spettacolare in cui gli effetti del colpo alla testa sono mostrati da diverse angolazioni.” (Fassone, 2017, p.70).

And this is true also in totally different genres such as in the racing game *Burnout Takedown*⁷⁹ (2004), the stealth game *Tenchu 3* (2003), or the first-person shooter *Bulletstorm* (2011) where the “skillshot” system of points is used for fundamental in-game functions (such as buying bullets) and is precisely meant to encourage the player in writing an interesting and spectacular “narration”.



These examples highlight how the user is often pushed to “activate” sequences of the game that are mostly premade (whether brief animations or short videoclips) and therefore how the infinite potentiality of the actual gameplay can be sensibly reduced through the economic aspect of interaction. Most importantly, this reward system is never neutral but is always about specific semantic entries positively valorizing a given content (i.e.: speed in *Burnout*) both in terms of representation and of mental attitude (i.e.: boldness in *Burnout*) or skills (i.e.: object-control in *Burnout*). Finally, we can then see how the apparently less narrative part of games, the system of rules and rewards depending on mathematics and inputs, is producing on the screen the very narration and the beating heart of the “experience”.

⁷⁹ <https://www.youtube.com/watch?v=IRLCAfgPhj4>

3.1.5.1.2.1 Economic and narrative meaningfulness of Esports

A very interesting social phenomenon is without a doubt the rise of Esports: competitions of thousands⁸⁰ of professional players facing each other for significant sums of money. Specifically, in this section we are interested in Esports as a both live and broadcasted form of entertainment. Whereas on the one hand the interest for Esports has to do with the spectacle of human manipulating machines as if they were machines themselves, developing unbelievable motor reflexes, visual skills and decision-making talents to act in virtual world with unbelievable efficiency, on the other hand Esports, as other sports, are obviously intrinsically narrative product. The most iconic proof of this is the centrality of the “comeback⁸¹”, of a moment of unexpected victory after everything seemed lost, across very different competitions: *StarCraft II*, *CSGO*, *League of Legends*, *Fortnite*, and the whole series of fighting games disputed at EVO. However, it would be impossible to understand the narrativity of esports by ignoring the intrinsic economy producing such entertaining narrations. This is especially true in regard to Esports that are defined by an overwhelming quantity of mathematics deciding the value of each action/decision and which are constantly changing and producing what is known as the current “meta”. In these titles, good players are first of all good investors and the viewers’ inferences are inevitably also about the ongoing economy represented on the screen. This economy is, in fact, very often explicitly represented in terms of gold or resources:



⁸⁰ <https://www.ispo.com/en/trends/top-most-popular-esports-games#:~:text=With%20a%20total%20of%2013%2C029,the%20most%20popular%20eSports%20game.>

⁸¹ <https://www.youtube.com/watch?v=9jCxF5XAk8>



To better understand the relevance of economics on narrativity, we will now very briefly consider two of the most famous “plays” of Esports: “The Play” from DOTA and “Faker vs Ryu” from League of Legends. And we will see how, in each one of them, the narratively unexpected and enthralling came fundamentally from a good investment of money.

The “Faker vs Ryu” moment occurred in 2013 during the Grand Finals of the HOT6ix Champions Summer⁸². Here, two opposed teams of five players were facing each other in a deciding fifth game. “Ryu” and “Faker” were the players of two opposed teams which at the beginning of the match selected the same character and therefore would share a same pool of possibilities/virtualities. Toward the ends of the match, the player known as “Faker” would eventually face “Ryu” at disadvantage since he would be under half of his health, and in the end Faker would unexpectedly win the fight. On the one hand this particular event became memorable because of the skills required and showed since in less than eight seconds Faker took twelve decisions and pressed more than twelve perfect inputs to execute his decisions (Run Away – Use Item Blade- Run Away- Use Ultimate to avoid fire- Movement toward tower to avoid attack- Use Quicksilver Sash- Q attack – Use Ignite- Auto Attack – Dodge Attack laterally with flash - Use W Skill – Use E Skill). Everything was so complex and so fast that even expert players and viewers of the game would not immediately understand “how” Faker had win. On the other hand, however, it emerged that faker could win such situation mainly because of an item called the “Quicksilver Sash”. Despite Ryu and Faker having the same character at the start, they did not invest the money earned during the match in the same way (characters can be “enhanced” with different items that must be bought) and Faker’s choices in the end were better than Ryu’s.

⁸² <https://www.youtube.com/watch?v=cPAjwNa8MfE>

The second example is very similar to the previous case, although instead of a one versus one “duel” it was a five versus five team battle. “The Play” is a particularly brilliant event that occurred in the game “DOTA”, a videogame being almost identical to LoL for many aspects and took place at the International II in Seattle during 2012⁸³. Here, the Ukrainian team “Navi” faced the Chinese team “Invictus” in round 2 of the winners’ bracket”. After a first match won by Invictus, the second match was instead going in favor of Navi and so the Chinese team elaborated an almost perfect plan to trap the opposing team and defeat it thanks to the coordination of each of the characters’ special skills. More specifically, the strategy was based on the ability of one character, a siren, to magically put all the other characters to sleep and another ability of another character to magically “stun” all the adversaries. However, despite a perfect planning and perfect execution, the trap (“gank”) actually and unexpectedly turned against the Chinese team who were lastly defeated. Exactly as in the case of Ryu vs Faker, two distinct aspects must be distinguished. On the one hand the victory of Navi was due to a fast and admirable decision-making and group coordination plus communication, but on the other side here again “itemization”, the trading of resources to buy items, was a key factor since two out of five characters could avoid the second magical effect thanks to what they had bought.

Of course, it would be unfair to attribute the authorship of these event to the authors of the mathematics and rules of LoL /Dota or to the creator of the specific items, but nonetheless it would also be ingenuous to conceive this meaningfulness totally outside of FOA as a pure invention of these players. Not only economics and mathematics are at the very heart of virtual realities but they are also a true machine producing the narration and meaningfulness both in terms of present event of a future projectuality.

⁸³ <https://www.youtube.com/watch?v=OICPTHHSfcA&t=466s>

3.1.5.1.2: Time as value

We have defined effort in relation to faced difficulty and spent energy (both cognitive and physical), which as a consequence also corresponds to a certain amount of time spent through trials and errors. In some cases this effort is far from being metaphorical, not only when games are particularly hard and punishing but also in cases such as in the “fitness game” Ring Fit Adventure (2019) where the players have to do real physical exercises to execute in-game actions. But virtual realities can also create meaning as a result of economies of time which are independent from difficulty. Actually, the success of mobile gaming cannot be explained without such a feature. The most iconic example of this kind of valorization is perhaps the mobile game AFK ARENA (2018) who present itself as a role playing videogames, a genre typically characterized by a great amount of time spent by the players blended together with a fair amount of effort and fallibility, which is advertised as “Cheat on your RPG”⁸⁴ proposing easy victories, fast level-up, and great rewards with the minimum possible amount of effort, so that you can even play to this game while working.



Whereas on the one hand the math's and economics of classical RPG would therefore create meaningfulness by embracing a series of social and philosophical values (self-perfection, determination, constancy, learning by doing, learning by failure, and so on), the different requirement of effort of AFK arena would seem to aim at a different form of meaningfulness and morality. Yet, this specific game is certainly not the only one and we can easily see how some virtual realities are designed to reward their players for spending time in doing some non-fallible actions which are also not particularly relevant from the point of view of the cognitive and physical involvement. The meaningfulness of what is obtained thus rely on a very basic feature of our real life: the correspondence between time, the most precious and finite resource of our life, and “importance”. We temporally *devote* time to what we care about and *save* time for everything else. In the following sections we will see different case studies adopting such a form of meaningfulness.

⁸⁴ <https://www.youtube.com/watch?v=goRbd8nqeek&list=PLEraoOWuODa6KSW-YvLbn248n9YKpO8fO&index=2>

3.1.5.1.2.1 Pokemon toward effortlessness

First of all, it is important to notice that the Pokemon series has always been defined by a strong usage of the time as a value and mean of meaningfulness: players care for their pokemon because to their pokemon need a fair amount of time spent “with them”, of projectuality about them and of “attention” on them. A feature which can be find even in the match-3 2015 game *Pokemon Shuffle* presenting a unique mechanic of farming⁸⁵ which is usually absent from the genre. In this regard, the first game of the series present one of the perhaps most moralistic features ever: the pokemon Magikarp. This creature is indeed extremely weak and almost useless but would eventually become one of the strongest by evolving thanks to the effort, patience and “caring” of the player. However, such “morality” evolved together with society and actually ended up by being altered. In fact, in the first game of 1996 such evolution required a very high amount of effort (or perhaps better “annoyance”) since the player had not only to lose a certain amount of time to call for and withdraw Magikarp during fights⁸⁶ but also to sacrifice a slot on six to have this Pokemon on his team. Differently, with the release of the latest title, *Pokemon Sword and Shield* (2019), the presence of the latest version of the Shared Exp (from generation VI in 2013) and the possibility of changing the pokemon of the team at any time, cancel almost any kind of effort required.

A second and even better example of this change can be found in *Pokemon Moon&Sun* (2016). As in the previous entries of the game, during a battle the pokemon of a player can be paralyzed which is a negative condition putting the player usually in disadvantage from a mathematical point of view. In the first generation such conditions could be healed in terms of efforts: typically, by using items worth of an in-game value (a value obtainable through fallible fights for example and that could be used for other purposes) or by reaching the closest Pokemon center which could also lead to unwanted fights wort effort. Differently, in *Pokemon Moon&Sun* a new feature was introduced: the “pokemon refresh”. Immediately after a fight, the player can take care of its paralyzed pokemon and heal it by touching it with the stick simulating one of many available instruments to take care of several different negative conditions.



⁸⁵ <https://www.youtube.com/watch?v=F3cM3qW5qdI>

⁸⁶ (to give him a part of experience, or otherwise to grant him the exp.all item which would divide the earned exp, held in generation 2-5.)

This touch can never fail, is free and potentially infinite, and don't require any particular physical or cognitive effort (such as a combo or a right movement in a dance simulator). Thus, it actually only consumes the player's time and grant him value. Finally, as an added value this action rewards the player through

1. A first-person view of the facial expression of the pokemon going from sad to happy
2. An isomorphic sensorimotor involvement “realistically” reproducing the movement required by the instrument

What is extremely interesting is that players can “pet” their pokemon in the same way to increase the *affection* status, another mathematic value of pragmatic use since they high levels of affection can grant Pokémon special benefits in battle. This is useful to understand why, for example, players are inventing automatized methods to accomplish this tasks which can become quite boring and tedious exactly because of a lack of effort. As we can find in an article⁸⁷:

“For example, Pokémon Sword and Shield, the newest paired games in the series, include the option to camp with your Pokémon, and after you’ve pitched the tent, you can play with them while they scamper about the campground. The play sessions are interactive, as you can use the right analog stick/motion sensor to wave around a cat teaser-like Pokémon play wand, which you companions will cheerfully swat and strike like a playful kitty. But **this doesn’t just warm the human gamer’s heart, it also increases the Pokémon’s in-game Friendship stat**, which in turn gives it all sorts of enhanced capabilities in combat. These campground play sessions are fun the first few times, **but eventually they can get kind of tedious**. You catch a ton of different Pokémon (who all need playtime) during the course of the game, **and you have to shake the stick/controller**, because if you leave it still, you won’t get the creature’s attention and it won’t play.” (my bold).

Indeed, a player invented the following ingenious method and shared it with the community:

“The method is:

1. Select “camp” from the menu.
2. Remove right Joy-Con controller from the Switch console.
3. Attach Joy-Con to a cord hanging from the ceiling.
4. **Let your real-life pet cat use it as a swatting toy, so that each swipe triggers the motion sensor and shakes the in-game Pokémon”** (my bold)

The fact that this method works demonstrates very well how

- A. These actions do not even require a human actor and are thus outside from a logic of effort.
- B. When these features abandon their representative purpose (pushing the players in spending the real time of his life with his pokemon in a non-combat-situation) they completely lose their meaningfulness
- C. Games cannot be analyzed only by looking at what is happening on the screen

⁸⁷ <https://soranews24.com/2019/12/21/how-to-use-your-real-life-cat-to-automatically-boost-your-pokemons-stats-in-sword-and-shield%E3%80%90vid%E3%80%91/>

To conclude, we must also precise that forms of effortlessness were also present as a value in the previous entries of the Pokemon series. An example is the value of friendship/loyalty since Gen II⁸⁸ (1999) which has very important functions such as the one of evolution for some pokemon.

Event		Change based on current friendship		
		0 to 99	100 to 199	200 to 255
Grooming (haircut brothers) "<Pokémon> looks [...]"	"delighted" (younger brother: 10%)	+10		+4
	"delighted" (older brother: 20%)	+5		+2
	"happy" (older brother: 50%, younger: 30%)	+3		+1
	"a little happier" (older brother: 30%, younger: 60%)	+1		
Level up	Always ^G /Anywhere except met location ^C	+5	+3	+2
	At met location ^C	+10	+6	+4
Using a vitamin†		+5	+3	+2
Battling against a Gym Leader, Elite Four member, the Champion, or Red (whole party)		+3	+2	+1
Grooming (Daisy)		+3		+1
Walking 512 steps (whole party)		+1		
Learn a TM		+1		0
Using a battle item††		+1		0
Fainting	If opponent is less than 30 levels higher	-1		
	If opponent is at least 30 levels higher, or outside of battle	-5		-10
Using Energy Powder or Heal Powder		-5		-10
Using Energy Root		-10		-15
Using Revival Herb		-15		-20

†: Vitamins affected include HP Up, Protein, Iron, Calcium, and Carbos

††: Battle items affected include X Attack, X Defend, X Speed, and X Special

Whereas almost all the actions determining friendship depends on effort (battles, items and money) we can see two interesting exceptions with the “walking” interaction and the free grooming granted by Daisy which “gives free grooming to one of the player's Pokémon in the Generation II games once per day between 3 and 4 PM, and in FireRed and LeafGreen every 500 steps once the player has entered the Hall of Fame.” Similarly, in *Gen 1* a player could leave a pokemon in a “daycare” and for each steps of the avatar the pokemon would gain 1 exp, however the player had also to pay a sum of money (thus effort) depending on the number of level obtained. These examples can show very well how the valorization of effortlessness and spent time in Pokemon has actually a long tradition, exploiting the actual value of time in the player’s life to grant value and meaningfulness to his “taking care” of its pokemon.

⁸⁸ https://bulbapedia.bulbagarden.net/wiki/Friendship#In_Generation_II

3.1.5.1.2.2 State of Survival

The second example is the free mobile game “State of Survival” (2019), which for the purpose of this thesis was played by me on a daily basis (several hours per day, from waking up to 2.am) for one month (from May 2020 to June 2020).

This digital text is in many ways similar to the highly successful “Clash of clans” (2012) in requiring the player to create his own “base” by creating several buildings, gathering several resources and creating his own army. It was however an interesting case study since 1) more recent 2) differently thematized (with zombies) 3) presenting both some common and different mechanics.

First of all, the player’s base is inside a persistent world where events occur with or without him, and thus even when he is not playing his base can be attacked by both AI zombies (attacking at precise and recurrent intervals of time) and by other players. The notification bar of the game is in fact impossible to remove from the main screen of the device (smartphone on my case) since the players must/should constantly checking and be informed about what is happening.

To defend himself the player must build a barricade, create an army, recruit heroes (powerful commander of the army), construct buildings, upgrade all and invest in scientific research to improve the efficiency of both his troops and of his buildings. To do all this he needs resources. The main resources of this game are four: food, wood, metal and gaz. These resources are continuously produced by the player’s structure, even while not playing. But they are only added as usable resources once a player clicks on their icons.



Additionally, other resources exist to improve the strength of the heroes or find new ones (stars and puzzle pieces).

The player can gather both basic and hero resources by doing “missions” on a world map or by doing “exploration” quests with his heroes.

The missions are done by clicking on a location and sending a given number of soldiers, led by three heroes, to fight zombies or gather a specific resource. The player can choose the number and type of soldiers but by default the game will usually automatically calculate the odds of winning, choosing the best combination and propose it to the player as default . In both cases the player mustn't do anything other than a simple click and then wait a certain amount of time for the army to reach the point on the map (from few seconds to several minutes) and then complete the selected tasks.





A little representation of the fight will appear on the map, but once again the player has no control or whatsoever. The only action he can chose to take is to “speed up” the troops by using an item so that they reach the point on the map earlier on.



Doing a mission is thus equivalent to 5-6 clicks : opening the information menu, choosing the “mission”, accepting it, accepting the default number of soldiers, and when the mission is over opening the in-game mail menu and getting the resources by opening the mail even without reading it.

Differently, the exploration quest of the heroes consists in selecting three heroes to fight several zombies, these heroes can be partially controlled by the player activating at the “right moment” their special ability, but more concretely the player has an option to let a very efficient AI do this work for him (auto-mode). Not only it will fight efficiently, but it will also calculate the path on the mini map and gather the item. So basically put, even in this case all what the players has to do is to issue an “order” from the menu and wait, which is why an option is available to make the smartphone vibrate when the exploration is finished since the player is very likely to not even look at the device while the game is basically playing by himself.



Both map missions and exploration quests consume however a “stamina” resource of the player which, when depleted, requires for the player to wait while it recharges (or use some items which recharge it). Stamina is however also freely granted by a particular building every 8 hours.

Additionally, the player can also obtain resources by completing daily “tasks”, some of which can consists in doing a login, clicking on the icons to gather the automatically generated resources, do missions and quests (which have their own separated rewards), click on a button to help his allies (a free and infinite action) and so on.



Finally, some useful items are given to him at precise and increasing intervals of time and hero resources (from each minute to each hour and a half) through the “last hope transmission” and research projects which however require that the player clicks on their icon, and is consequently present at each interval, to get them all during a day.





Everything mentioned until now is a clear example of a game where effort is practically never truly required from the player, but only is his constant presence and “attention” in the game. One of most iconic example of this are the in-game quizzes about the game’s rules which will sometime appear on the screen and reward the player for they knowledge with resources: even when giving a wrong answer the player will nonetheless get some resources. Even the classical “experience” needed for the heroes to level up is basically granted by hundreds of items given to the user on many occasions (as you can see from the screenshot of my own game where in less than a month I had gathered 8.000 basic exp bonus!) thus assuming a completely different meaning than in other games where it corresponds to a series of attempts and efforts.



But even more interestingly, as you can notice from the reward obtained in the screenshot about the last hope, there is however one true value hidden behind this game: time. Among the most precious resources and rewards there are also tens of different items made to speed things up and to immediately obtain resources. In a game of waiting (waiting to gather the resources, waiting for the upgrades of the building to finish constructing, waiting for soldiers to reach the point, waiting for heroes to finish exploration, waiting to get free item from the last hope transmission and the hero research, waiting for the stamina bar to refill or the 8 hours to get it from the building, etc.) the privilege is to wait as little as possible, which is why you have to pay 5 euros if you want to constructs 2 building at a time.



Which is actually a pretty good deal since at some point upgrading buildings can require more than two days of waiting (during which you cannot build anything else but you can do all the other activities)



Indeed, if you wanted to buy the privilege of building it immediately you would have to pay 65.320 capsules, an “upper value” of the game used only to speed up things, corresponding to something between 50 and 100 euros.



As we can all see, time in virtual realities is a very concrete economical value and not only a metaphorical one.

Even the players are convinced to ally themselves because this way they will not only get benefits in terms of higher and rarer resources but also wait less time. Indeed, when a player is in an alliance (as I was) a “ask help” button is available and each player can give you, for free, **three minutes of time** for a building, research or for the recruitment of your soldiers.



Already as a single player this game is very likely to be the first thing you check in the morning as soon as you open your eyes, the one you look into more often during the day and the last thing before going to sleep. And while you are part of an alliance this is even more true since many events (granting rarer resources) can only be done while many players are together online, so you basically have a “boss” (the leader of the alliance) telling you each day at what hour you need to be in the game even if often only for no more than 10 minutes.

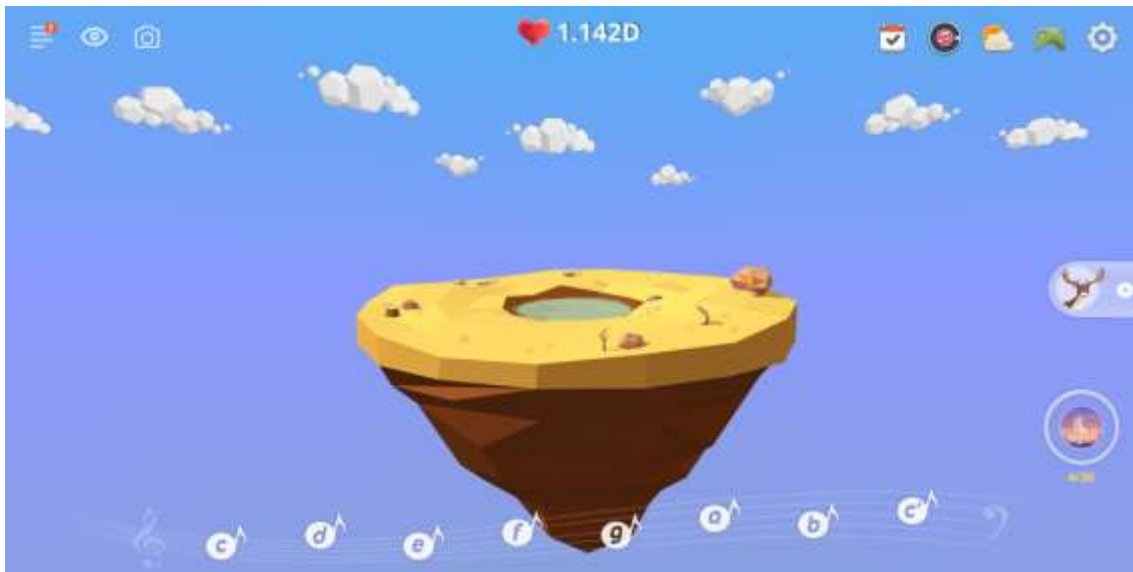
But there is an even more interesting point in the value of time in a game consisting mainly of waiting and more generally of requiring very little effort: the connection between the human players chatting and knowing a little bit each other while waiting together and “working together” each day for a common goal or at least in a common context. Which can explain why after only 30 days of playing, after saying goodbye to my allies, one of the “leader” told me that I could always go back to them even only for a chat.



Before finishing, I would like to point out that what we have written must not be confused with a complete and comprehensive analysis of the game itself. We did not examine all of its economics, mechanics and we only analyzed its main features in relation to the topic of time and effort as a concrete example for our general reflection. What’s more, the game also consists of optional wars between players which actually requires a lot of cognitive effort and mathematical knowledge of the game. We only took here the core game and gameplay, the experience that both new players and experts *must* have, but it is clear that expert players do more than this and have an overall different experience of the game. Similarly, many players probably do not have this game as their first thought in the morning! Many casual players could simply enjoy watching the improvement of their base little by little, month after month, playing even only 15 minutes per week. The game does not force the player in any way to play “intensively”, even tough, as we showed, it rewards the player greatly for doing so.

3.1.5.1.2.3 : My Oasis

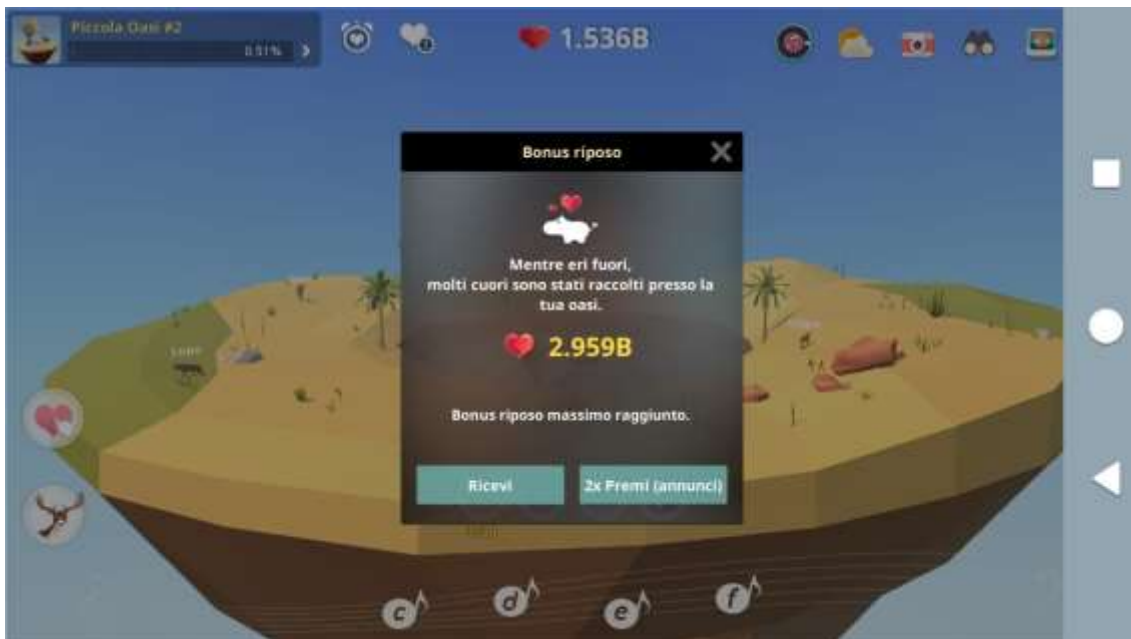
The two previous cases are taken from digital simulations with some win/lose conditions where some kind of mathematical advantage is obtained through effortless interactions based on the expense of the player's real time and frequent presence in a digital world. As a conclusive example, it is then interesting to notice that such feature is also present in games without a win/lose mechanics as in the free mobile virtual reality/experience "My Oasis". What this application offers is a personal island as a virtual space of relaxation for the user, with the view on such space which can be manipulated (moving the camera and zooming in-and-out) and the possibility for the player to also listen to some relaxing music. At the beginning the island is almost desert and pretty small:



But gradually the user will be able to “upgrade it” to make it bigger and adding several animals and growing plants & flowers, making rainbows or shiny stars appearing on the sky, having balloons and lanterns flying around, and so on.



To make this possible, the player must gather and spend a value represented by hearts. Now, hearts are mainly gathered by 1) touching the screen at any moment and anywhere 2) with the passing of time, even while the player is absent 3) activating with a simple touch some abilities which can only be used at regular intervals (es: the rain can be triggered each 15 min at level 1 and corresponds to touching the screen 14 times a second for 2 minutes) 4) by touching the screen at specific moments and in specific locations such as when animals and plants are “talking” to the player.



Among all these activities, only one is fallible: a musical minigame which however will nonetheless give a little reward of hearts to the player even if he fails (as we have just seen with the quiz of State of Survival).

Interestingly enough, even here the user has the possibility to spend real money to spare real time and most importantly to avoid the tedious tasks of repeatedly touching the screen. As an example, he can buy the possibility of collecting hearts by keeping his fingers pressed on the touchscreen. Additionally, as we have seen in the previous case, the game also presents a second value represented by crystals which are granted by login-in each day and by making the island grow, but which can also be purchased with real money since it is the rarest resource and very useful to spare time to the player allowing for example to reset the cool time for the abilities and to upgrade some of these abilities.



Finally, *My Oasis* prove once again the central role and semiotic value of enunciation in the creation of a virtual space. Again, we can see how the island space is actually a writing space based on a digital database of possible entries to first unlock and then select and syntagmatically combine (i.e.: the animals that will appear on this particular island and their particular skins.)



These elements are indeed what the “hearts” can buy and most importantly why the act itself of collecting hearts is meaningful for the user so that he can affirm “This is **my** island” in relation to the actualization of the virtualities granted by the game and time spent to do so.

3.1.5.1.2.5: Economics and *formes de vie*: Marvel Contest of Heroes

The last example that we will now observe regards the possibility for the economics of a game to attribute euphoric values not only to semantic entries but to specific behaviors such as the one of collecting. The text examined here will be the mobile game “Marvel: Contest of Champions” (2014). At its core, this is a relatively simple fighting game where the characters fighting belongs to the Marvel universe. The player starts with few of them and then by playing can expand his “selection” by unlocking tens of other characters that are somehow “collected”.

To win the fights and unlock new characters, the main possible “moves” of any character are eight:

1. Special move by taping on the icon (lvl1, lvl2, lvl3)
2. Defense = Tap + Hold in the back of the screen
3. Avoid = Swipe Backward
4. Dash = Swipe Forward
5. Charged Hit = Tap+hold in the center of the screen)
6. Normal hit (combo x 4) = Tap
7. Strong hit (combo x 2) = swipe during combo
8. 5 Hit Combo : Triple Light + Double Medium

Coherently with the genre, to win the player must make the right inferences about the next move of the adversary, calculate the right distance and have a good timing. However, differently from most fighting game and coherently with other mobile games, it has a significantly lower learning curve since all the characters have the same virtualities (although represented differently) and there are no complex combos to memorize or no difficult moves to execute.

To supplement the lacking complexity of execution and learning, a lack of effort, this game introduces RPG elements for which the efficacy of any move will be altered by several mathematical factors that can be altered:

- The player’s level unlocking new advantages and “skills” (semantised as “mastery”)
- The character’s level raising (semantised as “rank”)
- The roster of characters increasing (the more the better)

As a result, winning a match becomes as much a question of “unfair advantage” (a very high-level character can beat a low level in a single hit) as one of proper “skill”.

However, instead of having the level increasing and the characters unlocking through playing, each activity (from login in the game daily to winning a match or fulfilling a specific “mission”) rewards the player with both transversal (gold) and specific resources that will be needed for unlocking new ranks (namely Iso and Catalyst), new characters (Crystals and fragments of Crystals), and new mastery skills (XP and Mastery Core).



In the next pictures, we can see how such gatherable materials are used to power-up the character and how such power-up encompasses the need of further resources and gathering:

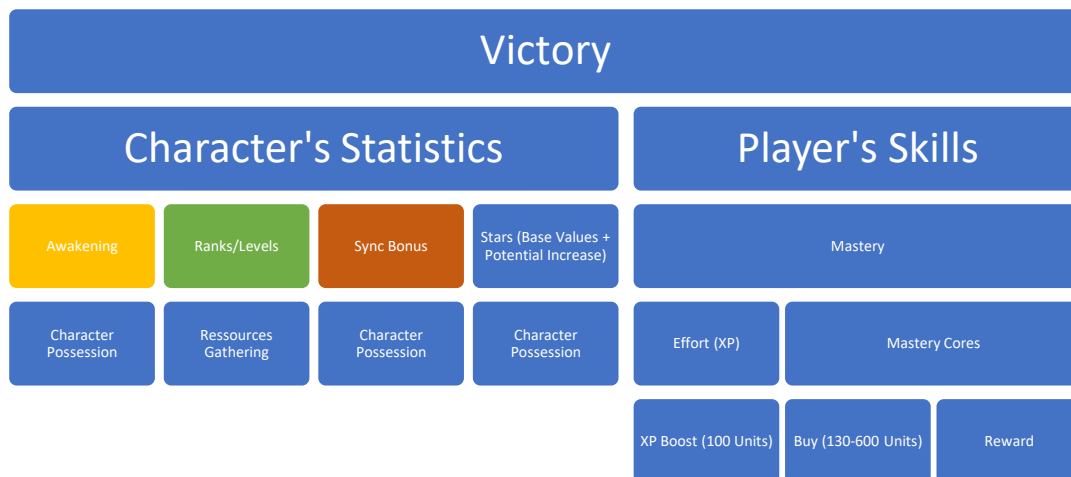




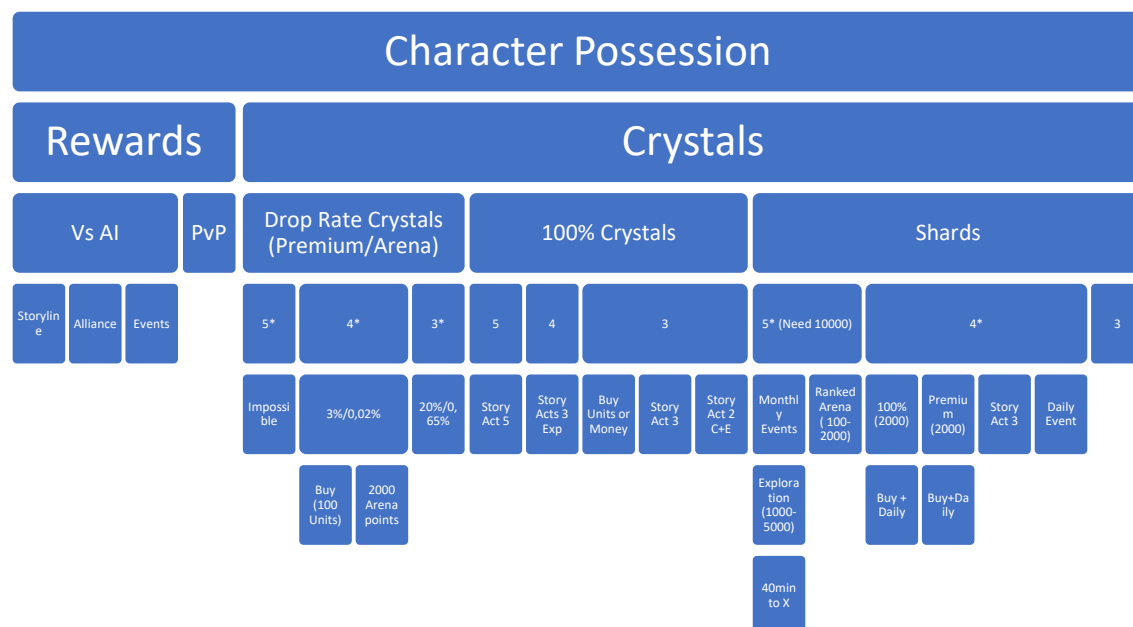
Finally, the game's most important element, the characters, is obtained by gambling since each crystal has only a certain probability of rewarding the player with the wished character and contains several possible characters that are extracted randomly.



What is interesting about this system is how, through the economy of the game, a certain behavior and activity of “gathering” is valued positively. *Marvel: Contest of Heroes* is not only a game about collecting characters but more extensively about accumulating “things” to win. Indeed, to win the most difficult challenges players need to own many among the rarest and strongest characters, who are earned by collecting fragments of crystals which will then be traded to make crystals which will then be used to gamble such characters. But even owning such characters is not enough, since to increase the rank of these characters the users will need to both collect several resources and to collect other characters that will be used as “materials”. Finally, the maximum advantage in a fight will also come from the “synchronicity” bonus requiring to own and collect other characters. But all this can be more clearly understand through a tab:



Now, and to conclude, we can also see how “possessing” characters and resources also correspond to a structure of daily activities, a *routine*, aimed toward gathering, amassing, collecting etc...



The semiotic analysis of such economic mechanics is therefore also able to find underlying values in very concrete terms, showing how virtual realities can determine *forms of life* (Fontanille, 2015)

3.1.5.1.3 The complexity of effort

Until now we have seen how through the consumption of the user's finite resources, time and energy, virtual realities can positively valorize certain specific cultural and semantic entries in virtue of their positive use-value for which they become objects of desire. However, we have also pointed out how reducing such positive use-value to an easier winning and reduction of effort is unacceptable. On the contrary, effort as hardship is something actually much valued by the players as with the emblematic case of the “you cheated” meme:



Indeed, the virtual freedom of the user precisely resides in the possibility of making the “worst choice”, of refusing some use values or at least of trading some use-value in terms of another meaningful one.

The FOA matrix many times comprehend all this, such as in the case of the choice of difficulty. Playing a game like *The Last of Us* or *Fallout 4* on the hardest difficulty since the beginning is a clear example of how meaningfulness can be increased through an *increasement* of the time and effort required. Being in a post-apocalyptic world and protecting a young girl or searching for your lost son, is in these cases an exhausting experience for the extreme level of attention required at every moment and for the weight of every decision made. This increased difficulty, based on the care that the player has for his own time and emotional state, becomes an outstanding mean of immersion and realistic experience.

A second way in which the FOA can offer an increased meaningfulness through a form of “negative use-value” is related to a minimum coercivity of the system in terms of the improvement. One example are the highly successful videos of players playing *Dark Souls*, a game in which the players is never forced to become stronger by either using a stronger weapon or by enhancing his statistics.

This allowed the players to finish this text, famous as one of the hardest modern game ever made, without ever levelling up⁸⁹ or with the worst damage output possible⁹⁰. Although the use-value is negative in terms of effort and possibility of winning (and thus of continuing the interaction) there is a high value in terms of the aesthetic (the originality of enunciates) and anthropologic use-value: the more the struggle seems desperate and the more the game becomes meaningful.

A third way in which the FOA can put in discussion his own system of use-value is by offering a choice which is explicitly “wrong” from the point of view of effort. Here an extremely interesting case is the “Inspire” skill in the game *Borderlands: The Pre-Sequel* (2014). Similarly to what we have seen, a player can obtain this skill by investing earned points. When it does, there is however no explanation of what this skill actually does, and so the player will try to discover it assuming that, like in other RPGs, inspire is a *buff* that makes a character temporarily stronger by augmenting some mathematical stats. While playing, the player will sometimes hear some inspirational sentences and right after seeing written on the bottom of the screen a giant and shiny “inspired”, which is typically a way of indicating a change of status (like poisoned, paralyzed, etc.) in RPGs.



However, truth is that from a mathematical point of view this skill *does absolutely nothing*. The game here plays with the use-value by implementing an *external* positive value which is a kind of psychological one: the one who is inspired and encouraged is the player itself. Indeed, one of the inspiring sentences explicitly breaks the fourth wall: “Hey... player...! You're really good at this game!”. This situation is a paradoxical one since there is actually now way of measuring such a use value in pragmatical terms (is this inspiration really helping the player? Probably not!) but nonetheless we can notice how the main effect of this skill is an aesthetic one and, once the player understands how things work, an experiential one since the players will now probably laugh when the skill “activates”. So here again we can see how a “negative or neutral” use-value can assume a positive value, which is a fact that we can ascertain by reading various forums where this skill is sometimes described as “the best skill ever”⁹¹.

Another kind of negative use-value can be related to a player sacrifice of his most precious value. An interesting designed example of this is the playable character of Krieg in *Borderlands 2*. Krieg is narratively represented (through its trailer, appearance and spoken sentences) as a bloodthirsty schizophrenic “psycho” (a type of enemy), but his madness actually occurs during the gameplay

⁸⁹ <https://www.youtube.com/watch?v=iBRpNdY1i8o>

⁹⁰ <https://www.youtube.com/watch?v=3OD9Ojta5q0>

⁹¹ <https://forums.gearboxsoftware.com/t/what-does-inspire-actually-do/415998/6>

of the player which has to constantly hurt himself in different ways (setting himself on fire, beating himself in the head with an axe, playing without a shield, being shot by allies and so on) to obtain different kind of mathematical bonuses. So, instead of avoiding damage and situations of probable deaths, a Krieg's player has to constantly *think as* a psycho in going against the fundamental rules of any game and value of health and violating the first communicative value. Similarly, another example of this can be seen in the "Mothership Rush" strategy of StarCraft 2. What happens here is that in a game where the destruction of the base is the condition of losing, a player uses the base itself as a unit to attack the base of another enemy and all is units. The extremely high risks taken and the relatively low odds of success is what makes such a strategy extremely entertaining, especially since it goes against the classical and recurrent narrative development (gathering of resources, construction of buildings, creation of fighting units, battle between units advancing toward the base). And even more so when such a strategy happens during a professional competition: "This not like a show match, there is money on the line here".⁹²

In conclusion, virtual realities must be inquired as complex systems of use-values in which effort very often act as a form of meaningfulness and creates entertaining narrations.

⁹² <https://www.youtube.com/watch?v=qbSodiGyABg&list=PL5FAEE29C103098A2&index=63&t=0s>
SC2 MOTHERSHIP RUSH WAT? 10.00-10.10

3.1.5.1.3.1 Effort and meaning in Paper's Please

Paper's, please is a 2013 indie game produced by Lucas Pope which puts the player in the position of an inspector of immigration which needs to verify the correctness of the papers presented by the immigrants and their identity. A correctness which of course depend on several rules and regulations which will become gradually more complex throughout the game.



In one of our very first published paper (Giuliana, 2018) we examined the several different aspects of how the theme of immigration was discussed in this game: from the hard ethical choices that the player must take to the aesthetics. However, for the purpose of this thesis and of this chapter we will here mainly focus on the effort required to progress.

First of all, the game is very punishing and frenetic, since at the end of the day a salary is earned on the basis of correct admission. This salary, even in the case of a perfect score, is barely enough for the inspector to pay the living for him and his family. As a consequence, each migrant is at the same time a ludic-logical opponent of the player (they make him lose precious time, they can lie, they can make him lose the game) and a helper (each migrant correctly admitted or refused grants him money for him and his family). Here again we can see two important implications: migrants perceived as both an opportunity and a risk for countries, and the self-related perspective on migration (as a player we care for them mostly for our own survival).



Second, a repetitive and almost dehumanizing tasks of “frenetic paper checking” is required for the players to do well in the game. This has indeed been noted since the beginning as something very original and pointed out by other scholars before us:

“In positioning players as a border control inspector, forcing them to perform the tedious tasks that are performed by immigration officials every day, players identify with the lived realities of border inspection” (Orme, 2017)

“With repetition of the inspection check, you start to realize yourself doing the inspection without very much conscious of yourself in checking the passport or so. You are sometimes even able to know what you do next step and less conscious on your body in playing the game. Throughout the game play, you gradually learn and master the skills in making faster and this skill becomes a habit inside the body the player. As player, we gradually become kind of the immigration inspector in the real life.” (Lo Yun Ting, 2017).

This activity is without a doubt an iconic example of how meaningfulness though effort is not only a quantitative question but also a qualitative one: the dysphoric task is in continuity with the dysphoric representation. Moreover, many of the topic related to the one of immigration as a procedure are directly part of the semantic activity involved by the specific effort. Indeed, these tasks can be categorized in:

- Perceptive inspection of human bodies and of faces
- Semantic searches related to nationalities within the documents (names of nations, symbols, colors, cities, etc.)
- Comparisons of identity related information (names, age, work, etc.)
- Visual control of a delimited space (looking for a possible terrorist attack close to the border)
- Fast reading and fast processing of information
- Generic single input manipulation with only minor motor congruence and no sense of body ownership (we play the game with our hands as we use our computers for any common task)

And now let’s ask ourselves: what is the “migration” issue about? From a philosophical and anthropological point of view it is the problem of the acknowledgement, acceptance and control of other human beings that we perceive as diverse and that force us into comparison. More than that, it is also an issue about the humanization of the procedures involved in the complex shift of identity required and implied both from the individual point of view and the social one. All aspects which are deeply inherent to the specific effort required by the game.

3.1.5.1.4 Transparency & trust:

The economy of meaningfulness of virtual realities is certainly not a new feature inside our cultural context but comes first of all from games. Games are indeed texts in which choices matter and are meaningful since they produce narrations depending on the given matrix of possibilities. However, virtual realities present a unique situation of transparency related to their digital nature and therefore this affects sensibly the meaningfulness of making choices in such context. As we have seen in Bankov's work, any economic system with a certain degree of opacity and instability will need an equivalent degree of trust in this very system to actually invest a certain thing (such as the user's time and effort) hoping to obtain a certain benefit (such as positive emotions and winning for the user of a game). Additionally, we have also seen that one issue with the textual analysis of virtual realities is the insufficiency and non-autonomy of what is represented since each figurative element also correspond to a hidden structure of mathematical values determining the possible behaviors of the player and the semantic relevance of certain items in a specific text. The whole world of the game that we see, a world made of grass, stairs, houses, doors, bridges and even characters, can actually be uncovered through analysis to reveal the inner pragmatics and to reconstruct the design of planned and encouraged interactions: a bridge is a narrow space making the dodge action more difficult, a cliff is related to the danger of falling, a burrow near to an area with enemies will punish players retreating, a wall can protect a player from an arrow, and so on. This hidden structure is actually present in almost any game and actually in some titles the game itself reveals it, as in *Invisible*.





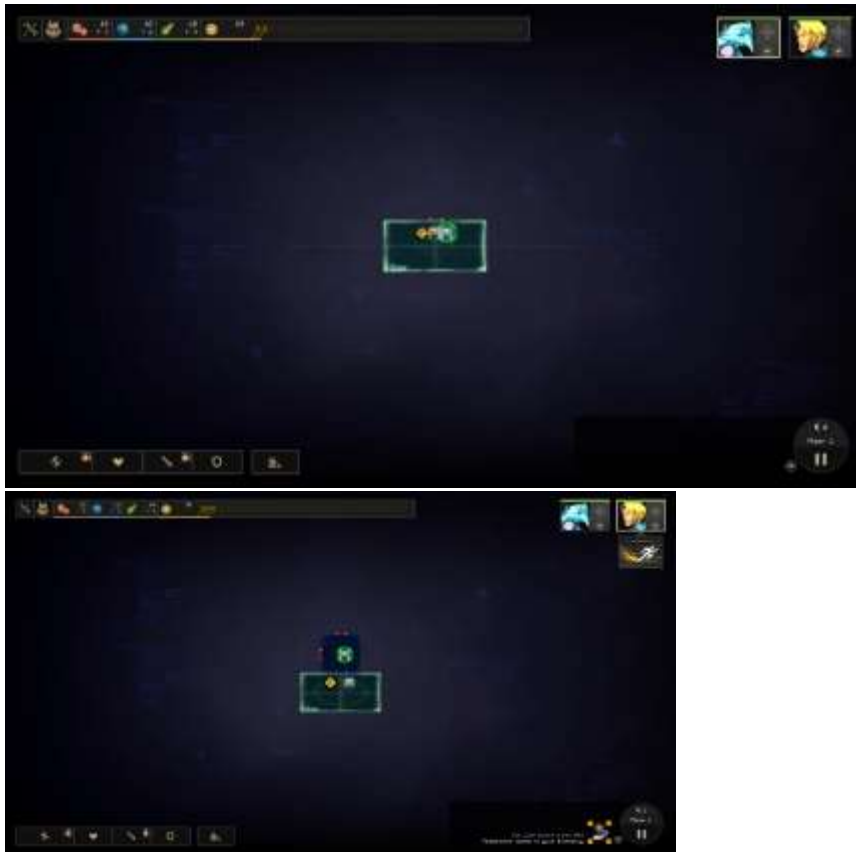
As we can easily see, depending on the point of view chosen, the whole world and space is revealed in very different ways. Plants becomes low cubes offering low cover, tiles become pathways, doors disappear to become just lines, and so on. This example highlights the *characteristic opacity* of virtual realities, which becomes meaningful in terms of *choice* related to the knowledge of the game that would be required. Acting in a virtual reality is always, in some measure, related to a form of “hacking” of the database and of the inner rules when these are not revealed.

We can distinguish at least two different kinds of agentic choice commonly required in virtual realities:

- Spatial Transparency
- Risk & Rewards Transparency
- Self-Agency Transparency
- Effect-Transparency

Choices about space are extremely common and exist each time that a user can decide whether to go left or right, up or down, etc. Several strategies, implying different degrees of opacity, have been used to allow such choice in relation to a map-knowledge given to the player. Without aiming at making a comprehensive list, let's see some examples:

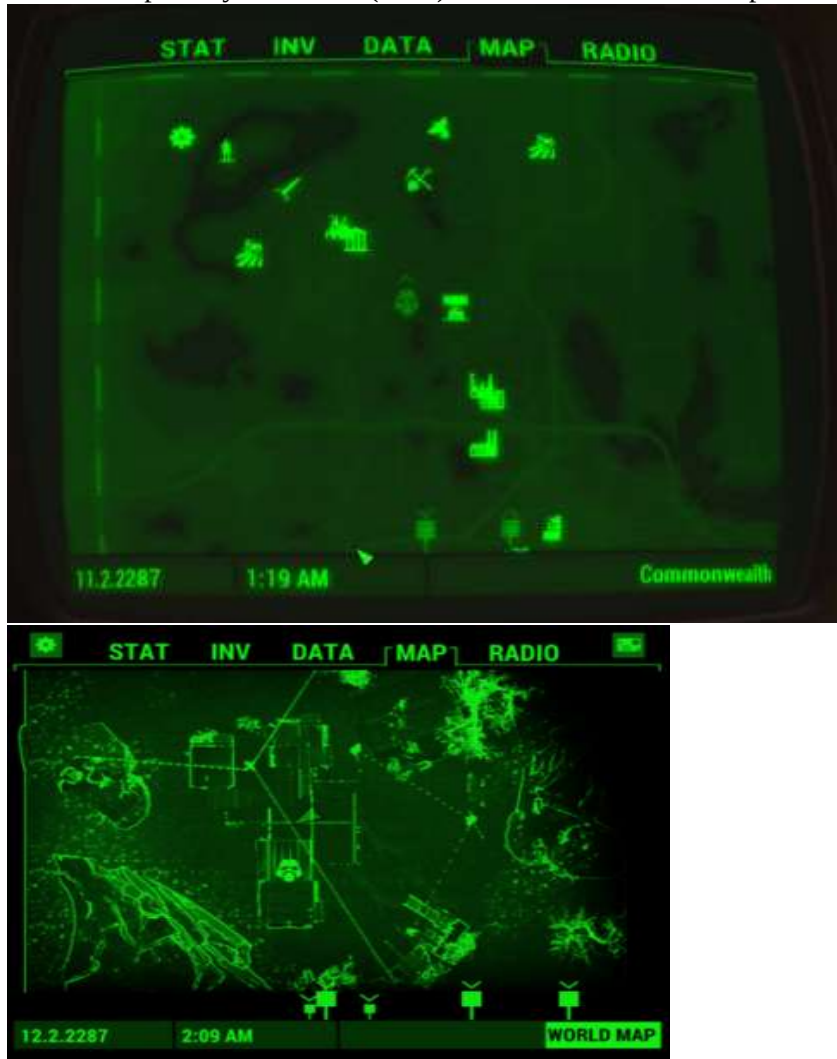
- Total Opacity: *Super Mario Bros* (1985) : Absence of both a local and global map to move into a world which allows for several different paths and secret areas both locally and globally. The only information given to the player are found in the booklet which explains that the Kingdom is organized into several worlds which are made of four areas.
- Semi-Opacity: *Dungeon of the Endless* (2014): Presence of a local map not adding any knowledge by itself (although allowing expert player to make useful inferences)



- Semi Transparency: *Super Metroid* (1994) : Presence of a non-detailed local and semi global map



- Semi-Transparency: *Fallout 4* (2015): Non-detailed Global Map and local map



- Transparency: *Gran Turismo 2*: complete information about the space to make the right choice.

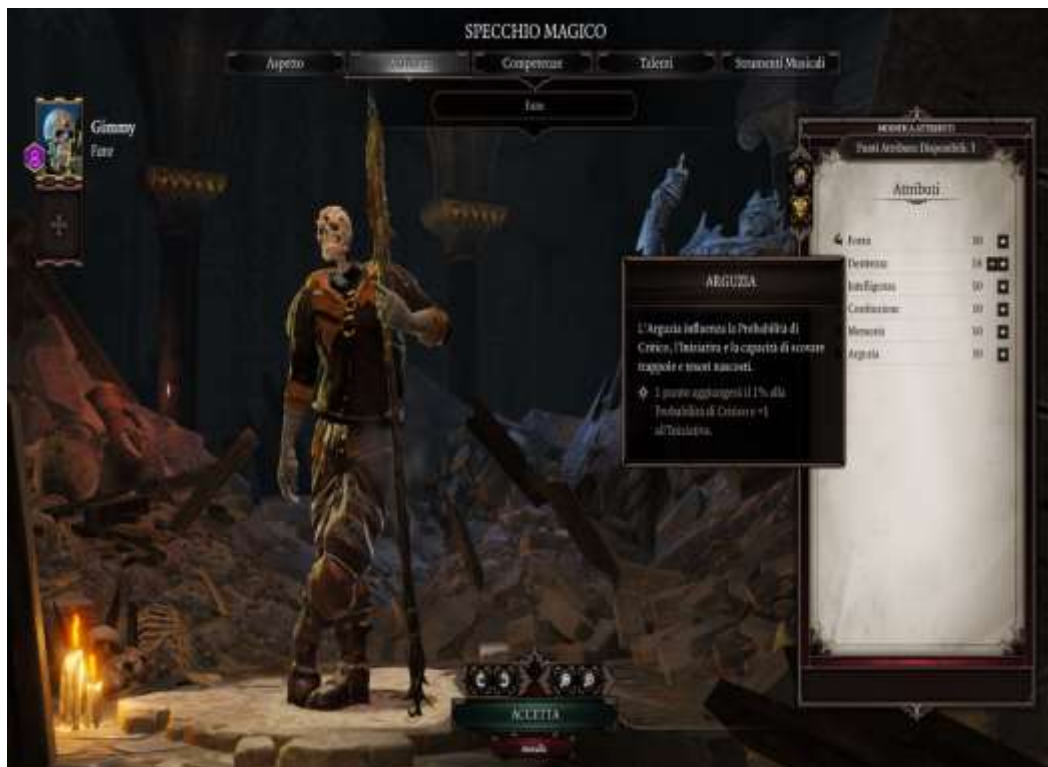


But of course the knowledge about space by itself is surely not enough, another important knowledge would be to know what is present in each space in terms of possible dangers (fallibility risks) and possible rewards. In the rally racing game *WRC* (2001), for example, the user does not know where on the map he will find water, mud, humps, and so on.



Now, such information is in most cases not available and are created by the given community of users. Furthermore, in many cases virtual realities can also offer a selection of skills/values to face the difficulties of the games: *Burnout Paradise*, *Divinity Original Sin 2*, *Pro Evolution Soccer 2005*, *Super Smash Bros Wii U*, *Age of Empire 2*.







However, here several strategies are possible and the user has almost never the full access to the knowledge that would be required to make a “best choice”. In fact, there are two main issues:

1. Hidden statistics (as in most fighting games): some or all the mathematical values are nor declared in the game.
2. Hidden Use-Value: The player is never told the actual numerical value or proportion, or is never told the actual use-value of a certain statistics (how many enemies are going to be weaker to a certain type of statistic) or the actual difference between two values (such as a car with 3 points in “boost” compared to one with four)

Finally, even the relation between the user’s actions and their effect can have a different degree of transparency. In the case of Megaman (1987), for example, the health bar of the player informs the user about the specific damage done by a certain danger. Yet, the common enemies have no visible bar and thus the player can only personally make inferences about his possibilities and potentialities (x type of enemy requires three hits). Differently, the bosses have a clear health bar:



More generally, virtual realities are unique forms of games since part of their rules are *hidden* and must be discovered:

“Since the rules are hidden from the player, video games allow the player's initial focus to be on the appearance of the game as a fictional world, rather than on the game as a set of rules.” (Juul, 2005, 10.178).

So, to make a conclusion, what we are seeing here is that users of digital realities are:

- Playing both *into* and *against* the system's opacity
- Almost ignoring the fundamental rules deciding their actions but *trusting* the system against which they are struggling
- Making choices often without really having the right knowledge to know if these choices are the right ones
- Constantly *testing* the virtual world to understand it by *direct observation*

Therefore, they will need a form of *first-person experience* (often acquired through save and reload) to acquire a certain knowledge or refer to the community of other users. This situation is somehow abnormal in terms of play but is far more common in relation with the digital nature of virtual realities and with our own experience of the world. Indeed, as we will see in the next sections, even when the system is offering a relatively high degree of transparency there is still no certainty of truth since the decision are made on the level of the code. Lastly, this situation is creating an effect of discovery which is a fundamental part of the virtual experiences.

3.1.5.1.5 Economy, temporality and projectuality

The last theme, although certainly not the least, is about how the realism of virtual realities comes from the fact that the users are offered a future inside them through the economics that we have seen. Being immersed in a virtual reality is far more than experiencing a present moment, it is often about imagining ourselves in this virtual context tomorrow, in one week, in one month and sometimes much more later on. And the strength of such future, its believability, comes once again from its capacity to feel natural through what would appear as meaningless: a designed *routine*. But how is this achieved? We can identify five main figures of such *every day's future*:

1. Reaching (Narrativity)
2. Knowing (Database)
3. Learning (Skill)
4. Owning (Authorship)
5. Breaking (Hack)

Reaching: Novels and movies certainly are iconic of this form of projectuality, implying since the first second of the experience a last one in which the representation will end. However most virtual realities exploit exponentially such feature, requiring often tens of hours to reach the rolling credits. No matter if this end is about a proper story or about a last level of difficulty such as in *Tetris*. A length which is even more increased by the difficulty of games, so that for example Mode B 19-5 of *Tetris* for NES took 29 years to be successfully completed by humans⁹³. Reaching this end is therefore a question of constancy, often of an everyday dedication to a certain experience, creating a sort of routine and habit.

Knowing is exclusive of digital artifacts since it requires both indeterminacy and a lack of transparency. The key point is here to understand that because of their digital nature virtual realities allow for the idea of a “secret” and of “discovery”. When users enter a virtual reality they do not simply know everything, but rather they know that they don’t have access to many things that are nonetheless suggested to be there. Many virtual realities actually work as database which are “unlocked” through the player progression/effort. New weapons, new characters, new clothes, new cars, new levels, new part of the map, new modes: all this is gradually revealed as something *earned*, no matter if the reward comes from an actual “success” or as something earned from a daily login. These rewards not only allow the user to face the difficulties with more ease, and therefore contributes to the projectuality of reaching, but also reveal the text itself. Indeed, it is perfectly possible and common to reach the end of the experience without knowing all of it.

Learning: Because of the difficulty of both reaching the end and unveiling all the database, learning is also an essential part of the experience. As Juul says very well: “Like other fictional worlds, the fictional world of a video game is incompletely specified. But where the viewer of a film or the reader of a novel is certain to have seen all the material that presents the fictional world of the story, video games are special in that skill is required to access all parts of the game.” (Juul, 2005, 10.69). It may be a very simple form of learning, such as how to move in a certain VR experience, or a very complex one such as the one required to become a champion of e-sports. In all the cases, here the *habit* of the embodied experience discussed in the first part of our thesis rejoins the habit of inferences created through interactions. Moreover, such learning cannot but be a gradual one and therefore encompasses an idea of future in the form of improvement through training and exercise.

⁹³ <https://www.youtube.com/watch?v=Cx4RlkzPuys>

Owning: There is a both subtle and substantial difference between knowing the database and owning its parts. The emblematic case here is perhaps represented by the (designed) difference in *Pokemon* between fulfilling the pokedex and owning all the pokemon of the pokedex, but the same could be said about seeing a certain player in an online game with a specific item and owning such item in the user's inventory. Hypothetically, the full knowledge of the database of any given virtual reality could be obtained by simply reading it on the internet or witnessing it on YouTube. And yet, this would hardly be satisfying. In this sense the recurrence of currencies in virtual realities is more than a figurative choice and much more meaningful. Virtual realities offer the possibility for their players to *plan* future purchase, future ownings, to first imagine them with a certain digital item and then realize such "dream" through effort and even by making *savings*. Such unmaterial owning may seem paradoxical but has actually two important values beyond the already mentioned one of allowing the player to progress more easily. The first one is to acquire a social identity and prestige through the efforts required to obtain a particular item, while the second one is in the possibility to create utterances with the particular item and therefore the one of enunciation and second-order authorship that will be discussed in the next part. In addition, to this, owning becomes the psychological fulfillment of a desire toward a particular image with a specific cultural identity. Understanding such desire is outside of the aims and possibility of this thesis and is often related to gambling addictive mechanics such as in the case of *gacha* games⁹⁴ where this possession may be completely unrelated to "winning", but nonetheless it remains a key factor to understand the meaningfulness of playing itself.

Breaking: A last aspect, not designed although being an inevitable consequence of digital design, is the possibility for the player to discover the underlying code behind the proper text. Any form of unfair mathematical exploit, or of playfulness with glitches and bugs, belongs to such idea and is related to the common expression of "breaking the game". Although the meaningfulness of such act can be understood mainly through the second-order authorship and digital culture, it must be nonetheless highlighted how the results of a game "broken", such as a very hard challenge won with extreme ease, assume its meaning precisely in relation of a past where things were hard and unknown.

The five features therefore highlight why virtual reality feel real in the terms of making projects for the future inside of them through "economics", in the creation of a semiotic temporality which will then become for some users a very concrete one. Amusingly, in a very popular video⁹⁵ comparing the videogames of *Castlevania* 1 and 2, the Youtuber "Egoraptor" said about the second one:

"This game added RPG elements, where you had to buy upgrades from the store; hearts collected from enemies, instead of being your ammo for your alternative weapon [...] was used as money to buy upgrades and necessary objects for completing the game. So, instantly this becomes farming and instantly this becomes pointless and dumb. [...] What is the difference between A) killing a bunch of zombies to get hearts out of them, collecting them, and then going back to town to get an item to go to another part of the game. B) playing a game where you kill zombies that are obstructing your forward path to another part of the game ? Answer: four hours."

Despite the more than justified critique to a mechanic consuming ("wasting") an excessive amount of the user's real lifetime, a different answer may be given: *projectuality and routine*. This of course does not mean that farming and grinding are "good" or "important", this issue belongs to game design, but what semiotics has to admit and propose is that such features are *meaningful* because of the temporal dimension and *habit* they create.

⁹⁴ <https://www.youtube.com/watch?v=z-fxfuWhff0> ; <https://www.youtube.com/watch?v=LvdtJsZpuQ4>

⁹⁵ <https://www.youtube.com/watch?v=Aip2aIt0ROM>

3.1.5.1.5.1 Working in virtual realities: *Warframe*

As a part of my research, since the first draft of my PhD I had planned to make a personal experience in an MMORPG (massively multiplayer role-playing game) to extend the validity of my theory. Worrying about the lack of time, I did this experience the summer before the start of my three years of research and the results are extremely useful to briefly expose the relevance of economics in the meaningfulness of virtual realities.

The starting point of my brief exposure will be a well-known meme ironizing about the amount of repetitive and uninteresting interactions that are usually required by such games and conceived as a form of “work”.



Shortly before the first MMORPG.

A meme which is actually pretty realistic since for some human beings' MMORPGs are an actual work:

“In Venezuela, it's well-known that there are people who mine gold in *RuneScape* to sell online and turn a profit. For some, this is more profitable than working a more traditional job, and a recent power outage in the country has caused an economic crisis within the game as people can't play.”⁹⁶

During my experience in *Warframe* (2013), work was indeed the best term to describe my activity. This game offered me the possibility to possess several different “armors”, corresponding broadly to different “classes”, and hundreds of different weapons, each one allowing to finish the tens of different levels (planets) in endless of different ways. Hence, since the very first minute of the game a projectuality was proposed to me in terms of reaching (the last level, the last planet), learning (how to use each armor and each weapons), owning (have all the armors, all the weapons and so on) and partially breaking (armors and weapons could be modified with special “mods” changing their efficacy in mathematical terms).

⁹⁶ <https://www.gamebyte.com/power-outage-in-venezuela-causes-economic-crisis-in-runescape/#:~:text=The%20news%20has%20also%20been,power%20outage%2C%20and%20this%20very>

However, to acquire what I intersubjectively/intertextually *desired* (my pleasure, my imaginary) I would have to collect several materials, currencies and so on to craft everything. In some cases, I would have even to collect extremely rare materials to create specific structures allowing me then to create some of my desired objects. Therefore, a very high amount of repetitive work and effort was required. An alternative to part of this “work” would have been to buy what I needed through the in-game market between players which sold things in exchange for the value of the game acquirable only through real money. But I didn’t want to spend any real money, so I chose a different strategy. Since in the past I had already played this game for several hours, and therefore had acquired on my own several “good items”, I looked for a high-level guild (association of players) that would have helped me. I found one who proposed me a collaboration and offered me several benefits:

- Access to all the structures required to craft
- Access to special events with special rewards for guilds
- Better prices for the market and exchanges
- A pool of players to play with and that could have helped with the most difficult part of the game

In exchange, I would have to

- Periodically offer materials and money earned (therefore sharing my personal rewards with my community, something like “taxes”)
- Never stay offline for more than three days in a row (I would have to ask to the leader of the guild a special permission for any “vacancy”)
- Actively participate in the main events of the game to ensure that the social reputation of the guild would stay at the top.

I accepted. Then, by playing so much I began to acquire a kind of wealth in excess that I could now trade for the real-money currency which I could then use to buy what was still missing and therefore to avoid more work. Simply put, players which were “wealthy” in real-life would buy from the game this special currency and then buy from me with it the results of my everyday “hard work”. Then, with this special currency I would buy from other players what I needed or, more specifically, what I didn’t want to “work” for. My activity took me five hundred hours in two months and allowed to possess roughly half of what the game had to offer and that I desired. But more importantly, special items or materials were sometimes awarded periodically in exchange for some missions. To know when this would occur, I had to follow the Twitter channel of Warframe “Alerts” which at any time of the day as well as in the middle of the night could “ring”. To become “rich” without spending my real-money I barely slept in those two months. This experience was of course mine and is not one compulsory for all the players in the world: nothing prevents players from logging in the game one day per month, play the minute and then shut off the pc or console. Yet, everything in the design of the game encourages a certain behavior and the semio-economics have a determinant role in doing this. In fact, what I called “my story” is actually almost precisely what is represented in a ten-million views cartoon-video about this game⁹⁷. Of course, economics do not do this alone, and are only part of a complex structure of euphoric experiences (such as the “fun” of the gameplay, the pleasure of social interaction) and require the subject’s own fantasy (being a space ninja with powers and laser rifles). Nonetheless, the economics of meaning have in this case a critical factor allowing the characteristic phenomenological, narratological and sociological continuity offered by virtual realities.

⁹⁷ <https://www.youtube.com/watch?v=-VuYCLelIO8>

3.1.5.1.5.2 Projectuality outside of gamification:

The previous example can reasonably raise the question of if what we are affirming here can also be valid for virtual realities which are not so heavily gamified. To this question, the answer is undeniably yes. Indeed, there are at least two features of virtual reality which allows this: agency through time and space. The first iconic example about time is *Bury me my love* (2017), of which we offer here a brief description and a screenshot:

“Bury me, my Love is a text-message-based game designed for handheld devices. It tells the story of Nour, a young Syrian woman who is leaving her homeland to find refuge in Europe. Majd, her husband, stayed back in Syria; through a messaging app, he is going to do his best to give her some directions and try to help her reach her destination safely. Drawing inspiration from interactive fictions as well as WhatsApp-like messenger apps, Bury me, my Love puts you in Majd’s shoes. The conversations between you and Nour will occur in real time : depending on what she is going through, you may not hear from her for a while. Notifications let you know when she’s available again. How will you help her overcome the difficulties she encounters? The only tools at your disposal are text messages, emojis and selfies. You will be able to track her progress as she moves from one city to the next, and together you will have to make choices... and face consequences. The game offers multiple narrative branches leading to 20 different endings. Bury me, my Love is a “reality-inspired game,” a documented fiction which draws inspiration directly from real-world events. The original idea stems from an article written by Le Monde.fr journalist Lucie Soullier that tells the story of Dana, a young Syrian woman who fled her country and is now living in Germany. The two women are editorial consultants on the project, and with their help, Bury me, my Love tries to recreate the experience of a migrant woman on her way from Syria to Europe as realistically as possible. It also is a game about the most difficult thing in the world: coming to terms with being unable to help the ones you love.”⁹⁸



As we can see here we have almost none of the characteristic’s elements of games, with the exception of narrative agency and time. Nonetheless, what occurs here is that, pushed by the true desire to save the user’s fictional wife, the real time of the user becomes a semiotic temporality: it becomes part of a personal emotive and moral project, it moves within and towards a horizon. If in *Bully* the real time of the user was wasted as true punishment through a trivial effort, here the same feature of temporal effort makes it so that waiting becomes deeply meaningful.

The second element, which instead of the following two lines could have occupied a whole chapter, is spatial exploration. Virtual realities, both in VR and not (think of 2017 *Zelda: Breath of the Wild*) leave room for a kind of curiosity related to their possibility of reaching through movement. Here the visual horizon becomes, once more, a meaningful one as part of a project.

⁹⁸ https://indiecade.gamepedia.com/Bury_me_my_Love

3.1.6 Rethinking interactivity: enunciation and second-order authorship

The main question for a semiotics of virtual realities in 2021 is if something more and different can be said from our field of research about the central notions of agency of the user and interactivity of the system. In the chapter two we have partially done so by highlighting the relevance of the users' motor-actions and decisions in terms of embodied meaningfulness and cognitive semantics. But can we also do so about the proper text? Can we find a semiotic relevance to what was defined by Henry Jenkins as "emergent narrative" in 2004? In this regard our proposal will be extremely clear: we can do this through the notion of *enunciation* understood as manifestation of an act of *parole* inside a system characterized by indeterminacy and impossibility. A proposal which is not new but a continuation of a crucial idea born almost since the beginning of digital games:

"E' possibile considerare la matrice come un sistema semiotico al cui interno è possibile produrre un certo numero di enunciati, sotto forma di "mosse" del protagonista del gioco o, più in generale, considerare ogni interazione tra utente e sistema come la produzione di un enunciato in un particolare sistema semiotico." (Ferri, 2007, p.9)

Indeed, by blending effort of the FOA with enunciation in terms of a second-order authorship (SOA from now on), we will obtain the equivalent of the third dimension: an illusionary and persuasive effect of intimacy. The concrete reasons behind such proposal are mainly four:

- 1) All kind of virtual realities require their users to produce the equivalent of "utterances" constructed from a given database of discrete virtualities which the player "chooses" to concretize through inputs on the manifestation plane and which all brings with themselves an "I". Without being generated by the user a virtual text cannot exist and remains in the realm of the potential. And it is precisely the causal relationship between what appears and the user's intention that the player feels at the center of a virtual reality and that an effect of first-person is recreated through an act of transformation-production of something virtual in something actual.
- 2) Almost all virtual realities presenting some degree of "progress" have the extension and expansion of such "utterances" as main reward for the user, both in terms of new figurative entries obtained through the economy of the game (unlocking/buying new cars, new weapons, new skills, new clothes, new airships, new races, new levels, new background music, new pokemon, etc.) and in terms of new performances allowed by the improvement of the user. Therefore, progressing in a virtual reality always come with an augmented enunciative possibility (the combinations occurring on the screen enacted by the user) due to an increased access to the paradigmatic virtualities (the database of possibilities selected by the player) and knowledge of the syntagmatic rules producing the utterance.
- 3) Since the early arcade games allowing for the inscription of a name associated with high score to the recreation of extremely resemblant avatar, the meaningfulness of virtual realities also stands in the possibility for its user to *leave tangible traces and marks of his doing and person inside a system characterized by enunciative indeterminacy*. Such traces work as indexes of the user's causality/choices, and includes a great variety of mechanics such as the modification of the space layout (Solomon's Key, 1986), the customization of the wallpaper of your bedroom in a bartender simulator (VA-11 Hall-A, 2016), the presence of blood on walls (Nightmare Creatures 2) or an untainted clothing (Bloodborne, 2015) after slaying a monster, the permanent destruction of a particular limb in a shooting game (Soldier of Fortune, 2000) or the visible wounds on an opponent (Samurai Showdown, 2019).

None of these are of course properly created by the players, in many cases they may even appear automatically or in a compulsory way, and none of this may seem particularly personal (they could be the traces of anyone). But the point of a proper theory of enunciation, and not of the utterance, is precisely that is not and cannot be a creative and completely personal act.

4) One of the key points of Benveniste's idea of enunciation was the particular need in certain cases to refer to the concrete situation of dialogue. Utterances in virtual realities, since they are produced in real time though a formal apparatus allowing any subjectivity to act on the level of manifestation, also shares such feature. Indeed, any movement of camera to look around and any action is perceived by the users as an "I" in a "here" and "now" while it is viewed by other viewers as a "he". And yet, the exactly identical utterances may refer to a completely different "I", "here" and "now" depending on who is playing.

Now, both the creation of an effect of subjectivity through the temporary appropriation of an *apparatus* leaving traces of an act of production and the transformation from the virtual to the real were at the very heart of the notion of enunciation both in Benveniste and Greimas:

"L'énonciation est cette mise en fonctionnement de la langue par un acte individuel d'utilisation [...] Le discours, dira-t-on, qui est produit chaque fois qu'on parle, cette manifestation de l'énonciation, n'est pas simplement la « parole » (...) C'est l'acte même de produire, un énoncé et non le texte de l'énoncé qui est notre objet. Cet acte est le fait du locuteur qui mobilise la langue pour son compte". [...] Le locuteur s'approprie l'appareil formel de la langue et il énonce sa position du locuteur par des indices spécifiques" (Benveniste, 1974, pp.80-82).

"Ce que l'on nomme énonciation n'est pas seulement l'objet de plusieurs conceptions différentes, mais contient en soi-même plusieurs idées distinctes [...]. Deux de ces idées ont été bien relevées dans le Dictionnaire de Greimas et Courtés : l'énonciation est une production, et c'est un passage, le passage d'une instance virtuelle (comme le code) à une instance réelle. » (Metz, 1991, p.8).

Therefore, such approach will allow us to avoid the rather vague terms of the interaction or agency and also to prevent the issue of stepping directly into the psychologic or ontological dimension of the user's subjectivity in favor of a semiotic one. In fact, if, as we claim, virtual realities are a new form of textuality grounded on a new form of discourse, we cannot reduce their characteristic agency, subjectivity, immersion and interactivity to features such as the creation of a resembling avatar. On the contrary, we need a broad perspective encompassing all the possible forms of interactions and able to reveal their inner meaningfulness. Additionally, the anthropologic relevance of the concepts of parole and enunciation is a solution to the issue of finding a core meaningfulness inside texts characterized by syntagmatic indeterminacy. If it is true that from a semiotic perspective the endless variations of virtual texts do not correspond to endless meanings, that each different attempt at beating Super Mario is broadly still the same text, *the meaningfulness of each attempt can be found in both the act of enunciation behind a certain occurrence and in the user's consciousness of the possible different occurrences that could have been* (therefore to the virtual dimension of a particular meaning). Consequently, whereas FOA is an act of first enunciation grounding interpretation both in terms of pre-realized utterances and of the user's possibilities, the second characteristic to add to the semiotic inquiry of virtual realities, both as specific artifacts and as a cultural phenomenon, is the *consideration of the interactive act as an act of parole realized through co-enunciation* that we will define as another form of authorship. A term that is far from being metaphorical considering the raise of legal issues concerning the copyright on gameplay footage as in the case of Fox⁹⁹ and of Nintendo¹⁰⁰.

⁹⁹ <https://www.independent.co.uk/arts-entertainment/tv/news/family-guy-stole-video-double-dribble-youtube-then-claimed-original-video-breached-copyright-a7042026.html>

¹⁰⁰ <https://arstechnica.com/gaming/2021/01/nintendo-uses-copyright-claims-to-take-down-game-watch-hacking-videos/>

This act of parole and form of co-enunciation can be correlated to an effect of subjectivity (and consequently with an immersive first-person experience) under the semiotic perspective of subjectivity as:

- A. A *position* marked among others
- B. A possibility of *choice*
- C. A *dialogic* condition

For semiotics we are subjects into the world, something called “myself”, not because of an ontological unicity (fundamentally unprovable) nor because of unlimited freedom of agency (fundamentally rhetoric), but first of all because of the possibility of expressing ourselves to others through what is not ours, the words of our very language and stories of our culture, through an act of selection and appropriation. The extent and quality of our subjectivity is therefore the extension of our encyclopedia, of the languages and tales which are both what make us alike others (our community) and, through interpretation and selection (including pleasure), what make us unique. This idea was already at the heart of Claudio Paolucci’s approach to enunciation in 2010, grounded on Eco’s alternative to Barthes’ linguistic pessimism, and is even more central in his latest 2020 work.

“ Perché nella nostra parola personale pulsano sempre grandezze eterogenee, serie di parole impersonali stoccate nell’enciclopedia, che la abitano sotto diversi modi di esistenza. Per questo l’enunciazione installa all’interno del discorso realizzato una terza dimensione, quella della profondità dei modi di esistenza, dimensione che occorre associare alle altre due dimensioni del linguaggio, quella paradigmatica e quella sintagmatica. L’enunciazione è per noi quest’attività non specificamente appartenente al dominio semio-linguistico (è un atto), che costruisce un’omogeneità semio-linguistica nell’enunciato soltanto passando attraverso la mediazione di elementi molto eterogenei (schemi, norme, usi, pratiche, abiti ecc.). Essa definisce la modulazione di un già detto che concatena un punto di vista personale con una serie di punti di vista impersonali e proietta così nell’enunciato percetti, cognizioni e narrazioni che modulano ciò che si vede da un certo punto di vista, ciò che si sa da un certo punto di vista e ciò che si racconta da” (p.297)

“Enunciare” significa molto più profondamente e-nunciarsi, e cioè inviare il nunzio di noi stessi attraverso cui “SI parla”, in un’enunciazione che delega la nostra parola a una serie di messaggeri e di istanze che la trasformano, in modo libero e indiretto. Per questo è libera e indiretta la soggettività nel linguaggio: un concatenamento enunciativo in cui più voci si fondono insieme, pur rimanendo al contempo distinte. Attraverso questa polifonia noi enunciamo per “differenziarci come tutti”, per affermare la nostra unicità rispetto a qualcosa da cui ci distinguiamo, ma da cui ci distinguiamo come qualcosa da cui non ci possiamo distinguere, dal momento che questo “altro” costituisce la nostra stessa identità. Per questo, citando il Palomar di Italo Calvino, nel linguaggio “ciò che abbiamo in comune è proprio ciò che è dato a ciascuno come esclusivamente suo”. (p.298).

Under this perspective, it is perfectly correct for the user of a virtual reality to conceive what is represented on the screen as “his” story and therefore to acquire a particular meaningfulness. This sense of belonging and subjectivity, we claim, has more to do than with pure and abstract agency. On the one hand, the performative nature of virtual realities related to the user’s agency correspond to a duplication, or better mirroring, of the narrativity which is characteristic of games. On the other hand, the combinatory process at the basis of the representation correspond to a form of syntagmatic freedom, based on a syntactic indeterminacy, and of encyclopedic manipulation which is far from being meaningless. These two elements together, the two acts of *remediations*, constitute the inner textual semiotic dimension of the first-person rhetoric characterizing virtual reality as a discourse and the most fundamental characteristics of a new form of textuality. Two aspects which, finally, are both enhanced and encouraged by the digital nature of virtual reality offering unprecedented possibilities of manipulation of the FOA corresponding to an increased freedom of the second-order authorship (SOA) and to an “utopia of total rewriting” (a topic which will be discussed later on).

It is in this way that the users can legitimately destroy the authored figure of the “Devil” through the freedom of giving it a ridiculous name and a “cute” (referring to cultural elements such as rain and dancing) moveset in Pokemon¹⁰¹. And it is also this way that users can destroy entire designed economies of games, one of the cores of FOA, such as in the case of *Ultima Online* (1997):

“we created was what we called the virtual ecology; the map itself, the terrain and the vegetation on the terrain would actually grow and create food for one set of creatures in the game which I'll broadly call the herbivores so the deer and rabbits would roam the countryside and they would multiply to a degree that would come into balance with the rate of vegetation that was produced in any general area so you find more deer and rabbits in the forests and grasslands and fewer of the mountain the deserts and we would spawn the carnivores up in the mountains are farther away at more remote places and they would wander around looking for meat to eat which generally would be the herbivores and if they emptied out the population of sheep and rabbits they wouldn't anything to eat and so they couldn't reproduce and so therefore they would come into a natural balance [...] the real trick was how to make sure that that balance then how did that interact with carnivores who could wipe them out but then wouldn't care for the grass so the grass would all become you know our basis again and conversely you know players could kill either the herbivores which **we thought in our minds they wouldn't do very much because there wasn't much value in those herbivores** and instead we assume that they would tend to fight the carnivores not only because the carnivores would be attacking them but also we had created quests to wear the pelts of the carnivores were worth more [...] what we discovered the moment the game went live was that players ran over the world like a swarm of ants that consumed every living thing as fast as it was possible to spawn it, they killed every creature so as soon as a deer or a rabbit or a wolf showed up on the map the nearest person to it killed it skinned it took its meat and took its hide instantaneously and the **fact that the wolf was worth more than the deer or the rabbit was irrelevant**.”¹⁰² (Richard Garriott, 2017)

And yet, it is also in this way that the user's subjectivity can be involved by playing exactly as intended without “playing” with the original intended meaning by putting it upside-down. Or, in the case of many VR experiences, by looking at a world around us through the granted prosthesis and embodied possibilities. In fact, subjectivity does not depend on the utterance but on the act behind it and on the very fact of occupying a position. This way, even the simple choice of non-enunciating can sometimes become extremely meaningful as in the case of war themed shooting game (a FOA entirely centered on killing) in which players do not shoot:

“Gamers playing “Battlefield 1,” a game set in World War 1, stopped shooting to participate in a ceasefire during an online match at 11 a.m. Canberra time to commemorate the 100th anniversary of Armistice Day, which marks the end of the first World War.”¹⁰³

A mediated freedom, and here is the true cultural relevance of virtual realities, allowed and designed by the author itself. Furthermore, this perspective is in continuity with the central topic of how games can be used to create stories within a certain system of limitations. Something perhaps best described by Jenkins through the metaphor of the “commedia dell'arte”:

“In commedia del arte, for example, the masks define the relationships between the characters and give us some sense of their goals and desires.(21) The masks set limits on the action, even though the performance as a whole is created through improvisation. The actors have mastered the possible moves or lassi associated with each character, much as a game player has mastered the combination of buttons that must be pushed to enable certain character actions. No author prescribes what the actors do once they get on the stage, but the shape of the story emerges from this basic vocabulary of possible actions and from the broad parameters set by this theatrical tradition.” (2004).

¹⁰¹ <https://www.youtube.com/watch?v=G6W3dPZ5SP8>

¹⁰² <https://www.youtube.com/watch?v=KFNxJVTJleE&t>)

¹⁰³ <https://www.wearethemighty.com/mighty-gaming/war-gamers-held-ceasefire-anniversary/#:~:text=World%20War%20I%20gamers%20held%20their%20own%20ceasefire%20on%20100%2Dye%20anniversary,-Business%20Insider%20By&text=Gamers%20playing%20%E2%80%9CBattlefield%20%E2%80%9D,of%20the%20first%20World%20War>

At the light of all this, in this section, we will focus on the meaning-making process behind the necessary co-creation of utterances, co-enunciation, that results in the representation deemed as meaningful. On the meaningfulness of enunciation as an act *marking a difference* between the users, the author and other possible users in online virtual realities. But perhaps even more importantly, this section will also highlight the fundamental role of enunciation in the perception of texts as living evenemential places in which personal memories and subjectivity becomes key factors of the emotional experience in relation to the high textual indeterminacy:

“Many people conjecture what mankind would do if faced with an imminent apocalypse. Would we riot in the streets? Stand calmly and accept our fate? Stay home and hug our families close? Will it be more like Strange Days, or Melancholia? Maybe the end of an MMO can offer a clue: all of the above. A number of YouTube videos have emerged of people mourning the end of the Star Wars Galaxies, which was shut off over the weekend to pave the way for Star Wars: The Old Republic. There's a crowded city square, filled with players standing still, shooting off fireworks in mourning, while spaceships zoom past overhead. There's the gang of players who killed off Luke Skywalker in the waning moments. Somebody gives a tour of the home they've lovingly built over the years.”¹⁰⁴

Finally, this aspect will be completed by looking at the mirrored narrativity in chapter 3.2 and at the role of digital technology in 3.3.

¹⁰⁴ <https://www.theverge.com/2011/12/21/2651765/the-end-of-a-world-the-last-10-minutes-of-star-wars-galaxies>

3.1.6.1 Playing with phrases

Virtual realities are made by a combination of interactive and/or editable parts and of premade and/or non-editable ones, and we have already highlighted the importance of the latter (FOA) in terms of narrative, semantic and encyclopedic grounding to reduce the number of possible meanings. We must now inquire on the production of utterances through some form of combination inside a given situation of syntactic indeterminacy. This general perspective is of course not new, already in 2004 Zinna proposed to study digital texts in terms of interactive syntagma (pp.222-224). Indeed, from a linguistic perspective we know that, for the production of meaning through human language, a key feature is what is known as the double articulation: the combinatory possibility of almost infinite linguistic entries and sentences by combining both meaningful elements, such as words, and meaningless distinctive elements, such as the sounds of the phonemes. Now the question is: do virtual realities have such a feature? The answer is no. Nonetheless, they do allow to create different meanings by the means of combinations of both meaningful and non-meaningful parts. But combinations of what? Let's go back to the 1985 videogame *Super Mario Bros.* By pressing the right button the directional pad, the player can create on the screen the equivalent of the sentence "Mario makes a step forward". Then by pressing it another time it can create "Mario makes another step forward" or "Mario makes two steps forward". And finally if the player keeps that right button pressed he will create the sentence " Mario walks forward". As it is obvious to create these different sentences the player is not manipulating and combining any sound or letter. What's more, to be precise we should add the "Mario makes a step forward" is actually far more complex since it is visually represented and thus involve many details about this action, such as the movement of the arms and of the body while moving or the width of this step. At this point we could think that the players can combine words or concepts such as "walk" or "forward". But this idea seems wrong. Indeed, the idea of games such as combination of words and concepts would imply a creative possibility of different meanings which are, in fact, absent. *Super Mario* does not work as a dictionary and does not allow us to write poems:

« Il dizionario, che ci presenta migliaia di parole con le quali siamo liberi di comporre poemi e trattati fisici, lettere anonimi o elenchi di generi alimentari, è molto "aperto" a qualsiasi ricomposizione del materiale che esibisce, ma non è un'opera." (Eco, 1962, p.59,).

Differently, what comes out of an input is "Mario walks" which is linguistically speaking a *combination of a nominal phrase and a verbal phrase* creating a sort of *propositional nucleus* allowing for different expansions mostly depending on FOA:

- A. Mario jumps to avoid an enemy
- B. Mario jumps over the pit
- C. Mario jumps and kills the Goomba
- D. Mario jumps and breaks the brick
- E. Mario jumps to take the coin
- F. Mario jumps and then dies.

Subsequently, since linguists teach us the combinations of phrases create more complex sentences which in their turn constitutes a text, we seem to have found our answer: the co-enunciation of virtual realities consist in the possibility of meaningful concatenation of nominal phrases (what is manipulated by the player) with verbal phrases (the action) through combinations of inputs (the non-meaningful part, excluding our remarks on their cognitive dimension) inside a given context

determined by first-order authorship. On the expression plane we therefore have a double combination generating the text: agents with actions, agents and actions with the context.

To do so, the users have access to a *given* and *virtual* database of “lexical entries” or perhaps better “minimal enunciations” which can and must be combined to create the equivalent of meaningful sentences used for completing a given *textual gap* to fill. They do this by triggering inputs which transfers on the expression plane (typically through audiovisual representation) and thus the very same act of pressing a button become the equivalent of a *linguistic execution* or a *linguistic act* belonging to the individual. Finally, such act finds its meaningfulness in relation to other non-interactive and pre-made syntagma that are completed through the gameplay.

However, some serious issues still remain about a linguistic conception of the generation of virtual realities. First of all, the phrase “ Mario runs” is produced by the same input producing “ Mario walks”, so only some of the phrases actualized on the expression level some are “precise” while others exist only through repetition and are mostly inferred (running as a fast series of uninterrupted steps). This introduces the next problem related to the translation of a visual content in a verbal one, which is actually quite problematic since we could create different verbal phrases from a same and identical visual text. Moreover, the user’s agency allows for both “Mario”, “He” and “I” to be equally used and correct. Additionally, the combination and expansion of phrases does not work in games like they work in a verbal text since the very concept of “head” would hardly apply¹⁰⁵. Another concern is also that we would have a really hard time explaining how our example “Super Mario Bros” is a meaningful text if intended as a succession of phrases such as “ he walks” “he runs” “he jumps”. Indeed, the utterances of this texts are always incomplete without the “background” or context. Furthermore, the visual representation very often comes together with sound effects and verbal sentences. In our example of *Super Mario Bros* we cannot but think at the iconic sound of Mario’s Jump. So an input almost always corresponds to a syncretic phrases and not merely to a visual one associated with the action performed in the virtual reality. Finally, the player is not really free to actualize all the possible virtual discrete actions which depends both on the spatial context (in the underwater level Mario cannot jump) and the ludic situation (Mario can throw fire balls only after having found a fire flower).

Therefore we can see that whereas it is effectively possible to broadly conceive and translates inputs in combination of phrases, hence defending the idea of virtual realities as communicative artifacts, there are also several issues bounding the relation between gameplay and linguistic production to a metaphor that should not constitute a methodological ground for the analysis of such texts. Nonetheless, this first reflection on interaction as co-enunciation as combination of phrases can bring us to claim that in virtual realities the meaning appearing on the expression plane depends on the possibility for the player to 1) actualize on the screen through digital inputs 2) repeat identical 3) and combine different 4) discrete and reusable 5) syncretic phrases 6) contextually to the given present situation 7) taken from a given database of enunciable “sentences” 8) which are incomplete and *almost* meaningless without the non-enunciable parts of the text 9) and presenting a substantial equivalence between the first and third person form of the nominal part.

This is, in *nuce*, what we mean about the player’s co-production of the text as an act of co-enunciation. To both sustain our claim and complexify it, we will now make several examples of creation of utterances across the history of digital games and across different genres (readers interested mainly in the conclusions can click here).

¹⁰⁵ A great thanks to Professor Emanuele Fadda for helping me on this issue.

1. Starting by one of the game at the origin of virtual reality, the 1972 *Pong*, we clearly see the simplicity and meaninglessness of such syntagma. Indeed, in the game the only directly enunciable sentences are “the paddle goes up” and “the paddle goes down”, which are virtually freely repeatable and combinable although limited by the win&lose condition of the game, and the only thing making these sentences meaningful are the actions of the other paddle and the physics changing the direction of the ball depending on how it would hit one of the two paddles or the walls. Nonetheless, this example shows us how the feature at the center of this paragraph is present since the origin of digital games which are conceived by us as the earliest form of virtual reality.
2. One year later, *Space Race* (1973) would use exactly the same syntagmatic possibilities of *Pong* to create the first racing game of history. This shows us how the overall meaning of a text strongly depends on the relationship between the syntagmatic possibilities and both the rules (winning by time) and semantic content (a ship instead of a paddle). But most importantly, it highlights how the simple possibility of a “free” movement in a continuous and discrete space and time can allow a multiplicity of meanings.



3. *Tetris* (1984) is without any doubt very different from Super Mario, and yet it is based on the possibility to create the visual representation of the rotation of each piece (the sentence: “the straight tetromino is turned upside down) and also of their movement in space on x-y coordinates. If coupled with what we have seen in *Pong* and *Space Race*, this example is very interesting since it shows how the creation of phrases is not related to a “narration” in its classical sense (we would hardly accept that Tetris is meaningful as a succession of such enunciates represented on the screen).

4. *Duck Hunt* (1984) is a particularly complex case for two reasons. First, it presents a first-person view that is completely hiding the agent, even in the classic form of the gun. Secondly, the absence of a crosshair coupled with the gameplay mechanics for which the player is on the other side of the screen aiming with a controller-gun, highlights a *fundamental discrepancy* between the performance-enunciation (the player aiming) and what is represented on the screen. On the surface the game appears as a succession of only two possibilities: successful or failed shots (“the duck was shot”, “the duck was missed”), representing consequences without the causes. But the actual process of enunciation is actually richer (comprehending for example the aiming), proving the irreducibility of enunciation in virtual reality to their representation on the screen.



5. 1985 *Time Gal* is another interesting case since it is an interactive movie videogame, a very particular genre in which an input does not correspond to a simple and infinitely repeatable syntagma. Here the player must quickly press a single and precise button to actualize on the screen a premade animated cinematographic sequence or otherwise he will lose by witnessing a different premade animated cinematographic sequence representing the character's failure. In most cases the buttons appear on the screen, while in few others the player is given a choice and must guess the right answer:



This illustrates very well why this genre is one very problematic to define and compare to most digital games. On the appearance *Time Gal* has everything which is needed: interaction through digital inputs, representation through audiovisual language, rules to win, and even narrations. Yet the lack of potential phrases, caused by a *dual true/false logic in which only one of the given variable is right among many possible*, is a critical factor which correspond to a lack of expressive and enunciative possibilities. Whereas each possible input/answer correspond to a degree of syntactic indeterminacy, this does not end up in a principle of impossibility. As a series of “correct” utterances *Time Gal* is not a proper virtual reality although it is without a doubt a machine producing several different texts through different performances.

6. The 1988 videogame *Gran Prix* is the first racing title in our game that introduces two elements of interest. First of all, we can notice how the movement in the virtual space is an utterance which is not completely in control of the user but depends on a series of skills and conditions. In fact, even the simple input of accelerating or turning have a single input but different degrees and are subjected to failure. Secondly, we notice how the utterances realized on the main narrative level (the car on the road) also correspond to other utterances on the visible interface, such as the square moving on the minimap.
7. Sid Meyer’s *Civilization* (1991) will be our next example and another complex case. Indeed, since the beginning of the game we will have several choices influencing the game but which are not directly linked to a sequence on the expression plane, these first choices are: the difficulty and the tribe. During the game other of such choices will occur, such as which technology development, and so we can know see that some of the players decision can determine the syntagma themselves by *emulating a form of background FOA*. Additionally, the space here is divided into tiles and time into turns, so the possibility to create such combinations of sequences is here influenced by these aspects of the game. Finally, the representation of the action is here more abstract (such as in the chess) and so instead of having something like “Mario makes a step forward” will become something like “the infantry unit explores a tile forward”, but this has no impact on our original claims which are still confirmed.



8. *Worms* (1995) is another example of how very often the player is not really in control of his utterances and of how a single input may correspond to same action with various degrees of variability. It is the case of throwing a grenade or shooting a missile by “choosing” the amount of power needed. Secondly, the fact that the weapons used by the players may destroy the terrain introduces the idea that the utterances of the user can leave *traces* of his doing and are not limited to an avatar or manipulated object. Finally, it also presents a series of variable utterances which are *not* related to actions or events, such as the choice of the name, the appearance of the gravestone and so on.
9. *Tekken 3* (1997) is a fighting game which will help us to introduce a new and essential feature of meaning-making through combination of phrases and sequences. At a first glance this game is very alike to a one such as *Super Mario Bros* from a syntagmatic point of view: each input on a direction pad creates a corresponding phrase (“x makes a step forward”), the character can also crouch and jump by pressing a button (downward and upward) and to each main button on the pad (x, o, square and triangle) correspond a single and simple action (left punch, left kick, right punch, right kick). However, the moveset of characters often consists of tens of different single “phrases” which can be actualized through specific combinations of buttons and succession of command. The player is thus not completely free to create any virtually available phrases available phrases but must do so accordingly to some syntagmatic rules. As an example, we can see this with the of the moves¹⁰⁶ of the playable character “King”:

Button Key	
Joytick Directions	→ ↑ ← ↓ ↘
Left Punch	○●
Right Punch	○●
Left Kick	○●
Right Kick	○●
Pause (no buttons)	pause
Side Step (flick up or flick down)	side step

King's 10-hit Strings	
Elbow drop strings:	
○●	○●
OR → ○●	○●
○●	○●
○●	○●
○●	○●
○●	○●
○●	○●
○●	○●
○●	○●
Jump kick strings:	
○●	○●
OR → ○●	○●
○●	○●
○●	○●
○●	○●
○●	○●
○●	○●
○●	○●
○●	○●

Romero Special Multipart			
Move	Movement	Escape	Damage
Standing Heel Hold	→ ↓ ↘ ○●	○●	30%
Indian Death Lock	○● ○● ○● ○●		30%
Romero's Special (King's Bridge)	○● ○● ○● ○● ○●	○●	50%
total:			110%

¹⁰⁶ <http://www.bumwine.com/tekken/tekken3.html>

10. *Final Fantasy VIII* (1999) offers us a great example of how many of the previous cases can be found in a single game. Both on the world map and in in-door the player's character can freely move by pressing the corresponding digital inputs (up to walk forward, right to go right etc.). Then indoor the player can talk to several NPC and interact with several object by pressing a button, indirectly producing other sentences on the screen. During combat however the game is turned based and interactions occur through a menu:



Here the selection of a command will activate a sequence such as “ Zell runs toward the monster and punches it”. Other commands such as “Magic” or “GF” will instead correspond to more complex sequences by triggering premade animations similar to the ones of *Time Gal*. Additionally, the possible actions during the fight will depend on the previous configuration and choice made by the player in the character's menu. Furthermore, the possibility of doing such actions depends on the current ludic situation and the game's rules (hp, atb, magic units, etc.). Finally, some special actions called “Limit Break” will require to press combinations of buttons in real time and will follow syntagmatic rules. The first available combos will indeed always be:



And then depending on the player's choice, other actions will be available.

11. *Pokemon Snap* (1999) is an interesting case study. Although the game is based on different sequences that must be found by the player to appear on the screen, these are initially not produced by the player through articulation and combinations taken from a database. The appearance of these sequences depends on the necessity to explore the 3D world through a first-person camera while being on rails, thus constantly excluding some parts of the world which are nonetheless occurring.



Yet this case is not like *Time Gal* and there is something which actually produced: the animation of the photographic shot and of the usage of items (such as throwing an apple) that will activate alternative premade sequences. *Pokemon snap* therefore introduce on the one hand the idea of the gaze as an enunciative act actualizing a given portion of the text and on the other hand it introduces a new form of text-variability detached from fallibility.

12. *Typing of the dead* (1999) is an amusing example of the discrepancy between inputs and phrases. Here to “aim and shoot” at the zombies the player must type words, therefore combining letters, appearing on the screen, with the only possibility of choosing which word to type first.



13. *The Curse of Monkey Island* (1997) is a point and click adventure that highlights how the combination may not be directly about action or events but instead about a certain combination of items to later trigger events. Additionally, this specific genre introduces a form of utterances of movement in the space that are enacted very differently than with super Mario since they require a mouse on a certain part of the screen. Finally, we can notice how the syntagmatic indeterminacy does not come together with concrete impossibility since the game is organized as a series of events that must be done in a specific way and order. In this sense, such game may be considered as a non-virtual reality. However, since “wrong” combinations and order actually triggers new utterances (often verbal) and does not bring the end of the representation, the text may be rather considered as a *lesser* virtual reality.
14. The PlayStation1 game *The Emperor's New Groove* (2000) is an example of the syncretism of utterances, as when by pressing the square button the player can visually represent the lama avatar running but also a different sound of the hooves and one of the two sentences (in the Italian version) “Togliti di mezzo” and “Sta arrivando un lama!”.
15. A more difficult case is *Amplitude* (2003) a rhythmic game which, differently from others, such as *Parappa the Rapper* (1996), *Gitaroo Man* (2001) or *Space Channel* (1999), does not contain any narrative representation related to the performance of the user. And even more so in its 2016 remake. Surely, there are visual consequences depending on the player performance, such as appearances of colors and light effects, but these does not reasonably constitute a set of utterances enacted by the players in the same way in which we have seen until now. The true “phrase” enacted through the player’s playing activity are musical ones: depending on its performance the music will change and there are several variant possibilities of orders related to the activation of one of four instruments constituting this very music and represented as “paths” (see figure below). Nonetheless, such enunciation of musical phrases is not really related to a proper combination of inputs representative discrete units of actions or sound.

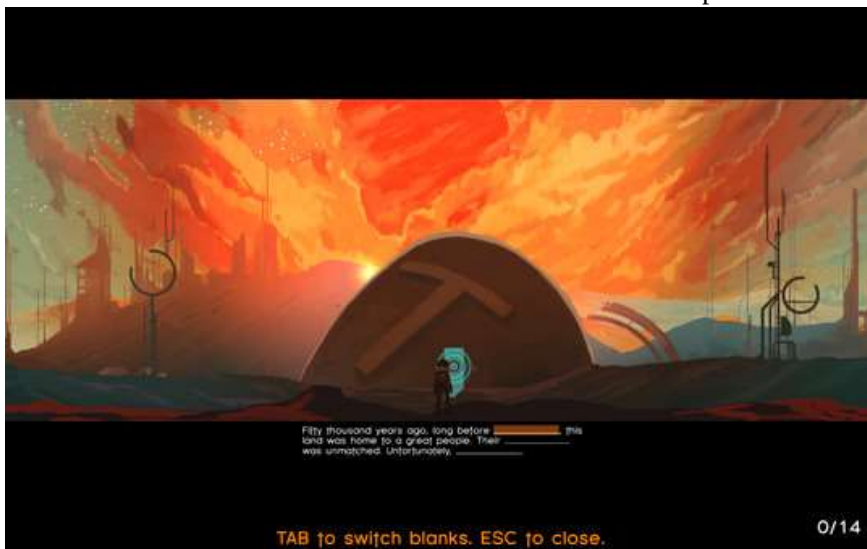


16. *Shadow Hearts: Covenant* (2004) is another role-playing game mixing different aspects of enunciation. On the one hand a menu of “settings” determining the utterances *a posteriori*, on the other one menu for selecting action-utterances in real time, and finally a timed-input “trial” determining the efficiency of the action.



17. *The Sims 3* (2009) is perhaps the better example of how meaningfulness in virtual realities comes from the user's selection of virtualities, not only in terms of avatar creation (with tens of haircuts and clothes that can be chosen) but also in terms of the very furniture. The possibility of substitution is the possibility of meaningfulness.
18. The simulation game *Kerbal Space Program* (2011) introduces among our examples the case of virtual realities in which the actions of the users and their effects clearly belong to different moments. In a first time the enunciation of the player consists in the creation of the spaceship by combining parts. Then, in a second time, the enunciation on the screen consists in the effect of such prior combination with a possible failure or success. Although there is no direct interaction during the moment the launch, the user clearly perceives the scene differently than when watching a movie: he still is the author and partially responsible of the utterances.
19. *Just Dance Wii* (2011) is another case of virtual reality which, similarly to *Time Gal*, cannot be considered a virtual reality text since it presents once again a dual logic where only one answer is possible and only one utterance is represented. Despite the possibility of considering any movements done outside of the screen as an act of enunciation, the game will not take into account such acts and will only offer a right or wrong situation.

20. In *Overcooked* (2011) there are two interesting aspects. First of all, through a single and same input the user can realize a vast array of utterances depending on the interaction with the FOA items: chopping tomato, cooking meat, cleaning dishes, and so on are all done in the same way. The player here combines events not by combining inputs but rather by choosing an order of activation. Secondly, we have the presence of a playable character which is a raccoon on a wheelchair as a laudable example of inclusivity. However, some of the events that can easily happen while playing the games includes such handicapped raccoon (as any other playable character) being roughly pushed by others, falling down a camion while moving, drowning, blocking the path of others with its chair, constantly washing very dirty dishes, etc. Therefore, allowing for all kind of dark humor and more broadly for a very uncommon representation realized by the users even unwillingly. This highlights how the utterances of virtual realities always exceed in meaning the design and are deeply rotted in society and culture.
21. The indie videogame *Elegy for a dead world* (2014) is another emblematic case since here the utterances creating the “story” and missing from the text are properly linguistic and therefore relies on the combination of letters and concepts:



22. *Card Thief* (2017) is a card game for mobiles which highlights how the utterances on the screen may not be always discrete such as in Super Mario but may be mostly events such as “the thief went left, killed the guard, then went down to blow out the torch and finally took the gold” a sentence which correspond to three non-fallible inputs (see below).



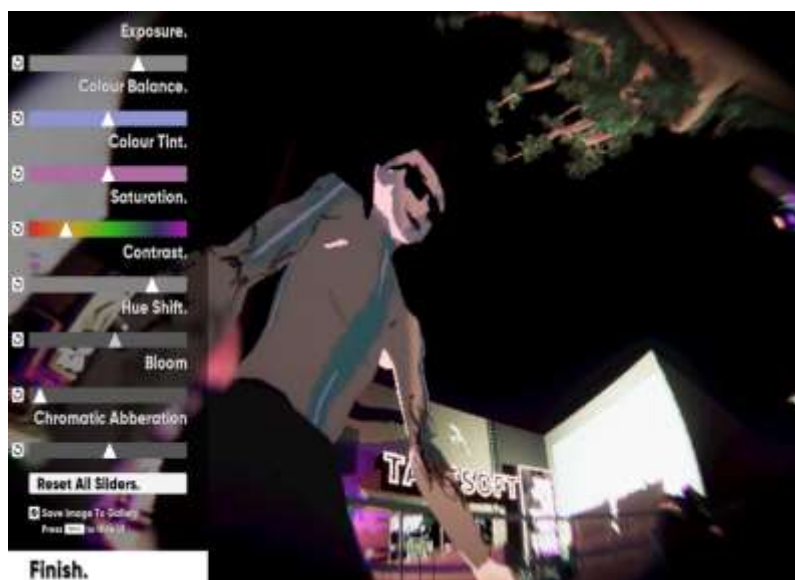
23. *Super Robot War V* (2017) this text is an interesting example of how the utterances of a game may not all be directly designed in terms of game-actions but may be implied by visual representation. As an example, the fact that the robots-agents have a direction allows the player to represent an “attack from behind” that however is completely absent as a mechanic. Additionally, the narration of the game (the presence of characters, social values, narrative events) also allows for other scripts belonging to the user and which are not directly depending on the author. As an example, in chapter 3 the user may defeat a strong and charismatic foe with either a young talented pilot, an old expert commander, or a new recruit. From a gameplay point of view there is absolutely no difference, and neither are there special dialogues occurring in each of the three cases, but nonetheless this choice is going to be, at least potentially, meaningful in the terms of the user.



24. *Mirror* (2018) is an erotic match-3 based game in which we can also find the same form of meaning-making through combinations of utterances. On a first level the combination of icons is here semantised and trigger some small animations. By combining three swords, for example, the utterance “the character attacked” is enacted and the consequence can be seen on the opponent girl. The available utterances here are the ones classic in RPGs: physical attack, magical attack, healing, buff, special items. Then after the series of utterances constituting the fight, dialogues will trigger and in the end even a “sexual scene” where the user can choose between different “practices” to have the girl reach the maximum level of pleasure resulting in new FOA utterances. This example highlights therefore how broad can be the extent of the conception of virtual realities as combinations of utterances but also how different such “combination” can be.



25. In the first-person photography game “Umurangi Generation” (2020) not only do players explore the world and interact with it through a given set of virtualities to trigger utterances that will then be photographed and evaluated (very similarly to what we have seen in *Pokemon Snap*). But players can then modify such pictures very realistically to create even more unique utterances, although through something very far from Mario’s combination of inputs:



26. All the examples that we have made so far were about digital games, but what about texts experienced through the proper VR technology? First of all, we have already explained that a semiotic approach is different from a mediological one and therefore that we cannot consider meaning on the sole basis of the device used. We will consequently distinguish between VR products that are videos/movies because of a lack of agency on the events and the one that are games because of the presence of agency. The first kind of VR texts presents a form of enunciation similar to what we have seen in *Pokemon Snap*, with the syntagmatic indeterminacy being characterized by the possibility of a free gaze in a 360 degrees virtual environment, therefore allowing for a form of enunciation (the mark of a presence and extension of the user’s subjectivity) although deprived of parole (without the possibility of creating utterances). As concrete examples we can look at the VR trailer of *Ghost in the Shell* for Oculus Rift¹⁰⁷ (2017), at the episodes of “Dispatch” (2017) or even at the very introductory video of Oculus (2016) titled “Introduction to Virtual Reality”¹⁰⁸. Here, the possibility of different utterances, or views on utterances, at each different moment of the video constitute the syntagmatic indeterminacy but does not constitute impossibility. Each new reading will complete the first one and be coherent in terms of experience. As we have done with previous examples, this is a characteristic of what we defined as lesser virtual realities. Finally, when we acknowledge how such texts lacks completely a dimension of effort and fallibility we can come to the conclusion that VR texts may be very different from the discourse of virtual reality by enacting metaphorically only some of its features.

¹⁰⁷ https://www.youtube.com/watch?v=0wl0CB_jw0Q

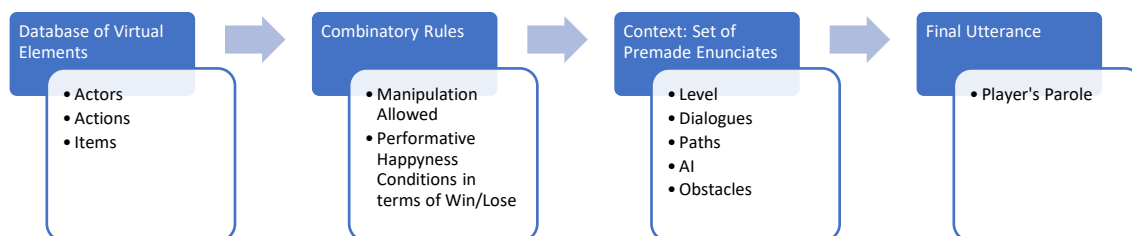
¹⁰⁸ <https://www.youtube.com/watch?v=MAqFQwvsce8>

The same applies to VR products offering to the user the possibility to move within space which are actually photos. Differently, VR experiences closer to games in terms of simulation and enunciation will present all the aspects previously exposed. However, a main difference must be highlighted in relation to a different perception of the relation between inputs and enunciation. Technically speaking, there is no substantial differences in the generation of utterances representing on the screen an arm grasping a glass of water between VR and non-VR technology. In all the cases, the generation of such events depends on inputs related to premade and enacted virtualities (the representation of the arm moving). It would be foolish however to deny that there is an obvious difference on the experiential level between pressing ten times the square button on a controller to grasp the glass and doing it in the exact same way that we do in real life by moving our real arm (Job Simulator,). This introduces the last difference in terms of being accustomed to a given virtual system to perform the act of enunciation and parole. Of course, we could speak of opacity and transparency of the system, but there is actually more to it than this well-known opposition. In fact, the true point here is that virtual realities using technologies such as VR can rely on the *possibility for the user to feel the appropriation of the system through what the user already owns* (such as the corporeal movements), from which derives the naturalness of VR interaction exactly as we may feel to naturally express our ideas in a certain native language.

All these examples prove that the previously examined case of *Super Mario* is certainly emblematic but certainly not the only one used or needed inside the discourse of virtual reality. Therefore, the idea of utterances constituting the expression plane conceived as combinations of discrete inputs corresponding to discrete phrases can only be accepted in general terms and it would be more correct to talk about combination of virtualities. And we may distinguish between:

- Generative Virtualities which will determine later utterances and are not directly utterances with a proper meaning or narrative sense (Class, Avatar, Car, Equipment, Statistics, Appearances)
- Active Virtualities which are selection and/or combination of inputs immediately resulting in *effects* and utterances (Walking, Jumping, Shooting, Accelerating, Aiming, Dialogue Choices)

As a general schema, we may therefore represent the enunciative act of the user as the result of a combination occurring on three levels: the virtual database, the rules and the context.



Similarly, to how we can say that language does not exist outside of such concrete acts made by the speaker, we can also say that the games do not exist outside of the playing activity of the player which precisely consists in actualizing its virtual elements and combining them together. Whereas in language this combination is ruled by grammar and syntax, in digital games such combination is strictly ruled by the informatic code which contains the rules and enacts the context. But even more precisely, the examples highlight that:

- A. All virtual realities are text representing action, events and dialogues depending on the user's inputs and choices, whether single one or combinations of them.
- B. The differences between texts and meanings produced by a single virtual reality in virtue of syntagmatic indeterminacy exceed the categories of actions and events, including names, appearances, music and much more. In these cases, the meaning does not relate to a missing part of the text to "fill" but has more to do with an *aesthetic of rewriting*.
- C. Since most utterances rely on a certain execution/performance, and are therefore fallible, the user's interaction must be considered as communicative *intentions* (therefore fallible).
- D. The content represented is meaningful as utterances which are about both games and narrations (i.e: the avatar died; the player lost)
- E. Similar enunciative possibilities (i.e: directions in Pong and Space race) can create different meanings.
- F. Identical enunciative entries repeated and combined in different syntagmatic orders represents the core of meaning-making coming from SOA.
- G. Syntagmatic indeterminacy can sometime occur without evenemential impossibility but drastically reduces the rhetoric of virtual reality.
- H. The user's influence on the text utterances regards both the world represented and the elements of the interface, therefore enunciation encompasses the whole representation.
- I. Enunciative acts can occur beyond the screen and may not be represented on it.
- J. Utterances of virtual realities may have different degree of abstraction in relation to the degree of combinatory articulation required to enact them (i.e: walking as a series of steps or as a single command via a menu).
- K. There is no direct relationship between the quality and quantity of inputs and utterances (i.e: multiple inputs for a single utterance vs a single input for a long/complex sentence)
- L. In virtue of narration and virtual representation the number of meaningful utterances *exceed* the mechanics of a game.
- M. The direction of a gaze is the smallest utterance possible within a virtual system.
- N. The meaningfulness of the act of enunciation also depends on the "accostumance" of the user with the given system.

Therefore, they now allow us to conclude that:

Not all digital games or VR experiences can be considered proper virtual realities. In proper virtual realities the meaning appearing on the expression plane depends on the possibility for the player to 1) actualize on the screen through digital inputs 2) repeat identical 3) and combine different 4) more or less discrete, configurable and reusable 5) simple phrases and/or complex sequences of visual and acoustic signifiers 6) to produce missing, non-necessary and non-premade parts of the text 7) and to activate premade conditional parts of the text. 8) These are taken from a given database of enunciable "units" 9) accordingly to the coded digital syntagmatic rules 10) and contextually to the given present situation 11) representing more or less abstract actions and events 12) in a more or less discrete and continuous time and space 13) which are incomplete and *almost* meaningless without the non-enunciable part of the text 14) and which have an undeniable expressive and meaningful impact even when they are mainly actualized for functional reasons.

These conclusions are interesting for mainly two reasons. First they open to the fundamental topic of meaning as a consequence of enunciation: an expressive act depending on the actualization of virtualities to both express one's own subjectivity and to *do things/perform on the world* with expressed idea. Second, they encourage us to inquire on meaninglessness which once again here seems to give birth to meaning in term of syntax rather than semantic.

3.1.6.2 Syntagmatic creativity: *teabagging*, *bike dancing*, *bullet drawing* & more

When vaguely described as text co-produced by the players, videogames and virtual realities seem to imply the possibility for the player to express himself through an act of creativity regarding "his" part of the text. However, we have seen that actually the player's freedom of creating parts of the text mostly concerns almost meaningless phrases and is extremely limited by:

- The Database
- The (Spatial) Context
- The (Ludic) Situation
- The Syntagmatic Rules

So, is there any chance for the player to actually produce something not intended by combining the given phrases of the game? From a literal point of view the answer is no. However, meaning and communication are precisely defined as the semiotic possibility, and even necessity, to go beyond this first fundamental level. This is why we can see a kind of syntagmatic creativity in the usage of games by the players. This creativity should not be intended as the possibility to create a whole new story but rather consists in creating enunciates which appear *out of context* and *not explainable*. Player thus play *with* the game, and not *at* the game, by using this possibility.

A first example of this is the social practice of *teabagging* inside the game Halo (2001).



Here the possibility of activating in quick succession the actions of standing and crouching over a dead body has allowed the players to invent and insert a new "sexual entry" inside of the game by representing something like "my bum is on your face". This was of course not designed and probably couldn't be even imagined by the creators of the game. It should be noted that the meaning acquired by such actions representing a sort of sexual humiliation cannot be explained simply by the possibility of articulation, but must be put into relation with at least three key factors:

- The meaninglessness of the phrases per se, opening the question "what is it?"
- The situation of competition inside a, at the time, community with male players
- The shooting genre characterized by a reciprocity of violent actions between subjects (both players and bots)

A similar phenomenon, although much less famous, can be seen in the “bike dancing”¹⁰⁹ of GTA V which is made by the succession of the “kick” action on the right and of the left side of the bike. Indeed, since this action can be made even when no one is around the player it totally loses its meaning and open for new possibilities related to the “what is it question” previously seen. This “meaning” of dancing is also made possible by the recording and editing of the gameplay footage to which rave music is added¹¹⁰.



GTA V grand theft auto 5 bike dance



GTA Rave (Best Update Ever:P)

¹⁰⁹ <https://www.youtube.com/watch?v=zPH8XkCAaPk>

¹¹⁰ <https://www.youtube.com/watch?v=xPuZ0kg1WJE>

A third example is related to the visual signifiers that are indirectly created yet intentionally produced through the act of shooting on a surface which will leave the trace of the bullet. In the next screenshot we can observe a player “drawing” a smiley with his gun, making this appear a meaningful visual signifier through the simple possibility of freely shooting:



Here the creation of a signifier is not the direct result of the free combination of the actions of shooting but rather of their explicit consequences on the game’s background. And of course this possibility is not limited to guns nor to a specific games but is recurrent practice¹¹¹:



¹¹¹ <https://www.youtube.com/watch?v=xHv9Fsietl0>

Another example is related to the sound effects produced by the phrases, such as the one Lara Croft (Tomb Raider 2, 1997) makes when she bumps against a wall or she is attacked by a rat. By repeating these sounds through the recreation of such situation and the repetition of action, a Youtuber created the video “Lara Croft dies from orgasm with wall”¹¹².

Finally, these possibilities can also be somehow more coherent with the text as in the case of Youtubers playing *Dark Souls*. Here we can see how the possibility of movements made in quick succession and in a 3D world can be used to make the character spinning around. By itself this does not mean much, although still opening to the question of *why* such thing is appearing on the screen (for an external viewer), but when this occur after being hit by an arrow¹¹³ then it can represent fear or panic or even the craziness of a character.

Syntagmatic creativity, in conclusion, is an innate possibility of virtual realities that is used by the player to “mess” with the game and also to produce audiovisual texts such as YouTube videos. As it is rather “exceptional” and limited in the range of possible phrases, it cannot really alter the original intended meaning of the game if taken as a whole, but it certainly can produce meaningfulness by representing an *authorial shift* in the production of sense.

¹¹² <https://www.youtube.com/watch?v=qZ9DauQshnc>

¹¹³ <https://www.youtube.com/watch?v=W6mD4bZfzvI>

3.1.6.3 Aesthetics of impossibility & destiny

After all these new elements, the odd complexity of virtual realities should be now explainable in terms of syntagmatic indeterminacy and semantic instability of the utterances on the manifestation plane resulting in narrative impossibility. In this new form of narration, because of the necessity of a second-order authorship the protagonist may have tons of different and contradictory subjectivities although being formally the same, he may accomplish actions in infinite different orders, through these same actions he may be equally doomed to fail and destined to success, and after each success a new failure is possible and vice-versa. Characteristics that, as we have seen, are shared equally by the arcade of the sixties and the most recent VR experiences, being therefore independent from the particular case of properly narrative texts as well as from the specific creation of games with hypertextual scenarios with features such as multiple endings and so on. In this sense, if we dare to claim that virtual realities are new cultural form of discourse and representation of the world it is first of all because these texts seem to put in crisis the idea of *destiny* that was at the very heart of the greimasian narrativity and, more generally, of the semiotic take on narration and meaning.

One of the most brilliant and recent work on this issue is represented by Bruno Surace's 2019 "Il Destino impresso", inquiring on the relationship between cinema and destiny. More specifically, the sensibility of the author highlights very well a causality between the relevance of destiny and the material condition of cinema as a series of ordered and impressed photographs. A central idea that is put in evidence since the introduction of Professor Silvio Alovio:

«Se invece guardiamo il mondo dentro un film di finzione siamo portati a interrogarci non solo sul significato dei fenomeni visibili ma anche sui nessi che li collegano, attribuendo a tali nessi un principio di causalità <<garantito dalla semplice certezza che qualcosa è stato scelto, immortalato, rappresentato per essere dotato di senso>>. Ed è proprio in questo gesto necessitante di selezione e raccordo causale che si coglie la radice della celebre analogia intravista da Pier Paolo Pasolini tra le coppie vita/morte e cinema/montaggio: la vita che stiamo vivendo (o quella che stiamo osservando dalla finestra) e un <<caos di possibilità>>, un'incessante quanto vana <<ricerca di relazioni e di significati>>. **La morte e il montaggio (ma ben prima del montaggio il romanzo, come sostiene Benjamin), intervengono su questa materia incerta e infinita, ne selezionano alcuni momenti, li mettono in successione e poi, soprattutto, li perimetrano dentro una struttura chiusa, finita.** In altre parole, più vicine ai temi del volume che stiamo introducendo, la morte e il montaggio costruiscono tracciati destinali *esprimibili*.» (p.16, my bold)

Which brings Surace to grant to the figure of the destinant and of death an absolute centrality in both meaning making and meaningfulness:

«**Il problema che qui ci poniamo è invece quello del destinante**, che di per sé costituisce il principale motore narrativo o, ci si passi il termine, narratogeno, cioè l'entità, il ruolo, da cui si diparte l'intera storia, poiché esso affidando la missione al destinatario e in qualche modo sancendo l'oggetto di valore costituisce la scarica di movimento che sblocca un contesto altrimenti statico, come messo in pausa.» (p.40, my bold)

«Lo vedremo più avanti, ma tanto vale anticiparlo: **la Morte è di fatto un'istanza destinale**. Cioè, come diremo più largamente a breve, la presenza della Morte nel testo, sia essa posta all'inizio o alla fine, non è da vedersi come dato a se stante, ma come entità capace di modellare l'idea di destino diffusa in tutta la superficie del testo.» (p.41, my bold).

Differently, virtual realities seem to represent on the screen Pasolini's concept of life as a meaningless chaos of possibilities. And, following Surace's material take on narration, such fact is actually extremely coherent with the digital technology which is not based on impression but actually on the possibility of an infinite rewriting.

This is how the fundamental question of traditional narration “why did that happen?”,

«Eppure è la domanda fondamentale, quella che ci attanaglia nella situazione di dolore: perché e successo? Perché proprio a me? Così come quella che impreziosisce *il nostro significare* la felicità: se quel giorno non fossi passata di lì, tu, amore mio, non saresti entrata nella mia vita.» (p.29).

a question which is central even in traditional games, let's think of the iconic French expression “les jeux sont faits” or of the Latin locution “*Alea iacta est*”, becomes almost meaningless in the discourse virtual realities and requires the real effort of the user to become meaningful, contrasting the infinity of the play-text (Carse, 2013) with the finitude of the player. In fact, not only do players have almost always exact and banal answers to such question, such as “He died because I pressed the x button too late” or “She loved me because I chose so during a dialogue”, but the relevance of the event itself loses significance since rewriting, both in terms of trial and error or save & reload, is the way in which the second-order authorships of most virtual realities are designed. It is on this point that the potential death of a children in a post-apocalyptic world in the both the novel (2006) and movie (2009) “The Road” is sensibly different than the similar situation occurring in “The Last of Us” (2013). Furthermore, this is also on this point that whereas traditional narration can present the multiplicity of the destinies only as a theme (as in *Sliding Doors*, 1998, analyzed by Surace in his book) virtual realities present such chaos as *a fact experienced in first person and exploited by the user*.

Therefore, a semiotic inquiry on virtual realities as text enacting a different kind of logic has to highlight one fundamental question: does Mario has any kind of destiny and destinality? A question for which we have chosen to speak of impossibility as an *aesthetic* rather than a fact. Indeed, by looking closely at most digital games we can actually see that destiny and meaning is precisely a form of *order* brought to the second-order authorship by the first-order authorship. Additionally, we can also find a form figure of destiny in the limits of the database and of the software processing, such as with money caps or statistics caps.

In relation to the proper story, it is in fact substantially false to talk about impossibility. Even the apparently most “open” games are often scripted:

«Molti videogiochi promettono al giocatore la possibilità di esplorare intere città, regioni o addirittura galassie di estensione apparentemente illimitata. Una delle frasi di lancio di Fallout 3 (Bethesda, 2008), un gioco ambientato in una sconfinata landa postatomica, recita: «Libertà illimitata! Sarai tu a fare le scelte che definiranno il tuo carattere e cambieranno il mondo». La promessa di totale libertà di movimento e scelta fatta ai giocatori da giochi come Fallout 3 sembra in conflitto con un'idea autoriale di game design. Qual è il peso dell'autore di videogiochi, se tutto ciò che fa è consegnare ai giocatori un mondo da esplorare?[...] Lungi dall'essere un open-world offerto ai giocatori affinché lo esplorino in libertà, la Zona contaminata è un mondo progettato, il cui design mira a fare ciò che Murray (1997, p. 79) definisce come «scripting the interactor» (letteralmente “sceneggiare il giocatore”), indirizzandolo a compiere alcune azioni piuttosto che altre. L'apparente libertà del giocatore è dunque contingentata da pratiche di design che ne orientano la progressione all'interno del gioco.» (Fassone, 2017b, p.82)

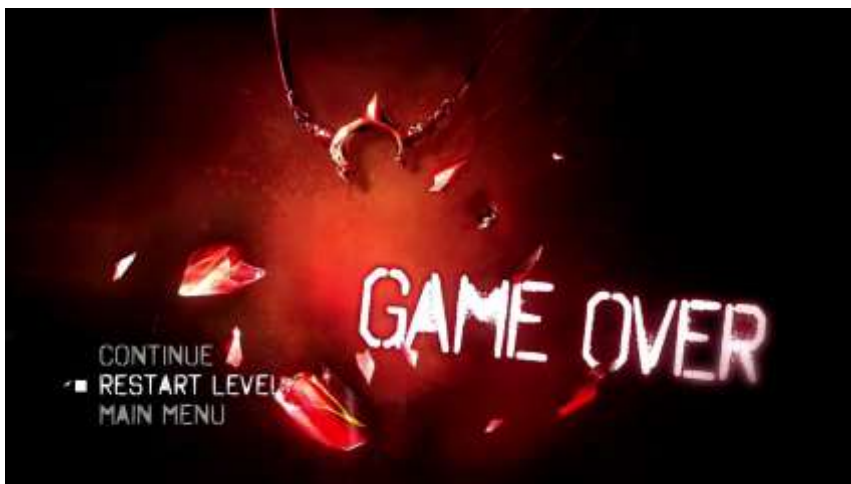
The case of Super Mario can once again be a perfect example. Among the infinite possibilities during the act of co-enunciation, there is none allowing the player to reach princess Peach after a failure, none allowing Peach to escape by herself, none allowing Mario and Peach to Escape while the evil Bowser is still alive, none allowing it to reach her directly from World 1-1, none showing Mario falling in love with another woman or men during met during his adventure, and so on.

Additionally, the economics appearing on the interface of the game since the title screen act both as a form of projectuality and destiny.



The empty digits suggest that there is no version of the history allowing for more than 999999 as a score, of holding 99 coins, of exploring worlds beyond 9-9 and of playing without a time limit.

Finally, any game over screen presenting the possibility to continue, reload or restart, and not rolling the traditional credits, suggest the idea of a destiny to accomplish that was “greater” than the one that occurred



(DMC, 2013)

An idea suggested also figuratively as in the case of *Final Fantasy VII* by the picture of a cut film:



It is in this sense that impossibility must be understood in terms of an aesthetic belonging to the co-enunciation of the player on the basis of syntagmatic indeterminacy and semantic instability, and not as the actual possibility for the user to actualize on the screen *any* possibility by misjudging virtual realities as object allowing “complete freedom”. Nonetheless, it would also be a mistake to underestimate the importance of the impossibility characterizing SOA and more generally to consider the meaning of the gameplay (heart of the SOA) as if it depended exclusively on FOA to acquire meaning. For many players, there is nothing after a game over since there is nothing in their actual destiny that says that they will ever succeed. Which anticipates the theme of the characteristic mirrored narrativity of virtual realities that we will see in the next chapter.

Semiotics, through a unique perspective on enunciation and its fundamental anthropological meaningfulness, but also by rethinking the interaction in the terms proposed here, can therefore bring an invaluable to understand the importance of such “disorder of life” both on the meaning-making of a particular text and also as a broader culturally relevant fact in terms of a new discourse and form of narration.

3.1.6.3.1 Destiny and impossibility in *Braid* and *The Stanley Parable*

The paradoxical situation of the users of virtual realities, divided between the freedom of choice/enunciation and the strong coercivity of FOA, between the endless syntactic possibilities and the usage of such possibilities to finally find, trial after trial, the “right” order to win or finish the game, is not only an academic topic of great interest but also the main theme of two digital games of particular relevance inside the history of independent digital games.

The first, *Braid*, was created by Jonathan Blow and released in 2008. The game is puzzle-platform presenting the innovative mechanic of an infinite possibility of turning back time, therefore of infinitely negating any action and retrying any failure, even without the classic features of a number of lives or reloading. As explained by the author himself¹¹⁴, such feature of infinite “rewind” was directly putting in crisis the responsibility and causality of the player in terms of a lack of consequences. In *Braid*, the players can find the solution of many obstacles only by *thinking* that they will have to exploit the rewinding of time and rewriting of actions. Such mechanic comes however with a narration which, despite many different possible interpretations, starts with a mistake that has to be fixed for the avatar of the player to reach a certain princess. And the FOA of the text will never represent such happy ending: despite the infinite rewinding of time, despite the infinite broken puzzle that will be put together, the protagonist Tim will never really reach the princess and fix his mistake.



Finally, it is interesting to notice how the particular form of rewriting implemented through the possibility of turning back time is both strongly related to the digital nature of virtual realities (save states and reloads) and constitute an aesthetic that was present both before *Braid* in *Prince of Persia: The Sands of Time* (2003) and still exists today in a variety of forms and even in multiplayer games such as in the case of the 2015 character Ekko from *League of Legends*¹¹⁵ or of the 2020 Protea from *Warframe*.

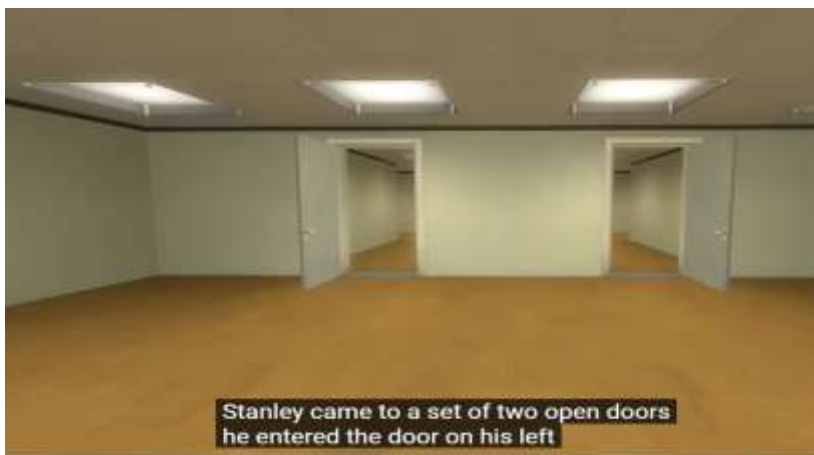
¹¹⁴ <https://www.youtube.com/watch?v=dSwgEYAJUko> ; <https://www.youtube.com/watch?v=8dinUbg2h70>

¹¹⁵ <https://www.youtube.com/watch?v=FtEpp9lkfxAv>

The Stanley Parable, a 2013 videogame designed by Davey Wreden and William Pugh, is a second example. Here, since the introduction the paradoxical situation of the player is clearly problematized through the metaphor of the employee with a mechanical job:

“Stanley worked for a company in a big building where he was Employee #427. Employee #427's job was simple: he sat at his desk in Room 427 and he pushed buttons on a keyboard. Orders came to him through a monitor on his desk telling him what buttons to push, how long to push them, and in what order. This is what Employee #427 did every day of every month of every year, and although others may have considered it soul rending, Stanley relished every moment that the orders came in, as though he had been made exactly for this job. And Stanley was happy. And then one day, something very peculiar happened. Something that would forever change Stanley; Something he would never quite forget. He had been at his desk for nearly an hour when he had realized not one single order had arrived on the monitor for him to follow. No one had shown up to give him instructions, call a meeting, or even say 'hi'. Never in all his years at the company had this happened, this complete isolation. Something was very clearly wrong.”

Then, during the game the player will be in situations in which he has a choice but the narrating voice will ignore such freedom and act as if things were already decided:



Without going into a proper analysis, the whole point of the game is to highlight the conflict between a first-order authorship and second-order authorship, the narrative crisis caused by the impossibility of events that are never really free but that can also never be completely foreseen.

These two examples can be considered emblematic of the discourse of virtual reality and can sustain our claim through their own gameplay.

3.1.6.4 Clash of authorships through enunciation in MMOG

Whereas in offline games the possible destruction of the intended meaning and narrative is a somehow secondary issue for the developers, it is a far more complex issue in online games. In the following lines, we will report two gaming facts showing how the will and union of the players' gameplay can strongly influence the FOA. The first case is about the fantasy MMORPG "Everquest" (1999) in which the players "forced" the developer to kill a main character:

"In 2003 Sony Online Entertainment irreparably harmed their own reputation by pulling the plug on a potential kill of "Kerafyrn the Sleeper", the lore equivalent of Norrath apocalypse. According to lore once, Kerafyrn awoke he would roam the world killing anything and everything he saw. Kerafyrn's awakening was supposed to bring about the inevitable destruction of Norrath and Sony made him the strongest they possibly could at the time: tapped at level 99 Kerafyrn was kept under stasis by four dragons that guarded over the sleepers to an extremely high level rating zone in the "Scars of Velious" expansion. He can only be woken one time on each server and so far nobody had managed to kill him. But on Rallos Zek, a pvp server, Kerafyrn still remained alive. Three of the biggest guilds on Rallos Zek put aside their differences and allied together. Kerafyrn the Sleeper, once thought invincible by players everywhere, looked like he was about to die. Then in a bizarre and impossible twist he was too spawned leaving the three guilds, comprised of almost 200 members, scratching their head wondering what had happened. The community on Rallos Zek flooded Sony customer support for an answer, any answer, and finally they got one from a GM although it's not what they wanted to hear. Quote: "Kerafyrn the Sleeper was reset by order of Sony higher-ups who thought the encounter might have been bugged". The community was furious the guilds argued and after much deliberation Sony finally relented and reset the encounter in order to give the guilds on Rallos Zek one final chance to do the impossible. After a grueling three-hour fight Kerafyrn finally fell and Norrath celebrated **but what Sony had done would never be forgotten by the players** this event was fresh in the minds of many who eventually decided to leave EverQuest"¹¹⁶ (my bold).

The second one is about the sci-fi game Eve Online (2003) where a player invented his own fictional role and, in agreement with the developers, changed the history of the lore:

"Like most EVE players, Charles found that the MMO is filled with a lot of downtime: you can spend hours mining for ore, travelling between star systems, or waiting for a vulnerable ship to hunt. Like most players, Charles took to the in-game chat services to fill the downtime by talking to other players. Unlike most players, as an older man in his late 40s then (he is 56 now), he offered a different tone to the conversation. "A lot of players," Charles told me, "[were having a hard time]. Their cat died, their grandma died, their girlfriend left them, they blew up their car engine, they lost their job, and I'd just be this old guy that was talking them through it and counselling them." It began as a joke among the players who knew him, but on the chat channels Charles began being referred to as EVE's very own space pope. This played into his character, Max Singularity, who was a member of the Amarr faction. EVE's lore has four rival races fighting over the space of New Eden, with the Amarr being by far the largest. They managed to take nearly half of the systems in the galaxy with an army driven by religious zealotry. And what is a bunch of religious zealots without a spiritual leader? So, with the support of other players, Charles began playing the role of the New Eden Space Pope, the guider of faith for 300,000 players. [...] Last year, Charles said that the Amarr empress didn't say she was a servant of God but that she was God, a blasphemous, heretical statement even in the language of *EVE*. There was only one thing for it: *EVE* needed its first inquisition. "As the pope," Charles pointed out, "There's only one person who can launch an inquisition: me." Charles, along with The Mittani and his alliance of thousands of players, invaded a sector of space called Providence, calling for them to "bend the knee." Charles says they attacked "to disabuse the Jamlites of their commercial infrastructure of corruption." It was *EVE*'s first player-led religious war. **CCP had a long-term plan for the empress. For years now the developer has been developing the backstory of the NPC characters in New Eden. [...] Now, however, with one of the players (a pope no less) calling the empress blasphemous and calling on other players to reject her legitimacy, there was a problem. A problem with a simple solution: CCP killed her off.** "I'm not saying I had anything to do with it, but I probably did," Charles jokes. [...] It was only at the end of our interview that I asked what Charles does for a living in the real world. He's spent the past 30 years working for NASA at the Jet Propulsion Laboratory, investigating any faults that occur in its rockets. At one point he even served on the Mishap Investigation Board. Yes, *EVE Online*'s Space Pope was once a real life member of MiB, the group that inspired the *Men in Black*."¹¹⁷ (my bold).

¹¹⁶ [youtube.com/watch?v=JyF6vDIEB0k](https://www.youtube.com/watch?v=JyF6vDIEB0k)

¹¹⁷ <https://kotaku.com/an-audience-with-eve-onlines-space-pope-1774204704>

3.1.6.5 Enunciation as playing with culture

The last aspect of co-enunciation that must be considered is the particular role of rewriting in terms of cultural remixing and remake. This cultural phenomenon was very acutely highlighted already in 2006 by both Henry Jenkins and semioticians Nicola Dusi and Lucio Spaziante, and is still today a main topic of interest (Tore & Blaise, 2020). Co-enunciation is clearly a form of participation in the very creation of the textual artifact, subverting the traditional roles of the author and the reader. Now such participation is far from being culturally neutral and uninfluenced. Since the beginning of this chapter we have tried to answer to the question of how the apparent infinity of utterances could become meaningful. The answers found until now were mainly three:

1. Syntactic indeterminacy and semantic instability as a new logic of narration in itself based on aesthetic of impossibility
2. The relationship between FOA and SOA
3. Enunciation as an act of parole leaving traces, a way for the user's subjectivity to be exported into the text allowing him to import his set of values inside the fictional world through choice and agency.

To these we must add a last one under the perspective of co-enunciation as an act of cultural rewriting: of each utterances inside the virtual text being meaningful in relation to other texts belonging to the user's encyclopedia. The co-enunciation acquires meaningful as a manipulation of what Eco defined cultural units. Under this perspective two of Eco's most debated notions, usage and interpretation (1979), becomes particularly useful and far less problematic.

Intertextual interpretation under the form of co-enunciation comes first of all in the form of virtual realities in which the FOA is explicitly intertextual through semantics. Games based on movies, novels and so on which define the boom of digital games during the 80's and 90's:

«Se, dunque, i videogiochi tridimensionali degli anni Novanta hanno a che fare con il cinema è, come detto, per via di una serie di riferimenti culturali che vengono utilizzati proprio nella pratica di "arredamento" del mondo di gioco. Insomma, Doom ha a che fare con La casa 2 e Aliens – Scontro finale (James Cameron, 1986) non tanto per supposte continuità registiche, quanto piuttosto perché l'astronave infestata che il giocatore si trova a esplorare è progettata per richiamare ambienti e oggetti analoghi presenti nei due film (le astronavi abbandonate di Aliens, la casa stregata del film di Raimi, le armi futuristiche ecc.). In altre parole, per evocarne la semantica.» (Fassone, 2017, p.24)

Playing the videogame of a given text (Star Wars, 1983), franchise (Dynasty Warriors Gundam 3, 2010) or even of a mix of franchises (Jump Force, 2018) correspond to the act of reenacting, more or less faithfully, through co-enunciation a given set of previous utterances. These texts are therefore interesting from a semiotic perspective not only for their transmedia differences (example: the beginning of the 1998 official videogame of the Fifth Element has almost nothing to do with the movie) but because they allow to their users to reinterpret such texts and to witness sensible variations otherwise impossible such as the death of the protagonist.

Likely, the same is true about the presence of cultural units born within the semiosphere of videogames themselves and which are then used outside of their context. This can be observed in the case of single characters such Athena Asamiya moving from *Psycho Soldier* (1987) to *King of Fighters XII* (2009) to *Shinobi Master Senran Kagura: New Link* (2017) and to *Super Smash Bros Ultimate* (2018) as both a spirit and a theme song. But also in the case of entire franchise of characters such as in *Project X-Zone* (2012).

This value can be evident in the case of the economic value of skins that refer to other characters, such as Jhon Wick in *Fortnite*:



But even without a first FOA explicitly based on transmediality, such manipulation can occur through the very features of co-enunciation. Specifically:

- The attribution of names to actors
- The attribution of appearances to actors

As an example of this, naming Martin Heidegger or Mickey Mouse as the protagonist of *Pokemon* is a case of *usage* of cultural units. Differently, the creation in *WWE 2k18* of a wrestler looking and acting as the anime protagonist Tiger Mask (1968) is a case of interpretation:



It is in this way the characteristic appropriation of enunciation through the production of utterances also becomes an act of *cultural appropriation*.

Not only do the users of virtual realities get to play with these textual units by representing on the screen and from the other side of it events that may never occur otherwise, such as the death of the hero. But they also have the power to shape indeterminacy in the form of a *script* which is coherent with the one of the original text. In these regard, the e-sports around the game “*Dragon Ball FighterZ*” (2018) are emblematic. Two plays can be used as an example. The first one is the comeback of the YouTuber Maximilian Dood during the EVO Tournament¹¹⁸. Here, the player was left with only one character, the protagonist of the anime Goku, against three others: Cell, Frieza and Vegeta. Now in the anime not only the protagonist would without a doubt triumph despite the desperate situation, but the three opposing characters are all villains and rivals that Goku has always defeated. In a virtual reality, however, a victory in such condition was really against the odds and playing as the good protagonist has no advantage. Which is why the whole meaning of such fight can only be understood by reading it on the two separate layers of the competition and of intertextuality. Similarly, during the 2020 Grand Finals of this game in Paris it happened that after a “perfect” victory from the well-known favorite player (GO1), his opponent won the second match with another “perfect”. To such event we could hear comments¹¹⁹ such as “I cannot believe the story line that is unfolding”, “this is too much anime for me”, “this is scripted”, “is this the new episodes?” and so on. Proving how the intertextuality of the game can also be transposed to the level of the performance and of the competition.

Such intertextuality may also be directly referred to rather abstract cultural units, as in the case of *Scribblenauts* (2013):

“*Super Scribblenauts* takes this assumption literally, by confronting the player with an actual encyclopedia (or a bestiary, given the existence of both a winged guitarist and a psychotic headless horse) of substantives and adjectives that can be combined. The hidden dictionary of *Super Scribblenauts* is also a database, a paradigm that can be actualized in a number of different syntagms. This combinatory process resonates with Manovich’s (2001: 231) theory according to which “[in digital media] database (the paradigm) is given material existence, while narrative (the syntagm) is downplayed. Paradigm is real; syntagm virtual.” (Fassone, 2017, p.80)

Here not only the “cat” can appear as a generic one but will also enact the *scripts* belonging to him such as fighting with dogs.



¹¹⁸ <https://www.youtube.com/watch?v=eoAGXIDEXkw>

¹¹⁹ <https://www.youtube.com/watch?v=4ISbFD9ADoE> (min 6.00-8.00)

In addition, the upgraded version of this game titled “unlimited” allows the user to insert and recreate his own encyclopedia entries that may have been absent from the main database. Indeed, the creation of specific cultural units to play with them is also one of the key values of one of the most played game on earth: *Minecraft* (2009). To understand the extent of this feature it suffices to look at various “top-lists” of the “best creation”¹²⁰. Here we will find: Hogwarts, the Enterprise, as well as Los Angeles and the Queen Victoria, but also places from other virtual realities such as Solsteim from *Skyrim*.

Finally, this “playing with culture” is not only about fictional products and joyful representation but also with the very reality and contemporary history. Let’s think at the Donald Trump add-on of *Surgeon Simulator* (2013) giving to the users the possibility of representing the death of the president and at the recent recreation in games such as *GTA V* of the Black Lives Matter movement and protest (Giuliana, 2020). But, more amusingly, let’s also think at fan-made games such as the one about the Italian singer “Albano” fighting dinosaur after having declared that: “L'uomo ha distrutto i dinosauri, fermerà anche il coronavirus”¹²¹



In conclusion, we now see how these four aspects of meaningfulness can be divided in two acquiring meaning from within the text and two others in respect to what stands outside of it (the user’s subjectivity and encyclopedia).

¹²⁰ <https://www.youtube.com/watch?v=yPxclEDHts> ; <https://www.youtube.com/watch?v=JvbxKnVbsrM>

¹²¹ https://www.repubblica.it/spettacoli/musica/2020/05/24/news/al_bano_a_domenica_in_l_uomo_ha_distrutto_i_dinos_auri_fermera_anche_il_coronavirus_-257531509/

3.2 Semiotics of simulations and/as games

A semiotics inquiring on the meaningfulness and experience in virtual realities will inevitably have to tackle with the enormous issue of defining what games are and how do they work. There are four very simple reasons for this:

1. As we have defined virtual realities since our introduction and up until now, digital games represent the most common and socially diffused type of them. Our entire corpus is actually made of games and it would be rather odd to ignore the fact that the objects upon which our proposal is based are considered games. Actually, in the specific case of this PhD it began as a semiotics of digital games and then turned into a semiotics of virtual realities defined, not casually, as “pla(y)typus”.
2. Volli’s words used in 2007 to explain the problem of a semiotic of experience are extremely similar to the one he used in 2020 to introduce the problem of games: “Il fatto è che il “gioco” non è un oggetto o un insieme di oggetti del mondo, semplicemente definibili, come per esempio il “ponte” o il “cibo”, né tanto meno un genere naturale che la scienza individua e classifica precisamente, come l’”acqua” o il “gatto”. (Thibault, 2020, p.9). Indeed, the experiential issues raised by games and virtual realities, both from a social and theoretical point of view, are very often common: immersion, learning, identity, ideology, interactive narration, and so on.
3. The nowadays most intuitive synonymous of virtual reality is “simulation”, which is also how our contemporary culture, after a long historical excursus (we will see more of this with the work of Vincenzo Cassone), tend to consider now games and particularly the digital ones that in virtue of an augmented simulative capacity open to interesting philosophical reflections (Mosca, 2013). On the one hand, the mathematical proficiency of digital games allows for unprecedented realism and a whole series of “shows”¹²² are putting real experts inside virtual realities to acknowledge the similarity between games and reality. Similarly, the degree of accurateness behind the reproduction of various classes of objects is what allowed the creator of the videogame *Assassins Creed* to propose to use their digital model of the Cathedral of Notre-Dame to rebuild the real one after the incident of 2019¹²³. On the other, very often, when something occurs in the real world impressive amounts of players go into virtual realities to simulate them again. This has been very recently the case of both BLM riots in GTAV¹²⁴ and with the game “Plague Inc”, which is a simulative game about creating and spreading a virus, that saw a very high increase of sales with COVID-19¹²⁵:

“On behalf of all players of Plague Inc. we’ve made a \$250,000 donation split between the Coalition of Epidemic Preparedness Innovations (CEPI) and the World Health Organisation’s COVID-19 Solidarity Response Fund. “Eight years ago, I never imagined the real world would come to resemble a game of Plague Inc. or that so many players would be using Plague Inc. to help them get through an actual pandemic,” said James Vaughan, creator of Plague Inc.”¹²⁶

¹²² <https://www.youtube.com/watch?v=BYunaBkn9Ng> ; https://www.youtube.com/watch?v=O66BY2O_1O8

¹²³ <https://www.businessinsider.com/notre-dame-fire-assassins-creed-maxime-durand-ubisoft-interview-2019-4?IR=T>

¹²⁴ <http://www.ilpickwick.it/index.php/extra/espressioni/item/4207-blm-e-cultura-digitale>

¹²⁵ <https://kotaku.com/china-pulls-plague-inc-from-app-store-1841955831> ;

<https://www.washingtonpost.com/world/2020/02/16/virus-games-are-going-viral-coronavirus-spreads/>

¹²⁶ <https://arstechnica.com/gaming/2020/03/plague-inc-rolling-out-new-mode-where-you-fight-to-contain-the-outbreak/>

4. It is nowadays pretty common to admit that digital games had a very strong influence on all our digital culture. One of the most recent and emblematic case can be seen in Alessandro Baricco's "The Game" (2018/2019) claiming that digital games have shaped our contemporary culture: both its iconic artifacts such as the smartphone and the very social media and apps such as Facebook (p.148). But more importantly, the characteristics underlined by the author strongly related to the topic of experience: sensorial pleasure, immediateness, concrete learning through interactions, and so on.

However, despite all the points in common between the inquiry in virtual realities and the one of games, doing so in the three years of an PhD was simply impossible. Indeed, even by considering our work as a semiotics of digital games, such semiotic can only be part of a broader semiotics of games or ludosemiotics (Thibault, 2020). Now such ludosemiotics have, ideally, to consider and contribute to the general understanding of every object called "games" across cultures and time. On the opposite, a semiotics of digital games have, ideally, to very specifically and thoroughly explain phenomena of meaning exclusively related only to these games using a software-based technology and experienced by users living in the digital culture. So, while many of the features that we will highlight belong to games in general and not exclusively to the digital ones, the original content of this thesis cannot substitute a general and "higher" ludosemiotics to which it belongs.

Luckily, in the last two years two scholars faced that problem from a semiotic point of view and will thus help us to highlight the main elements needed for our own purposes.

3.2.1 Virtual realities as playful realities

Mattia Thibault is the first Italian author to attempt in his “Ludosemiotica” (2020) a semiotic theory of the *ludic* aimed to avoid the reductionism and rhetoric of games as systems of rules:

Quello che manca, allora, è un approccio che abbia come oggetto la *ludicità* nel suo insieme, vista come un fenomeno che comprende al contempo sia *ludus* che *paidia*, un approccio, quindi, capace di produrre sapere riguardante tutto lo spettro delle attività ludiche [...] Concentrarsi sul ludico invece che sul gioco ci consente di liberarci di quella sorta di feticismo per la regola che attraversa i game studies. Considerare il ludico come punto di partenza e terreno comune, del quale i giochi regolati sono solo una delle sue possibili evoluzioni, ci permette allora di ripensare il ruolo dei sistemi di regole (e delle loro incarnazioni digitali o analogiche) come caratteristiche peculiari esclusivamente di un sottoinsieme di fenomeni ludici. (p.24).

Most importantly, since the very beginning by referring to Eco and up to the last chapter of his book, Thibault highlights that *l'enjeu* of the research on games is mainly a cultural one. Indeed, games are both models of reality and also have an entropic role inside a given cultural context:

“Il ludico, però, non è solo cosmetico; può essere utilizzato come strategia di valorizzazione, la sua struttura essenziale può rimandare alle regole nascoste che fanno da impalcatura a tante attività umane. Eco, nella sua introduzione all’edizione italiana dell’*Homo Ludens* di Huizinga [...] descrive il gioco come il metalinguaggio che la cultura usa per far parlare le proprie regole. Il gioco, per Eco, diventa occasione per far emergere strutture sociali e culturali implicite, trasformandole in pura forma, svuotandole dal loro significato concreto e facendone delle griglie astratte.[...] Che si voglia guardare al gioco come valorizzazione, come metalinguaggio o come entrambi allo stesso tempo, vi è un dato che non cambia: la sua natura profondamente semiotica, che lo rende partecipe della creazione e dell’organizzazione del senso, del suo rinnovamento e della sua circolazione.” P.16

Non esiste però cultura che non utilizzi il gioco estensivamente e per molti scopi, dalla costruzione di identità, al rilascio di tensioni sociali. È in questa dimensione che la semiotica della cultura può anche affrontare fruttuosamente le somiglianze, le differenze e le sovrapposizioni tra gioco e arte—entrambi concepiti come dispositivi culturali.” (p.39).

“Dal punto di vista della semiotica della cultura, il gioco e l’arte, quindi, sembrano condividere un obiettivo culturale comune: l’aumentare l’entropia in un sistema semiotico, pur essendo allo stesso tempo regolati da costrizioni e grammatiche.” (p.195).

In this sense, games can be studied as cultural artifacts rich of values and narrations:

“Una seconda dimensione da tenere in considerazione è quella emotiva (in senso jackobsoniano): le attività ludiche e i giochi sono contenitori di valori, di narrazioni, di idee, di script e di testualità che appartengono e contribuiscono a costruire una semiosfera. [...] Questo tipo di relazione sembra implicare che il gioco sia anche una *rappresentazione* della cultura, un modello.” p.190

In *Ludosemiotica*, the author not only uses several semiotic concepts to explain how do games and playing assume meaning but he seems to even unknowingly describes this process exactly as Saussure described the meaning of language as something *mysterious*:

“Il gioco è misterioso. È una dimensione del vivere umano che precede e modella molti aspetti delle nostre società e culture. Prima di imparare a parlare l’uomo già giocava, come fanno d’altronde moltissimi animali non umani.” (p.19).

Yet, it is also explicitly claimed that such semiotics must both overcome the distinction between “schools” and be updated to face the problems of games and the one of interactive texts:

“Per raggiungere questi ambiziosi obiettivi, però, la disciplina stessa necessita un rinnovamento. Dopotutto molti degli strumenti della semiotica sono stati costruiti a partire da analisi di testi letterari e, se sono stati spesso rivolti con successo ad altri tipi di testi, non possono essere applicati al ludico senza un aggiornamento.” (p.25)

“Il nostro approccio, allora, deve adattare al suo oggetto di studio, i diversi strumenti d’analisi e le prospettive metodologiche offerte dalla semiotica. Senza adottare posizioni settarie, faremo ricorso, di volta in volta, a teorie greimasiane per l’analisi testuale, alla concettualizzazione echiana per lo studio delle funzioni segniche, alla semiotica della cultura lotmaniana per posizionare il ludico nella semiosfera e così via.” (p.40)

“La natura testuale del gioco, e in particolare del videogioco, è spesso vista come articolata in due tempi, in cui si ha un testo iniziale, il videogioco, e un testo singolo prodotto dall’attività ludica, la partita. [...] Il testo iniziale, però, è difficilmente descrivibile come un testo tradizionale ed è spesso descritto, invece, come un testo articolato e mutevole, che risponde alle azioni dei giocatori.” (p.155)

Furthermore, the reflection of the author is not exclusively semiotic but includes several philosophical perspectives on games and discusses some very specific debates inside the game studies (p.22). Indeed, for the author such ludosemiotics cannot but be interdisciplinary:

“In secondo luogo, però, serve anche a tratteggiare lo spazio in cui deve andare ad inserirsi una semiotica del gioco, che non può che avere un respiro interdisciplinare.” (p.22)

“Ciò che di più prezioso può offrire la disciplina, però, è probabilmente la creazione di un metalinguaggio univoco e preciso. Gli approcci esistenti al gioco, infatti, coagulandosi attorno ad un argomento comune ma con prospettive e metodologie eterogenee, risentono grandemente della mancanza di una terminologia comune. Gli strumenti e le prospettive della semiotica, inoltre, spostando l’attenzione proprio sui meccanismi semiotici del gioco, dovrebbero essere in grado di far luce su molte ambiguità e complessità irrisolte del gioco.” (p.25)

“I game studies e gli studi sul gioco saranno, allo stesso tempo risorse preziose capaci di fornire teorie e concetti da integrare nel nostro approccio.” (p.40)

Very interestingly, the author also considers the digital games as a specific and complex issue inside his own ludosemiotics. For him, like for us, digital games cannot be studied without taking into account the fact they are software-based text “Qualsiasi approccio ai videogiochi che non tenga conto della loro natura di programmi per computer è destinato a essere insufficiente” (p.167) and, on this specific point, he refers to the work of Espen Aarseth (p.168) which is also a very important author for our work. Additionally, digital games should be always inquired under the light of both their social relevance and their concrete features:

“Il prestigio culturale ed economico raggiunto dal videogioco, in particolare, ha contribuito a eclissare l’importanza della ludicità come fenomeno ampio ma coerente. L’intero campo dei game studies è stato costruito, prima di tutto, attorno allo studio dei videogiochi, spesso con un atteggiamento fortemente medium-centrico. La difficoltà di analizzare i videogiochi porta spesso a una confusione tra quelle che sono caratteristiche tipiche dei testi digitali e quelle che invece sono proprie del gioco, così che non è raro vedere attribuiti a quest’ultimo aspetti che sono eminentemente informatici” (p.23)

Therefore, all the premises seem really good from our point of view. But what is concretely Thibault’s proposal? His first move is to identify the pertinence of games as a semiotic object of study in virtue of being a matter of *lies* and *laughs* (p.26), following thus Eco’s idea on semiotics. And, under this light, Thibault explicitly states that a semiotic approach will not be grounded in a definition of the true and fundamental nature of what games are in function of what we call something a game (p.36). Not only this would lead us to Wittgenstein’s problem of game as undefinable (p.211) but it could also imply a sort of ontological difference between games and reality which, from a semiotic standpoint, is mostly ideologic and which is also culturally changing in our present:

“Il confine ideologico tra gioco e non-gioco, per quanto ancora esistente, è probabilmente più sottile di quanto non sia mai stato. L’opposizione del ludico alla realtà, lo abbiamo visto, è una questione di domini semiotici e non di ontologia. Se non si può parlare di realtà separate, si è spesso parlato di “mondo del gioco.” (p.54)

Instead, Thibault makes a selection by excluding some uses of the concept of games/play to focus on the ones that can and should be inquired in relation some specific objects of study. As a result, four mains kind of games/play are selected and highlighted: fiddling, free play, toy play and rule-based games.

“Quello che ci rimane, allora, dopo la nostra selezione sono diverse macro– aree strettamente legate al ludico. Dando loro definizioni ingenue potremmo dire che si tratta di: giocherellare (cioè giocare con noncuranza con un oggetto senza uno scopo apparente), gioco libero (il tipo di gioco che abbiamo in comune con gli animali, basato sul far credere e sul godimento delle funzioni del corpo), gioco con giocattoli (che coinvolge e si concentra sull’uso di oggetti) e giochi regolati (che presentano sistemi di regole più o meno complessi e strutturati). Questa distinzione non va assolutamente presa come una tipologia, ma è semplicemente un modo preventivo di orientare la nostra attenzione.” (p.38).

Then, by referring to Meneghelli (2011) and Koenitz et.al (2015) he explains how in all these cases a fundamental first step is to distinguish between games as enunciative practices and texts, two facets of a same object giving birth to the play performance as an ulterior text:

“ Da un lato, “giocare” è un verbo che indica un’azione : l’acquisizione di un comportamento particolare e un modo specifico di interagire con oggetti e persone. D’altra parte, il gioco (specialmente il gioco con i giocattoli e il gioco regolato) implica l’uso e la creazione di numerosi testi. [...] La sessione di gioco stessa, in realtà, l’esecuzione di un’attività ludica , può essere vista come una performance e quindi anche come uno spettacolo (i cui destinatari sono, a volte, esclusivamente i giocatori stessi) acquisendo quindi una dimensione testuale. [...] La relazione tra “processo” e “testo” nel gioco è complessa e articolata. Agata Meneghelli, in un libro dedicato alla semiotica dei videogiochi, scrive che quest’ultimi danno vita a una catena di testi e di pratiche: il game design è una pratica produttiva che crea un testo (il videogioco) che genera una pratica (il giocare) che a sua volta porta alla luce un altro testo (la partita giocata)(Meneghelli 2011: 25). Allo stesso modo, Koenitz et.al.(2015) propone un approccio interdisciplinare alla narrativa *digitale interattiva* secondo cui i videogiochi dovrebbero essere concepiti come dotati di un sistema (l’artefatto digitale) , di un processo(l’interazione dell’utente con il sistema e le reazioni del sistema),e di un prodotto(la narrazione finale, particolare e istanziata).” (p.38)

This duplicity is used by Thibault to distinguish between two different although interconnected dimensions/layers of meaning-making (p.39) that must all be inquired by ludosemiotics:

1. The player’s activity manipulating signs, creating pertinences, enacting an encyclopedic competence and metacomunicating with both himself and the others.
2. The player’s co-production of an already designed game (from toys to digital games) and being simultaneously the *lector* and *spectator* of it.

Two different aspects which are also related to the three integrated yet different levels of inquiry of a semiotic approach (p.189): the signs and sign functions used to play games, the texts from which we play and the ones emerging from games, the practices through which we use signs and texts to play games inside a given cultural context and as Subjects negotiating with the text. Despite their differences, all these aspects require a certain mental attitude that can be divided (pp.46-47) in *paratelic*, willingness to play, and *paraludic*, acceptance of a specific game. This playful attitude is however postulated by Thibault as inherently semiotic since it involves a mental activity of meaning-shifting through manipulation of signs: a process called re-semantization. This idea is taken from the semiotician Jurij Lotman and is the very heart of all Thibault’s book since re-semantization is how any playful activity starts, the *conditio sine qua non* of the ludic :

“Fondamentalmente, Lotman suggerisce che il gioco implichi una risemantizzazione dell’ambiente circostante, cioè un mutamento sistematico del suo significato. Questa risemantizzazione dà al mondo un *secondo strato di significato*, aggiuntivo e fittizio, che i giocatori percepiscono e interpretano come tale.” (p.43)

“ Il punto di partenza di qualsiasi attività ludica, quindi, è la sistematica risemantizzazione di oggetti e azioni ,che traducono l’ambiente circostante (o al meno una parte di esso) nel dominio semiotico del gioco. [...] La risemantizzazione ludica del mondo circostante sembra essere un’azione solo in parte cosciente (l’attivazione del dominio semiotico del gioco è un’attività sofisticata) e ha origine principalmente dall’adozione di un comportamento specifico che Lotman definisce “comportamento ludico”. (p.45).

“Questo insieme coerente di isotopie si costruisce attorno al mondo possibile che scaturisce dalla risemantizzazione ludica del primo oggetto o soggetto coinvolto nel gioco. Basta infatti l’instaurazione di una funzione segnica ludica proietterà attorno ad essa una vasta gamma di possibili significati collegati. Basta investire una bambola del ruolo, ad esempio, di sposa, e questa proietterà attorno a sé tutta una serie di altri ruoli e figure : servirà un altro coniuge, un officiante, un veicolo, un bouquet, ecc. ecc.” (p.56).

For these reasons, only re-semantised objects are ludic objects which can be inquired by ludosemiotics. A clear example of this can be seen in the selection of interfaces and virtual items as objects to be considered when analyzing digital games:

“D’altro canto , parti dell’interfaccia della piattaforma vengono effettivamente rimasterizzate. Lo stesso pulsante avrà effetti diversi se premuto in giochi diversi e questo ne influenza il significato.” (p.122)

“È importante, tuttavia, distinguere tra gli oggetti presenti nella struttura profonda del testo—il codice— e quelli raffigurati nella superficie del testo — ciò che si può effettivamente vedere sullo schermo. La prima classe comprende oggetti invisibili ai giocatori (come algoritmi per la generazione di numeri casuali) e costruisce dei *type*. La seconda classe, invece, include i loro *token* che vengono incontrati dai giocatori durante il gioco. Poiché questi ultimi sono gli unici che i giocatori possono esperire, in questo capitolo ci concentreremo su di essi: gli unici che possono essere definiti come oggetti ludici.[...] Anche nella superficie del gioco, non tutti gli oggetti virtuali presenti in un gioco digitale sono oggetto di risemantizzazioni: alcuni elementi dell’interfaccia—come i “menu”, i file “help”, le opzioni di gioco e simili —non vengono mai utilizzati in modo ludico e sono, in un certo senso, la controparte del software di ciò che abbiamo chiamato il *supporto* del gioco. Molti oggetti virtuali dei giochi digitali, d’altra parte, subiscono una risemantizzazione ludica.” (p.122).

Lotman is then integrated with Umberto Eco by affirming that consequence of re-semantization is the creation of a new *possible world* (p.42) to arise through things, people and contexts assuming a new identity and, consequently, a series of *constrictions* (from mathematical rules to narrative coherence) necessary for this possible world to be stably playable and believable. This new meanings and identities are however never totally nor permanently overwriting the real one. Ludosemiotics will thus adopt a perspective on meaning as something both in-between and in relation to every day’s life:

“Questo processo, tuttavia, non comporta alcuna seria confusione tra i due domini, che sono perfettamente separati nella mente del giocatore.” (p.45)

“I giocatori , quindi , oscillano tra due diversi sistemi di interpretazione, tra due diversi modi di dare un senso alla stessa realtà fisica che li circonda. Da un lato, non rinuncia mai completamente alla loro consapevolezza della “realtà ordinaria”, ma, dall’altro, si comportano *quasi come se* la situazione ludica fosse reale.” (p.43)

“Considerare questa opposizione come tra domini semiotici — quello della “vita ordinaria” e quello del “gioco”— presenta numerosi vantaggi. Da un lato, non descrive il ludico come qualcosa che ha uno statuto ontologico diverso dalla realtà (posizione discutibile). D’altra parte, sottolinea la capacità del gioco di interrompere la routine, di essere ciò che il filosofo Eugen Fink ha definito come una “oasi di felicità” nel deserto della vita ordinaria. Il dominio semiotico del gioco, quindi, è un sistema alternativo di interpretazioni della realtà. Quest’ultima subisce una risemantizzazione: al- l’interno del gioco, gli oggetti perdono (parzialmente) il loro significato originale e ne acquisiscono uno nuovo.” (p.44)

To tackle with this paradoxical situation, Thibault then refers to Volli’s idea on games as a specific form of greimasian *débrayage*:

“Volli (2016) afferma ogni attività ludica richiede una forma di *débrayage*. Come ogni atto di *débrayage*, questo consiste nel rimuovere dall’enunciazione qualsiasi connessione tra enunciatore ed enunciato, e nel dirottare la deissi, modificando il significato di riferimenti dello spazio e del tempo del “qui” e “ora”. Ciò significa che esiste una separazione tra il giocatore e il soggetto del gioco, in modo molto simile al modo in cui, a teatro ,gli attori sono separati dai personaggi che interpretano.” (p.44)

Furthermore, almost contemporarily to the *débrayage*, another process takes place: the one of pertinentization for which some elements of the reality will be interpreted as pertinent to the game, reinterpreted or ignored. This will allow for *isotopies* to take place:

“All’interno della bolla, i giocatori sembrano immersi in un’altra realtà. In termini semiotici, questo tipo di immersione è il risultato di una rigida selezione di salienze, cioè, in altre parole, la selezione di ciò che è sensato e ciò che è insignificante degli oggetti che ci circondano. [...] La selezione di salienze per un’attività ludica può essere guidata da caratteristiche estetiche, narrative, o legate a una competizione o sfida (cfr Ermi and Mäyrä 2005). Quello che viene selezionato come sensato, però, sono sempre funzioni segnifiche originate da una risemantizzazione ludica. In altre parole, i giocatori selezionano solo un certo numero di oggetti come significativi, ma, allo stesso tempo, risemantizzano quegli oggetti in base al dominio semiotico del gioco.” (pp.49-50)

In ogni tipo di attività ludica la prima risemantizzazione dà vita a un WP. Questo mondo orienta l’attività semiotica dei giocatori, offrendo, attraverso l’uso di script e dell’enciclopedia, una serie di possibili significati che possono essere utilizzati per continuare la risemantizzazione. Ad esempio, se i giocatori scelgono di essere cowboy, diversi script suggeriranno che hanno bisogno di pistole e cavalli. Successivamente i giocatori cercheranno intorno a loro, nel loro repertorio, quali oggetti potrebbero essere efficacemente risemantizzati al fine di ospitare quei significati e decideranno, ad esempio, di cavalcare una scopa e sparare con una banana. (p.57).

The process of pertinentization, implying isotopies, together with the one of the *débrayage* is why re-semantization can be described as coherent and systematic:

“Le risemantizzazioni ludiche, quindi, sono sistematiche. Anche quando si ha a che fare con giocattoli che rappresentano un insieme di oggetti o personaggi disomogenei e incoerenti, i giocatori troveranno un modo per collegare i loro significati ludici. In altre parole, i giocatori creano isotopie proprio nel momento in cui assegnano un nuovo significato a giocattoli e giocatori. Queste isotopie aiutano a mantenere il gioco coerente, anche se è sempre possibile che l’incoerenza interna di un gioco aumenti col tempo fino a fargli perdere senso” (p.56)

This description, as Thibault’s own example of his imaginary fight in the library (pp.59-60), can seem rather intuitive for the *paidia* type of play. But what about other games which already have well defined rules and stories? The author explains how the only difference basically resides in the fact that in the other cases, players are simply *adopting* a pre-made re-semantization inscribed in a “statute” and enacted through a process defined by the author as *catachresis*:

“Il lavoro di interpretazione dei giocatori è guidato inequivocabilmente da un sistema di costrizioni “prefabbricato”. Quest’ultimo è generalmente condensato in un testo o comunicato attraverso un discorso: gran parte dello sforzo creativo del processo di gioco è già stata intrapresa e i suoi risultati sono memorizzati in un testo che chiameremo *statuto*. [...] Questo processo di cristallizzazione si chiama *catachresi* e consiste nell’istituzionalizzazione semiotica di un’invenzione. In altre parole, un’istanza particolare del lavoro creativo che costituisce la prima parte del processo di gioco è testualizzata e diventa disponibile per altri giocatori (e quindi diventa parte di una cultura/semiosfera). Da quel momento, altre persone possono acquisire la competenza nel sottodominio di quel gioco specifico [...], affrontarlo con un atteggiamento paraludico [...] e, infine, giocarci.[...] In questo libro, pertanto, useremo “gioco regolato” per indicare tutte quelle attività ludiche in cui una grande parte del sistema di costrizioni è stata inventata prima del processo di gioco e potrebbe essere stata archiviata in uno statuto.” (p.62)

However, whereas possible worlds and isotopies are common both in narrations and games, there is an important difference between them. Indeed, the latter ones can exist and be meaningful even without a specific fictional reference to the player’s physical reality and without proper narrative contexts. In other words, games can share a much *higher degree of continuity* with the player’s space, time and identity.

“In molte altre forme di gioco, tuttavia, WP è il prodotto della risemantizzazione di una porzione W0 o di uno spazio virtuale(WV), è il caso dei videogiochi. Questo “gioco dal vivo” comprende sport, giochi da tavolo, diversi tipi di giochi infantili [...], così come le loro controparti digitali. In queste forme di gioco, gli elementi del WP stabiliscono delle relazioni più profonde che i mondi narrativi basate su uno spazio e un tempo condivisi con W0. I punti spazio temporali del W0, quindi, identificano i propri omologhi nel WP. In altre parole, la posizione di una “X” nel WP degli scacchi è inequivocabilmente determinata dalla sua posizione specifica nella scacchiera nel W0”.(p.57)

This is a consequence of the fact that players become actant/agents of their new world, making *choices* and being *modalized* (who wants, must, knows and can) by texts:

“Nella fase iniziale del gioco, dopo la risemantizzazione dei primi oggetti, viene a crearsi un nuovo tipo di costrizione: la costruzione di un sistema di attori. Il primo livello di risemantizzazione che abbiamo descritto sopra ha una natura tematica. I nuovi significati assegnati sono principalmente figure (come “pistola”, “bacchetta magica” o “cavallo”) e ruoli tematici (“cowboy”, “strega”, “principessa”...). È in base a questi temi che i giocatori selezionano gli script e inferiscono un WP. Se il gioco fosse stato limitato a questa risemantizzazione tematica, sarebbe comunque senza vita: una semplice risemantizzazione tematica non necessita, di per sé, alcuna azione. Al fine di rendere il gioco dinamico, i giocatori uniscono sempre a questi temi alcuni ruoli attanziali.” (p.58-59).

“Quello che sembra emergere come minimo denominatore è che ogni forma di ludico appare lasciare sempre almeno una parte del *volere* al giocatore (lasciandogli libertà di scelta) e affidare almeno una parte del *dovere* alla matrice (le costrizioni necessarie alla creazione di un atteggiamento ludico).” p.70

In fact, the author highlights how the particular narrative (in the semiotic sense) structure of games present a series of *gaps* related to the modalities of *wanting to* and *knowing how to*:

“Da questa breve analisi è possibile vedere come lo statuto di un gioco proponga alcuni elementi di un sistema attanziale e di uno schema narrativo, ma lascia i giocatori “riempire” gli altri. In particolare, le competenze strategiche e tattiche del soggetto e dell’anti-soggetto si baseranno sulle decisioni (volere fare) e sull’esperienza (saper fare) dei giocatori/operatori, determinando le performance e, infine, l’esito del gioco.” (p.160)

To allow for such agency to exist, any game requires a *repertory* of re-semantised virtual items (in the logical sense) and a *matrix* interconnecting them to fulfill the task of both constraining the player and giving him a certain autonomy to act. In fact, for Thibault there can be no game without choice and more specifically without the two different choices occurring first when re-semantising the repertory and later when combining such elements through the matrix:

“Una partita è il risultato dell’interazione di matrice e repertorio. Giocare significa selezionare e risemantizzare elementi del repertorio mentre si viaggia attraverso la matrice fino a quando la partita è completata. [...] In ogni caso, l’interazione tra repertorio e matrice — che è sempre, almeno in parte, gestita dai giocatori — porta alla creazione di una partita. Semplificando, potremmo dire che la matrice è ciò che regola l’asse sintagmatico del processo, mentre i repertori formano l’asse paradigmatico del sistema. (p.81).

Al di là di quanto sia complesso il sistema di costrizioni, affinché un’attività sia ludica abbiamo bisogno di uno spazio di libertà: di un certo *agio*. “Nel momento in cui il giocatore non ha più scelte, il gioco ha perso il suo significato”, afferma Lotman (2011: 159, traduzione nostra). Un certo grado di libertà di scelta, per quanto al centro di continue negoziazioni con il gioco, è essenziale e non può essere soppresso (Gadamer 2000: 237, 243). Ogni matrice, quindi, lascia ai giocatori la possibilità di fare “una serie di scelte interessanti”, che rendono il gioco significativo e, allo stesso tempo, imprevedibile.

Playing is thus similar to language since we can understand it as an enunciation coming from a syntagmatic organization of elements belonging to a paradigmatic axe:

In altre parole, la sintassi del gioco è determinata secondo un *asse paradigmatico* composto dall’insieme dei segni disponibili al giocatore (il suo repertorio).” p.147

Differently from language, however, the content of the paradigmatic axe can be materially determined “I giocattoli-segni ---diversamente dalle parole pronunciate o scritte---non possono essere facilmente prodotti in base alla necessità, in quanto necessitano degli oggetti fisici da usare e risemantizzare” (p.147) while the concrete repertory together with its syntagmatic possibilities and interpretations is almost infinite:

“Infine, diversi tipi di attività ludiche hanno i loro sottodomini semiotici — sistemi di interpretazione che, sebbene siano tutti ludici, assegnano significati diversi agli stessi oggetti. Ad esempio, gli stessi pezzi possono contenere valori diversi se usati in una partita a dama o al backgammon. Allo stesso modo, lo stesso soldatino può giocare ruoli diversi in sessioni di gioco diverse—o persino in momenti diversi della stessa.” (p.45)

“Questo sistema comprende una quantità relativamente piccola di segni che possono includere giocattoli improvvisati e non. Questo vocabolario non è praticamente mai lo stesso per due giocatori diversi o per due sessioni di gioco diverse.” (p.147).

Yet, the meanings are concretely limited both by rules, scripts and, interestingly, the very practice of playing (p.148). But most importantly, these means behind the constrictions and freedom defining games are, for Thibault, at the very origin of the simulative power of games which can be understood as “sandboxes” to test reality and, with both Lotman and Sutton-Smith, also as *models*:

“Grazie alla matrice di costrizioni costruita dal processo ludico, il gioco può offrire una rappresentazione dinamica e interattiva della realtà culturalizzata; in altre parole, può modellare la vita. Il gioco crea una “sandbox”, uno spazio sicuro al riparo dalle conseguenze, in cui è possibile eseguire in sicurezza un’attività di modellazione della realtà che può essere interrotta e ripetuta in qualsiasi momento. Giocare, quindi, implica la creazione di un modello che traduca alcune caratteristiche del mondo reale in un sistema di regole. Per essere un modello di vita funzionante, il gioco deve combinare due diverse caratteristiche: la capacità di modellare la casualità, e l’essere un fenomeno regolare, persino deterministico, grazie a delle regole che non cambiano mai.(p.89)

“Abbiamo quindi delineato due diverse relazioni tra ludicità e l’idea di esplosione di Lotman. Innanzitutto, il gioco, grazie alla struttura della sua matrice di costrizioni, può essere utilizzato per creare esplosioni artificiali. Da un lato, il gioco è sfruttato dagli artisti per esplorare i possibili mondi che hanno creato e per tessere la trama delle loro opere. Dall’altro, il gioco può anche diventare un modello della realtà: quando si tracciano collegamenti diretti tra elementi del suo repertorio ed elementi del mondo reale, l’attività ludica può essere usata per modellare e programmare il futuro.” P.93

“Negli scorsi capitoli, abbiamo già incontrato una prima funzione culturale del gioco: quella di creare dei modelli interattivi di una varietà di aspetti della vita e della cultura. In particolare, ci siamo soffermati sul potere modellante del gioco, cioè sulla sua capacità di rappresentare e influenzare simultaneamente il mondo. Abbiamo sottolineato come il gioco possa creare modelli della vita, degli stati d’animo semiotici di base, del destino e della casualità. Questi modelli consentono ai giocatori, da un lato, di impegnarsi nella soluzione di compiti immaginari al fine di apprendere abilità fondamentali nella vita reale e, dall’altro, di interiorizzare questi modelli costruendosi delle competenze.” P.190

Fake models of reality which are, paradoxically, in some sense far more convincing than the real itself since it is a simplistic and deterministic one:

Questo è un punto abbastanza importante: il gioco, essendo un modello, è più semplice del mondo reale e quindi è anche più deterministico. Regole chiare e ripetibilità rendono il gioco decisamente più facile da padroneggiare e che la vita. La casualità, d’altra parte, è necessaria per rendere il gioco imprevedibile e quindi per mantenerlo significativo. Tuttavia, la casualità del gioco non lo rende mai puramente caotico: è sempre possibile dominarlo.” (p.89, grassetto nostro)

Additionally, the relatively freedom of interaction with this models and the manipulations of their objects, therefore the gamified feature of enunciation, will also include the possibility for a level of meaning depending on *auto-communication*.

La rievocazione in chiave metaforica o allegorica delle esperienze di vita del giocatore coinvolto nel gioco non è un semplice riflesso inconscio, ma può essere considerato come un atto di auto-comunicazione.[...] Giocare con i giocattoli, quindi, riguarda l’attività culturalmente rilevante che Lotman(1990) definisce “auto-comunicazione” (p.150)

Indeed, this is why both games and game-things (material or digital) will always have a second semantic level of meaningfulness which cannot be grasped from the outside:

“Giocare con i giocattoli, tuttavia, sembra coinvolgere anche un *secondo livello di senso*, corredato di un secondo sistema semantico. Secondo Winnicott (1971), quando i bambini giocano con i giocattoli, rievocano le idee che occupano la loro vita quotidiana. [...] Se accettiamo questa intuizione dalla psicologia, potremmo allora affermare che il processo ludico del giocatore ha due possibili livelli di lettura: uno che riguarda le scene e gli eventi narrati nel gioco(e quindi relativi ad un WN), e un altro relativo all’espressione dell’interiorità psicologica del giocatore.” (p.150).

“Entrambi i livelli di senso che abbiamo individuato nel gioco con i giocattoli sono estremamente difficili da decodificare e interpretare dall’esterno. Solo i giocatori stessi sono coscienti delle risemantizzazioni che stanno operando e del mondo possibile che hanno inferito. [...] È proprio a causa della difficoltà di interpretazione della semantica del gioco con i giocattoli, che questo assume principalmente la forma di un monologo. Pragmaticamente, il giocatore gioca da solo, immerso in un flusso, e non ha bisogno di un pubblico. Il giocatore sceglie i giocattoli– segni

da usare e, dopo aver dato un significato particolare a ciascuno, inizia a costruire la scena e sviluppare una narrazione. (p.151).

This brings us to acknowledge how the value of Thibault's work stands precisely in a starting from a common anthropologic attitude which is inherently semiotic in terms of signs and interpretations (thus the non-greimasian tradition), the one of re-semantization, to highlight how this same attitude has been culturally developed into different kinds of practices that we call "games" or "playing" and which are using some common features of meaning-making which can be processed/realized in different ways and seen as texts. Consequently, the author describes the last part of the process and practice of playing in the greimasian terms of narrativity. This narrativity will be based on the interactions between "actant-operators" (such as AI in videogames) and subjects, although carefully underlying that this Subject is *not* the player:

"Il soggetto non è semplicemente il giocatore: si tratta piuttosto di una fazione (il Nero, negli scacchi) o può essere incarnato in un giocattolo (un guerriero medievale di Playmobil). Allo stesso modo, l'oggetto del valore non è l'obiettivo del giocatore (come la vittoria, il passare del tempo o il divertimento), ma è l'obiettivo del soggetto del gioco (che può essere catturare il re bianco o sconfiggere il drago di Playmobil)." (p.59).

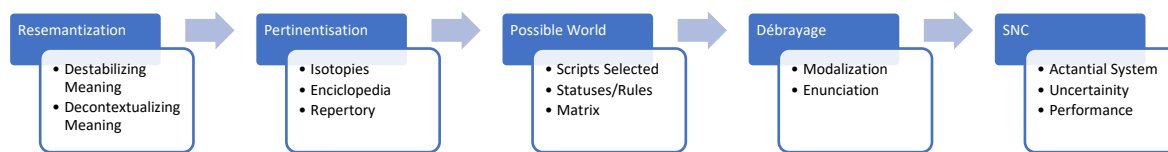
Under this light, even the randomness of games becomes an actant operator (p.163) and, since narrativity is the way through which we interpret reality, this is the solid ground on which games can be considered as simulations and models of the real. This is why even the code of a software-based videogame can be described by him both as a non-typical text (179) and as a proof that there aren't significant differences in the structure of analogic and digital games (p.179) since they can be read as a series of formal constrictions, possibilities and sanctions shared between non-human operator (the computer, AI, and so on) and the human ones. Despite minor adjustments (such as the addition of a controller-actant), Thibault's move is in continuity with what Ferri, Meneghelli and D'Armenio have done before him since it is clearly adopting Greimas vision for which the safety and efficacy of the semiotics resides in a certain closure of the text and abstraction from the empirical context. The major difference of Thibault's approach resides mainly in the fact that the "outside" from which ludosemiotics comes from is not the mere text but rather the formal set of actions required to play it. This allows him to consider, inside the textualist paradigm of semiotics, the presence of players as tangible elements of meaning-making:

"Ferri(2011), sebbene non esplicitamente, sembra considerare il soggetto come l'avatar dei giocatori, ovvero la loro protesi nel mondo virtuale del gioco. Questo punto di vista ci permette di guardare il gioco dall'interno, ma non è sufficiente: l'avatar, senza i giocatori che lo muovono, non darebbe vita ad alcun gioco." (p.65)

"Cominciamo con il soggetto. Questo ruolo attanziale è necessariamente composito. Da un lato, i giocatori devono eseguire le azioni semiotiche di interpretazione e risemantizzazione necessarie per giocare. D'altra parte, il soggetto non può essere identificato semplicemente con il giocatore: quest'ultimo, come abbiamo visto, deve accettare e interiorizzare almeno alcune costrizioni (fossero anche auto-imposte) per rendere le sue azioni significative all'interno del gioco. La natura composita del soggetto, quindi, è intrinseca nella struttura profonda del processo ludico e emerge dalla distribuzione delle modalità. In un'attività ludica le modalità—modellate sulle intersezioni tra quattro verbi modali (volere, dovere, sapere e potere) e i verbi "essere" e "fare"—sono condivise tra giocatori, altri operatori ed elementi statici." (p.69).

So, the result is that our author ends up by proposing *the idea of play as a processual practice of manipulation of sign-objects, creation of signifiers and enactment of statuses resulting in a text*. The two claimed analytic directions of ludosemiotics (p.39) are concretely merged together.

We can sum-up the process with this model:



1. First the given meaning of something is discussed and thus destabilized.
2. Secondly the bases for new meanings are created, often on the basis of a common knowledge, to create a coherent set of playable virtualities is activated (repertory).
3. Thirdly the possibilities of this new meaning are both reduced and selected by postulating what will be impossible or absent.
4. Fourthly, the player will be “pushed” inside this new meaning/world as a different subject acting in the time and space of the game. Differently from other texts, in games this is done by a lack of modalities in the text and giving him the choice to choose which virtualities will be manifested (enunciation).
5. Finally, the agency of the player will be invested by a particular object of value and confronted with others actant (both human and non-human) and the success of both will be subjected to a certain degree of uncertainty. When viewed from the outside, the development of the SNC is perceived as a story or a performance.

In this model we can thus easily distinguish how:

- 1 and 2 are the most solid ground of a game and more creative part of the process
- 3 is extremely dependent from 1 and 2 and is simultaneously what will really define the identity of a given game
- 1, 2 and 3 are the proper process of game production
- 3 and 4 are where catachresis occurs
- 4 and 5 are where the player’s co-production of meaning occurs
- 5 taken alone is no more a game and can be studied as traditional text

In this way, by focusing on the *practice* as it is understood in the semiotic tradition (Fontanille, 2008) and in the anthropological one of De Certeau’s (1980), he can use a semiotic approach (non-subjective, non-medium dependent, abstract) without having to consider the games only for the explicit content of their texts (which are, moreover, modally imperfect text) and can even include the important feature of the negotiation between the players and the game:

“Il senso dei giocattoli è il risultato di una negoziazione tra quello che vi è stato iscritto da chi li ha creati, le proprietà materiali e plastiche dell’oggetto e le risemantizzazioni dei giocatori.” p.132

“D’altra parte, non possiamo nemmeno ignorare il fatto che gli oggetti che usiamo per giocare abbiano effettivamente un’influenza sul processo ludico, possano indirizzarlo, in una certa misura, in virtù delle loro caratteristiche. Non si tratta certo di una influenza univoca e dominatrice, ma una forma di negoziazione tra il testo e il lettore, tra il segno e l’interprete, il cui esito sarà sempre il risultato di interazioni complesse (e in gran parte imprevedibili).” p.132

“Tuttavia, i giocatori detengono ancora un grado di autorialità piuttosto importante: i giocattoli vengono risemantizzati e utilizzati secondo la loro volontà, generalmente negoziando le loro funzioni con gli oggetti stessi (la loro *intention operis*) e con i loro creatori (nel caso di giocattoli industriali). [...] Dal punto di vista comunicativo, questa versatilità di segni-giocattoli è necessaria per porre rimedio ai limiti paradigmatici del sistema: con un numero limitato di segni-giocattoli versatili, i giocatori saranno in grado di creare molte narrazioni diverse. Il piacere di questa sfida è anche uno dei dispositivi che ricompensa i giocatori per i loro sforzi.” P.149

In fact, the anthropological approach to the practice of the game cannot but highlight that games cannot be reduced to correctly enacted statuses and interpreted content:

“Più in generale, la pratica di gioco può talvolta prendere la precedenza sullo statuto. Nel gioco di carte Uno (Robbins 1971), ad esempio, è pratica comune rispondere a unacarta“+2” con una carta dello stesso tipo, passando così l’onere di pescare carte aggiuntive al giocatore successivo. Questo, però, non è assolutamente previsto dalle regole, e anzi sarebbe impossibile se si seguisse fedelmente lo statuto.” (p.158).

This is extremely similar to how, for example, Marrone (2013) work on the space by distinguishing three levels: the pre-made “subjects” with their pre-defined role, the predicted *model users* and the actual users moving into the space.

The final outcome is thus a formal description of the means through which certain types of games and game-things create meaning that is however constantly denying that the actual experienced meaning can be grasped by looking at the objects (signs, sensible qualities of toys, statuses of games, and so on) on which the description is based on. Games and playing are claimed to be understandable as texts, and yet their meaning is always postulated outside of them: from their cultural context to their sensible dimension (p.133) and the unpredictable negotiation and intents of the players.

“Se nei capitoli precedenti abbiamo tratteggiato delle caratteristiche comuni, delle strutture ricorrenti e persino abbozzato qualche tipologia, non dobbiamo dimenticare che il senso di ogni attività ludica eccede quanto può essere trovato nei suoi statuti, nei suoi oggetti ludici e nelle partite, e va ricercato anche nelle circostanze intorno alla sua esecuzione.” P.189

This “contradiction” is the natural consequence of blending different traditions of semiotics (the immanent one and the transcendent one) and is in our perspective the most precious elements of Thibault’s ludosemiotics since it reflects, on an epistemological level, the centrality of meaningfulness in games understood as the relation between the player’s subjectivity (freedom of choice and manipulation) and the intersubjectivity of games (set of choices and items to manipulate). Even more specifically, we can find in this book four main points of contacts between games and virtual realities:

1. Games and play as models and simulations of reality through the creation of possible worlds
2. The meaning of games and play as something in between and in continuity with the player’s world
3. Games as incomplete texts needing a modalization from their players
4. Games as a form of I-I communication possible through enunciation

3.2.2.1 Critique and rethinking of Thibault's ludosemiotics

Similarly, to what occurred with Eugeni's experiential semiotics, the inquiry on meaningfulness in virtual realities cannot, unfortunately, use Thibault's approach exactly as it is. Once again this is mostly due to the different objectives and objects of study of ludosemiotics: whereas our work wants to offer a method for the analysis of specific ideas and values conveyed in a specific cultural artifact using an experiential rhetoric understandable as a kind of play, ludosemiotics is interested in a more general function of games and play. In fact, Thibault offers no concrete and detailed case study to "prove" its own theory and, coherently with a more cultural and anthropological approach, is not suggesting a real apparatus of analysis of specific games. Given these premises, we can now look at two main issues (reader not interested in the critique can skip to our proposal by clicking [here](#)):

1. A vague concept of re-semanticization and the lack of a proper theory of semantics resulting in an overextension of the play and loss of its semiotic specificity.
2. A non-specific model of narrativity refusing to take into consideration the empirical reality despite recognizing games as non-typical games grounded in the player's interpretations.

The first issue must be understood in the broader perspective of Thibault's wishing to apply the semiotic metalanguage to game as a way for different disciplines to dialogue together. Despite the laudable intent, which was also the one of Greimas, this idea is actually very much problematic since it postulates a common agreement on this metalanguage and a complete absence of ambiguity inside itself. However, this is unfortunately not the case. To avoid the discussion on each of the terms used in his ludosemiotics, the author therefore makes the choice of using each semiotics concepts in their common and sometimes almost literal sense. A choice which, from a semiotic point of view, is highly debatable and has different consequences. A first case can be found in the author's usage of Hjelmslev when, by trying to simplify this complex theory, Thibault takes the concepts of substance, expression, content and forms almost literally to extend them to non-linguistic items. This is why he can talk about toys without forms of expression, which from Hjelmslevian point of view makes no sense since form is forcefully given by culture acting as an invisible grid of selection among the infinitely possible elements of the sensible (expression) and conceptual (content) domain. Thus, for Hjelmslev the only items without forms are objects born outside of culture and language. Instead, in *Ludosemiotica* we can read:

"La forma dell'espressione dei giocattoli è estremamente variegata e aperta a innumerevoli possibilità. Mentre la forma degli oggetti ludici è determinata dalle loro funzioni — un dado a sei facce è cubico, una bicicletta ha il manubrio e così via — ed è attentamente progettata per aiutare il giocatore nell'attività ludiche, la situazione dei giocattoli è molto più complessa." p.139

"Alcuni giocattoli, tuttavia, non hanno alcun dettaglio: quelli che non hanno una determinata forma di espressione. I giocattoli informi includono i materiali ludici che abbiamo menzionato sopra, come il pongo o la sabbia. La forma dell'espressione di questi giocattoli dipende totalmente dai giocatori, così come il loro contenuto." p.142

As we can easily see, we find here several issues which are mostly related to the very simple fact of using a proper linguistic theory to describe a non-linguistic elements of the physical world, the sand, conceived as a toy. Although it is true that such semiotic parallelism is also based on the fact that toys are *usages* (not a property), the metaphor is simply pushed too far and thus makes not much sense outside of a, obviously, metaphorical one.

This usage of the theory is however not a big issue and has no serious consequences in the sense that Thibault's point is that the meaning of playthings depends both on their sensible qualities and on their conceptual content, thus the traditional E/C, which can both be seen and analyzed under several aspects.

Another example of this can be seen in the use of the concept of texts to describe almost any meaningful object involved into play: from toys to statues and the final performance. These are described as texts sometimes because they can be seen as the product of narrativity, other times because they participate in it (the objects of a repertory as in p.155), and other even only because they work as signs inside the practice of play and can be analyzed in terms of E/C. This second case is a very delicate matter since still now semiotic haven't reached a common agreement on some distinctions (such as texts vs practices) and, whereas Eco also used the concept of text in a broad sense (1979), texts are usually studied through a textualist approach which is only one among many others inside semiotics. This may seem trivial but is actually a fundamental issue from an operational point of view and especially if we want our metalanguage to stay away from ambiguity: if both the parts and the whole share the same name then this name becomes a weak concept. But once again this metalinguistic issue does not really compromise Thibault's proposal.

A last case with more serious consequences is the usage of the concept of re-semanticization, which is at the center of Thibault's theory but more importantly is concept that, as we will see, is characterized by a vagueness inside our discipline which we will discuss and try to overcome. The problem here is very simple and similar to what we have already seen: this central concept is *overused* and *vague*. In some sense this issue was inevitable and hereditary since the term comes from Lotman which was using it as a metaphor in the quote taken by Thibault. Additionally, this issue is also a consequence of the second theoretical reference of the author: Barthes with his idea that the first meaning of something is its function, implying therefore a socio-historical determination of meaning since function are always postulated. Indeed, the idea of re-semanticization implies that a first semantic structure has been changed, but in many of the author's cases it would be very hard to recognize this first one. Additionally, under this same concept Thibault presents extremely different cases where the only thing in common is that a social usage and common sense of something is changed.

The newspaper that becomes a sword actually changes the semic content of the object since whereas few similar phenomenological properties are shared (length and relative rigidity) the others are added and require a change compared to the original ones: the swords are relatively heavy objects while the newspaper is not, if we are in a medieval joust that sword will be made of iron (therefore heat resistant) or metal (therefore reflective) while the newspaper is not, we must assume that the sword is a sharp object while the newspaper it is blunt, and so on. Furthermore, and precisely because this addition is at the discretion of the player, the object will present a high degree of semantic ambiguity: for example, since it has multiple affordances for its handle, nothing prevents a rolled-up newspaper from becoming a spyglass or a pastry roller. Conversely, the case of fiddling with a pencil, defined by Thibault through the same concept of re-semanticization, seems to have nothing in common with all this. In fact, you do not fiddle with a pencil as if it were a lead bucket or even as if it were a diagnostic pen but just "magnifying" the properties (small size, manageability, lightness) that have been conceived as functional for a type of utilitarian purpose (writing). Thus, even when Jhon Wick uses a sharp pencil to kill three people, or when Cluedo's butler kills the victim in the library with a candlestick, they do not re-semanticise these objects which were already potentially weapons (differently, a newspaper is not potentially a sword). This is also why many objects of common usage in our every day's life cannot be brought in an airplane.

Finally, while the newspaper stops being a semiotic figure to become another, the pencil does not see this second moment happen but only presents an initial loss of identity and does not open to particular cultural scripts comparable to the duel. This appears evident in a certain contradiction between a first moment in which Thibault tells us in the case of the newspaper that the object of value is not to play but to defeat the opponent and a second moment in which, referring to fiddling, the author tells us that the Ov is the performance itself: “L’oggetto di valore del giocherellare, quindi, è l’esecuzione di una prestazione specifica di manipolazione dell’oggetto (più o meno complessa) che deve essere iterata in maniera corretta.” (p.61). From this follows that while a *suspension of disbelief* is needed and no particular surprise occurs when you see kids dueling with newspapers, the exact opposite occurs in the case of fourteen million people who watch on YouTube¹²⁷ people who are very good at fiddling with a pen. On a more general level, if in the first case the idea of “free” constraint seems very intuitive, in the second case it seems more difficult to accept as it seems that it is the object that forces a certain type of game. Clearly the real difference has nothing to do with the difference between a pen and a newspaper, but simply with the type of game and more specifically about different semiotic processes involved in different ways of playing. Similarly, it is never explained by the author why does he talk of re-semantization even in reference to the meaning of the proper pieces of games which have arguably no other nor prior meaning than the one inside the semantic domain of game:

“Altre forme di gioco, tuttavia, presentano costrizioni predeterminate che i giocatori devono soltanto accettare e attualizzare: sono i giochi legati al ludus. Quando i giocatori decidono di giocare a backgammon, accettano una serie di risemantizzazioni (il significato dei pezzi e del tabellone, l’identità dei soggetti del gioco come nero contro bianco), un oggetto di valore (eliminare tutti i pezzi avversari dal tabellone),” p.61

In fact, what can be defined as the first semantization if not the one granted by the game? We can find a partial answer in the way in which Thibault describes the meaning of the *tetramini* in Tetris:

“Pensiamo ad esempio a un semplice gioco digitale come *Tetris*. I tetramini utilizzati nel gioco sono oggetti virtuali che, all’interno del sottodominio del gioco, indicano le loro possibili funzioni (il poter essere ruotati, il fatto che parte di essi può sparire se incastrata nel modo giusto con altri tetramini ecc.), la loro presenza in un momento specifico e la loro posizione nello spazio virtuale creato dal gioco. Visti al di fuori del dominio del gioco, invece, i tetramini, come tutti gli altri oggetti ludici, indicano semplicemente l’essere elementi del gioco e sono riconoscibili come parte del *Tetris*. In altre parole, tutti gli elementi che hanno un significato diverso all’interno del gioco—non solo oggetti o personaggi, ma anche contatori di punti o barre della vita (che misurano diversi oggetti di valore o competenze nel gioco)—devono essere considerati come oggetti ludici perché subiscono le stesse risemantizzazioni ludiche delle loro controparti analogiche.” P.123

This description, however, presents several issues. First of all, outside of domain of the game *tetramini* do not properly exist. Secondly, many of the functions of the tetramini, since they are integrative geometrical shapes, are the same both inside and outside the domain of play. Thibault’s ludic meaning requires a *débrayage*, which should not be the case from a semantic point of view. The idea of tetramini as abstract elements of a game is not a “meaning”, it would be like to say that the literal meaning of “gioco” is an abstract sound belonging to Italian language. As we can see, the author’s choice is thus unfortunate for two different reasons. First, the very concept of re-semantization becomes operationally weak. Secondly, the overextension and vagueness of re-semantization bring to a loss of semiotic specificity of the actual activity of playing. Consequently, since creating games require re-semantization than even the work of game design is considered as a form of game:

“Ne consegue che il lavoro di progettazione di giochi, o di game design, è una forma di gioco creativo, anche se quello che produce sarà poi un gioco regolato” (p.62)

¹²⁷ https://www.youtube.com/watch?v=voqYX8_VjvQ

Then whereas re-semanticization for most of the book is described as the heart of playing, at some point the author claims that the possibility of choosing inside an interactive novel is what defines it as a game:

“La possibilità di scegliere tra i due collegamenti è ciò che rende *1000 days of Syria* un gioco e non un romanzo o un racconto” (p.66).

“Quando i giocatori incontrano il primo testo, lo interpretano come una narrazione, con tutte le conseguenze del caso, tra cui la creazione di un mondo possibile WN. Questa azione, come abbiamo detto, non è ludica. Non vi è risemantizzazione. Quest’ultima avviene, sottilmente, quando i giocatori effettuano una scelta” (p.67)

Such claim is however extremely problematic for at least three reasons. First of all, a choice is a formal feature of a certain kind of text and has absolutely not as a prerequisite what the author refers to as a re-semanticization: the idea that to make this choice you have to “reinvent” your own identity, time and space. Thus, it would have been more correct to say that the possibility of choice inside a given fictional world enable the *potentiality* of re-semanticization of the player’s reality. Secondly, there is a kind of overlapping between the *débrayage* and re-semanticization. In fact, people and their personalities do not have “semantics” nor “meanings” and thus could hardly be re-semanticised if not in a metaphorical way. And this is a problem since in other cases re-semanticization have little to do with metaphors and is concretely reorganizing the semic elements of a given signifier. Finally, the author seriously contradict itself since a few pages later he is conceiving the spectator of a game as *actants* and even as players doing an abstract game of guessing, which is exactly what is doing any reader of any classic novel:

In modo simile, spettatori competenti di attività ludiche partecipano ugualmente al gioco, risemantizzando quello che avviene nell’attività in maniera analoga a come fanno i giocatori. Gli spettatori di un evento sportivo—che si trovino in uno stadio o su *Twitch* — sono quindi degli attanti osservatori. (p.73)

Le aspettative degli spettatori—che sono allora dei veri e propri attanti osservatori del gioco — e l’interrogarsi sulle scelte che farebbero se fossero in campo, sono essi stessi una forma di gioco astratto. (p.82)

A contradiction which comes, once more, from one of Lotman’s metaphors and figurative use of language:

“Lotman (1980a) sembrerebbe concordare: mentre tratta dell’importanza culturale di bambole e burattini, descrive un particolare tipo di pubblico, che chiama “folcloristico” o “infantile”, che vuole partecipare allo spettacolo ed è sempre pronto a interrogarlo, a interromperlo, a invaderlo e a rompere la quarta parete. Anche questi spettatori sono, in definitiva, dei giocatori.”

And which, furthermore, is also once again using a semiotic concept in its literal sense with poor results. In fact, as we can easily see in Bertrand (20), the actant-viewer was created to explain the cognitive and perspective origin of some events, such as a dialogue, which otherwise would be unexplainable for the reader. But, obviously, spectators have absolutely not this role and are outside of the proper narrativity of the text. Even in the more general definition of Greimas and Courtés the spectator could be correctly defined as an actant only of the text analyzed was the interpretation of the play and not the play itself.

This brings us to the final point where meaning, in Thibault’s perspective and metalanguage, seems to coincide with semantics:

“Anche per giocherellare si sceglie un oggetto con cui giocare e da risemantizzare—spesso oggetti minuti da manipolare, ma non necessaria- mente: si può trattare di oggetti di grandi dimensioni o persino di parti del proprio corpo, come i famosi pollici da girare. L’oggetto viene allora risemantizzato : il suo significato originale si affievolisce e diventa passibile di essere esplorato e manipolato in modi nuovi.” (p.60).

Now, not only fiddling with our thumbs never changes the senses of the word/concept “thumbs” but neither it changes their literal and culturally shared meaning, whatever this meaning of thumbs refers to. Similarly, the same issue on the meaning arises with the description of playthings:

“D’altro canto, parti dell’interfaccia della piattaforma vengono effettivamente rimasterizzate. Lo stesso pulsante avrà effetti diversi se premuto in giochi diversi e questo ne influenza il significato. In alcuni giochi il pulsante “spazio” di una tastiera per PC significa “salta” mentre in altri significa “pausa” e così via.” (p.122).

What is the proper and first “meaning” of the spacebar in a keyboard? Is this “meaning” changing in function of what use the space bar to do? Of course not. Once again, what we have here is a very unfortunate vague usage of the concept of meaning. The association of the meaning of things with their usage is an issue that can be easily explained through the work of the Italian comedian Lucia Ocone with her series of fake teleshopping¹²⁸. In this skit, the comedian interprets “Veronika” which is selling very common items by showing that they can do almost anything: a fork is used to cut things, separate things, to measure the weight of things, and even as a bdsm toy. The potential multiplicity of usage (what are the functions for Thibault) of any object is precisely why semantics is usually based on the *essential properties* of linguistic entries while functions are mostly *accidental* ones; and this is also why our dictionaries always present the two aspects: a fork is “**a small object with three or four points and a handle, that you use to pick up food and eat with**” (Cambridge Online Dictionary). Finally, this is also why we recognize broken items as still the same items, otherwise we would have to admit that for most people (thus excluding any ontological problem) a car with a broken engine is no more a car or that this engine is no more an engine. From a Peircean point of view, Thibault here is clearly making a confusion between the potentiality of a sign function and the sedimented meaning of a given lexical item or physical object. Given the idea that “Jump = Spacebar” then he interprets this as the fact that the spacebar *stands* for jumping (thus a sign). However, he is totally omitting the fact that pressing a spacebar to jump is not an interpretative act requiring this kind of function nor a linguistic one requiring/enacting semantics. Without a doubt the items that we use to do things can stand for these actions in any given communicative situation requiring a proper interpretation: a giant fork on a highway is very likely to stand for a restaurant and not for a shop of forks. Yet, we wouldn’t say that the proper linguistic meaning of “fork” is “eating” or “restaurant”.

We have thus proved that while the metaphor of re-semantization works to explain the ludic, the term is theoretically flawed and therefore shouldn’t be used as it is in semiotics nor in other disciplines borrowing it from semiotics. But why did the author made such “mistake”? Truth is that the vagueness of this concept is well-established inside semiotics and especially in the semiotic of space where such term is used both to talk about heavily modified spaces in their structure (from repainting to the destruction of walls) and to the usage and practices inside such spaces:

“Lo spazio significa sempre a partire da un soggetto, individuale o collettivo, che vede e vive in un determinato ambiente, reinterpretando le proprietà fisiche di tale ambiente come articolazioni significanti sulla base dei propri progetti di azione, dei propri valori. Da un altro lato, è lo spazio stesso, in quanto dotato di articolazioni significanti pregresse, a contribuire alla costruzione dell’identità soggettiva, a permettere certe forme d’azione e a impedirne altre, presentando se stesso non solo come una semplice struttura topologica ma come una vera e propria assiologia.” (Marrone 2005, p.14, in Urbani, 2017)

“gli spazi vengono in qualche misura risemantizzati dagli utenti, dagli spettatori, dai consumatori, insomma da coloro che ne usufruiscono [...]. I testi spaziali dipendono insomma dai progetti di coloro che all’interno di quegli spazi sono presenti.” (Traini 2006, p.197, in Urbani, 2017).

¹²⁸ Veronika televenditrice Forcò: <https://www.youtube.com/watch?v=StK4w0qLPBE>

By following these claims literally (which of course is probably not what the authors of such utterances would have wanted, precisely because of the established metaphorical usage of such term), if re-semantization correspond to a change of identity, then a kitchen used to have sex is no more a kitchen. An idea that is, obviously, very controversial and goes against the common sense for which anyone looking at the scene would very likely describe it as people having sex in a kitchen, on the kitchen table, against the kitchen walls and so on. Even claiming that the kitchen table is re-semantised as a bed only because it is used in a way similar to a bed would be extremely controversial; in fact if this table was actually perceived or interpreted exactly as a bed (which is actually hard from the point of view of the comfort and affordances) then there would be no purpose in using the kitchen (and many other places and surfaces!) for such activity and all the “fun” related to the idea of having sex in an unusual place would disappear. This playful example highlights that it is never really explicit *how much* a meaning/identity must change to be able to talk-about re-semantization, and neither the concept of re-semantization seems able to deal with the fact that the “meaning” has always many different aspects: a medieval camp-kitchen in the wood is a kitchen in functional terms while the common usage of kitchen includes other aspects (as a specific space inside a house with specific furniture to comfortably cook and eat). We can also see this problem by noticing how in many sentences re-semantization could be perfectly substituted with re-interpretation. As an example, in : “Le pratiche risemantizzano i luoghi, danno loro cioè un nuovo significato e, viceversa, esse vengono risemantizzate dai luoghi” (Marrone and Pezzini 2006, p. 203) we could talk about reinterpretation without changing the meaning : “le pratiche reinterpretano i luoghi, danno loro cioè un nuovo significato, e, viceversa, i luoghi determinano nuove interpretazioni di sé stessi”. This, from the point of view of metalanguage, is a serious problem since interpretation and semantics have not only different meanings but also come from different epistemologies (linguistic the latter and philosophical the former). A possible answer to this ambiguity could be that what Marrone, Pezzini and Traini (among many others) mean is that, under the perspective of describing the events occurring in a given space through a greimasian methodology grounded on narrativity, then different practices would have to be accounted in different ways on the semantic component of the greimasian semio-narrative level involving both the fundamental semantic oppositions and object of values (Pozzato, 2001). Yet, this should be not only explicit in their definitions but this kind of reductionism of semantic meaning (reduced to the *conditio sine qua non* of occurring only with PN toward Ov) should also be justified. Therefore, if Thibault uses “re-semantization” in an ambiguous way it is mainly because he is actually using this concept as most semioticians do in their works. More specifically, because the semiotic takes on re-semantization look at objects in socio-cultural terms overshadowing their proper phenomenological qualities despite these qualities actually constitute their core semes. Whereas re-semantization would literally imply a change in the overall meaning (hence the usage of imagination in play) it actually often refers to a different semic selection and configuration, a different *sememe* maybe.

So, in conclusion it is unclear in what sense does the idea of re-semantization could be used to better understand and to analyze virtual realities. Whereas in some forms of games it seems absolutely fundamental, such as in the creative games of children, if we think at videogames such as *Tetris* or *Super Mario Bros* we would have a really hard time in explaining why does it matter.

The other and last issue with ludosemiotics is the contradiction between the intent of a comprehensive view on the act of playing, considering elements belonging outside of the text to the players' culture and psychology, and the adoption of an independent perspective on the text. Indeed, we can find in several parts the idea that meaning only "exists" from the inside the domain of play and that we should be aware of not looking at games from the outside. This can especially be seen in regard to the Subject which is hypothesized as incomplete only from the point of view of the modalities:

"Abbiamo affermato che il brano d'esempio qualifica il suo soggetto, ovvero la donna siriana a cui si riferisce con la seconda persona. La scelta operata dal giocatore consente alla narrazione di continuare, ma non è affidata al soggetto della narrazione. Potremmo decidere che il giocatore è ora il soggetto e che la sua scelta è una performance basata sulle competenze acquisite leggendo il testo. **Questa è un'analisi corretta, ma ci porta fuori dal dominio semiotico del gioco: stiamo descrivendo l'atto di giocare, non quello che succede nel gioco.** Il gioco "succede" nel momento in cui il giocatore effettua la risemantizzazione, ovvero quando accetta di diventare *parte del soggetto*. Il soggetto proposto della narrazione è un soggetto *incompleto*, privo della modalità del *voler fare*. È il giocatore a fornire tale modalità, tramite le sue decisioni, completando così la qualificazione del soggetto. Il testo del link descrive poi la performance, e la sanzione sarà contenuta nelle tappe successive del gioco." (p.67, my bold).

"La qualificazione del soggetto rappresenta il momento della narrazione in cui il soggetto è investito delle modalità necessarie per intraprendere qualsiasi compito necessario per essere unito all'oggetto. Le modalità del dovere e del volere determinano le motivazioni del soggetto (la manipolazione), mentre quelle del sapere e del potere determinano le sue competenze. Si potrebbe essere tentati di tracciare un parallelo tra la qualificazione del soggetto e l'acquisizione da parte del giocatore della competenza nel sotto-dominio semiotico di una particolare attività ludica. Potremmo immaginare, in altre parole, che la qualificazione sia il momento in cui il giocatore impara le regole di un gioco (Post 2009 fa esattamente questo). Questa, tuttavia, sarebbe, ancora una volta, una confusione di punti di vista in cui si analizza l'azione di giocare e non il processo ludico—**ovvero si guarda all'agire da "fuori" del gioco e non da "dentro"**. Il soggetto, abbiamo visto, è composito prima di tutto nella di visione delle modalità relative alla manipolazione; le costrizioni determinano cosa il soggetto deve fare e essere, mentre il giocatore decide cosa il soggetto vuole fare e essere. Questo è il nucleo modale del gioco, sul quale sono costruite tutti gli altri ruoli attanziali." (p.73, my bold)

And the same is also valid for the Object:

All'interno del gioco, i giocatori (o, meglio, i soggetti) hanno sempre un qualche obiettivo e questo viene in qualche modo inglobato (quando non determinato) dalla matrice di costrizioni. Anche se nel gioco creativo sono i giocatori a sceglierlo, il valore dell'oggetto è dato dal sistema di costrizioni che lo circonda, **ed è valido solo all'interno del gioco.** [...] Ogni tipo di gioco ha un oggetto, anche quelli apparentemente senza nessun obiettivo. Il giocherellare, ad esempio, sembrerebbe una manipolazione senza nessun fine, senza scopo. In questo caso è la ripetizione riuscita e reiterata della performance stessa l'oggetto dell'attività ludica. In modo simile, l'oggetto del valore di alcune forme di gioco infantile è proprio l'esecuzione del processo di gioco: i giocatori non vincono o perdono quando giocano a "il piccolo cuoco": imitare le attività degli adulti è qui l'unico obiettivo del gioco. (p.71, my bold).

However, this is somehow in contradiction with very idea of games as simulations or models of reality. If kids play to be adults by imitating their actions, it is not because this makes sense from the inside, but because for kids, as persons and not as players, adults *are* object of values. The objects of values are always determined from the outside, from the culture, even in the case of fiddling where the fallibility of the action is determined by our own motor skills and laws of physics. On the contrary, Thibault seems to deny that we should inquire on the meaning of games as coming from the outside by claiming that the elements of the play-text would otherwise not make sense:

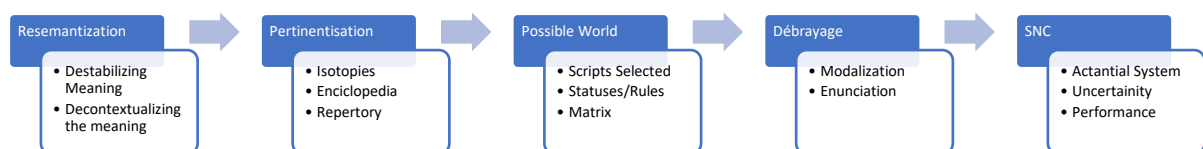
"Il gioco, quindi, genera due mondi possibili. Il primo è WP, il mondo in cui si applicano le regole del gioco. In questo mondo—**e solo in questo!**—essere un "guerriero nano di livello 3 armato con un'ascia da battaglia+2" ha senso. In WN, molti di questi concetti non hanno alcun senso: quell'attore probabilmente penserebbe a sé stesso come un nano, forse un guerriero, ma sicuramente non attribuirebbe valori numerici alle proprie abilità o per descrivere l'efficacia della sua arma." (p.78, my bold)

Once again, we could therefore wonder why such contradictions are present in Thibault's book, and the answer is still related to the consequences of applying a certain methodology which imply a certain epistemology and theoretical perspective. Thibault's conclusion on the play-text were determined by the fact of broadly applying the textualist perspective of semiotics, with the issue that this perspective is only in a single part of the book while in many others we can find a very different idea of why games and playing are meaningful precisely because of an outside. More generally, even Eco avoided any reference to empirical reader and thus Thibault is actually following, once more, the "common" way of doing semiotics and could hardly be criticized for this. It is only in our perspective and within our intent of breaking the superior threshold of semiotics, in our shifting from meaning making to meaningfulness, that such choice can be described as unfortunate.

After this in-depth examination of theoretical and analytical issues existing in *Ludosemiotica*, we can now propose our own rethinking of Thibault's work.

First, we will use re-semantization only in the case of a tangible shift in the sensible plane resulting in a conflict between an original meaning and a new one. A newspaper used as a sword in a fictional play is a re-semantization because it adds/presume non-existing properties, killing a mosquito or beating someone with it is not one. A kitchen table with a pillow on it and covered with bedsheets to sleep on it is re-semantised because it expands its description (the quality of "comfortable" as an example may be added through the pillow), a one used for sex is not despite the fact of the fact that the main socio-cultural function of a table is another. In all the other cases we will use the concept of *interpretation* and *use* (Eco, 1979) which is perfectly fit to describe such processes and well-established inside the semiotic metalanguage.

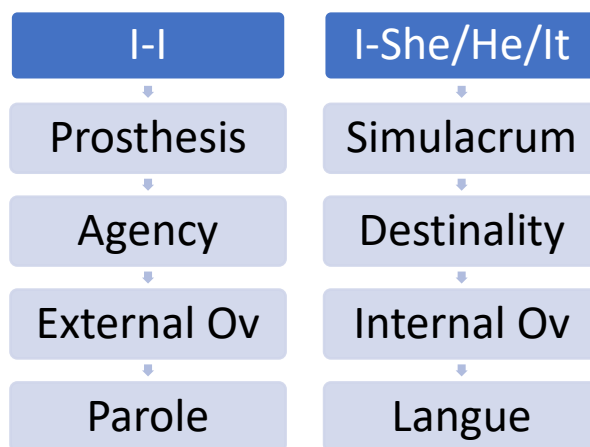
Second, and consequently, in virtual realities the players are usually not re-semantising anything but only interpreting the semantics of the text in a more or less faithful way. In fact, players have access to a digital game between the third and fourth phase of (our model of) Thibault's ludic process:



Third, the player's partial access to the software corresponds to their access to the partial semiotic content created during the third phase of the ludic process. This determines both the extension and the limits of the player's freedom on the game's meaning-making.

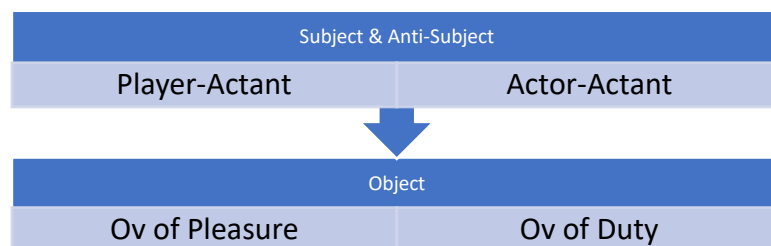
Fourth, on the basis of Thibault's work, we will conceive the simulative play of virtual realities as an interpretative situation occurring between the third and fourth phase grounded on the simultaneity of two kinds of communicative regime bounded to the main central feature of enunciation: one autotelic of the I-I and one simulacral of the I-She/He/It. The I-I situation is characterized by an almost perfect *continuity* between the player's reality and the one of the game: he/she is *bringing* his/her world into another.

The player is accessing the virtual/play world from his own space and time by *extending* his own senses and identity (prosthesis), knowing the causes of his own actions (agency) bringing into the fiction his own goals and cultural values (external Ov), thus perceiving his own playing the world as an act of *parole* expressing its subjectivity through an agency very concretely realized as an enunciative act inscribed on the level of manifestation. The I-She/He/It situation is instead characterized by *discontinuity* and *alterity*: he is *forsaking* his world for another. The player is accessing a different spatiality and temporality through a *given empty place to fill* (simulacrum) to act in this second reality. This simulacrum is not only acting in such reality but also acted upon and given objectives (destinality) depending on a system of values potentially very different from the one of the players. Here the player is clearly aware that everything he can do depends on what is *given to him* and that something else is *allowing him to do*



These conflictual regimes and these categories are the basis of play as form of simulation since they represent the very conflict existing between our subjectivity and the reality we live in.

Fifth, the consequence of this interpretative and communicative situation is that the SNC of text must be divided to grasp the meaningfulness of virtual realities as type of play.



Subject and Anti-Subject:

- Player-Actant: Here there is no “re-semantization” since there is no a-priori conflict between being ourselves and being a player. We simply extend our conception of ourselves also as players exactly as we extended the identity of our friends to include the one of becoming our adversaries, which is why playing with friends as both companions and foes is so much meaningful. Additionally, this is also because of this level that moral choices matter in virtual realities.

- Actor-Actant: Here we have an actual conflict, and thus “re-semanticization” since the player is postulated and represented as someone that he is not, depending on the text (a pilot, a commander, an animal, a certain Mario, a robot, and so on.)

The specificity of virtual realities and games is the creation of a hybrid position, or free indirect speech, resulting from an overlaying of these two aspects of the Subject of the game. Specifically, we have an overlaying in terms of:

1. Point of view: even in non-first-person games the player is always grasping the world from a position anchored to the one of the actor-actant (more on this in 6.1)
2. Modalities:
 - *Must*: both the main goal of the game and the rules of the game are shared between the player-actant.
 - *Can*: since progression in games is strongly related to learning and trial, there is a strong causality between what the player-actant can do and the success or failure of actor-actant.
 - *Want & Know*: these are factually absent from the text and are only logically represented through the action of the player-actant in relation to what the actor-actant must and can do. However, the player-actant can purposely go against the “must” and “can” of the actor-actant and many times has no other choice.

As a result, player-actant and actor-actant share the same four main phases of the SNC: Manipulation/Contract, Competence, Performance and Sanction.

3. Cognitive Semantics: what is seen outside of the player and belonging to another fictional body is “felt” and interpreted inside the one of the player (Chapter 2)

Finally, in the case of non-multiplayer digital games the player-actant is simulated with an AI.

Objects of Values:

- Pleasure: These are the reasons of the real player. Some of them can be described in very general terms: dreams, emotions, control, fun, distraction, satisfaction, and so on. However, others may be more closely related to a given cultural reality and condition: self-improvement, technical knowledge, social affirmation, richness, fighting against entropy.
- Duty: These are the values postulated by the text both through narrative means and by rules and their formal systems of sanctions (high score). In *Super Mario Bros* (1985) helping the helpless and fighting the evil is a narrative value postulated by the story, while coins and speed are values postulated by the criteria behind the high score. Speed, in turn, requires the development of a specific set of sensorimotor skills (timing execution & pattern learning) and a more general knowledge of the device used to play both as a software (the rules depending on the fact the games is a videogame) and as a device (the controller).

The specificity of virtual realities and games is the possibility to relate the external values of pleasure belonging to the player with the internal values of the duty belonging to the text: this is what we called a *rhetoric*. Games and virtual realities do not simply represent “another world” but also represent conditions of happiness and of unhappiness in a deterministic way (see Thibault). The happy ending cannot be reached unless the player embraces those values and the experience of virtual realities and games is *emotionally* designed to award the behaviors coherent with these values.

What's more, and consequently, the internal object of values is valorized into the terms of the player's ones by the very simple, although crucial from a meaning-making point of view, requirement of the empirical player's real effort and time. This is a critical point to understand the meaningfulness of the player's emotions and experience of a given reality which, not coincidentally, the difficulty of games is described in terms of being *fair* or *unfair*. We will see several case studies of this, but for now let's only make a simple example. In the digital game *Donkey Kong Country 2* the player has (the "must" of the actant-actor) to collect as many bananas as possible while progressing through the levels. Now, depending on the failure or success the players are likely to feel in different ways: from joy to anger. By looking only at the screen, we would be thinking that these emotions are related to a particular empathy of the empirical player with his actorial position as a digital monkey, but of course this is not the case. The player couldn't care less about Diddy's and his bananas. The meaningfulness of his emotions and actions depends on the fact that he failed to reach the object of value postulated by the game from the inside through the rules and adopted by him from the outside (control, timing, learning, etc.). But even this view is actually incomplete. The meaningfulness of his emotions is more properly related to the degree of difficulty to fulfill his tasks and to his own objectives. A too easy task will certainly not result in joy and an impossible task would not reach a state of anger. Not only this, but a casual player may be very satisfied by collecting half the bananas while a pro player would feel almost the opposite emotions for same exact result. In other words, this little example can show how Thibault's principle of meaning as a negotiation during the act of playing is absolutely undeniable and need a different model of narrativity such as the one that we are proposing.

As a last note, similarly to Volli and Violi, Thibault himself has read both our resume and critique to his work and approves them for the most part.

3.2.3 Virtual realities as gamified realities

Whereas Thibault's ludosemiotics seemed an obvious place where to start our reflection on the relation between semiotics of digital games and virtual realities, the 2019 work of Vincenzo Idone Cassone is apparently an, so to speak, odd choice. First of all, his main topic is the one of gamification, a theme very different from ours and which by definition is the study of non-proper games or perhaps better "the use of game design elements in non-game contexts" (Deterding, Khaled, Nacke & Dixon, 2011), while our case studies are all proper games and proper VR experiences in undoubtedly ludic contexts. Secondly, the methodology used for the analysis of texts is quite different from ours since it is mostly grounded on how Floch and Latour have developed the greimasian theory of semiotics. On the contrary, in our thesis both Floch and Latour are absent and we have already explained why the greimasian tradition, with its epistemological and heuristic preoccupation leading to "hors du texte pas de salut", cannot be the one to guide (although *must* be included into) a fruitful and interdisciplinary inquiry on meaningfulness and experience in virtual realities. However, Cassone's work is actually extremely pertinent and useful for our thesis. This importance comes both from a common semiotic approach and a common interest on simulations. First of all, his semiotic approach, as ours, is grounded on the problem of the obviousness:

"[...] I believe it is not irrelevant to quote Benveniste's (1966) brief but deep methodological insight: "La question peut surprendre, comme tout ce qui a l'air de mettre en question l'évidence, mais il est parfois utile de demander à l'évidence de se justifier" [the question may surprise, as does everything which questions what is obvious, but sometimes it is useful to ask the obviousness to explain itself.]" (p.8).

Secondly, it is also actually including different semiotic schools rather than choosing any "side". Thus, we can see how the results of his textual analyses are then used as a starting point for social, anthropological and cultural reflections made through Eco, Lotman, Volli and many others. The author even specifically refers to Eco's perspective on metaphors (p.218) which we have already discussed and proved to be so important. Additionally, this approach is aiming at an interdisciplinary value:

"In what way is it possible for a semiotic perspective to provide a significant, distinctive and useful contribution for the understanding of gamification? How can it interact with the many other disciplines involved in the theory, conception and implementation of gamified applications?" (p.7).

Indeed, even though not explicitly as us the authors seems very interested in the experience of play understood as a very complex and multilayered phenomenon which can also explain why playing and games are such recurrent metaphors in our culture and literature:

"The experience of Play is the result of the interaction with the meaning-making objects, practices, and discourses linked with Play." (p.9)

"All in all, even outside the domain of Play studies many disciplines ended up implying some indirect reference to games: many scholars in the 20th century took advantage of the concept of games as a metaphorical touchstone for explaining or understanding a wide range of cultural processes: rules of languages (Saussure's 1916 chess metaphor), anthropological norms (Levi-Strauss' 1949, 1958 social acts as a game of cards) sociological frame-shaping, changing and breaking (Goffman 1974), economic decisions (Newman and Morgenstern 1944), psychological daily interactions (Berne 1964) and many more." (p.29)

What's more, it is aimed to enrich the debate (highlighted in the very conclusions "potential directions for exploration" p.261) on the relation between games and reality in terms of *identities, behaviors and values*. Three terms that are on the main stage of our inquiry.

But beside all these similarities due to belonging to a same field of research, the concrete claims and specific proposals of Cassone's are of great importance for the study of meaningfulness in virtual realities. The first element of great interest is without a doubt the common anthropologic status between games and narration as a characteristic of human societies. Vincenzo Cassone's introductory words on games are, indeed, extremely similar to Barthes' ones on narrative (1966):

"Play and games are, without a doubt, among the most ubiquitous and pervasive phenomena in human cultures. Whether in relation to living beings, time, space, cultures, contexts and so on, it may be difficult to find a domain which is untouched or unrelated in some way to Play. Above all, the human experience of Play could be said to be, for most individuals and communities, deeply familiar, if not intimate: playing feels essential, even natural for individuals, societies and cultures." (Cassone, 2019, P.6).

Furthermore, the concepts of *play* and of *virtual* seem to share common semantic and semiotic history for which both terms started as part of the cultural reality (virtual as potential), then were used up until the end of the XX century as a separation from life (virtual as fake) and in XXI century seems to return to a "middle-way" between these two.

"The above mentioned phenomena showed how the shifting in valorisation and function of games is connected to its contemporary understanding as a separate domain of life. Previously integrated into paradigmatic social activities and intertwined with the religious, legal and social dynamics, Play slowly began to be contrasted, marginalised and partitioned by a series of heterogeneous historical processes, which redefined its role as a bounded and regulated activity among many others, governed by a set of social norms and values.[...] It is important to stress that Play was still believed to be compatible with practical, utopian or critical values, but at the same time, in Modernity the values of Play itself were not believed to overlap and interact with the social values embodied by different/opposite activities and processes (religion, proper manners, productivity). For instance, in ancient rituals and Roman *ludii* the utopian values of religion coexisted with the agonistic and autotelic values of the games, and were considered two intertwined aspects of the same event." (p.213)

This undeniable similarity between games and narrations as forms of simulations (and thus of the virtual), with both their methodological and epistemological implication, constitute a solid ground to justify any semiotic research in both domains. As a sub-category of both digital narration and digital games, virtual realities make no exception and shares many critical questions such as the ones on immersion:

"Fassone (2017, p.112) briefly discusses the apparent double nature of this phenomenon, by discussing the different perspectives connected to the concept of immersion in digital games. For certain authors immersion is described as a sensory notion which plunges players into a new reality: "the sensation of being surrounded by a completely other reality [...] that takes over all of our attention, our whole perceptual apparatus" (Murray 1997, p.98); these tendencies may also be linked with Csikszentmihaly's theory of engagement (1990) and with the industrial quest to reach visual fidelity that will surpass the limits of human perception (Manovich 2001, p.178). For other scholars however, the digital medium requires a specific and opposite process of separation from the reality it produces (as opposed to virtual reality): "After all, a sense of pleasurable control implies some modicum separation; you are apart from what you are controlling ... you don't want it to be too real" (Poole 2000, p.77)." (Cassone, 2019, pp.42-43)

Indeed, if we look carefully we can easily see how by discussing the apparently different problem of defining gamification, the discussion on the boundaries of games is extremely similar to the one faced by defining virtual realities in relation to the physical one.

"[...] Jakko Stenros, who in the above-mentioned "In defence of the magic circle" (2014) defended Huizinga and Zimmerman's theories: first showing how many of the criticisms simplified and took to extremes the concept itself, possibly as a result of the implicit separateness conundrum. Then, suggesting a possible re-articulation of the magic circle into three different types of Play boundaries, intertwined but self-sufficient: the first is the psychological bubble, a frame which protects and surrounds people who are in a playful mindset. The second is the magic circle of play, the socially agreed contract that constitutes the act of playing. The third is the arena, the spatial, temporal and rule-based (even ideal) game space where games and play are expected to be set." (p.47)

“A similar position originates from the MMOGs ethnography conducted by Taylor (2006), and the many qualitative interviews conducted by Yee (2014): both suggest how real life dynamics interact/blend with the virtual worlds in which MMOG players act. For them, the rhetoric of a completely new identity and reality in these games is unattainable. Moreover, Taylor states that the dichotomy game vs non-game simply cannot exist, since the overlap between Play and everyday life is the norm, not the exception. Yee goes as far as showing how the main social norms present in the “real world” are doubled and confirmed in digital worlds, and how many economic, social or power struggles may live and be translated in MMOGs as well, making the life in these fictional spaces similar to a working condition for many segments of people (e.g. Chinese gold farmers).” (Cassone, 2019, p.49)

And it is impossible to ignore how the different theories on these boundaries can be categorized in the problem of game arenas, play time and actors players (pp-67-72) which is clearly related to the aristotelian units of action, time and space:

“From a semiotic perspective, the concept of re-semantization can be described as the access to the semiotic domain of Play (Thibault 2016): the subject in charge of the semiotic existence produces a preliminary enunciative operation of spatial, temporal and actorial débrayage, by negating the enunciational I, Here, Now. The game takes shape as “something” (a form of play), in an abstract “somewhere” (the game space) and “somewhen/sometime” (the infinite present of games). This theoretical process of débrayage may be supposed through the empirical traces of enunciative débrayage/embrayage which can be found in rule-sets or in players' rule-explanations (e.g. “chess is a game played on a board, in which you ...”) or in fictional settings (e.g. “how about I am the cook in the kitchen and you are the waiter”).

p.92

This is also how we can intuitively define most virtual realities as *the experience of being a willing consciousness in a body-object* (defined by its limits and possibilities) *in a space* (defined by its finitudes and articulations) *in a time* (defined by its finitude and segmentation) *together with other bodies referable to other consciousnesses-intentions* (whether made by other players or A.I) *that share with us that same space and time*. Furthermore, and even more interestingly, such inquiry on gamification will also bring to the same conclusion about the impossibility of conceiving virtual worlds as in opposition to the real and in terms of “fake”. When we are gambling in a digital game (p.96), are we really gambling? When in a VR game a monster surprises and we scream, was this fear a fake one? When we train for month to get better at a console fighting game, is this self-improvement, both as an observable fact and adopted value, unreal? Questions such as these will almost never find a definitive answer since their debate reside in a fundamental misunderstanding about the concept of “separateness” and not so much of games by themselves:

“I propose to label this apparent contradiction the separateness *conundrum*, an understanding of Play which is not limited to the classic 20th century authors, but can also be found in recent researches as well: since the forefathers of Game Studies, on the one hand Play, as a part of human culture, is considered an all-comprehensive phenomenon which has many strong ties with other social and cultural phenomena; on the other, games, toy-playing and playthings are believed to be somewhat separate and bounded activities or objects, or seen as the residual and disconnected pieces of previous overlappings between Play and culture. The cause for misunderstanding also lies in the ambiguity surrounding the label of “separate”, since each of the different boundaries and thresholds which can be perceived in games and in playing could be used as a starting point to declare the separate nature of Play itself, which can be confirmed by what has been called by Fassone (2013) the debate on play separatism in Game Studies.” P.31

Indeed, games, as well as narrations and virtual realities, for Cassone as for us can only be understood in terms of blending and overlapping of different dimension of meaning which are partially predisposed and partially presupposed by the text:

“Through the works of Marin (1994), Stoichita (1993) and Calabrese (1985), Semiotics stressed how the relationship between text and paratext is never optional or marginal: instead, it should be seen as a complex and dynamic process, resulting from strategies of textualisation, value negotiation, communicative frames. [...] These theses stressed how any empirical text (not simply artistic or visual) is the result of negotiation and interaction with many other textual layers and framing dynamics (Polacci 2012a, 2012b), with which it establishes semiotic processual interactions in order to make it accessible, understandable and also accepted as a proper “element of culture”. (p.59).

“As discussed in the 3rd chapter, Salen and Zimmerman's position on re-semantization encountered some criticisms by a series of scholars [...] for the supposed implied communicability between the meaning-making processes within the game boundaries and the ordinary “outside”. It was also met with scepticism by Pargman and Jakobsson (2008) and other ethnographic researchers (such as Taylor 2006), who stressed how for many players there is no such a thing as a “separated experience” or a process of re-semantization of the world in relation to gaming, which is only one of many entertaining activities people engage in while also spending time on other activities and events. There is no re-semantization because there is no opposition between in-and outside-Play.” (p.92)

“In the previous section I claimed that the idea of a fixed and generic Play separateness should be substituted by a multi layered understanding of the many boundaries/thresholds created by games and play. This perspective makes it possible to disentangle and observe all the different layers and levels at which game elements may be integrated, translated, nullified or contrasted in non-ludic contexts.” (p.108)

Meaningfulness in such *contexts* is always the result of negations and translations of continuity and discontinuity between the fictional-mediated worlds and the original one of the user, which is valid and evident not only for space and time but even for the one of subjectivity:

Paraphrasing Volli's discourse, any subject, in order to be recognised as such (within a culture) has to be ipse, that is, to be distinguished from all the other possible subjects through one or more demarcations (establishing limits, discontinuities, differences). On the other hand, this also means that a subject needs to maintain itself idem, always the same, in relation to a process of uniformity which is also established by cultural norms (defining thresholds, continuities, inferences).” (p.57).

Following this semiotic explanation of the process of re-semantization, both the criticisms of Malaby (2003) and Taylor (2006) can be incorporated to a certain degree and partly negated in their more extreme outcomes. It is true that the process of re-semantization of Play does not necessarily create separate, new identities, whose values and aims are completely detached from the everyday world. As previously suggested through the examples of friendly Play, brink games and institutionalised Play, our identity as players, our values and aims do not necessarily replace the other previous ones. Balinese cocks fights, traditional backgammon players in Greece and MMOG players all show deep levels of identity and value overlapping. However, a minimum process of identity re-semantization still takes place, transforming friends into rivals, unknown people into teammates and so on, changing their roles and providing new programs of action. These identities can be said to be shifting, overlapping or changing in some ways, depending on the sociocultural dynamics involved in the act of playing, and the semiotic processes which take place in the specific game. (p.92&97)

Such negotiation of discontinuity comes, both in games and in narration, from an a-priori intentional mindset open to whatever kind of re-semantization a fictional product has to offer: suspension of disbelief (Coleridge, 1817)¹²⁹ and interpretative cooperation (Eco, 1979) in the case of narrative and *lusory attitude* (Suits, 1978) in the case of games. Yet, games and narrative are also quite different. The more sensible difference between narration and games comes on two topics: one about rules and another about the first-person perspective adopted.

On the first one, Cassone correctly highlights how:

“The absolute power of rules is generally one of the most discussed elements to back up the separateness of play; for Huizinga and Caillois the open violation of rules immediately puts the player outside the game, and threatens the stability of the Play process, since breaking the rules means rejecting the initial contract that binds players. Especially Caillois stresses the absolute authority of rules, and Huizinga puts no little effort into distinguish the role of cheater/trickster from that of spoilsport, in order to highlight the moral relevance of playing by the rules: while the cheater formally follows them, the latter explicitly challenges their conventional nature.” (p.81)

129 [Samuel Taylor Coleridge](#), *Biographia literaria*, 1817, capitolo XIV

Indeed whether rules can certainly have a narrative dimension related to the fictional contextualization of a given game (from law of physics replicating the rules of life on the earth to the numerical hierarchies distinguishing the king from the knave in *Scopa*) they require something more than a suspension of disbelief and in interpretative cooperation since they need to be *enacted* by the player and can be violated through actions and choices concretely changing the development of the particular kind of non-premade text that we call “game”. On this specific point, the inquiry on virtual realities as form of games rejoins the inquiry on them as digital texts. Indeed, digital games have been specifically at the center of a debate on the actual possibility for a player to actually chose whether to play by the rules or not:

“As discussed in the 3rd chapter, the lusory attitude is the idea of a specific mindset to be agreed and incorporated by players through the acceptance of the implicit (or explicit) contract between them and the game (Suits 1978). However, several game scholars are opposed to the belief of necessary agreements to be made in order to give birth to the ludic experience, stating that no psychological “boundary-crossing” phenomenon is needed in many types of games: for Liebe (2008) and Calleja (2012) there is no willing act of agreeing to the rules in digital games, since the technological apparatus makes it impossible and also meaningless, by enforcing the rules through its code and by being responsible for the existence of the game itself. (Cassone, 2019, p.87)

By formalizing (p.82) how rules work generally in games through three main processes (violation tolerance, rule-enforcing, rule interpretation), Cassone offers us a way to better understand how rules can be meaningful in digital games:

“ First, the digital algorithm responsible for the game program does not feature any degree of tolerance in the fundamental rules of the games. The lines of codes only produce the expected and devised actions, rules and possibilities for players (aside for glitches and bugs, see below). The result is a binary system in which any act which is not explicitly permitted is forbidden (see Greimas 1980) and thus impossible to perform. However, this does not account for specific actions which are permitted by the game, but still negatively sanctioned: mistakes, violation of diegetic rules etc. Second, since the game is run by the very same algorithm, the process of rule-enforcing (once again, aside from bugs and glitches) is almost absolutely certain, and any violation or alteration of the game rules is not just punished, but even impossible from the beginning. Indeed, this is true for any kind of phenomenon that we happen to call “rules” in non-digital games: laws of physics, rules of logics, causality and coherence of the experience and so on. While for a chess player it is in theory possible (even if unreasonable) to destroy his/her own pieces during the game, here the digital chess player has no such choice. Similarly, while a soccer player may decide to pretend to be injured in a clash, the digital soccer games available do not offer the player any possibility to do so.” (pp.87-88)

A situation without a doubt different from your regular *Monopoly* with your friends, but nonetheless still inside the bounds of a playing as a deliberate choice and lusory attitude:

“In other words, it is because individuals may be fascinated or convinced that games are meaningful or fun or relaxing etc, that they want to try a specific game; and since the game is made by the rules which create its gameplay, they decide to follow those rules (through the lusory attitude). There are other possibilities for players, of course. They may refuse to agree with this Manipulation of the game/Adressee (thinking it is not fun, not worth the time, not challenging enough etc). Or they may only accept it in order to test the game, and see if the prospect is true. In all cases, however, the strength of the rule-enforcing has nothing to do with the acceptance of the premises of the game; on the contrary, the perfect enforcing of the rules may even be perceived as a guarantee of the initial contract (more below). Which, aside from the almost perfect instance of rule-enforcing of digital games, is not different from accepting the continuous supervision of judges and referees during various tournaments” (p.88)

“From a socio-semiotic perspective, Players do not play by the rules since they are forced to. They do so because they want to play. This may be also confirmed by the circumstances in which players decide not to play any more: they stop the game, may uninstall or delete the *savefiles*, and they can do so at any moment of their experience. If they do it, it is because something has broken in the implicit contract at the base of the lusory attitude: either the game is not valuable enough, or the very structure of the rules leads to an unsatisfying (too easy, not rewarding, not engaging etc) or even unfair experience (too hard, badly balanced, frustrating ...). The lack or disappearance of the trust (which represent the axiological premise between Subjects and Addressers) which originated the contract may be enough to make the lusory attitude collapse.” (p.89)

To all this, Cassone importantly adds something also strictly related to virtual realities and digital culture: the possibility for the users to manipulate the software to change these very “rules”:

“Up to now Calleja's notion that the power of the software over the code is complete and impossible to be outdone by players has been backed and accepted. In truth, the supposed power of the original game code has always been challenged by the many personalities and cultures of game hacking, bugs and glitch searchers, mod creators and so on. All these people have been creating new ways to cheat through programs running in the background, mods and variants to some rules of the game (sometimes even complete conversions, see Postigo 2007), discovering glitches and using them at their advantage, or changing some values and variables in order to make the game more fair and balanced, and sometimes reverse engineering the game code in order to discover its exact text. This means that, whenever players may feel that the game is not “morally” respecting the implicit agreement that gave origin to it, they feel entitled to contest and fight the supremacy of the digital code. [...] Yet some glitches or bugs found in many games were so appreciated by the players that they were maintained, reproduced and sometimes became a common element of many franchises. This is a sign that any of the elements of the code can be judged by players, independently of the *intentio auctoris*. [...] All this can be considered a proof that, while being completely on the inside of the discontinuity created by an (almost) perfect enforcing of the rules, the players accept and evaluate the balance of the game itself, explicitly or implicitly accepting the lusory attitude before playing. The technological control of the algorithm over the game does not completely overlap with the semiotic (sociocultural) acceptance of the meaning of the act of playing, and its rules.” (pp.89-90).

Then, on the second topic about the characteristic first-person experience of game this same author underlines the specificity of playing in terms of the re-semantization of identity and temporary adoption of new goals (and their related values):

“On the contrary, the opposite dynamic is precisely the radical change and shift that is common in many games, in which the new identity as a player erases or suspends that of the Subjects, and the lusory attitude asks participants to engage with new and unprecedented rules of conduct (e.g. survive at any cost, declare war), new “negative” behaviors and axiologies (being a killer, impersonating a thief) and a whole set of new rules of coherence and logic. Moreover, the new role is strictly connected to the contextual actions in the game space, following a general trend of Aristotelian unity of action. That is, the lusory attitude is the preliminary step in a process of re-semantization which is more radical, sudden and disruptive than the ones subjects experiences daily, a process which is generally rare and not as developed in the traditional Western societal frames” (p.91)

“A preliminary enunciative *embrayage* begins with the institution of one's own identity as a player (a participant in the game), and eventually a further process of re-semantization of self (Thibault 2016, p.33). Games may differ greatly in the depth and scope of their self-re-semantization: it may simply mean ignoring/suppressing the identity elements which are irrelevant for the experience (for instance, our age, profession, appearance in an abstract game or a jigsaw puzzle); as well as establishing a specific Program of Action, a general scope and aim valid for the game (defeating the enemies, playing a lawyer, finding the puzzle solution); some games may provide specific new identity elements for the players (e.g. in RPGs, every player is supposed to create a new fictional identity in a specific setting) including sets of Competence and axiologies (“good, neutral or evil alignment”; scientist or warrior; hunter, medic etc). However, many game genres make it possible to not omit or put into the background one's previous identity, but simply to add further elements and features to it. Generally, it happens in many play improvisations, or in puzzle games and most abstract ones.” (p.93)

“By supposing that a minimum degree of lusory attitude is necessarily implied by the participation of players in Play, it can also be supposed that they accept, at least to a minimum degree, the new roles, objectives and values which are the result of their new identities. This happens both for rule-based games and for free forms of play: there is no difference between “impersonating a painter” or “building a sandcastle” and “checkmating one's adversary” or “scoring at least 1000 points”. All the new actors and elements in play may be the result of the application of the rules of irrelevance or the rules of transformation: when playing hide-and-seek, the size of a bush may make it a suitable hiding place (or not); while playing detective, it may become the thieves' hideout, independently of its size.” (pp.95-96).

“the notion of meta communication has been diffused in many fields and disciplines. However, from a semiotic perspective, it can be explained by at least three distinct (yet related) processes: a) the process of semiosis and more specifically, the application of multiple interpretive grids to the plane of expression; b) the interpretive and authorial process of textualisation (together with paratextualisation and contextualisation) c) the enunciative and enuncional re semantization involved in players' participation in play.” p.99

“By forcing players into choices that they would not have carried out, the game calls into question their identity, mainly their ethical identity (Volli 2008), the ability to remain themselves even despite contextual changes.” (p.177).

Finally, both the question of digital rules and the first-person experience, which are key points in our work, are joined together in both the methodological choice of using Latour's perspective on the narrativity (and thus conveying of values) of non-human agents interacting with humans:

“ Norms and laws are thus ensured through the interaction between human and non-human agents, in cases in which human Competence, will or habits are insufficient to ensure them, or diverge from the prescribed axiological value system. This process of re articulation of Semio narrative Competence between human and non-human agents is called by Latour (1992, p.154) technological delegation or shifting: it is generally designed in order to reduce the (social effort) or increase the efficiency of specific values and norms. Weak morals and uncertain social ties are assisted, restructured and ensured through the endless number of artefacts through which humans interact, delegating to them axiologies, ideologies that are otherwise too “abstract”. ” (p.117)

“ The interaction between prescriptions and delegations produces another consequence, that is the eventuality that the designed Program of Actions may not produce the expected results, either through an error in the interaction between the elements/agents, or because other subjects may interact in unexpected ways with artefacts: guards can be tricked, doors can be forced, or become useless if someone forgets to close them, technically becoming simple passages.” (p.119) Counter-programs require further, extra additions to the elements of the artefact, either through paradigmatic change or through syntagmatic additions: e.g. in the shape of key and keyhole, automatic doors or security services, alarms and so on. Each of the new elements may further cause new alterations of the delegations and prescriptions required, leading to more complex sets of Competence and Performance. For instance, you need to know how to use a key to lock and unlock the door, and to have the key with you, in order to use the door + key. However, each new element can cause new and unexpected counter-programs; keys can be stolen, security personnel can be bribed or tricked, automatic doors can break.” 119

“As a result, a further element in Latour's theory can be introduced through pre-inscriptions and circumscriptions : in order to avoid these extreme dichotomies between subjects that satisfy all the conditions of prescription, and agents whose Competence is not completely sufficient to fulfil the foreseen interaction, further elements are added to artefacts, whose aim is to organize and classify different model users' conditions and limits, helping them to acquire the necessary Competence to interact with the artefact. Through these so called pre inscriptions (traffic signs, arrows, instruction booklets, design affordances, indexes and page numbers), the all or nothing opposition between programs and anti-programs is refined and modulated into a set of differentiated users and conditions for use, helping users into positive interactions or dissuading them from negative or countering interactions.” 120

A theoretical perspective which brings Cassone, in several of his analyses, to claims very close to ours about virtual realities in defining playfulness as:

1. An unexpected element of freedom and/or oddity inside a socially predefined “parcours” or narrative allowing the player to reconsider the actual cultural values of his own physical reality through a designed re-semantization of self, space and time.
2. A blending of experiential domains, thus a metaphor, acknowledged by the user in terms of simulated functions through interactions involving an embodied condition in a fictional world presenting elements of continuity with the physical one and allowing enunciative acts.

This is true from gambling as a simulation of every day's destinality to walking up the stairs:

“There is however a main transformational process which deeply connects all the previous elements to playfulness; the boundary crossing process of re semantization which takes place through and within play. In the Piano staircase the stairs **do not simply look like** a piano, but mimic a piano both in appearance **and in function, while still being stairs**. The double and contradictory nature of the elements recalls the process of the transformative imagination of children, but it is now **delegated and translated through an act of design and technological tools**. By mixing these radically different objects, and their contrasting interactional patterns, playfulness is generated. In the Piano staircase, playfulness is not simply due to the introduction of a musical instrument in a typical non--place (Augè 1992): but rather is the outcome of the interaction and frame--breaking mix between a practical tool (stairs) with its typical movement pattern, and an autotelic tool (piano) and its typical play interaction. While the Piano staircase can be either crossed or played, it is not a suitable tool to be played or crossed “efficiently”. It is a tool and space to engage with and to experiment with: the playfulness of the design re--semantization creates a space for play: **that is, non-efficient and non--directioned use, freedom to experiment, place for invention and creativity**. As such, playfulness could be said to result from a deep interaction between three main processes: the introduction of elements of freedom in a supposedly

bounded and oriented experience (see Greimas' 1980 lexematic of play); the result of the autotelic--playful re--semantization of the values inscribed in space and movement; the frame--breaking experience of mixing different articulations of space and movement routes into the same object, **making it possible to simultaneously follow them or mix them.**" (pp.139-140, my bold).

From hard ethical choices made by the players to running as if the world was full of zombies:

"On the contrary, the enunciative dynamics of *Zombies, Run!* relies on a fictional yet directed and present communication, between the radio operator and the user, who embodies Runner 5 and is called in this way: diegetically, the communication is happening in that exact moment, producing a simulacral temporal and spatial embrayage (the radio operator and the user share the same "world" and time). While literature and radio transmissions need at least a layer of separation in space or time which is made clear through their enunciative tracks, the one simulated in *Zombies, Run!* produces an effect of subjective immersion in the diegetic world. In this way, a link is produced between the fictional subject who receives the radio communication, and the empirical users who receive the audio logs as if they were directly and simultaneously transmitted to them." (p.164)

This brings to a true turning point in the author's work is when he demonstrates how games and play can therefore be understood in terms of *simulation*. A new conception of games and play which is related to the cultural history of societies and the pervasion of digital technology:

"This simultaneous change in many of the typical representations connected to the boundaries of the cultural self would indirectly lead the way for a change in the perception and positioning of the medium of games, and most of all to a specific self-model which had previously been introduced: the concept of life as a game simulation." (pp.234-235).

In the following decades, along with the third industrial revolution first, and the development of the entertainment industry of gaming, digital games gave new life and re-enacted the long-standing metaphorical parallel between life and games, through the deep imbrication between simulations, virtual realities, other worlds. Doing so, they ended up occupying the structural position of previous paradigmatic media: producing a shift from the rhetorics and historical discourses of the book of life, of *theatrum mundi*, of life as a movie, to that of life as a game-based simulation.[...] The process can already be observed in fiction and entertainment in the first half of the Eighties, when Hollywood produced movies such as *Tron*(1982), *Wargames*(1983) and *The Last Starfighter*(1984). Despite the fictional and stereotypic premise of these plots, all these narratives involve the translability of the models of games into ordinary life: characters transported into computers (*Tron*), kids taking part in a game while the AI believe it to be a thermonuclear situation (*Wargames*), a young man learning to drive a space fighter and save the galaxy by playing an arcade game (*The last Starfighter*). [...] The main aim of the characters is to recover the equilibrium of both worlds, restoring the previous stable condition, which implies that once again, the worlds should be properly separated and not confused. p.236

With a significant change that the author discovers in the last two decades:

"Nevertheless, less than two decades later, a new series of sociocultural processes will take place, strengthening the self-model of games as simulations: the wide diffusion of the internet, the mature development of 3d computer graphics, the larger and larger user market of the gaming industry. Once again, the change in cultural perception is anticipated by the cultural imaginary and by the recurring themes and topos in mass-fiction in movies, books and comics.[...] Nonetheless, the most significant example of this turning point is the movie series *Matrix* (1999 2003, Lana and Lilly Wachowski). Here a hacker discovers that life as he knows it is only a simulation run by the "Machines", which rule the world in 2999 and use humans as an energy source, keeping them in a simulation. What was called "ordinary life" is but a lie, a game prison. Only by escaping from the matrix, and then reentering as hackers who play with the system, do human beings have the possibility to fight the machines. [...] The key difference between *Matrix*, *Gantz* and *The Game* and the previous representations in the '80s is the change in the representation of boundaries, and the narrative dynamics involved: there is no longer a clear differentiation between real/ordinary world, and digital life: the two categories overlap and mix to the point where the existence of the digital universe put into doubt the very ground of reality, and presents a new perspective on it. There is no going back to a previous state, nor thresholds or bridges to cross in order to return to ordinary life. Pp.236-237

"Through these many historical processes, social dynamics and narratives, Play and games changed their structural position in the system of cultural self-representation, moving from one of the many fictional alterities, into becoming a key self-model for the understanding of contemporary culture." (pp.241-242)

And also related to very specific kind of virtual reality, the birth of MMOs:

“Above all, a further phenomenon takes place at the turn of the millennium: the inception into the market of the first MMOGs, digital persistent worlds in which the players can embody fictional avatars whose existence persists outside the play session. MMOGs were the result of a long technological quest and embodied the previously only dreamed-of concept of persistent and collective online worlds.” (p.237).

From which, the presence and possibility for digital games to make of their status their own narrative such as in the examined cases of *Assassin's Creed*, *The Talos Principle* and *NiEr Automata*:

“Lastly, the representation of life as a game-like simulation is also attested in the medium of digital games, implying a level of self-reflection and metamediality in the implicit discourses which are represented. The most famous example is the series of *Assassin's Creed* (Ubisoft, 2007-today), in which a DNA simulation retrieves the information of an ancestor of the main character's, projecting his mind into a re-evocation of the past. The past is simultaneously played and re-enacted, so that the player of *Assassin's Creed* is actually playing as someone who is playing someone else.

“On the other hand, many games make it possible for players to experience the paradox of simulations through their very gameplay” (p.241)

And even more specifically the possibility to replicate a certain formalization of the experience:

“The progression systems of Role Playing Games are without a doubt among the most recognisable game design elements included in gamified systems: including experience points (xp) which are rewarded for certain actions, and a Level which increases once a specific threshold in xp is gained, rewarding the player with new capabilities or an increase in skills/power. Beyond the single game design elements, there lies a narrative structure which is based on quantitative, exponential progress, in which a set of actions/performances is iterated in order to gain increasing Competence and better performance. As I have suggested (Idone Cassone 2018a), it can be supposed that this narrative structure extends well beyond the genre of RPG, being diffuse in many other digital games and, above all, translated into similar configurations in a series of different media (comics, movies) and in the cultural discourse (technological performance), beyond its explicit use in gamification design. For this specific configuration, a series of common elements in the structure.”

However, Cassone also put much emphasis on how each time these “translations” and “metaphors” presenting some degree of imperfection:

“The Speed camera lottery is quite far from the pure experience of the aleatory, the unexplained drive to win, the pleasure in non-knowing and the thriving for a prize.”p.141

So, even though it is not really an explicit claim, the author leads us to think that it is perhaps precisely in this imperfection that we not only recognize the playfulness or the virtuality of these realities, but also cooperate in the creation of their meaningfulness despite all the issues behind their meaning-making. In fact, what grants to a rigged game the power to become *meaningful* if not the fact that the loss was personally experienced together with some hope?

“At the beginning, it seems a typical challenge against the odds of the game, on the premise that the player can use his/her skills in order to win the game. But in reality, SPENT is a no-win situation, a rigged game which should be seen as an exception to the typical structure and discourses of games. It is not uncommon for competitive regulated games to end in a tie, and it is not uncommon for certain matches to develop into a state in which one of the players cannot win, due to the previous choices of players. The only games which issue an impossible challenge are merely the result of cheating, rigged games or manifest imbalanced design. By contradicting these cultural expectations, SPENT is much closer to the discourse of games as metaphorical experiences than to the medium of traditional games.” (p.179).

We therefore see here a perfect continuation with the work of Thibault and our approved “rethinking” of it in terms of mirrored narrativity. By looking at three different aspects of games (playfulness, gamification and virtuality) and through partially different bibliographies and case studies, we all came to the same conclusion regarding the simulative nature of games in terms of a form of textuality founded on this *continuity* almost erasing the borders and boundaries of reality. Which is why in a later article of 2020 published on *Versus*, Cassone will highlight how such feature can be implemented even in non-games, such as in the case of movies such as *Memento*:

“A paradigmatic example is represented by the movie *Memento* (2000), which give birth to a mind game out of the direction and perspectival strategies of textualisation. In the thriller, the main character suffers from anterograde amnesia, which leads to short term memory loss: he forgets everything that happens after his accident in the short span of 5 minutes. For this reason, he writes down notes and constantly takes pictures; above all he makes tattoos on his whole body to write down/remember the most important things that happened since then. This alteration of memory and time perception is translated into the direction, which represents the events of the plot through a set of a-chronological shots of 5 minutes .ca. In this way, the movie itself works as a jigsaw puzzle for its viewers, who need to apply a non-trivial interpretive effort (see Aarseth 1997, Ferri 2009) in order to understand the basic narrative development, re-composing the sequence of events to unravel the mystery of “what’s happening” (in Eco’s terms, to define the diegetic fabula). Viewers are thus engaged into an active process of decrypting the scenes in order to give meaning (i.e. to reconstruct the narrative cause-effect relationships) to the events they watch, to give a meaningful”

Thus, and in conclusion, we hope to have demonstrated both why and how the investigation on games and play is absolutely central in understanding the meaningfulness of virtual realities.

3.3 Semiotics and game studies

In this chapter we will examine few among the most significant works on the topic of virtual realities as simulative texts, written by four between the most important scholars working in the field of game studies: Espen Aarseth, Ian Bogost, Riccardo Fassone and Jesper Juul.

Differently from the previous chapters, here we will highlight how most of our claims about virtual realities are all but original. In fact, many topics of great semiotic relevance were faced outside semiotics since the early 2000's and precisely in this field of study: new narrative structures, temporality, ideology, meaning-making, enactment, textuality, simulation and so on.

Such studies are relevant for this thesis under two main aspects:

1. The issues debated in this field during those years strongly influenced our approach. If we look at a 2004 book such as "First Person. New Media as Story, Performance, and Game" we can already find almost everything discussed until now.
2. During the three years of my PhD game studies were my main non-semiotics field of reference to both validate my hypotheses from the outside and to understand what could be the contribution of semiotics to the contemporary debate. In particular, the fortuitous and fruitful encounter with Espen Aarseth in Turin during DiGRA 2018 resulted in a later meeting in Copenhagen and in the decision for a future congress to "renew" the semiotics of games which was unfortunately cancelled due to Covid-19 but will hopefully occur as soon as possible. Similarly, I also had the luck to discuss with Riccardo Fassone about many issues and who showed great interest and encouragement for my work.

In some sense, the debts of our semiotics of meaningfulness toward games studies are numerous and the aim of this chapter is to highlight the most important. This chapter therefore does not really present any new argument but will prove the reasons of our approach on an epistemological ground which is not semiotic.

3.3.1: Espen Aarseth's cybertext and game ontology

At a first glance, Espen Aarseth's notorious "Cybertext" (1997) could seem a work of little or no interest for this thesis. It is indeed a book about the characteristics of digital texts and which includes in its corpus several digital artifacts. Nonetheless, it seems that there are several problems in taking such work as a reference for our thesis.

First of all, the author is extremely critical toward semiotics both as a theory and methodology to understand products such as digital games. Indeed, he explicitly claim that "As we shall see, however, even much more modest claims about the relationship between computer technology and semiotics become problematic when put under closer scrutiny." (p.25) and after a long overview of the computer semiotic literature he affirms that " I am far from convinced that computer-mediated communication is fundamentally and primarily a semiotic domain, as Jensen claims."

Secondly, Aarseth object of study is far broader than the digital games and VR experiences that are at the heart of our work. In almost every chapter the author explains us that ergodic literature and cybertexts existed long before computers: "Possibly the best-known example of cybertext in antiquity is the Chinese text of oracular wisdom, the I Ching (Wilhelm 1989)." (p.9) and "Cybertext, then, is not a "new," "revolutionary" form of text, with capabilities only made possible through the invention of the digital computer. Neither is it a radical break with old-fashioned textuality, although it would be easy to make it appear so." (p.18). Furthermore, Aarseth is clearly opposed to technologically determinist theories which claims that digital technologies are, *per se*, changing the status of communication and even culture itself.

"The paper-electronic dichotomy is not supported by our findings. It is revealing and refreshing to observe how flexible and dynamic a book printed on paper can be, and this gives us an important clue to the emergence of digital text forms: **new media do not appear in opposition to the old but as emulators of features and functions that are already invented.**" (p.74)

" Of course there are interesting side effects and novel possibilities resulting from the migration from one medium to another, but hypertext, especially when compared to other new digital media, is not all that different from the old world of print, pen, and paper. Hypertext is certainly a new way of writing (with active links), **but is it truly a new way of reading?** And is all that jumping around the same as creating a new text?" (p.78)

Thirdly, the results of his work consist mainly in the critique and creation of the terminology belonging to literary studies which is then used to describe a particular kind of textual type to include in a broader "textonomy".

"Especially, I wish to challenge the recurrent practice of applying the theories of literary criticism to a new empirical field, seemingly without any reassessment of the terms and concepts involved. This lack of self-reflection places the research in direct danger of turning the vocabulary of literary theory into a set of unfocused metaphors, rendered useless by a translation that is not perceived as such by its very translators. Thus the interpretations and misinterpretations of the digital media by literary theorists is a recurrent theme of this book." (p.14)

"My main effort is, therefore, to show what the functional differences and similarities among the various textual media imply about the theories and practices of literature. The exploration is based on the concepts and perspectives of narratology and rhetoric but is not limited to these two disciplines. I argue that existing literary theory is incomplete (but not irrelevant) when it comes to describing some of the phenomena studied here, and I try to show why and where a new theoretical approach is needed. My final aim is to produce a framework for a theory of cybertext or ergodic literature and to identify the key elements for this perspective." (p.17)

Finally, and as a result of the previous mentioned issues, the problem of the meaningfulness and is mostly absent both as main theme of inquiry and from the results.

"In the context of this study, the question of the text becomes a question of verbal media and their functional differences (what role does a medium play?), and only subsequently a question of semantics, influence, otherness, mental events, intentionality, and so forth. These philosophical problems have not left us, but they belong to a different level of textuality. In order to deal with these issues responsibly, we must first construct a map of the new area in which we want to study them, a *textonomy* (the study of textual media) to provide the playing ground of *textology* (the study of textual meaning)." (p.15).

So, Aarseth seems clearly preoccupied with the creation of a theoretical framework offering non ambiguous conceptual tools for the functional material and pragmatic description of digital texts aimed at the creation of a typology and, in later works, to face the issues raised by an ontology of games. Neither typologies nor ontologies are, however, something that we are interested in.

Still, truth is that Cybertext is simply fundamental for any inquiry on meaning-making in digital games and virtual realities. Aarseth's work put the basis for almost all our features of meaningfulness, four out of five to be exact. His critical attitude toward semiotics, which is present in this book and was still there "in person" when I met him in 2018, is simply justified when we look, from an interdisciplinary perspective, at the objectively poor results produced by most semioticians who studied digital games. Not only my master's degree thesis of 2017 was on the same line of thought, a 300 pages work of critique of semiotics applied to videogames, but the focus on the problem of metalanguage and metaphors was one of my main issue as it is his. This is why we can only be grateful to him for having taken into consideration so many concepts and authors (Andersen, Barthes, Brandt, Eco, Greimas, Jensen, Peirce) belonging to Semiotics. I can hardly think of any other scholar in the field of Game Studies who did the same. What's more, in *Cybertext* Aarseth closes his critique by saying that "it must be added here that the field of computer semiotics is still very young and that it is far too early to draw any firm conclusions about its viability. (p.41)". Additionally, the fact that cybertexts are not only digital artifacts is absolutely not an issue since digital games and virtual realities are still and nonetheless cybertexts. In fact, most of the case studies chosen by the author in his book are indeed digital artifacts such as: "hypertext, the textual adventure game, computer-generated narrative and participatory world-simulation systems, and the socialtextual MUDs of the global computer networks." (p.18). Not only that but the author's claim that "new media do not appear in opposition to the old but as emulators of features and functions that are already invented" (p.78) is exactly why we are naming digital games and virtual realities as *platypuses*. Finally, we can only admire the intellectual and epistemological rigor of the author which, back in the 90s, decided to not face directly the philosophical and experiential themes of digital games before having both a terminology and a perspective on what digital texts actually are and on what, if anything, makes them somehow special. Only after works like the one of Aarseth we can now establish a causality between textual specificities and meaning and our debt toward his book is simply too great to ever be repaid.

But why exactly is this book so important? We can find an answer already in the first few lines:

"The concept of cybertext focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange. However, it also centers attention on the consumer, or user, of the text, as a more integrated figure than even reader-response theorists would claim. The performance of their reader takes place all in his head, while the user of cybertext also performs in an extranoematic sense. During the cybertextual process, the user will have effectuated a semiotic sequence, and this selective movement is a work of physical construction that the various concepts of "reading" do not account for. This phenomenon I call ergodic, using a term appropriated from physics that derives from the Greek words *ergon* and *hodos*, meaning "work" and "path." In ergodic literature, nontrivial effort is required to allow the reader to traverse the text." (p.1)

The key points here are four:

1. A “mechanical organization” of the text which implicitly states A) a dynamism of the text B) a second invisible layer/level of textual “parts”
2. The focus on the user and the difference between different kind of activities involved in ergodic meaning-making.
3. The idea of effort and work
4. The idea of a topological path

These points highlight on the one hand the epistemological problem for the analysis of such texts, and on the other one highlights the right path to follow for our inquiry. Indeed, Aarseth points out very well the interdisciplinary and epistemological problem of calling game “texts”

“Part of the problem is easily resolved: hypertexts, adventure games, and so forth are not texts the way the average literary work is a text. In what way, then, are they texts? They produce verbal structures, for aesthetic effect. This makes them similar to other literary phenomena. But they are also something more, and it is this added paraverbal dimension that is so hard to see. A cybertext is a machine for the production of variety of expression. Since literary theorists are trained to uncover literary ambivalence in texts with linear expression, they evidently mistook texts with variable expression for texts with ambiguous meaning”. (pp.2-3)

A possibility of production which existed prior to digital technology but which becomes of fundamental importance when studying digital texts:

“Digital systems for information storage and retrieval, popularly known as databases, signified new ways of using textual material. The database is in principle similar to the filing cabinet but with a level of automation and speed that made radically different textual practices possible. On the physical level, the surface of reading was divorced from the stored information. For the first time, this breaks down concepts such as “the text itself” into two independent technological levels: the interface and the storage medium” (p.10)

As a consequence, inquiries on experience cannot ignore how meaning in a cybertext depends on information storage, information retrieval, automation and speed. Furthermore, cybertext are unique forms of texts because they present two different levels of what in greimasian semiotics would be called the objective “*datité*”. He claims that we cannot understand what ergodic texts are without examining these two levels which for him are independent:

“As I pointed out, it is fundamental for these systems that they consist of two independent levels, the internal code and the semiotic, external expression (ibid:40). This distinction was inspired by Stuart Moulthrop’s (1991) observation that hypertexts contain a ‘hypotext’, the hidden, mechanical system of connections driving the choices presented to the hypertext reader. This duality is the most fundamental key to the understanding of how games work, how they signify, and how they are different from other signifying systems such as literary fiction and film” (Aarseth, 2010, 58)

Most of the critique to semiotics coming from Aarseth point out exactly at the impossibility to successfully understand and take into account what lies below the expressive levels:

“The meaning of text used in this study is closer to philological (or observable) work than to the poststructural (or metaphysical) galaxy of signifiers. But though my meaning is related to both of these meanings, it is also radically different from them. Instead of defining text as a chain of signifiers, **as linguists and semioticians do**, I use the word for a whole range of phenomena, from short poems to complex computer programs and databases. As the *cyber* prefix indicates, the text is seen as a machine-not metaphorically but as a mechanical device for the production and consumption of verbal signs.” (p.20, my bold)

“since all of them so obviously conceive the material, historical, **and textual artifact as a syntagmatic chain of signifiers and little else**, that approach would most likely prove fruitless and desultory, and it would almost certainly not illuminate the idiomatic aspects of ergodic texts.” (p.24, my bold)

“For semiotics, as for linguistics, texts are chains of signs and, therefore, linear by definition (Hjelmslev 1961, 30). As Tomas Maldonado (1993, 58-66) argues in his excellent essay on virtual reality, semiotics (with particular reference to the work of A. J. Greimas) has not managed to meet the challenge from "a whole typology of iconic constructions, very different from those studied by semiotics until now." The new constructions consist of "interactive dynamic" elements, artifact **that renders traditional semiotic models and terminology, which were developed for objects that are mostly static, useless in their present, unmodified form.** Maldonado's critique concerns the analysis of visual images, but it is equally relevant in the case of ergodic textuality, where the same difference applies.” (p.26)

“The main problem seems to be the assumption that cybernetic sign processes can be understood and **classified by observing their surface expressions alone.** When the relationship between surface sign and user is all that matters, *the unique dual materiality of the cybernetic sign process. is disregarded.* Without an understanding of this duality, however, analyses of communicative phenomena involving cybernetic sign production become superficial and incomplete.” (p.40)

This is why Aarseth is mainly interested in computer semiotics, the one who did actually focus on the underlying part of the machine. However, both Jensen's impractical theory of the interface's border between semiosis and machine and Andersen's incorrect and disappointing classification of signs did not convince him how the usefulness of semiotics. Jensen and Andersen methods and findings are indeed a clear example of what we defined as the problem of the missing fathers of Semiotics and represent a kind of semiotics which is nowadays unactual among most semioticians. Abandoning thus a semio-symbolic theory of the underlying code, Aarseth creates his own functional terminology to understand and grasp these two layers:

“A text, then, is any object with the primary function to relay verbal information. Two observations follow from this definition: (1) a text cannot operate independently of some material medium, and this influences its behavior, and (2) a text is not equal to the information it transmits. *Information* is here understood as a string of signs, which may (but does not have to) make sense to a given observer. It is useful to distinguish between strings as they appear to readers and strings as they exist in the text, since these may not always be the same. **For want of better terms, I call the former scriptons and the latter textons.** Their names are not important, but the difference between them is. In a book such as Raymond Queneau's sonnet machine *Cent mille milliards de poemes* (Queneau 1961), where the user folds lines in the book to "compose" sonnets, there **are only 140 textons, but these combine into 100,000,000,000,000 possible scriptons.** In addition to textons and scrip'tons, a text consists of what I call a **traversal function**—the mechanism by which scriptons are revealed or generated from textons and presented to the user of the text. **Scriptons are not necessarily identical to what readers actually read,** which is yet another entity (a *Iexie* in the Barthesian sense?) and one not determined by the text. Instead, scriptons are what an "ideal reader" reads by strictly following the linear structure of the textual output.” (p.62, my bold)

Yet, such perspective can actually be perfectly adopted in semiotics on the basis of its structural theory and origin. Which is what we did in considering the meaningfulness in digital games as syntagmatic process of enunciation from a given number of semiotic units. This was indeed the true missing point of the semiotic gaze upon digital games, what prevented semiotic to understand that the gap filled by the players were no more only interpretative, as in Eco, but mainly enunciative. An idea which once again is perfectly coherent with Aarseth view:

“The "openings" of determinate cybertexts are not gaps, in Iser's sense, since they are not used to complement the written parts in a game of imagination; rather, they are used as a filter, in which only the "correct" response lets the user proceed through the text. To use another metaphor, they are keyholes, fitted by the text for very specific keys. However, even if the key fits (i.e., the command, such as open the balcony door, is successfully executed), the strategic progression of the game may not be affected at all. The openings, or keyholes, of the adventure game are therefore of two different functional kinds: those that advance the strategic position of the player and those that don't. Only the first are gaps in the quest for the solution of the game, but on a "narrative" level there is no discernible difference. This suggests that what Buckles and others see as a type of narrative gap is in fact not a narrative phenomenon but is related to the game's structure in a fundamentally different way.” (p.111).

And, as linguistic teaches us (De Mauro), enunciation has to do both with discourse and with creativity, which is also an underlying theme of Aarseth's Cybertext:

“It also supports my conclusion in chapter 2, that the possibility of unintentional sign behavior makes cybernetic media creatively emergent and, therefore, not subsumable by the traditional communication theories” (p.124)

“Narrative discourse, even when it is a composite of narrative modes, can always be considered to constitute a single plane or course of communication. If we accept this, **then we can describe the difference between ergodic and narrative communication in terms of discourse planes.** To make this consideration as general as possible, let us also include the discourse of hypertext fiction in the same model. In a narrative, the discourse consists of the event plane, where the narration of events takes place, and also what I call the progression plane, which is the unfolding of the events as they are received by an implied reader. Here, these two planes are identical, as the reader's progression follows the event line. In an exploratory ergodic text such as hypertext, the progression plane is divorced from the event plane, since the reader must explore actively and nontrivially to make sense of the event plane. **In adventure games, the relation between events and progression is defined by a third plane of discourse: a negotiation plane,** where the intriguer confronts the intrigue to achieve a desirable unfolding of events.” (p.125)

“Laurel's dependence on drama theory cripples the potential of adventure games to develop into a richer art form, one in which the rigid structure of do-the-right-thing-in-the-right-sequence-or-you'll-be-sorry poetics can be replaced with a gentler and freer model in which users employ their creative energies in a world, not in a generative model of a linear genre.” (p.138)

“As we have seen in the previous chapters, the computer as literary agent ultimately points beyond narrative and toward ergodic modes-**dialogic forms of improvisation and free play between the cyborgs that today's literate computer users (and their programs) have become.** What we need in order to achieve this is not an automated playwright or narrator but simulated worlds with emergent intriguants, interesting enough to make real people want to spend time and creative energy there.” (p.141)

“I argue (using Hypercard as an example) that **digital systems can provide several levels of creative intervention** but that this feature is not limited to electronic texts, nor is it true for all of them (see chap. 3). Electronic writing can just as easily (probably even more easily) maintain the two-leveled hierarchy of a flat expression plane, whereas preelectronic writing (e.g., Queneau's *Poemes*, 1961) subverts it.” (p.176)

But putting aside for now our solution, which will be explained in detail soon enough, we can know see that behind Aarseth's critique are two key ideas:

1. Texts as machines for the production of expressions where the productive/machinic parts are the most important in the production of meanings: “Cybertext, as now should be clear, is the wide range (or perspective) of possible textualities seen as a typology of machines, as various kinds of literary communication systems **where the functional differences among the mechanical parts play a defining role in determining the aesthetic process.**” (p.22, my bold)
2. Games are texts with thousands of possible combination of expression and that nonetheless often *do not* present the problem of an ambiguous meaning.

The non-ambiguity is of course another very important theme since it opens to the problem of the freedom and path of the user:

“ The problem was that, while they focused on what was being read, I focused on what was being read *from*. This distinction is inconspicuous in a linear expression text, since when you read from *War and Peace*, you believe you are reading *War and Peace*. In drama, the relationship between a play and its (varying) performance is a hierarchical and explicit one; it makes trivial sense to distinguish between the two. In a cybertext, however, the distinction is crucial-and rather different; when you read from a cybertext, you are constantly reminded of inaccessible strategies and paths not taken, voices not heard. Each decision will make some parts of the text more, and others less, accessible, and you may never know the exact results of your choices; that is, exactly what you missed. This is very different from the ambiguities of a linear text. And inaccessibility, it must be noted, does not imply ambiguity but, rather, an absence of possibility-an aporia.” (p.3)

A freedom which corresponds on the possibility of an epiphany:

“This kind of impasse is a main trope of *Afternoon's* literary machine: an *aporia* in a very literal sense. In contrast to the aporias experienced in codex literature, where we are not able to make sense of a particular part even though we have access to the whole text, the hypertext aporia prevents us from making sense of the whole because we may not have access to a particular part. Aporia here becomes a trope, an absent piece de resistance rather than the usual transcendental resistance of the (absent) meaning of a difficult passage. Complementary to this trope stands another: the epiphany. This is the sudden revelation that replaces the aporia, a seeming detail with an unexpected, salvaging

effect: the link out. The hypertext epiphany, unlike James Joyce's "sudden spiritual manifestation" (Abrams 1981, 54), is immanent: a planned construct rather than an unplanned contingency. Together, this pair of master tropes constitutes the dynamic of hypertext discourse: the dialectic between searching and finding typical of games in general. **The aporiaepiphany pair is thus not a narrative structure but constitutes a more fundamental layer of human experience, from which narratives are spun.**" (p.91, my bold)

And a freedom which explains why games are, simply put, terrible narrations:

"The characters you meet in *Deadline* appear to be living in their own private worlds. When questioned, they often repeat themselves without making sense, and you may stand next to them for hours without any sign that they know you are there. Intelligent conversation is exceedingly difficult and breaks down after at most a few exchanges. And your own behavioral range is not much better, as you try to guess the word combinations that will unlock the mystery. Even moving around in the house or garden can be a pain, as the very limited commands for movement (south, west, northwest, up, etc.) will not always get you where you want to go. Most random words you try to use will result in rebuttals. [...] The contract between user and text in "interactive fiction" is not merely a "willing suspension of disbelief" but a willing suspension of one's normal capacity for language, physical aptness, and social interaction as well. It is of course not autism in a clinical, or even a fictional sense, but functionally it seems very close." (pp.116-117)

"We might label *Afternoon* a *reluctant narrative*, or an *antinarrative*, or a *sabotaged narrative*, terms typical of modernist poetics. But perhaps the best descriptive term for *Afternoon* is *game of narration*. If we accept that narration can take place without narrative (as defined by the narratologists), we might come up with a better concept than weak and negatory terms such as *antistory* and *nonlinear narrative*. *Afternoon* is not an antinarrative; it is something other than narrative. As we saw in the previous section, the aporiaepiphany structure is not a narrative device, although it willingly generates narratives when experienced." (p.94)

Now, the author underlines many times how this freedom A) is not per se dependent of the digital medium, but rather a possibility depending on a textual configuration B) should not be idealized nor naively politicized.

"But the politics of the author-reader relationship, ultimately, is not a choice between paper and electronic text, or linear and nonlinear text, or interactive or non-interactive text, or open and closed text but instead is whether the user has **the ability to transform the text into something that the instigator of the text could not foresee or plan for**. This, of course, depends much more on the user's own motivation than on whatever political structure the text appears to impose." (p.164, my bold)

"As with any communication technology, digital media might be used and misused in the name of liberation or oppression. The power relationships may not be as simple as they have been in the past, but they are still there. Today, a quarter of a century after the first digital networks and the microprocessor revolution, some preliminary conclusions can be made: even if the digital media allow more intermediate positions for media users, technology in itself has no political program and may be used for oppressive purposes as easily as for liberatory purposes. [...] **The belief that new (and ever more complex) technologies are in and of themselves democratic is not only false but dangerous**. New technology creates new opportunities, but there is no reason to believe that the increased complexity of our technologized lives works toward increased equality for all subjected to the technology." (pp.166-168, my bold)

"Authorship, as always, depends on recognition of authorship; it is a social category and not a technological one. As Foucault (1988, 202) claims, "the function of an author is to characterize the existence, circulation, and operation of certain discourses within a society." (p.172)

Nonetheless, this characteristic still applies to our corpus and is thus still of great importance to us. It is in fact crucial since it implies that digital texts semiotically recreate a kind of *freedom* and *subjectivity* which is extremely important to understand how experience can occur in digital games and thus meaningfulness. Digital simulations are realistic first of all because, differently from any other previous mediatic experience, a player *does not feel powerless in front of a destiny*:

"A reader, however strongly engaged in the unfolding of a narrative, is powerless. Like a spectator at a soccer game, he may speculate, conjecture, extrapolate, even shout abuse, but he is not a player. Like a passenger on a train, he can study and interpret the shifting landscape, he may rest his eyes wherever he pleases, even release the emergency brake and step off, but he is not free to move the tracks in a different direction. He cannot have the player's pleasure of influence: "Let's see what happens when I do *this*." The reader's pleasure is the pleasure of the voyeur. Safe, but impotent. [...] Trying to know a cybertext is an investment of personal improvisation that can result in either intimacy

or failure. The tensions at work in a cybertext, while not incompatible with those of narrative desire, are also something more: a struggle not merely for interpretative insight but also for narrative control: "I want this text to tell *my* story; the story that *could not be* without me." In some cases this is literally true. In other cases, perhaps most, the sense of individual outcome is illusory, but nevertheless the aspect of coercion and manipulation is real." (p.4)

For instance, both stories and games of football consist of a succession of events. But even though stories might be told about it, a football match is not in itself a story. The actions within the game are not narrative actions. So what are they? The adjective I propose for this function is *ergodic*, which implies a situation in which a chain of events (a path, a sequence of actions, etc.) has been produced by the nontrivial efforts of one or more individuals or mechanisms (see chap. 1)." (P.94)

"For the reader of the detective novel, the narrative experience is not anamorphic, because the mystery is revealed in the standard course of the reading. Even if the reader engages in the activity of trying to solve the case, this in no way influences the outcome of the novel. On the other hand, for the player of a detective adventure game the anamorphic dilemma dominates the experience completely, as the player tries to change the work from one state (unsolved) to another (solved). There is a clear, perceptible distinction between these two states, and typically, once the mystery is resolved, the work loses its enigmatic aura, and usually the player's interest along with it" (p.181)

These last quotes by the author are extremely important for two reasons. First, if there is the possibility of a failure for the player then it should be possible to reconstruct a narrative structure, in the greimasian sense, of the play itself. This can be seen also in Aarseth's consideration of cultural theories considering narration as a kind of logical principle through which as human we understand the world

"There is a tendency in much cultural theory to posit narrative as the grand structure of everything, the foundation upon which we order our lives and actions. To suggest that narrative is not wholly deserving of this reverence might be risky, since it is all too easy to point out that even the very point I am making here could not be made without the support of narrative. (p.94)"

Moreover, Aarseth creates an entire terminology to take into account the presence into the text of the player as a player and not as a character:

"Hence it could be argued that the reader is (or at least produces) the story." (p.112)

"Instead of a narrated plot, cybertext produces a sequence of oscillating activities effectuated (but certainly not controlled) by the user. But there is nevertheless a structuring element in these texts, which in some way does the controlling or at least motivates it. As a new term for this element I propose *intrigue*, to suggest a secret plot in which the user is the innocent, but voluntary, target (victim is too strong a term), with an outcome that is not yet decided-or rather with several possible outcomes that depend on various factors, such as the cleverness and experience of the player. [...] The target of the intrigue might be called the *intriguee* and is a parallel to the narratee, to the implied reader of the narratologists, as well as to the main character (or "puppet," as Sloane calls it)." (pp.112-113)

"Following Genette's critique of the concept of point of view (1980, 185f.), we might profit from discussing this problem in his alternative terms of *voice* and *perspective*. The game itself is characterized by a singular perspective, which coincides with the user's symbolic presence in the game. In the case of *Deadline* the perspective is limited to that of the investigating detective, a simulated body who obeys the rules of *Deadline's* simulated world. In a superficial sense, this perspective is what we might call realist, as it contains no fantastic or supernatural elements.[...] However, because of the negotiating nature of the adventure game's discourse, this perspective of "realism" is constantly interrupted by the conflict between intrigue and intriguee in terms of language problems, physical-world problems, and "intriguingly incorrect" behavior that is, when the player tries to act outside of the intrigue's event space. We might refer to this last type of conflict as pushing the intrigue envelope." (p.118)

Secondly, because the idea of the user being a real player is far from being so obvious. Indeed, we could ask: is the player of a videogame really a *player*? The Stanley Parable (Galactic Café, 2013) is a videogame that would explicitly and strongly argue against such idea. Not only does Aarseth perfectly know that this freedom is not granted by default by the medium nor total:

"As with most games, the rules are well beyond the player's control, and to suggest that the user is able to determine the shape of such a text is the same as to confuse the influence of a city's tourist guide with that of a city planner." (p.139)

But he also is perfectly aware of an interesting historical shift:

“In the early adventure games, this strategy assumed an ideal reader, who would solve all the riddles of the text and thereby extricate the one definite, intended plotline. Eventually, this strategy changed, and now the reader's role is becoming less ideal (both in a structural and a moral sense) and more flexible, less dependable (hence more responsible), and freer.” (p.106).

So, to avoid any ideological drift, Aarseth great intellectual move is then to abandon the characteristic use of metaphors belonging to the humanities and to inquire on the structural causes of this effect of freedom, self-determination and power over a destiny:

“The cybertext reader *is* a player, a gambler; the cybertext is a game-world or world-game; it is possible to explore, get lost, and discover secret paths in these texts, not metaphorically, but through the topological structures of the textual machinery.” (p.4)

“The problem is not, finally, that literary critics use words like *labyrinth*, *game*, and *world* as metaphors in their analyses of unicursal works but that this rhetoric seems to have blinded them to the existence of multicursalliterary structures and to the possibility that the concept of labyrinth (in their post-Renaissance rendition) might have more analytic accuracy in connection with texts that function as game-worlds or labyrinths in a literal sense.”(p.8).

“Hypertextual nonlinearity, as an alterity of textual linearity (monosequentiality), can be seen as a topological (rather than tropological) concept in accordance with the principles of graph theory (cf. Wilson 1983), a concrete phenomenon, defined formally and not metaphorically, in terms of nodes and links (cf. Aarseth 1994, 59).” (p.43)

This is why Aarseth fight off the metaphors and use of the concept of interaction:

“ The word *interactive* operates textually rather than analytically, as it connotes various vague ideas of computer screens, user freedom, and personalized media, while denoting nothing. Its ideological implication, however, is clear enough: that humans and machines are equal partners of communication, caused by nothing more than the machine's simple ability to accept and respond to human input. Once a machine is interactive, the need for human-to-human interaction, sometimes even human action, is viewed as radically diminished, or gone altogether, as in interactive pedagogy. **To declare a system interactive is to endorse it with a magic power.**” (p.48, my bold)

“This empirical dimension makes ergodic works of the adventure game variety stand out from other types of literature and renders the term *interactive fiction* meaningless in this context. It is a purely ideological term, projecting an unfocused fantasy rather a concept of any analytical substance. This should be sufficient for theorists not to use it, although given its popularity, it probably not go away for a while.”

And makes a very specific metalinguistic choice that we will share in this work:

“Finally, the political connotations of the word *user* are conveniently ambivalent, suggesting both active participation and dependency, a figure under the influence of some kind of pleasure-giving system” (p.174)

Lastly, the issues of interactivity, freedom, choice and anti-narration allow him to shed light on a last but fundamental point for our inquiry on meaningfulness:

“The adventure game user cannot rely on imagination (and previous experience) alone but must deduce the nonfictive laws of the simulated world by trial and error in order to complete the game. **And a fiction that must be tested to be consumed is no longer a pure fiction;** it is a construction of a different kind.” (pp.50-51, my bold)

“It should not be forgotten that the text type we are dealing with is inhabited by real people, in a most direct and nonfictional way. When MUD users argue that MUDs are not games to them but important parts of their lives, we have no reason not to believe them and a strong ethical incentive to take their claim seriously.” (p.145)

We can thus sum-up our debt toward Aarseth in the following points:

1. Digital games and virtual realities cannot be explained by looking only at the expression plane and must focus on the production of this very same plane rather than on its interpretation.
2. Digital games and virtual realities cannot be explained without taking into account the textual and functional possibility of discourse and creativity.
3. Digital games and virtual realities cannot be explained without taking into account the actual work required for them to acquire meaning.
4. Digital games and virtual realities cannot be explained as narrations or fictions and require considering a pseudo-narrative level belonging to the user self-awareness of its struggle and experience in a given digital reality.
5. Digital games and virtual realities should not be explained ideologically and politically granting by default to the user of a specific medium or technology a higher degree of freedom and claiming that he will necessarily become an actual author of the text.
6. Digital games and virtual realities should not be explained by metaphors and concepts belonging to different kinds of texts.

Looking at our own work, it is easy to recognize many points in common and some clear influences. Most notably:

- A. Points 1 & 2 corresponds the level of enunciation in our theory
- B. Points 3 & 4 corresponds to the level of narrativity in our theory
- C. Points 5 & 6 raise issues faced on the levels of opacity & economy in our theory
- D. Point 3 is the fundamental premise of the level of embodiment in our theory

Finally, this thesis is not using the theoretical paradigm of computer or software semiotic to understand and explain digital games and virtual realities. We neither looked for meaning directly in the software nor tried to create new typologies of digital signs. This thesis is thus at the same time recognizing the value of Aarseth's view, applying it on a different phenomenon (the one of meaningfulness) and challenging both his conception of Semiotics and the assumption that the "semiotic level" is independent from the informatic one.

Going from *Cybertext* to some of Aarseth's most recent works, such as "'Define Real, Moron!'" Some Remarks on Game Ontologies" (2010), it is interesting to see how many of Aarseth's ideas and methods are still the same. One example is his critical attitude toward the academic language : "Academic language should not be a ghetto dialect at odds with ordinary language, but rather an extension that is compatible with laylanguage." (p.52) and the more general interest in the formal description of games. Moreover, Aarseth idea of semiotics has not really changed. He still considers it as a discipline only interested in the explicit and often narrative content of the expression plane:

"When, for instance, 'media effects'-researchers lack a clear understanding of the formal qualities of the games they base their clinical observations on, misinterpretation and invalid results typically follow. One example is from the literature on the effects of violent games, where Anderson and Dill (2000) compared two games, *MYST* (1993) and *Wolfenstein 3D* (1992), without taking into account that a lot of factors besides violence differed between the two games, such as gameworld structure, navigation mode and temporal intensity. With so many factors unaccounted for, the findings of their research were worthless. Simply put, Anderson and Dill **ignored the functional, mechanical dimension of video games and based their selection only on the semiotic dimension.**" (p.54).

On the one hand we could criticize Aarseth for implying that Semiotics can only study the final production and more superficial result of what games are, the explicit visual signs and linguistic elements appearing on the screen. This is what Aarseth refers to with "semiotic sequence":

"In my theory of cybertext (Aarseth 1997), I presented a general model of what I called 'ergodic' communication, which included all works or systems that require active input or a generative real-time process in order to produce a semiotic sequence." (p.58).

Our thesis is, or at least should hopefully be, the undeniable proof that there were and are no reason to think this statement as true. On the other one, however, Aarseth's critique is a clear indicator that in 2010 there were still no major works of Semiotics able to take into account such key factors in digital texts. In this sense his critique is justified by the simple fact that a discipline cannot but be evaluated by directly judging the usefulness of what the scholars concretely produce. Furthermore, the aspect chosen by Aarseth to define the object of Study of semiotics, namely the cultural connection between a tangible sign and its interpretation and transformation in a conceptual content, is without a doubt the most iconic of our discipline. Finally, and most importantly, Aarseth is absolutely not denying the importance of the content presented in the expression plane and thus of what Semiotics is in his view:

"This structural relationship should *not* be confused with the notions of form and content, e.g. syntax and semantics, or signifier and signified. Both the internal code and the external skin exist concretely and in parallel, independently and not as aspects of each other. To conflate surface/machine with signifier/signified is a common misunderstanding made by semioticians and other aesthetic theorists who are only used to study the single material layer of literature and film. **Together with gameplay, we propose that semiotics and mechanics are the key elements of which any virtual environment game consists. [...] Mechanics and semiotics together make up the Game Object, which is a type of information object, and when a player engages this object the third component, gameplay, is realized**" (p.59, my bold).

Aarseth's distinction thus belong mainly to a well justified analytical preoccupation:

"The semiotic layer of the Game Object is the part of the game that informs the player about the game world and the game state through visual, auditory, textual and sometimes haptic feedback. The mechanical layer of the game object (its *game mechanics*) is the engine that drives the game action, allows the players to make their moves, and changes the game state." (p.60).

We can see this in one of the most important and convincing example he makes when confronting two different games with almost identical mechanics:

"In Dean for Iowa, the player must flash an election campaign sign at the right moment to attract the maximum number of people's attention. In Kaboom! the player must detonate the bomb at the right moment to kill and injure the maximum number of people. In both games, the player's character can run bidirectionally on a busy street where people walk back and forth at different speeds, and the points are scored in the same way, by pressing a button at the optimal time. Mechanically, these two games are identical. In terms of semiotics and meaning, they could hardly be more dissimilar." (p.62)

Yet, it is undeniable that the bidirectional movement, the points and even the right timing can be grasped by Aarseth only because they are represented through verbal and visual elements belonging to the expression plane. If we totally agree with Aarseth on the impossibility for semiotics of explaining the meaning of a given digital text by studying directly the informatic/ergodic code and rules/mechanics, we tend to be far less convinced (to use his own expression) that the "mechanics" have nothing to do with Semiotics since 1) they clearly appear on the screen and 2) they belong to the conscious cognitive meaning-making experience of the player. Indeed if "The game object, as mentioned above, is not a material entity, but a phenomenological one" (p.65), as we think too, then we should try to understand this phenomenon as a unified one were mechanics and semiotics, although different and separated, are co-determining themselves during the act of play. Of course this does not mean that movement in space and high scores can be explained through relations between signifiers and signified, but as we already explained there are no epistemological reasons to reduce Semiotics to this kind of operation. If we are so convinced that Semiotics has something to say about mechanics it is however first of all because of Aarseth's own words. Indeed, the author very interestingly opposes two kinds of values which are present in a game:

“So the reason why we as players are able to enjoy symbolic killing is that the internal value system of scoring points takes precedence over the violent symbolism of the external reference. When I started playing the online team part of *Return to Castle Wolfenstein* (2001), where players choose between German and US avatars, because of my family history from wartime Norway, where both my grandfathers were affected by the Nazi occupation, I was very hesitant to play as a German WWII soldier. However, as the game became familiar, I came to enjoy the defensive role afforded by the German position of my favorite map, and my initial reluctance vanished. A total decoupling between external and internal value systems had taken place.” (p.62)

Then he affirms that mechanics can too have/convey some “ideological meaning”:

“**The mechanical layer of a game is of course not completely devoid of any ideological meaning**, but it will, through players playing, create its own ideological discourse, through a reinterpretation of the game’s semiotics, which de-emphasizes the ideological meanings and interpretations that non-players will produce upon seeing the game semiotics for the first time. Neither would it be correct to suggest that the production of game meaning is a deterministic process uni-directionally produced by the game system. Players typically fight and disagree over games, and this conflict discourse is an integral part of what a game is. Gameplay is inherently ambiguous (Sutton-Smith 1997), and playing a game is a constant renegotiation of what playing means and how important it is.” (p.63, my bold)

We can find in these two last quotes the same open minded and sharp thinking that characterized *Cybertext*, yet Aarseth still doesn’t seem to envision any theoretical solution to explain how such meaning can both be conveyed and believed/interpreted, thus acquiring inevitably a semantic and semiotic form through some kind of interpretation.

I am however pretty happy that he didn’t envision any answer. First of all because otherwise I would have anything to write about! Secondly, because the theoretical separation of mechanics from semiotics lead Aarseth to highlight a fundamental aspect of virtual realities: “Games are real to the players playing, but in different ways, and the ambiguous reality of games allows different interpretations.”. (p.63). This assumption is at the heart of our work and interdisciplinary perspective and explaining the different means (such as symbolic representation and embodied acknowledgement of space) by which virtual realities can seem real and convey contents is in fact the primary objective of our work. And finally, because this enlighten how this third level we are talking about is probably not an ontological one and cannot be described as a fundamental part of the game as an object. In this sense it would be completely unfair to criticize this author for not answering to a question that is crucial only from a semiotic point of view and that was never very relevant for his inquiry on the ontology of games. This is even more true since, as I have already told when I met him for the first time he encouraged me and was pretty enthusiast about my idea of quilting the different functional aspects and ontological parts of a game to understand how they acquire meaningfulness in the end.

We can then conclude by expressing the greatest admiration and gratitude to Espen Aarseth, which ironically guided our work both as a fierce opponent of Semiotics and as a scholar interested in issues different from ours.

3.3.2: Ian Bogost's unit operations & procedural rhetoric

"The humanists who define intellectual approaches to such texts must get serious about technology. Likewise, technologists ought to understand the precedents in critical theory, philosophy, and literature that trace, accompany, and inform the development of software technology. [...]" (Bogost, 2006, p.IX)

The second author that is a reference point for this thesis is Ian Bogost, and in particular his two famous works "Unit Operations" (2006) and "Persuasive Games" (2007). This was in some sense inevitable since Bogost's work is in many ways a continuation of what Aarseth did. Furthermore, Bogost also comes from literary studies, refers to Semiotics several times, is also interested in common features of meaning-making existing in different narrative cultural artifacts and identifies his work in respect to *Cybertext*: "Unlike Espen Aarseth's notion of the cybertext, which relies on configuration as a formal property of the artifact itself, unit operations are located both at the textual and the critical level" (2006, p.14). Although Bogost's two main works are part of a same reflection on digital games, the two books should and will be considered separately.

In his 2006 work "Unit Operations" Bogost is very clear about its intent:

"This book is an attempt to explore the nature of relationships between computation, literature, and philosophy. In it I will argue that similar principles underlie both contemporary literary analysis and computation. I will use this commonality to analyze a field of discursive production that has yet to find authoritative place in either world—videogames. [...] In particular, I will suggest that any medium—poetic, literary, cinematic, computational— can be read as a configurative system, an arrangement of discrete, interlocking units of expressive meaning. I call these general instances of procedural expression *unit operations*." p.IX

For a semiotician interested in games such words are pure gold, and even more so when he also adds that "I wish primarily to encourage the use of criticism as a tool for understanding how videogames function as cultural artifacts, and how they do so along with other modes of human expression" (p.XI)". Indeed, the problem of interpretation and ideology is a central one (p.99) for Bogost and thus this cannot but encourage a reflection from (and hopefully in the future with) semiotics. Meaning-making, digital games, media, culture, criticism, expression, interpretation, ideology: everything is there to be a very good book of semiotics of digital games. There are however two ways in which this work can be read, and only one of them is actually useful for our own purposes. In the first one *Unit Operations* can be read but as a philosophical perspective and interdisciplinary proposal on meaning, which is the way in which this book will not be read. Behind the central idea of "unit operations" there are indeed several reference in the fields of philosophy, computation and mathematics with the intent of sustaining a certain theory of systems related to the idea of how meaning occurs.

The main ones are:

- Harman's philosophy of the object (p.5)
- Badiou's ontology (p.11)
- Spinoza's dualism of God and Nature (p.8)
- Cantor's Mathematics (p.10)
- Derrida's *Différance* (p.24)
- Wolfram's *cellular automata* and network theory (p.94)
- Deleuze's Nomadism (p.139)

Without denying the fascination for such a view nor the importance of showing the philosophical depth behind the reflection on digital games, for our goals this will be identified as the weakest and least interesting “part” of the book. The reason for this is that the central and philosophical notion of unit operation, in trying to explain almost any kind of meaning experienced by humans, ends up in being very vague and thus very difficult to apply in a non-ambiguous manner. Several passages of this ambiguity can be cited, and most notably it is clear that Bogost is very well aware of this but not concerned since his goals are different from ours:

“In essence, a unit is a material element, a thing. It can be constitutive or contingent, like a building block that makes up a system, or it can be autonomous like a system itself. Often, systems become units in other systems” (p.5)

“I use the term operation very generally, covering not only this traditional understanding but also many more. Brewing tea is an operation. Steering a car to avoid a pedestrian is an operation. Falling in love is an operation.” (p.7)

“Unit operations, however, strive to articulate both the members of a particular situation and the specific functional relationship between them. In Badiou’s philosophy, this would be equivalent to a situation and its state; in computer science, it would be equivalent to an ontology and its procedural implementation.” [...] “By contrast, a unit operation may be observed in any artifact, or any portion of any artifact, rather arbitrarily. I insist on this broader understanding of unit operations to allow its logic to resonate across expressive forms, from literature to film to software to videogames” (p.14)

“Instead of articulating a divide between the literary and the digital, I want to suggest that **unit operations give us a lever for understanding any form of human production as potentially procedural**. Moreover, I do not contend that unit operations are necessarily components of narrative production, a topic that has become a thorn in the side of game studies and to which I will return in chapter 5. I am not particularly concerned with identifying and classifying works through new ontologies. Nor am I willing to make the reductionist suggestion that all works are digital works *avant la lettre* because all can be read as configurative” (my bold, p.15)

“By encapsulating the customer–account relationship, and by reinforcing the behavior of banking through software systems, the banking industry has succeeded in remapping the material reality of capital exchange with its objectified, encapsulated object equivalent. In other words, our relationships with banks have become unit operations” (p.41)

A vagueness that becomes especially problematic when Bogost tries to explain the importance of digital games in respect to its main concept:

“But I would argue that something unique takes place in computational works that distinguishes them from other sorts of production, digital or nondigital: computational systems are not the only kinds of works that exhibit the logic of unit operations, but such systems rely on unit operations as their primary mode of representation, and thus unit operations have a special role in how works like videogames function” (p.65)

And this even more true when we look at how Bogost concretely uses this concept when analyzing Tetris:

“Only a few basic functional unit operations drive Tetris: the player can turn a piece, move it, or drop it. The game mechanics add perhaps two more unit operations: a completed line of pieces disappears, and each time the player places a block, another one appears immediately after. Janet Murray’s interpretation of the game as a representation of the unfettered demands of global capitalism would become much more comprehensible to the uninitiated player if she explicitly correlated the game’s unit operations with the real world characteristics she has in mind. For example, the constant bombardment of tasks is correlated to the continuous generation of new blocks, and the need to fit unending work into overcrowded schedules and desks correlates with the completed lines which disappear, but only to give way to another onslaught of work.” (p.101).”

We can see here how even in this sample example Bogost calls unit operations very different aspects of the game: interactions (moving a piece), applied rules (making lines to destroy the blocks) and automated mechanics (the continuous generation of blocks).

We cannot deny the fact that there is a certain irony and paradox with such a critique being moved by a semiotician, a discipline very often and righteously criticized for its intent of studying everything (Eco, 1975) and of establishing a general theory of universal structures and formal processes of meaning-making by claiming that everything can be read as a sign or as a story. Bogost himself writes that “Semiotics universalizes literature and theory, attempting to generate a self-sufficient determinate structure of rules governing the production of meaning” (p.21) and quotes Taylor in saying that “Mark C. Taylor characterizes the structuralists’ obsession with systems as an attempt “to discover reason in history by uncovering forms and patterns that are permanent and universal rather than transient and arbitrary.” But it is also precisely for this very same reason that such a critique is perhaps even more founded and legitimate. *Unit operations* is a book certainly giving food for thought about such a view but is also certainly not a theoretical book defending its own philosophical or semiotic proposal on the essential logic behind meaning in cultural artifacts. The best example of this can perhaps be seen when Bogost explain:

“Baudelaire tried to resist alienation through his poetry, both creating a record of his contemporary strategies and tools for combating estrangement and formalizing those very tools into a framework, a kind of scaffolding for modern experience that remains with us today. These tools include *flânerie*, self-isolation, and resistance—especially to memory. Together, Baudelaire’s lyric encapsulates these figures and tropes into a framework, or rule set, for living the modern life. Benjamin calls these rules motifs. I would call them unit operations” (p.74)

Neither in this passage nor after the author does really explain why his concept of unit operation should be preferred to Benjamin’s motifs. It is of course implicit that unit operations are more flexible and broader than motifs since they can be applied both to poetry and ATM, but, still, from a semiotic perspective (or any general theory of meaning-making and cultural production) this does not constitutes *per se* an argumentation unless it is proved that through the idea of unit operations we can better understand the meaningfulness of specific poems and bank accounts. Something that Bogost doesn’t do and doesn’t seem really interested in.

Lastly, the broad use of “unit operations” is also what, from our point of view, misleads Bogost in defining his perspective as an alternative to Aarseth functionalism whereas it is on the contrary a continuation of his work. In fact, Bogost claims that :

“Functionalist questions about videogames—what they are, or how they function—are not invalid or even unwelcome. But equally, or dare I say more important questions exist: what do videogames do, what happens when players interact with them, and how do they relate to, participate in, extend, and revise the cultural expression at work in other kinds of artifacts?” (p.56).

This objection is kind of puzzling when we observe how much interest Bogost have in how games work to explain how they can be meaningful. In fact, he is neither a sociologist making interview to players nor a neuroscientist making ECM to brains during gameplays. It is very clear to us that these “more important questions” are actually dependent on a first-hand understanding of what a game is in the sense of what kind of interactions and logical involvement it allows in relation to his characteristics and configurations. In fact, how could we ever understand “what games do” and how they differ from other media if we can’t beforehand describe them in functional terms? Surely the concept of unit operations, since it is so extended and broad, could not be useful by itself in answering to such important questions. It is true that Bogost never uses in his book concepts such as the one of textons, yet he constantly refers to such feature of games by necessity. Bogost even uses the concept of *effort* several times, a key idea of Aarseth’s *Cybertext*. So the main difference is actually in what Aarseth and Bogost explicitly describe in their works, even though these different descriptions are, I believe, part of a same scientific inquiry on meaning-making in digital artifacts by looking at them as a concrete item rather than at other aspects.

Bogost main interest for interpretation and cultural representation is in this sense somehow connected to Aarseth work even though the latter does not directly focus on such themes. Furthermore, the fact the Aarseth and Bogost are interested in different philosophical inquiries, is once again not relevant for the aims of this thesis and still allows us to use both author for our proposal.

However, beyond this “deeper” level of reflection there is a second possible reading for which unit operations are, perhaps more humbly, a perspective on how meaning occurs and should be investigated in digital artifacts and simulations such as videogames. This second reading is instead fundamental and of great importance for us, especially in regard to the five following points:

First of all unit operations are identified as “**modes of meaning-making that privilege discrete, disconnected actions** over deterministic, progressive systems” (my bold, p.3). This implying that the meaning of a cultural artifact should not be reduced to a meaning, a structure nor to a story. In his example of the movie *The Terminal*, the repetition of discrete moments and figures of waiting are at very heart of meaning, exceeding the story told by the plot of the movie itself even though they are part of it.

Second, unit operations are opposed to system operations and require looking both at the logical involvement of the “reader” and at his interactions with the digital artifact:

“In semiotics, particular uses of signs (*parole*) are unit operations. The broader flows of signification (*langue*) are system operations.” (p.23).

As a consequence meaning cannot be explained as the result of a designed authorial intent (which is why Bogost uses Barthes) nor as particular medium:

“Theorists of digital media often rely on the ability to render material of any kind—images, text, video—into bits as the preeminent paradigm shift of the medium. [...] Rather, I am suggesting that the force and power of such media comes not only from their material structure, but also from an amalgam of their logical and functional structures” (p.27).

Thirdly, there is a connection and overlaying between unit operations as a designed and programmed textual feature and as an interpretative process always in act during an act of critical reading: “Unlike Espen Aarseth’s notion of the cybertext, which relies on configuration as a formal property of the artifact itself, unit operations are located both at the textual and the critical level” (p.14). In fact, unit operations are themselves primary useful as a tool for a form of cultural critique: “However, Aarseth musters his understanding of configurative texts as an ontological, not a critical tool; a cybertext is a work, not an instance of a particular critical practice”. This connection has to do with the designed interactions and the player using and interpreting them: “Any narration of the game must acknowledge the unit-operational rules that generate a given experience. Any narration that such systems generate is indebted to the user’s effort in constituting that narrative via the instantiation of unit-operational rules.” (p.99). As with his beforehand mentioned analyses, this means that to evaluate the correctness of an interpretation we have to look at what can be done in the game and more specifically at interactions, rules and mechanics (and thus tasks). Indeed, this is why the author describe the machinima “My trip to Liberty City” as what in Semiotics we would call a *use of the text* (Eco,): “My Trip to Liberty City could be held up as an example of how the player can reject the game’s violent themes, but this is a mischaracterization. Even though Munroe chooses not to exact any violence by his own hand, his entire experience flows from his choices in relation to both peace and violence. Those who argue that one can “do anything” in Liberty City are mistaken: the game constantly structures freeform experience in relation to criminality” (p.157).

Fourthly, unit operations are experiential features of cultural artifacts that represents the world: “I would suggest that these technologies serve as structures that frame our experiences of the material world, while offering representations that cause us to think critically about those experiences. In other words, unit operations can help us expose and interrogate the ways we engage the world in general, not just the ways that computational systems structure or limit that experience.” (p.40). And they do so by different means: “Instead, games create complex relations between the player, the work, and the world via unit operations that simultaneously embed material, functional, and discursive modes of representation” (p.105). This is why in Bogost’s view it is fundamentally wrong to separate games and life (p.116) and why “simulation games create are *biased, nonobjective* modes of expression that cannot escape the grasp of subjectivity and ideology.” (p.99). In his vision, there is a certain level where the character experiences are also the ones of the player, thus allowing for critical reflection and serious meaning even in a game like The Sims:

“both the sim and the player are presented with countless “woman on the street”-type experiences, chance encounters for both the player and the sim.” (p.86)

“The game provides a low-consequence environment where players are finally asked to look objectively about their experience of the crowd and of the chance encounter, and to experiment with the consequences of their perspectives” (p.88).

Unit operations as a concept thus encourage us to look at experiential modes of representation influenced by both the cultural context and the technical means.

“My contention is that as this very modern experience moves from an experience of crisis in the mid-nineteenth century to an experience of banality in the twenty-first century, it becomes compressed into more and more compact modes of representation.” (p.74).

A perfect example of this is Bogost’s analysis of how an historical social crisis is first transformed and then represented in a game like the Sims:

“ Hot Date allows players to experiment with the sims’ need for social interaction. The game itself is built on the assumption that players will want to take their sims out on dates, or to pick up potential love interests. In its design, and perhaps unwittingly, the game’s designers have encapsulated the modern experience of chance encounters, taking the representation of the figure that fascinates and instantiating it in a combination of procedural actions and need contribution curves” (p.86).

“By laying bare the figure of the chance encounter in the form of software, The Sims invites players to examine their own satisfaction with this 150-year-old social rubric, and to choose for themselves how to act—or how not to act—in the material world. This model suggests that videogames, like art of all kinds, has the power to influence and change human experience” (p.89).

Finally, this representation is logically compressed and always excludes a number of possibility and a complexity belonging to the real world:

“If we have indeed begun to represent and **understand the world via discrete, encapsulated logics that both include and exclude a variety of conditions**, then we must understand how these unit operations work, where they attach to one another and to our understanding of the world, and how we should approach them as users, creators, and critics” (my bold, p.30).

Frasca’s very definition of simulation chosen by Bogost is centered around this characteristic: “Generalizing this characterization of simulation, one might revise and add to Frasca’s definition as follows: “A simulation is a representation of a source system via a less complex system that informs the user’s understanding of the source system in a subjective way.” (p.98).

This is why subjectivity and interpretation as such an important role for Bogost and why he suggests that a relevant part of meaning (and of the analysis) is related to what is absent in the simulation: “our experiences construct mental models of the simulation that converge on an interpretation based on what the simulation includes and what it excludes.” (p.104). “Both mental modeling and cognitive mapping show how the interpretation of a game relies as much or more on what the simulation excludes or leaves ambiguous than on what it includes. The idea that a sign derives meaning from how it differs from other signs is certainly nothing new; this is the basis of Saussurean semiotics.” (p.105). As a direct consequence, meaning is, once again as in the view of Eco idea of cooperation (1979), a question of subjectively filling empty spaces which correspond to a gap between the artifact and the world: “This gap constitutes the core representation of simulation, between the work’s rules and its reception. I suggest a further revision of my provisional definition of simulation that would highlight the importance of this gap: A simulation is the gap between the rule-based representation of a source system and a user’s subjectivity.” (p.107). “Videogames require critical interpretation to mediate our experience of the simulation, to ground it in a set of coherent and expressive values, responses, or understandings that constitute effects of the work. In this process, the unit operations of a simulation embody themselves in a player’s understanding. This is the place where rules can be grasped, where instantiated code enters the material world via human players’ faculty of reason. In my mind, it is the most important moment in the study of a videogame” (p.99). Similarly, this is how he partially justifies Murray’s interpretation of Tetris: “No matter; Murray’s interpretation takes into account a larger system that the game represents in smaller part, the function of the unit-operational rules of the simulation, and a subjective response to the simulation that embeds an ideology” (p.101).

These five points are perfectly aligned with a semiotic perspective and in particular with Umberto Eco’s interpretative Semiotics. Even though not directly referring to the concept of unit operation that we criticized, we will nonetheless adopt this perspective and interest on meaning in digital games and simulations. We can now look at the other work of Bogost: *Persuasive Games*

As for his previous book, the opening of *Persuasive Games* is very clear about its intentions:

“Drawing on the 2,500-year history of rhetoric, the study of persuasive expression, I offer a general approach to how rhetoric functions uniquely in software in general and videogames in particular. In classical antiquity, rhetoric was understood as the art of oratory....Following these traditions, this book suggests that videogames open a new domain for persuasion, thanks to their core representational mode, procedurality. I call this new form procedural rhetoric, the art of persuasion through rule-based representations and interactions rather than the spoken word, writing, images, or moving pictures.” (p.IX)

Moreover, he also explains very clearly in the first part of his book why digital games should be given special attention and are extremely relevant for the study of rhetoric:

“For another part, videogames are generally a more expressive subgenre of computational media than other types, for example, productivity software. By expressive, I mean that videogames service representational goals akin to literature, art, and film, as opposed to instrumental goals akin to utilities and tools.[...] But videogames are uniquely, consciously, and principally crafted as expressions. As such, they represent excellent candidates for rhetorical speech—persuasion and expression are inexorably linked.” (p.45)

“Videogames are particularly useful tools for visualizing the logics that make up a worldview (following Gramsci), the ideological distortions in political situations (following Zizek), or the state of such situations (following Badiou).” (p.74-75)

Once again, as semioticians we can only be extremely interested by the choice of this topic (and probably also wonder why semioticians did not inquire on this before, but this is another matter) and by the renewed presence of the theme of “ideology”. Of course Bogost’s main interest is however not the same that we have since, considering the numerous bias on digital games that are “are considered inconsequential because they are perceived to serve no cultural or social function save distraction at best, moral baseness at worst.” (p.VIII) he is mainly interested in creating a technique for the cultural critique of games and of course also for a better game design:

“Videogames are an expressive medium. They represent how real and imagined systems work. They invite players to interact with those systems and form judgments about them. As part of the ongoing process of understanding this medium and pushing it further as players, developers, and critics, we must strive to understand how to construct and critique the representations of our world in videogame form.” (p.VII)

“I give the name persuasive games to videogames that mount procedural rhetorics *effectively*.” (p.46)

“ As I will show in the following chapters, many games carry messages, make arguments, and attempt meaningful expression. This should not surprise us; indeed, all media resonate on a variety of registers. I want to encourage developers and critics to pay more mind to the way such messages, arguments, and expressions are constructed through procedural rhetorics, in videogames of all kinds.” (p.59).

Obviously this concern and the idea of encouraging to socially rethink what games are is not at all in opposition with ours, yet it is however certainly and necessarily only a secondary goal for this thesis.

Furthermore, his conception of language is also different from ours which leads him to claim that:

“ For my purposes, procedural expression must entail symbol manipulation, the construction and interpretation of a symbolic system that governs human thought or action. [...] Procedural representation explains processes with other processes. Procedural representation is a form of symbolic expression that uses process rather than language.” (p.9)

Despite these differences, there is however much to learn from Bogost’s book and even more to debate. In particular, there are five main points that are of great interest for us:

First of all, videogames include the potential for a unique form of rhetoric: “Unlike verbal discourse, which relies on deeply ingrained metaphors that most people take for granted, videogames deploy more abstract representations about the way the world does or should function” (p.X). And the title of the book precisely refers to the name given to such potential:

“ I suggest the name *procedural rhetoric* for the new type of persuasive and expressive practice at work in artifacts like *Tenure*. *Procedurality* refers to a way of creating, explaining, or understanding processes. And processes define the way things work: the methods, techniques, and logics that drive the operation of systems, from mechanical systems like engines to organizational systems like high schools to conceptual systems like religious faith. *Rhetoric* refers to effective and persuasive expression. Procedural rhetoric, then, is a practice of using processes persuasively. More specifically, procedural rhetoric is the practice of persuading through processes in general and computational processes in particular. Just as verbal rhetoric is useful for both the orator and the audience, and just as written rhetoric is useful for both the writer and the reader, so procedural rhetoric is useful for both the programmer and the user, the game designer and the player. Procedural rhetoric is a technique for making arguments with computational systems and for unpacking computational arguments others have created.” (p.2)

As we can see here, the idea of “unpacking computational arguments others have created” is very interesting in the perspective of the contemporary awareness and concern for the effects of the underlying codes (let’s think of algorithms) ruling the digital era. Moreover it also fits very well with the long semiotic ambition of unpacking invisible ideologies and/or implicit discursive logics that have an influence in which we conceive and perceive the world. Indeed, Bogost is very clear about the potential influence of games in the player’s system of ideas and view of the world, which also coincide with the social value of this thesis and its object of study:

“Following the classical model, procedural rhetoric entails persuasion—to change opinion or action. Following the contemporary model, procedural rhetoric entails expression—to convey ideas effectively. Procedural rhetoric is a subdomain of procedural authorship; its arguments are made not through the construction of words or images, but through the authorship of rules of behavior, the construction of dynamic models. In computation, those rules are authored in code, through the practice of programming. (P.29).

And this procedural influence must be explained both by looking at the rhetoric of verbal language and of the visual language, but at the same time both exceed these previous forms since in digital textualities: “Image is subordinate to process.”. Indeed:

“Charles Hill pointed out that images offer greater “vividness” than verbal narration or written description. Vivid information, he argued, “seems to be more persuasive than non-vivid information.”⁸¹ J. Anthony Blair countered that vivid images may increase presence, but they do not necessarily mount arguments. Even if images successfully cause viewers to take certain actions, those viewers are more likely manipulated than they are persuaded. Visual arguments, argues Blair, “lack [the] dialectical aspect [of] the process of interaction between the arguer and the interlocutors, who raise questions or objections.” (47).

Whereas digital games are both vivid since they strongly rely on the visual language and dialectical through the logics implied behind each interaction which are *propositions* “every bit as logical as verbal arguments” (p.50). In fact: “For one part, procedural rhetorics do mount propositions: each unit operation in a procedural representation is a claim about how part of the system it represents does, should, or could function.”. Such claims are however made also through the cognitive and metaphorical models present both to the verbal and the visual language. So there is always a deeper semiotic and cognitive meaning behind what is represented, and it is no coincidence that Bogost precisely refers to Lakoff in several parts of his book to explain this meaning-making processes:

“Lakoff argues that such language reflects an underlying logic at work in conservative politics, that citizens know what’s best for themselves and that material success is moral and should not be punished. Conservatives, he suggests, conceptualize theft as a metaphor for taxation. The language that opens (literally framing) the game conforms to this metaphor; the player is contextualized as a force of good, “stopping” taxes and “saving” the country from them. Tax Invaders extends the verbal metaphor of “taxation as theft” to the tangible plane.” (p.105)

“The idea of a legislator “shooting down” a tax-hike proposal is thus extremely plausible; the game just makes such a verbal frame materially manifest.” (p.105)

Now once again the idea of a dialectical nature of HCI is also present in the semiotic literature. Yet, at the same time semiotics has been wrong in choosing “the machine” as the second subject of this dialectical interaction. This shift of perspective is essential for us since it allows for a deeper understanding of how meaning can be an event occurring in games *through effort and economy* as in the case of the game Animal Crossing:

“The tension between wealth and community develops further in the town museum. The museum accepts donations of fish, insects, fossils, and paintings for each of its galleries. All of these items must be found or hunted by the player. To complete each exhibit, the players in the town must collaborate to donate all the items; each item can be donated only once, and a record of its donor is inscribed on a plaque near the item, just as one might find in a real museum. Donating to the museum imposes a difficult decision on the player. Some fish, insects, and paintings are very valuable, yielding enormous profit when sold to Tom Nook. But once sold, the items disappear into Nook’s unseen market; fish, insects, and fossils can never be bought at the town store. The museum forces the player to balance personal material gain against communal gain. [...] Even if the player chooses to sell his first arapaima or giant stag beetle with the intention of donating the next one, favoring material wealth over communal benefit may cast a guilty shadow over his future fishing and insect-hunting expeditions. Dueling procedural rhetorics collide in Animal Crossing. On the one hand, a rhetoric of affluenza encourages the player toward excess, toward more goods and a larger house in which to store them. In this context, the menial everyday tasks of gardening, fishing, and doing errands for the animals become an occupation, the necessary but undesirable frenzy of work necessary to sustain that lifestyle. On the other hand, a rhetoric of pastoralism encourages the player to tend the land, appreciate the rolling hills and bubbling waterfalls, and to socialize with others before returning to a modest homestead to retire. The game oscillates uncertainly between these two rhetorics, uncomfortably positing one against the other. This discomfort is what I have called simulation fever, an internal crisis wrought between the game’s rules and the player’s subjective response to them. (p.273-274).

And meaningful economies can work in two ways:

“On the one hand, videogames can represent ethical doubt through logics that disrupt movement along one moral register with orthogonal movement along another. On the other hand, videogames can represent ethical positions through logics that enforce player behavior along a particular moral register.” (p.287).

Secondly, Bogost emphasizes how digital textualities have a different form of authoriality: “To write procedurally, one authors code that enforces rules to generate some kind of representation, rather than authoring the representation itself.” (P.4). Now this will be fundamental for us since, as semioticians, we are greatly interested in this topic. Specifically, the characteristics of digital games will allow to specify in which sense it is reasonable to affirm that the player is the co-author of a videogame and to reflect on the enunciative consequences. Indeed, the possibility to act on the code both internally (such as exploiting errors and overlooked possibilities) and externally (such as with mods), is what actually makes the player as an author and what will allow us to define digital games as the *less ideological cultural artifacts ever invented*. And the reason of this is that whereas games can without a doubt try to convince us, even in an unfair way, of some specific values and convictions, but “procedural representations often do allow the user to mount procedural objections through configurations of the system itself.” (p.37).

Thirdly, procedural rhetoric’s are conceived as a form that allows for a certain articulation of meaning-making:

“Taken together, we can think of game engines, frameworks, and other common groupings of procedural tropes as commensurate with forms of literary or artistic expression, such as the sonnet, the short story, or the feature film. These collections of procedural tropes form the basis for a variety of subsequent expressive artifacts. On its own, the sonnet is no more useful than the physics engine, but both can be deployed in a range of expressive practices. A classical Newtonian mechanics simulation can easily facilitate both war (projectile fire) and naturalism (ballooning), just as a sonnet can facilitate both religious (John Donne) and amorous (Shakespeare) expression.” (p.14).

And even more interestingly it is by studying how a certain expression is formally structured that we can and should inquire on how some contents can be conveyed:

“As I have already suggested, rhetoric in its contemporary sense refers to both persuasion and expression, and so a study of procedural rhetoric shares much in common with a study of procedural expression.” (p.46).

A conviction that could even be defined as unwaveringly Hegelian, even though of course when Bogost does not think of the expression in linguistic and structuralist terms.

Fourthly, this rhetoric only works through cooperation “This gesture represents a procedural enthymeme—the player literally *fills* in the missing portion of the syllogism by interacting with the application, but that action is constrained by the rules. (p.47).” Of course this is perfectly coherent with Eco’s idea, and even terminology, for which meaning arises in cultural artifacts through the act of filling blank spaces (1979). Despite the fact that Bogost talks about semiotics many times, he actually never refers to this book, which is a shame since he could only find a strong ground for his idea that: “A procedural model like a videogame could be seen as a system of nested enthymemes, individual procedural claims that the player literally completes through interaction.” (p.44). More so, blank spaces are depicted as missing parts of a syllogism that have to be completed by the players who can, we quote, “experience” some kind of truth through the simulation that can give a sense of concreteness to “abstract” ideas (p.139):

“In so doing, the game allows the player to experience an accelerated network effect, concretely communicating the rather abstract idea that one supporter can actually make a difference in the campaign. Once again, the player completes the game’s procedural syllogism; his in-game actions are responsible for growing virtual support for the candidate from zero to many tens or hundreds of supporters (the highest “score” we tracked in the game’s initial month, measured in virtual supporters generated, was over 800).” (p.137).

Yet at the same time Bogost also share with us the conviction that interaction is not by itself and a priori meaningful: “For yet another part, videogames are often interactive in the particular way I described above; they require user action to complete their procedural representations. As such, they provide particularly promising opportunities for the procedural translation of rhetorical devices like enthymeme. Interactivity guarantees neither meaningful expression nor meaningful persuasion, but it sets the stage for both.” 45. Interactivity is in this sense a technical feature which becomes of semiotic pertinence for its interpretative potential.

Fifthly, Bogost’s perspective allow us to study the “hidden ideology” of digital games also at the level of the game itself, without having to focus only on what the player is interpreting. The perfect example can be found when Bogost examines the ideas behind the game “ America’s Army”:

“This line of thinking accurately represents contemporary U.S. attitudes about military conflict. Our perspective is not only right, but there is no explanation for the opposition’s behavior save wickedness. Zyda et al.’s use of the comic book concept of the “villain” to refer to the opposition further underscores this logic: there is no reasonable explanation for enemy behavior, it is merely evil and therefore deserving of hostility. The visual representation of good and evil in the game is rudimentary, accomplished by rendering the opposing team in a different texture.” (p.78)

“While we might worry about the game’s influence over the young people it targets, we can also take some comfort in the fact that it necessarily exposes the ideology of the U.S. Army in the operating rules for the videogame.....On the one hand, as a U.S. Army recruiting tool the game creates a representation of army life that draws interested youth into recruiting offices. On the other hand, as a manifestation of the ideology that propels the U.S. Army, the game encourages players to consider the logic of duty, honor, and singular global political truth as a desirable worldview.” (p.79).

Similarly, we can analyze how a game is designed to understand what are the values that a certain brand can convey:

“The business management aspect in *Yoshinoya* is far less detailed than in any of the tycoon-style games on account of significantly different goals. Rather than leveraging a brand name to legitimate the vocation for which it is metonymic, *Yoshinoya* mounts a procedural rhetoric about the values of the franchise, constraining player action toward conduct consistent with that service value. In so doing, the game makes demonstrative claims about the service the player might experience as a customer of *Yoshinoya*. These claims are triggered by a role inversion; rather than occupying the familiar role of customer, the player is thrust behind the counter, forced to tend to dozens of simultaneous versions of himself as patron. *Yoshinoya*’s procedural claims all revolve around haste and accuracy of service. This is a fast-food chain where *speed* is still a real virtue” (p.185)

Sixth, since playing involves an interaction with the rules through decision-making, it also raises awareness on the computational medium and means for which things work so that: “Otherwise said, we can become procedurally literate through play itself.” (p.255) and “The procedurally literate subject is one who recognizes both the specific nature of a material concept *and* the abstract rules that underwrite that concept.” (p.257) This is an extremely important point because in products such as digital games players have a kind of unique and challenging position toward the cultural artifact they are enjoying:

“Procedural rhetoric is a type of procedural literacy that advances and challenges the logics that underlie behavior, and how such logics work. Procedural literacy entails the ability to read and write procedural rhetorics—to craft and understand arguments mounted through unit operations represented in code. The type of “reading” and “writing” that form procedural rhetorics asks the following questions:

What are the rules of the system?
What is the significance of these rules (over other rules)?
What claims about the world do these rules make?
How do I respond to those claims?” (p.258)

Finally, Bogost makes a very important claim about the digital experience and realism, underlining how meaning in digital texts (from VR to the NES) is a question of recreation and simulation of “meaningful aspects” of our world. A claim that we have already seen in the previous book and that is also at the center of this thesis:

“The values common to virtual reality and computer graphics assume that the closer we get to real experience, the better. This sentiment corresponds directly to the vividness spectrum, with the best interactivity coming closest to real experience. But meaning in videogames is constructed not through a re-creation of the world, but through selectively modeling appropriate elements of that world. Procedural representation models only some subset of a source system, in order to draw attention to that portion as the subject of the representation. Interactivity follows suit: the total number and credibility of user actions is not necessarily important; rather, the relevance of the interaction in the context of the representational goals of the system is paramount. Videogames offer a particularly good context for this selective interactivity.” (p.45-46).

The specificity of these aspects makes it so that games’ rhetorics are something *local* in two different ways: because they act as *exempla* of specific semiotic domains and because they exceed these domains by looking at very concrete cases and objects:

“Instead, Gee connects embodied experience to semiotic domains, the sets of practices in which meaning is situated for a particular community. While this idea may sound very similar to a procedural rhetoric, Gee’s primary use of the term is quite general: the semiotic domain of videogames, or genres of videogames and the practices of players who learn and master them. In this context, the learning that takes place in a videogame becomes an analogy for the way learning might take place in other contexts. For example, when people play first-person shooters, they learn the conventions and standards of those games, as well as the values and communications practices of players who play them, both inside and outside the game. The semiotic domain of all first-person shooters might be similar due to the genre’s common procedural model (unit operations for movement, projectiles, stealth, etc.), but the meaning of individual first-person shooters vary based on the way those processes are used rhetorically. Doom is about saving the world from hell-spawn; Waco Resurrection is about the politics of religious fanaticism. Gee’s notions of semiotic domains and embodied experiences do clarify the qualitative differences between the kind of learning that takes place in videogames compared with traditional classrooms, but his approach maintains an ambiguous relationship with the educational significance of specific games. The higher-order thinking skills still matter, but so does the ninja.” (p.244)

“In other words, videogames simulate specific experiences that provide insights into the general relationships that drive those experiences. Gee calls this practice “situated” or “embodied learning.” I do not want to suggest that Gee’s position is invalid, but rather that it is not strong enough. Videogames do not just offer situated meaning and embodied experiences of real and imagined worlds and relationships; they offer meaning and experiences of particular worlds and particular relationships. The abstract processes that underlie a game may confer general lessons about strategy, mastery, and interconnectedness, but they also remain coupled to a specific topic. The particular representations of taxation in Sim City, of criminality in Grand Theft Auto, and of humanitarianism in Food Force are not merely contingent” (p.241).

And the non-contingency of the specific topic is granted by the representational level and by the explicit mechanic: “Or, as Koster puts it, “the bare mechanics of the game do not determine its semantic freight.” (p.243). Yet, for a procedural rhetoric to work a game cannot simply “represent” something but the upper level of the fiction must work together with the underlying one of the rules:

“This is why games like Congo Jones and the Raiders of the Lost Ark, White House Joust, and Ms. Match lose coherence: their topics are tied only to graphical skins and not to the processes underneath. Jesper Juul has called these two layers of a game rules and fiction, and he suggests that the two are not inseparable.” (p.242).

Furthermore this experiential dimension meets a narrative one in cultural artifacts, once again in perfect symphony with a semiotic perspective, which can then lead to meaning arising as psychological condition. A very convincing argument made by Bogost in this regard is about the meaningfulness of *losing* in games:

“Shuen-shing Lee compares such a strategy to tragedy: “A ‘you-never-win’ game could be considered a tragedy, for example, a game with a goal that the player is never meant to achieve, not because of a player’s lack of aptitude but due to a game design that embodies a tragic form. [...] Lee suggests that games like *Kabul Kaboom* and *New York Defender* “are meant to morph the player from an in-gaming loser into an off-gaming thinker (I lose therefore I think).”⁶⁰ And indeed, both games do produce crisis that can lead the player to subjective insights.” (p.87)

Before moving to critiques, we wish to once again underline the importance and cleverness of such key points, that we totally share and will adopt in our perspective. However we must also look at three possible difficulties that are present in this second book.

First, as for unit operations Bogost try to have a larger view and to not focus only on videogames which are defined as a “subcategory of procedural expression” (p.44). For example, procedural representation can occur even if the user is not interacting significantly: “Procedural representations do not necessarily support user interaction. Many computational simulation methods make claims about processes in the material world, but limit user participation significantly” (p.40). Even non digital artifacts can include procedural rhetoric, which in the end seems to be all different forms of logical argumentation that does not rely on verbal language nor on explicit narration:

“Similarly, in a physical simulation, such as a demonstration of rigid body collision or mechanical dynamics, a human operator might configure the size and mass of objects or the relative force of gravity, elasticity, and other properties before observing the result” (p.40).

Yet this first problem is far more less relevant than the one of his previous book.

Second, despite focusing on digital games and the underlying code, it is in some sense not clear what is the interpretative specificity of procedural rhetoric in game, if any. In this 400 pages book Bogost makes many examples to explain what can be correctly interpreted as a procedural rhetoric. But in many analyses, although he never explicit things in this way, what he is describing is actually an underlying set of rules which are based on mathematical operations that are particularly rewarding some semantical and encyclopaedical representations (actions, events, objects) and thus encouraging some logics and behavior through nonverbal language and requiring a player that makes choice. Yet this is not all specific of digital games and codes, but this is basically how all games work. One of the first case study can be taken as paradigmatic:

“The McDonald’s Videogame mounts a procedural rhetoric about the necessity of corruption in the global fast food business, and the overwhelming temptation of greed, which leads to more corruption. In order to succeed in the longterm, the player must use growth hormones, he must coerce banana republics, and he must mount PR and lobbying campaigns. Furthermore, the temptation to destroy indigenous villages, launch bribery campaigns, recycle animal parts, and cover up health risks is tremendous, although the financial benefit from doing so is only marginal.”

This case, as almost all of the other examples, could be translated and imagined as board games, which is very problematic. In fact, even in traditional games there are hidden logics that can be unpacked and may be not explicated to the players. Bogost of course, as scholar of game studies and game designer, knows this very well and make himself an example of the presence of procedural rhetoric both a boardgame and in a fictional sport:

“Without realizing it, Salen and Zimmerman helpfully clarify the difference between Sutton-Smith’s rhetorics of play—the global, cultural roles for exploring themes like ownership and property—and the procedural rhetoric of a game—the local argument The Landlord’s Game makes about taxation and property ownership.” (p.53)

“Quidditch offers nested opportunities for interpretation. For one part, it is a sport with rules, rules that embody their own procedural rhetoric. Basketball and soccer are both team sports with considerable emphasis on collaboration.[...] “Quidditch enforces a procedural rhetoric of individual power, in which a golden boy uses extraordinary talent to overcome adversity. Harry’s position as seeker thus reinforces the mystical, transcendental nature of his power, a major theme in the series (like Anakin Skywalker and Frodo Baggins, Harry feels both blessed and afflicted by his unique station).” (p.178)

Furthermore, he even explicit himself the topic of the specificity of rhetoric through digitally coded rules: “ If computational expression is fundamentally procedural, and if computational procedural expression is crafted through code, then what is the role of code in the practice and analysis of procedural rhetoric?” (p.62). Yet he strangely never gives us a very satisfying answer nor seems to really strive for it. This becomes a major problem when we think that both in the art with Italo Calvino and in the humanities with Umberto Eco the presumed passivity of the reader was demonstrated as false, arguing that readers were always creating missing logical links and filling gaps, which as the in case of “Cuore” (1886) is also *in nuce* what allows for any cultural artifact to raise critical consciousness. So the point for both a Semiotic of Digital Culture and a critique of procedural rhetoric is precisely to find, if it exists, the difference between completing a blank by pressing a button and by making an inference.

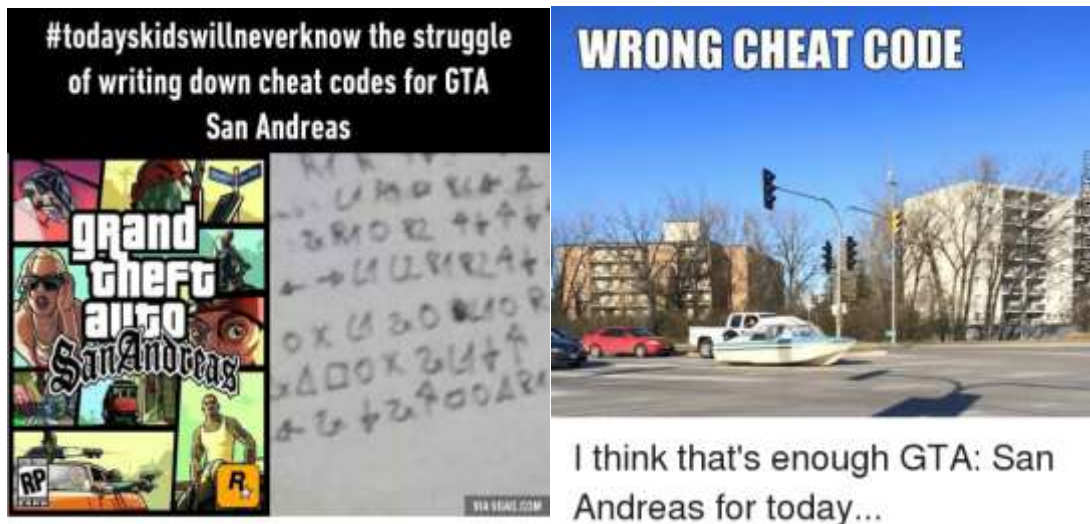
Thirdly, for Bogost the raise of a critical consciousness is almost inevitably caused by the rhetoric enforced by the code: “Antiwargame’s procedural rhetoric works because it forces the player to make and enact decisions that might not otherwise seem logical or obvious. By connecting the causal ties between business, war, and civil unrest, the game deploys procedural enthymeme.” (p.84). Critical thoughts in Bogost’s view seems to only raise as the result of something well-designed *forcing* the player to think about something, never as the result of the act of play as an act of freedom toward a game nor as an independent intellectual action of the player. In fact, the possibility of a player not understanding nor being aware of the “real” relevance of a simulative logic is totally overlooked by the author, let alone the possibility of a bored player abandoning the game without ever reflecting on what he didn’t like about that game and thus never developing the intended critical consciousness. There is very little interest in Bogost book for the role of the player’s subjectivity (a term in which we include both cultural belonging and embodiment, and which is different from the problem of individuality) and phenomenology (which includes causality or simply put the fact that the player is doing this both as an individual and as himself), and likely very little criticism toward the fact that many games analyzed would hardly sell on steam and are actually for a very niche of players which are well intentioned and already interest in learning more about a specific topic. Since Bogost proposal is about the procedural rhetoric potentially present in any games and his interest is also to socially rethink games, there is a serious contradiction between his corpus and his claims. But even more importantly, Bogost never confront himself with the following important question: is it enough for a mechanic or logic to be present and interacted with for it to be meaningful or to raise awareness about it?”. This critique could seem unfair, but we strongly believe that it isn’t since at least part of the meaningfulness attributed comes from what Bogost is perhaps mostly interested in: game design. In fact, one key claim of this thesis is that meaningfulness in digital games comes from a designed difficulty relying on the player’s both conceptual (values such as true love or friendship) and real (time and energy) *scarcity* (Bankov). In one of the very few triple A games taken into consideration by Bogost, GTA San Andreas (Rockstar, 2004), he for examples argues that:

“San Andreas added a new dynamic to the core GTA gameplay: the player character must eat to maintain his stamina and strength. However, the only nourishment in the game comes from fast food restaurants (chicken, burgers, or pizza, as shown in figure 3.4). Eating moderately maintains energy, but eating high-fat-content foods increases CJ’s weight, and fat gangsters can’t run or fight very effectively. Each food item in the game comes at a cost, and the player’s funds are limited. Mirroring real fast food restaurants, less fattening foods like salad cost more than high-calorie super-meals. The dietary features of San Andreas are rudimentary, but the fact that the player must feed his character to continue playing does draw attention to the limited material conditions the game provides for satisfying that need, subtly exposing the fact that problems of obesity and malnutrition in poor communities can partly be attributed to the relative ease and affordability of fast food.”

As a teen-ager that spent something like one hundred hours in this game, I was both shocked and amused to discover the meaningfulness of this mechanics nearly 15 years later. I had actually totally forgot about it, and only remembered the fact that sometimes seeing my character being fat amused me. And while effectively and undeniably right in front of my eyes, “the fact that problems of obesity and malnutrition in poor communities can partly be attributed to the relative ease and affordability of fast food.” never crossed my mind: in GTA salads were expensive as in real life and restaurants, that was all it needed to make sense for me and that was the only sense it had for me. Beside the fact of being a horrible and superficial person, there are three different reasons for which critical consciousness about this topic never arose in my case. The first one, independent from the game but not from Bogost’s theory, is that the social awareness on the problem of obesity in 2004 in Italy was very low and surely far less common than in the U.S. The other two reasons are however directly linked to the game and to the principle of scarcity we mentioned before. Of course Bogost is not unaware of this design principle since he clearly states that “Each food item in the game comes at a cost, and the player’s funds are limited.”, yet he remains on a very vague level. In fact, the question “how meaningful is this?” correspond also with “how limited are these funds?”. And the answer does not favor Bogost’s view: a salad cost 10\$, while an easy reputed¹³⁰ and early side mission such as “Roboi’s Food Mart Courier Mission” can be worth 10-15.000 \$. A problem to which we can add the fact that a far gang was neither a losing nor particularly struggling condition. Finally, in those days finding players playing without cheats (grating potentially infinite money and health), which were literally everywhere (from the internet to magazines), was perhaps even rarer than finding Italians concerned about fast foods.



¹³⁰ https://gta.fandom.com/wiki/Roboi%27s_Food_Mart_Courier_Mission



GTA had certainly meaningful rhetorics, but it was and still is first of all a playing ground: a feature which made the fortune of both its authors and many youtubers creating still today a never-ending content about it. Not only Semiotics, but even a cultural critique of game should care and give importance to such aspects and to the dimension of meaningfulness. In fact in the case of GTA all this emerge as an intended characteristic of the game, both the level of difficulty and the freedom of play were designed and highlighting it does not coincide with abruptly shifting the analysis from the artifact and its configurations to the audience and the cultural practices involved in the relationship with the artifact. We can thus conclude that, completing Bogost's beforehand mentioned key idea that "Interactivity guarantees neither meaningful expression nor meaningful persuasion", even interacting with a "procedural rhetoric" is not enough for it to become meaningful and raise any critical consciousness about what it represents. The same problem raises with another game cited by Bogost and that I loved to play in my teenage years: *Playboy the Mansion*. About the game Bogost argues:

"The game certainly celebrates the familiar ideal of Hugh Hefner's famous lifestyle, but it contextualizes that roguish behavior as part of an overall business strategy. Playboy has built an empire around lasciviousness, and the game proceduralizes that logic. Readers respond better to spreads of well-known celebrities, but unknowns are easier to persuade to pose. The same goes for interviews and articles, and players must develop business relationships with ornery rock stars, actors, and other personalities. The game argues that lechery is a business, not a lifestyle; the consumer's ribald desires are serviced by an industry, not by a set of eager and willingly promiscuous young women." (p.184).

The author here is giving for granted many things which require far more than playing the game: the idea that lifestyle can be faked, the opposition between lifestyle and business (which is far from obvious), the previous unawareness that lifestyle of famous people is also a business, the unawareness of how the mediatic system of the celebrities works, thinking that different kind of relationship are preferable to others, and so on. Once again I played this game myself a lot and the problem raised by Bogost never crossed my mind, probably both because the relation between business and visibility was obvious to me (a realistic feature of the game) and because I was too occupied at enjoying myself with the erotic photo shooting minigame. So, I would argue that Bogost's "technique" is perfect for a certain abstract cultural critique which could be made even by looking only at the code and the mathematical rules of a certain game. But it does not work in understanding how games are meaningful while played by human beings.

Hence, it is actually problematic to trust Bogost judgment on games, like in the case of *Animal Crossing* which according to him “can be seen as a critique of contemporary consumer culture that attempts to persuade the player to understand both the intoxication of material acquisition and the subtle pleasures of abstention.” (p.275). This situation is unfortunate since in some parts of his book Bogost is clearly looking outside of the code and at the concrete usage of certain games, such as in the case of *Dance Dance Revolution*: « Whereas the console versions of DDR allowed play using the standard controller’s directional pad, the physical interface of the arcade game turned it into a platform for public performance— and a physically strenuous one at that.” (p.293.) This point is controversial in Bogost’s work, and especially in relation to the problem of ideology. On one hand he is perfectly aware that “One usually makes rhetorical claims precisely to exclude opposing positions on a subject, not to allow for the equal validity of all possible positions.” (p.37) and in addition that “For another part, all artifacts subject to dissemination need not facilitate direct argument with the rhetorical author; in fact, even verbal arguments usually do not facilitate the open discourse of the Athenian assembly. Instead, they invite other, subsequent forms of discourse, in which interlocutors can engage, consider, and respond in turn, either via the same medium or a different one.” (p.37). Yet he seems to presume that the successive critical moment is almost guaranteed by the presence of the rhetoric itself since they require “direct engagement”:

“At the start of this chapter, I asked: if videogames are educational, what do they teach, and how do they teach it? To summarize the reply given here: videogame players develop procedural literacy through interacting with the abstract models of specific real or imagined processes presented in the games they play. Videogames teach biased perspectives about how things work. **And the way they teach such perspectives is through procedural rhetorics, which players “read” through direct engagement and criticism**” (p.260, my bold)

This conviction also becomes a kind of alibi when he talks about his own political game:

“In playing the game, the player is not “brainwashed” or otherwise fooled into adopting the candidates’ policy position. Rather he is afforded an understanding of that position for further inquiry, agreement, or disapproval. This rhetoric functions primarily through procedural enthymeme; the player completes the candidate’s arguments regarding how policy change could lead to improved social conditions. However, none of the subgames argues that policy change alone is sufficient to create social change. In each of the games, the player must expend nontrivial effort to accomplish goals like improving healthcare and education.”(p.142).

On the contrary, ideology works exactly because in our societies the critical moment is far from being guaranteed. In fact, we precisely tend to not question what is given to us as *obvious* and non-problematic, to intuitively believe what seems to work best even without really knowing why (such as a gameplay mechanic). This was precisely why a semiotician like Roland Barthes focused his most political works on the problem of obviousness and its discourse. If we were to push Bogost’s logic to its limit we could affirm that the viewer of a movie like *Armageddon* (1998), a movie where U.S. men and women agree to save the world (in exchange for never paying taxes again) by digging a hole to put a bomb in an asteroid and in which the U.S. president (who becomes spokesman for the world) claim that the wars of the past made possible for mankind to develop the technologies that will save them, “is afforded an understanding of that position for further inquiry, agreement, or disapproval.” since he is put right in front (almost slapped with, to the point of being a comedy of it) of what was a dominating ideology (the movie of course happily ends with an heterosexual Christian wedding between the young and beautiful Ben Affleck and the young and beautiful Liv Tyler). Bogost could easily argue that my argument is invalid since there is no direct engagement with *Armageddon* and so no criticism. But at the same time the author never really explains what is direct engagement and why does it work differently than other forms of engagement.

There are two reasons for this.

One is that he is totally overlooking and lacking a theory of interpretation, such as the one of Eco, and thus he is unaware that readers and viewers always *actively* and *willingly* following logics and filling gaps, which is the reason for both different interpretations and the possibility to be disturbed (also in the form of boredom) or disgusted by a certain cultural artifact. The other can be found in a game that would be published five years later: *The Stanley Parable* (Galactic Café, 2013). In fact, Bogost never really question in what sense do we make choices in games, the degree and the nature of choosing, and neither he considers the possibility of these choices being fundamentally illusions since very often the only choice for a player is only to play or not a game. With this we do not want to affirm that Bogost's games brainwashes people, and more importantly neither that Armageddon is a bad movie that should be condemned: on the contrary it is one of my favorite. The important point is here is to underline that computational interactive procedural rhetorics are by themselves more likely to a-critically convince the player of something than creating doubts about their own claim. Yet, the interaction not with the rhetoric but with the game as system is also what can make a drastic difference in the outcome, a matter that we will discuss later and that Bogost unfortunately does not really considers.

Finally, Bogost does not explicitly explain the relationship between the implicit rhetoric of the rules and the explicit reward granted by the aesthetic nature of digital games. This is also interesting since Bogost himself quotes Crawford's choice of denying such a pleasure as part of an intended message.

"Chris Crawford's 1985 classic *Balance of Power* is often cited as the first political game in which diplomacy outweighed brute force.¹³ In the game, the player uses treaties, negotiation, international espionage and, as a last resort, military force to manage a world in the throes of a cold war. In this early example of game-based political expression, Crawford imbued his own worldview into the gameplay: inciting a nuclear war caused a most grave loss—a black screen imprinted with plain white offering a dour report of the player's outcome: "You have ignited a nuclear war. And no, there is no animated display or a mushroom cloud with parts of bodies flying through the air. We do not reward failure" (p.101).

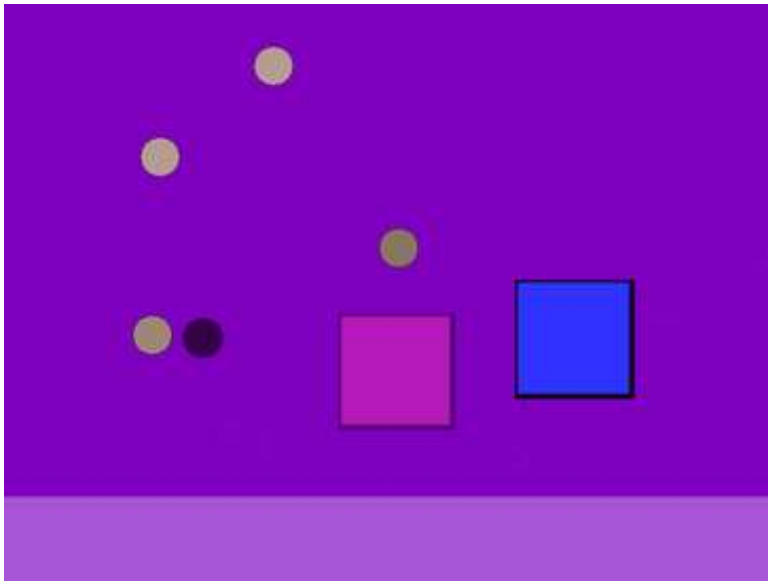
In conclusion, Bogost's work is fundamental to highlight and understand how meaning-making possibilities are tightly bounded to the mechanics and rules of a digital game, which in their turn are inscribed inside a computational code and artifact. Studying the meaning of a game and ignoring those aspects is simply no more an option, both for Game Studies and Semiotics. However Bogost's perspective is also insufficient to study the *meaningfulness* born from a human being interacting with a digital artifact such as a videogame, and thus cannot be a-critically adopted. Too many relevant aspects are absent from his proposal, and most notably a theory of interpretation. Moreover, his view seems to suggest focusing on some aspects *instead* of others. On the contrary, we strongly believe that meaningfulness can only be studied by looking at the interaction and relationship between the different levels of content of a videogame and at the different human playing practices involved at each of these level. This belief about both the insufficiency of Bogost's theory and the necessity of a unified perspective can find an empirical proof and concrete example in the 2011 article "Against Procedurality" by Miguel Sicart. Not only here the author makes a general claim about the limit of proceduralism that perfectly meets our critique of GTA:

"Game designers are supposed to create play, that is, a particular behavior in players. Proceduralists believe that those behaviors can be predicted, even contained, by the rules, and therefore the meaning of the game, and of play, evolves from the way the game has been created and not how it is played; not to mention when and where it is played, and by whom."

But most importantly Sicart use the conceptual game “The Marriage” to highlight very well how rules and mechanics does not mean anything by themselves:

“In the commentary to his game *The Marriage*, Rod Humble explicitly claims that he “wanted to use game rules to explain something invisible but real” (Humble, 2007). Humble created an interesting conceptual game that abstractly represents marriage by means of rules, disregarding any other means of conveying meaning. The game was created, as the author admits, as a follow-up on an article in which he argued for the uniqueness of games based on their rule-based ontology (Humble, 2006). However, the interesting (relative) failure of this game is that the designer had to include, as part of the website through which the game is distributed, an explanation of the rules and of what the game means. [...] If rules contain the meaning, what is the need for an author statement?”

A simple look at the game is indeed enough for a semiotician to see the fundamental role of semantics in conveying the intended message:



Not only the title of the game is already giving an encyclopaedical stability to meaning making (think of how brother & sister would have drastically changed everything), but also the colors of the shapes are explicit cultural references which have nothing to do with rules and mechanics. Finally, even the succession of movements (distancing and approaches) is visually represented and could be taken into account by the topological category used in the past by semioticians to analyze work of arts.

Exactly as it is clearly stated in Sicart’s article, these examples do not mean of course that proceduralism, and more generally Bogost’s perspectives are wrong or useless, but that they must be integrated in a more complex theory of meaning-making in digital games and virtual realities.

3.3.3: Riccardo Fassone's island

In this section, dedicated to how game studies can integrate a semiotic approach, we have seen with Espen Aarseth the importance to study meaning making in virtual realities in terms of *effort*, *production* and *opacity*. Then with Ian Bogost we have highlighted how these fundamental formal features of digital ergodic texts can be used as a form of *rhetoric and simulation*, thus opening the scientific inquiry on the interpretation of virtual realities in relation to both the designed *mechanics and mathematics* (involving logical operations) and *practices* of the players. The next work we would like to examine is now Riccardo Fassone's 2017 "Every Game is an Island" which is not only adopting Eugeni's experiential frame (p.24) but is also in continuity with the claims of the previous authors and especially with Bogost's methodological frame:

"Rather, this book is about how what I will call designed procedural experiences can be imbued with their designer's ideas, politics and rhetoric, and how they can then provide players with a range of play experiences" (p.11)

Although Fassone is putting the emphasis on an aspect which is not at the center of the reflections of Aarseth nor Bogost: the boundaries of digital games. In fact, while boundaries are implicit in the idea of opacity and mechanics (both allowing only *some* possibilities among many others) Fassone's claim is that the experience with them is what characterizes the interactions of videogames both as texts and as form of play:

"Every game is defined by its borders, its endings, and its extremities. Often, playing a video game feels like pushing against those borders. Training for frame-perfect execution in *Street Fighter II*, or bumping into an invisible wall in *Far Cry 2* require players to engage with the finiteness of the video game, its nature of contained simulation, an island surrounded by cliffs and rocks, whose jagged borders are the object of this work. Every game is an island, because, as I will claim throughout this book, every game cannot be but closed and finite. Even games claiming to be *open world* and offering players utmost freedom are framed by the limitations of their digital nature. On the peculiar island that is *Prison Architect*, for example, an open-ended game that requires players to build and run a prison, the player cannot decide to build a cinema for the inmates. The option is just not there, it falls outside of the contained simulative space offered by the game code. **This sort of liminal experience, this constant engaging with the game's finiteness, its endings, and its extremities, is what characterizes video game play for me**, and what I am interested in describing in this book." (pp.2-3, my bold)

At a first glance this idea can seem pretty odd since any given cultural artifact is doomed and defined by these same limits. Additionally, many games (both old such as *space invaders* and new such as *Fortnite*) and even entire genres such as the "open world", "sandbox" or "mmorpg" are often defined by their *endlessness*. Thus Fassone's inquiry starts from a paradox:

"The innate closedness of video games apparently creates a striking paradox: how can a video game be open-ended, how can it replicate the experience of an actual sandbox—a metaphor often used to describe certain genres of video games—if it is inevitably constrained by hard-coded boundaries?" (p.75)

Yet, the author's claim is that in videogames this finitude is quite unique since digital games are often materially *infinite* in virtue of their digital nature and of their existence as games of something else.

"On the other hand, no game is an island. Every video game is a piece of audiovisual media existing within a wider ecosystem of (digital) media. Video games constantly engage with this external space. Sports games, often released in annual installments, constitute long series within which repetition and innovation stand in a delicate balance. Expert players are able to tell, and exploit, the minute modifications implemented in every new version of their favorite game.[...] Furthermore, due to the nature of digital media, every game can be modified, integrated, amended, and revised at the level of code. In other words, while during gameplay a video game is indeed an island whose endings and extremities can be explored by the player, as a media artifact, a video game is more of a "puzzle piece" (Juul 2008) in the mosaic of contemporary digital media." (p.3)

What's more, the experience of meaningful borders in digital games has also much to do with the particular "relationship" between the player and the software:

"I will call my understanding of video games-as-games "digital exceptionalism." What I mean by this is that video games are an exceptional subset of games, since—because of their nature of digital objects—their rules must be stored, upheld, and executed by a computer. When playing a video game, we are always playing with and against a digital machine, an entity whose peculiar characteristics make it a unique sort of playful companion. A video game offers its player a world to inhabit or, in more minimalist cases, a series of rules and properties to interact with, but it is at the same time a piece of software in charge of executing certain procedures that ensure the consistency of that world or rule set." (p.12)

A unique digital nature that can be understood in both *quantitative* and *material*:

"Video games are exceptional because they require players to entrust their play to a non-human digital entity, whose role is to handle game progress by storing, upholding, executing, and enforcing its rules. In this sense, the exceptionality of video games when compared to analog games is both quantitative and material. It is quantitative, because given the encyclopedic capacity of digital media (Murray 1997), the number of rules and procedures that can be executed by a video game greatly exceeds that of any analog game. [...] Video games are exceptional also because of their material construction; if one assumes that computer code is in fact the material of which video games are made, one cannot avoid noticing how this peculiar building block of the digital age presents itself and acts differently than any other material of which analog games may be made of." (p.13)

The unique liminality of virtual realities is, indeed, first of all due to the contradictory nature of their digital code which can potentially be infinitely modified (thus *open*) and must be stable while playing (thus closed):

"Certainly, game codes are expanded and amended all the time, both by game developers through patches and updates, and by players through mods and hacks, but during play the game code is usually completely invisible to the player, and its finite number of rules is at work for the whole of the play session. In this perspective, the numerous essays and books describing video games as inherently open to the creativity of the player seem to ignore that, to put it bluntly, video games are open until they become irremediably closed, namely until the player hits the edge of the inflexibility of code." (p.14)

Then, and coherently, it is also due to the player's interaction with the software resulting in a form of agency creating an effect of freedom inside what is actually an extremely determinist world:

"Gonzalo Frasca (2003: 227) highlights an apparently convincing separation between media: "After all, as we learned from classical Greek drama, stories and fate go together. No matter how badly literary theorists remind us of the active role of the reader, that train will hit Anna Karenina and Oedipus will kill his father and sleep with his mother." The author then proceeds to remark how video games are ontologically different from other media, since in an ideal Oedipus: the Video Game the player may be given the option not to kill Oedipus's father. [...] On the other hand, the author's theory according to which video games offer an alternative to this teleology is less convincing. One could say that no matter how badly a ludologist advocates the player's unbound freedom, Lara Croft will not be able to open the closed door of an ancient palace in Venice in Tomb Raider II, nor will Mario ever convince Donkey Kong to stop throwing barrels at him." (p.14)

This situation brings Fassone to claim that digital games (and we will add virtual realities) are games *about authority* (p.15), a claim explicitly in connection with Bogost's views of software as inflexible bureaucrats (p.16):

"If play is always about something or, rather, is contained within a psychological frame that makes it meta to other activities, one might contend that engaging playfully with a digital game means building a frame around the iron cage of digital bureaucracy" (p.16)

Furthermore, this correspond to two opposite strategies which are present in digital games. First, one aimed to *naturalizing* the interaction with the software which has as a counterpart the fact that the users of virtual realities are constantly *testing* the impossibilities of virtual worlds.

“While most video games will attempt to naturalize this interaction by constructing seemingly unbound, open worlds, players will eventually encounter—by accident or by design—the limitations of those worlds, experiencing the authority of game code. Being a player of video games does not consist in exploiting a *possibility space*, as argued by proponents of a theory of open play, but rather in exploring the *impossibilities* of a designed system, its borders and limits, the idiosyncrasies of its rules in order to play with—and around—authority.” (p.16)

Second, one aimed to push the users against these very limits by *opposing* his agency:

“We can provisionally define Dig Dug, and computer-mediated games in general, as oppositional state machines, since they derive their *gameness* (Juul, 2003) from presenting players with challenges that need to be overcome by working *against* the machine.” (p.20)

This opposition, which very interestingly is the pre-requisite of Aarseth effort, can assume various forms:

“In the case of *Dig Dug*, the machine challenges the player to overcome a specific form of opposition: players have a precise goal—clearing the level of all enemies—but are obstructed by the very design of the levels and the unpredictable behavior of the enemies. In other cases, for example in games of pure dexterity, machine-opposition is conveyed through the physical interface of the game, that needs to be manipulated by players in perfect synchronicity with the game’s prompts. Or, in the case of classic graphic adventures such as *Indiana Jones and the Fate of Atlantis*, opposition comes in the form of logic or narrative puzzles that require the player to recognize the correct pattern within a branching structure.” (p.20)

Being a player thus require to face a challenge created by the software. However, instead of endorsing Manovich’s view or which playing a digital game means “discovering the algorithm of the game itself” (2001, p.222 in Fassone, 2017, p. 21) Fassone is endorsing a more nuanced position by referring to Nitsche’s 2008 article in which the author claims that “Players do not have to understand the logic of the code but of the mediated game world.” (p.25 in Fassone 2017, p.22). This brings our author to define video games play as a form of *machinic play*:

“In easier terms, one might say that while the oppositional nature of the game is hard-coded into it; players never face the deep algorithmic nature of the software. Instead, they confront its effects on the simulated world of the game. In this perspective, the difference highlighted by Giddings (2014: 57) between “mechanical” and “machinic” play is very significant. On the one hand, Manovich’s theoretical cybernetic players act as parts of a mechanism and are as cybernetic as their digital opponent. On the other hand, I claim that playing with and against a computer means entering a dialogue with a machine that disguises its binary inner functioning through the projection of a simulated world. In this sense, video game play is “machinic” in that it presupposes the formation of a machine—composed of the computer and the player—that runs on the ludic tension created by the opposition between the two. This bio-technological Machine is the site where what I will call designed procedural experiences take place.” (p.23)

Therefore, Fassone has no doubts about the fact that meaningfulness in games must be inquired in terms of *designed* (explicitly used by Fassone as term referring to an object created by postulating a model player equivalent to Eco’s model reader) *procedural experiences* (p.24)

The concept of procedurality is of course taken from the already thoroughly discussed work of Bogost:

“A procedural approach to video games, then, considers the player as a subject inscribed within and interacting with a procedural environment, that presents a number of choices and rules; the subjective understanding of this space of possibility (that Bogost defines “simulation fever” [2006: 106]) is at the center of the meaning-making process generated by video games. Bogost’s procedural reading of the medium infers that video games derive their expressive potential from the interaction between the design of their rules and mechanics, and the player’s understanding of the affordances and limitations offered by this simulated environment.” (p.30)

A perspective which, despite the acknowledgement of its limits regarding an author-centered perspective as we have already highlighted, is deemed as the most suited for Fassone's goal (p.31)

"In my case, discussing video games as digital media whose inner motions and simulative capabilities may generate play allows me recognise the ways in which meaning is inscribed in them through the authoring of their procedures. This, Sicart argues (and I tend to agree), at the expense of an understanding of play as something that is "everything about a player engaged in a game, and less about the rules of such game" (Sicart 2011). On the other hand, by focusing on the player's activities and behavior, and on the admittedly elusive "creative, performative properties" (Sicart 2011) of play, a non-proceduralist theory of video games tends to underplay their existence as designed objects and their relation with other similar artifacts." (p.32)

And, finally, Fassone's definition of experience has two different aspects:

1. One of the cultural memory (the conscious connection between a specific game and other cultural artifacts)
2. One phenomenological where, following Heidegger (p.36) the sensible and cognitive access to a given reality is embodied and tightly bounded to the manipulation and ordering of this world

With the second one having somehow two layers: one related to the represented world and one related to the underlying procedures which are never forgotten by the players:

"the very fact of playing with a video game implies a second-level experience, that of interacting with a specific medium, and confronting its technological and material constraints and affordances." (p.37)

This second layer, furthermore, is explicit in digital games through all these forms of manipulation of the software which are outside of a given fictional context: Galloway's non-gamic actions.

"Galloway's intuition of the existence of a separation between the diegetic and the non-diegetic is complemented by the author's categories of gamic and non-gamic actions. While gamic actions are performed by the player in order to affect the game's outcome, non-gamic ones are performed with the intent of adjusting parameters that do not directly influence gameplay. In other words, while shooting an enemy in *DOOM* is a diegetic gamic action, adjusting the screen brightness in the same game is non-diegetic and non-gamic. On the other hand, tweaking the abilities or equipment of a character in *Borderlands* before engaging in battle is a non-diegetic gamic action, since it takes place outside the simulated game world, but affects the game's outcome." (p.42)

A distinction which is very close to the one forged by us in terms of active and generative virtualities (3.1.6.1).

Finally, the last aspect of great importance highlighted by the author is related to the contrast between the closure of the text despite the infinite utterances and the subjectivity of this closeness depending on the player:

"Closure is thus both a designed feature of an object, meant to evoke a sense of completeness, and an inescapably phenomenological occurrence. While rhetorical, textual, and structural strategies used by designers and authors to provide closure may be described, the very phenomenology of closure is obfuscated to the scholar by its experiential nature. Your closure may not be mine, my sense of wholeness may differ radically from yours." (pp.47-48)

To discuss such issue, Fassone refers to Aarseth notion of epiphany:

"According to Aarseth (1999: 39) aporia and epiphany are "the prenarrative master-figures of experience, from which narratives are spun." By describing the two muses of gameplay as prenarrative and experiential, Aarseth adopts an implicit ludological perspective: epiphanies (or closures) are not found in a pre-scripted narrative, but rather experienced by players at their own pace. In an endless game like *Sim City*, players set their own goals: recovering from a flood may be a player's final epiphany, while it could be a minor success for another. Aarseth's dualism is a plea against a (slightly caricatural) narratological reading of video games as inflexible oriented systems in which the experiences and emotions of players are triggered by designed narrative effects." (p.50)

A notion that Fassone wish to complement with the concepts of closure and caesura that are less depended on the player and more on the formal properties of the text:

“I will complement Aarseth’s dualism with another set of categories: closure and caesura. While Aarseth’s aporia and epiphany are eminently experiential, to the point that—one might argue—instances of both can only be described through speculation or ethnography, “closure” and “caesura” are the terms I will use to describe the ways in which aporia and epiphany may be embedded in games as designed elements.”

Additionally, he points out at the possible rhetoric and meaningful function of the closure itself as in the case of games which cannot be won:

“*New York Defender*’s use of reiterated game over, unmitigated by any sort of metagame, is ultimately rhetorical because it serves to stress the *punctuality* and *situatedness* of a defining moment of contemporary history by negating its relation to any larger process of inter-player socialization. In playing *New York Defender*, one is always alone, and always in caesura.” (p.60)

“FarmVille 2 is endless since it needs to be perceived as essentially consubstantial to the social networking experience provided by Facebook”(p.70)

A complement that has a great value for us since it highlights two different kinds of behaviors:

“The coexistence of teleological play (playing in order to reach the end screen) and completist play (playing in order to explore fully, both spatially and procedurally, the game’s affordances) is certainly not exclusive to *Super Metroid* and can be seen as a constant tension in video games” (p.51)

In conclusion, we can see how Riccardo Fassone’s work is extremely coherent with our perspective on FOA and mirrored narrativity. Even his idea of the disappearance of some formal figures of the game boundaries and textuality as an aesthetic is coherent with our approach:

I will call aesthetic immersion the form of immersion that derives from the suppression or limitation of the use and appearance of these devices. This kind of immersion can be found especially in first person shooters and other genres of video games that promote uninterrupted gameplay and naturalistic tridimensional perspective. (p.112)

Moreover, we will see that the idea of digital games as a “conflict” will be also part of the next chapter on the role of the digital. For us as for him, the digital nature of virtual realities is a key point:

“This assumption is at the heart of the triangular structure of this book. A video games is—at the same time—a diegetic ruled environment with which the player interacts, a digital object that needs to be operated through manipulation and metaplay, and a media product that exists in an economic and social sphere, alongside other similar objects. [...] Digital artifacts, being based on computer code, execute predictable procedures, and are inflexible partners in any form of negotiation: we all have memories of a piece of software that just would not execute that specific task. If play is indeed an “inexhaustible resource” (Ortoleva 2012), then digital play is something we may call up in order to make sense of our daily interactions with digital artifacts. The playful authority of digital games may allow us to reflect upon and reframe the real, often oppressive, authority of digital bureaucracy.” (p.169)

The only sensible critique that we can move to his work is perhaps to focus almost exclusively on FOA and to mostly assume the view of a game designer while undervaluing the player’s impact on the text, something evident in the idea of the game over as a designed way to reach aporia and never definitive.

“When facing Count Dracula, the final opponent in the game, I witnessed the dreaded game over screen a number of times. This screen prompted me to continue (provided I had enough lives left) or enter a password to revert to a previous save state. My experience with Count Dracula was one of reiteration, but each time I faced the impossibility of defeating the vampire, I learned something about his behavior and patterns, thus building an increasingly more accurate mental map of the game’s functioning. I was killed by Dracula over and over, but finally reached my epiphany and defeated the boss. My experience of failure provided me with enough knowledge of my enemy. Re-encountering the game over screen over and over had taught me how to play *Super Castlevania 4*; a number of aporias had led to my epiphany. In this light, game over appears as a pedagogic feature of video games, a way of digitally assessing the

player's skills before letting them proceed to the next phase. [...] I would argue that game over can be seen as a prescribed ending, one that happens in medias res, sanctioned by the software itself and affecting the player's progress in the game. While Re's notion of the pragmatic ending is deeply rooted in the text's material constraint (pages end, film runs out or deteriorates, etc.), my idea of a prescribed ending derives from a precise design strategy being implemented in the game. Game over does not just happen, it is a demonstration of the authorial (or even authoritarian) strength exercised by the game on its player. [...] This medium-specific form of ending, which makes the presence of a digital authority all the more apparent, and relies on the oppositional relation between the player and the game, can be further defined as transient, normative, and functional. Game over is transient, because it is in most cases reversible; it does not prevent the player from re-playing the game and eventually overcoming its difficulties." (pp.53-55)

"Despite its hard or soft nature, and its degree of relevance, one defining characteristic of game over is its transiency. It is never definitive and its reiteration creates a looping play experience, that is constantly interrupted and resumed, be it through a quick key stroke or at the cost of a quarter." (p.59)

On the contrary, for many players the game over is definitive, the event at the origin of abandoning a game and closing the text, such as other game design choices can be (example: grinding). In other words, Fassone focuses on the finitude of the text but not on the one of the player. Similarly is denial of the infinitude of "open world" games such as Fallout lacks the semiotic perspective on the meaningfulness of enunciation. Despite such points, of which the author is perfectly aware, we think that this is another clear case of how semiotics can be integrated into different perspectives and can finally complete the enthralling puzzle about the meaningfulness of virtual realities.

3.3.4 : Half-reality and failure in Jesper Juul

The last author belonging to game studies that must be mentioned is Jesper Juul. The reasons are mostly two: the continuity between his theoretical claims with ours and the fact that he is using the concepts of “reality”, “simulation” and “experience”. Among the two the second one may seem trivial but is actually the main one justifying this chapter. In fact, the key idea at the center of his 2005 book is precisely that videogames are “half-realities” because of their mix between rules and fiction:

“In the title, Half-Real refers to the fact that video games are two different things at the same time: **video games are real in that they consist of real rules with which players actually interact, and in that winning or losing a game is a real event.** However, when winning a game by slaying a dragon, the dragon is not a real dragon but a fictional one. To play a video game is therefore to interact with real rules while imagining a fictional world, and a video game is a set of rules as well as a fictional world.” (section 7.1, eBook, my bold)

“In having fictional worlds, video games deviate from traditional nonelectronic games that are mostly abstract,' and this is part of the newness of video games. The interaction between game rules and game fiction is one of the most important features of video games, and it is a central theme of this book.” (7.3)

“I have called video games half-real, but an alternative term would be half fictional. On a formal level, games are themable, meaning that a set of rules can be assigned a new fictional world without modifying the rules.” (12.9)

“That the rules of a game are real and formally defined does not mean that the player's experience is also formally defined. However, the rules help create the player's informal experience. Though the fictional worlds of games are optional, subjective, and not real, they play a key role in video games. The player navigates these two levels, playing video games in the half-real zone between the fiction and the rules.” (12.17)

A claim which is extremely interesting since we have highlighted how the “rules” correspond in semiotics to that part of the FOA valorizing semantic entries (both represented and enacted through the user’s interactions) through what we have defined as the economics and correspond to a new form of narrativity. In this sense, it is the particular effort related to the mirrored narrativity contextualized in a given possible world that endorses the activity of playing with an effect of reality transforming the representation in experience. A mirroring which can be found in Juul’s explicit reference to the duality of action and time in games, and even of space:

“In Pavel's (1986) terms, make-believe is a dual structure where something in the real world (primary universe) is assigned a place in a fictional world (secondary universe). If we play a board game such as Axis & Allies (Nova Game Design 1984), all our actions have a double meaning. We move a piece around a board, but this also means we are invading Scandinavia with our troops. In Tomb Raider (Core Design Ltd. 1996), we click the keys on the keyboard, but we are also moving Lara Croft. In these examples, the actions that we perform have the duality of being real events and being assigned another meaning in a fictional world. Additionally, since our actions take place in time, that time shares the duality of being both real time and fictional world time.” (10.80)

“Space and level design in games are special areas where rules and fiction can overlap: The shape of a fictional island, for example, also works like a rule in that it determines what the player can or cannot do.” (11.117)

Hence, the assertion that videogames are stylized and metaphorical simulations rather than representation when they apply this new form of logic based on failure and learning to a certain encyclopedic entry:

“Playing a game is an activity of improving skills in order to overcome these challenges, and playing a game is therefore fundamentally a learning experience.” (7.15)

“On a basic level, a game with a fictional world can be seen as a simulation, as the implementation of a fictional world in the rules of a game. A racing game is a simulation of racing; FIFA 2002 is a simulation of soccer. Simulation can have varying degrees of fidelity to what is being simulated. [...] Game fictions and rules are not perfect and complete simulations of the real world; they are flickering and provisional by nature. But stylization is an expressive device that games can use. [...] By removing detail from the source domain, the game focuses on a specific idea of what the game

is about such as capoeira, soccer, tennis, driving cars. A game does not as much attempt to implement the real world activity as it attempts to implement a specific stylized concept of a real-world activity.” (11.31-11.33)

“Many aspects of computer-based games are not just simplifications of real world activity, but something quite different. In the tennis game *Top Spin* (Power and Magic 2004), a perfect serve must be performed by pressing the front right controller button and releasing it at the precise time when the bouncing yellow mark is in the middle of the serve indicator (figure 5.7). What is the connection between serving in real tennis, throwing the ball into the air, twisting your body to achieve maximum power while retaining enough control to direct the ball to the right position on the other side of the net, and pressing and releasing the front right button on the Xbox controller at the right moment? The basic answer seems to be that both tasks are difficult: instead of performing a serve by mimicking the actual tennis activity, the serve has been replaced by another difficult task. The video game activity is a metaphor for the tennis activity.” (11.38)

And to understand the key importance of narrativity in terms of effort and consequences in his view it suffices to look at the very model (8.107) defining the boundaries of games:



As a result, we can find in Juul's 2005 book the root of what we have defined as one essential part of the meaningfulness experienced in virtual realities, an idea which will continue also in later works where the possibility to experience failure in games will be related to the fact of perceiving games as experiences and even more so as meaningful ones:

"I began this short book by asking why we play games though they contain at their core something unpleasant: the experience of being informed that we, the players, are not good enough. This paradox of failure is parallel to the paradox of tragedy and part of the general paradox of painful art, and I argued that these paradoxes are best understood as a conflict between two simultaneous desires with different time frames. Our moment-to-moment desire to avoid unpleasant experiences (for ourselves or for fictional characters) is at odds with a longer-term aesthetic desire in which we understand failure, tragedy, and general unpleasantness to be necessary for our experience" (Juul, 2013, p.115)

Ironically, this author therefore can be perfectly integrated in our semiotic perspective using narration as a key form of meaning-making despite its explicit dislike for perspectives extending too much the concept of narration (such as the semiotic one!):

“The narrative turn of the last 20 years has seen the concept of narrative emerge as a privileged master concept in the description of all aspects of human society and sign-production. Expanding a concept can in many cases be useful, but the expansion process is also one that blurs boundaries and muddles concepts, be this desirable or not. With any sufficiently broad definition of x, everything will be x. This rapidly expands the possible uses of a theory but also brings the danger of exhaustion, the kind of exhaustion that eventually closes departments and feeds indifference: Having established that everything is x, there is nothing else to do than to repeat the statement. (Juul 2001a)” (10.146)

With this we substantially end this part on the relationship between semiotics and some of the major authors and findings inside the game studies. In the rest of this chapter we will simply highlight the closeness between some of our major topics with some of the author’s 2005 most significant part.

A) Second-order authorship as emergence:

“Playing a game is an activity of improving skills in order to overcome these challenges, and playing a game is therefore fundamentally a learning experience. This takes different forms in different games, but we can outline two basic ways in which games are structured and provide challenges for players: that of emergence (a number of simple rules combining to form interesting variations) and that of progression (separate challenges presented serially).

Emergence is the primordial game structure, where a game is specified as a small number of rules that combine and yield large numbers of game variations for which the players must design strategies to handle. This is found in card and board games, in sports, and in most action and all strategy games.

Progression is the historically newer structure that became part of the video game through the adventure genre. In progression games, the player has to perform a predefined set of actions in order to complete the game. One feature of the progression game is that it yields strong control to the game designer: since the designer controls the sequence of events, progression games are also where we find most games with storytelling ambitions.” (7.15-1.17)

B) On the narrative incoherence of virtual realities:

“Most video games create fictional worlds, but games do this in their own special tentative and flickering way: the hero dies and is respawned moments later; the strategy game lets players “build” new people in a few seconds; the player dies and loads a save game in order to continue just before he or she died; in-game characters talk about the game controllers that the player is using. These things mean that the fictional worlds of many games are contradictory and incoherent, but the player may not experience this as such since the rules of the game can provide a sense of direction even when the fictional world has little credibility.” (7.20)

C) Impossibility and mirrored narrativity defining virtual realities as unique games:

“The classic game model consists of six features that work on three different levels: the level of the game itself, as a set of rules; the level of the player’s relation to the game; and the level of the relation between the activity of playing the game and the rest of the world. According to this model, a game is

1. a rule-based formal system;
2. with variable and quantifiable outcomes;
3. where different outcomes are assigned different values;
4. where the player exerts effort in order to influence the outcome;
5. the player feels emotionally attached to the outcome;
6. and the consequences of the activity are optional and negotiable. [...]

While video games mostly conform to the classic game model, they also modify the conventions of the classic model. Games have changed. So while it makes sense to see games as a fairly well defined form, this book is also about how video games modify and supplement the classic game model; the history of video games is partly about breaking with the classic game model.” (7.23-7.32)

D) Interrelation of semantics, and of narrative through semantics, with rules:

“The main argument of this book, that video games are rules and fiction, is a response to a long history of discussions of whether games were one or the other. As in Saussure's observations about chess, it has often been noted that in a board game the actual shape of a piece appears unimportant in relation to the rules.” (7.53)

“Compare these two games based on identical rules (and programming), but with different graphics. In the first game (figure 1.4), the player controls a spaceship in a battle against the heads of the hosts of a television program. In the second game (figure 1.5), the player controls a spaceship in a battle against various theories, in this case a narratological model. [...] This strongly suggests that the relation between rules and fiction in the games in figure 1.4 and 1.5 is not arbitrary. Rather, these two games are satirical. In the first case they stage the love/hate relationship that viewers may have with television personalities as a deep-space battle. In the second case they stage an academic discussion-defending games against theoretical imperialism-as a deep space battle. Both are based on a background of some existing antagonism-and that is why they work, because the rules fit the representation-in an allegorical way.” (7.64-7.74)

E) Syntactic indeterminacy and network instead of semantic ones leading to ambiguity:

“In a very simple view of art, art is what is ambiguous, whereas most games tend to have clear rules and goals. As Immanuel Kant would have it, art is without inter est, whereas game players clearly play with much interest and probably send the wrong signals simply because they look completely unlike visitors to an art gallery. We cannot reasonably use such claims as checklists, and we should avoid thinking about art, and games, in a limited and unimaginative way.” (7.97)

F) The centrality of the digital computation and of simulation logics:

	Rules/computation	Game state
<i>Card games</i>	Human brain	Cards
<i>Board games</i>	Human brain	Game pieces
<i>Blind chess</i>	Human brain	Human brain
<i>Competitive sports</i>	Physics + human brain	Players' bodies/ game objects
<i>Video games</i>	Computer (CPU)	Computer (RAM)
<i>Card/board games on computer</i>	Computer (CPU)	Computer (RAM)
<i>Sports on computer</i>	Computer (CPU)	Computer (RAM)

“The classic game model is no longer all there is to games. With the appearance of role-playing games, where a game can have rules interpreted by a game master, and with the appearance of video games, the game model is being modified in many ways.

1. Rules: While video games are just as rule-based as other games, they modify the classic game model in that it is now the computer that upholds the rules. This gives video games much flexibility, allowing for rules more complex than humans can handle; freeing the player(s) from having to enforce the rules; and allowing for games where the player does not know the rules from the outset.

2. Variable outcome: In many cases, the computer can act as a referee in order to determine the outcome of a game on the basis of events that would not be immediately discernible to a human. In persistent online games, the player never reaches a final outcome but only a temporary one when logging out of the game.

3. Valorization of outcome: Open-ended simulation games such as The Sims change the basic game model by removing the goals, or more specifically, by not describing some possible outcome as better than others.

4. Player effort: The non-physical nature of video games means that player effort can work in new ways. For example, the player can control a large number of automatic units in a real-time strategy game, which would not be possible in a non-electronic game.

5. Attachment to outcome: Because an open-ended simulation game does not have a specific win or lose state, it gives the player a less well defined relation to the game outcome.

6. Negotiable consequences: It is perhaps implicit in the classic game model that a game is bounded in time and space; the game has a specific duration and a specific location. Pervasive games, location-based games, and some live-action role-playing games break this, as do games such as *Majestic* (Anim-X 2001) where actual phone calls are part of the playing of the game.” (8.188-8.195)

“Since the rules of a video game are automated, video games allow for rules that are more complex and hence for more detailed fictional worlds” (Juul, 2005, 10.177)

G) The role of different degrees of transparency:

“Game theory also distinguishes between games of perfect information and games of imperfect information: In the former case, all players have complete knowledge of the game state at any given moment (Neumann and Morgenstern 1953, 30). In the latter case, players only have partial knowledge of the game state. Games of perfect information include many traditional board games and a few video games such as *Space Invaders* (Taito 1977), *Tetris* (Pazhitnov 1985), *ChuChu Rocket* (Sonic Team 2000), and *Tekken 3 Tag Tournament*.³ Games of imperfect information include most card games (since the hands of the other players are hidden) and the majority of video games including all three-dimensional games (3-D graphics hide things from the player's view).” (9.20)

H) Syntactic Indeterminacy:

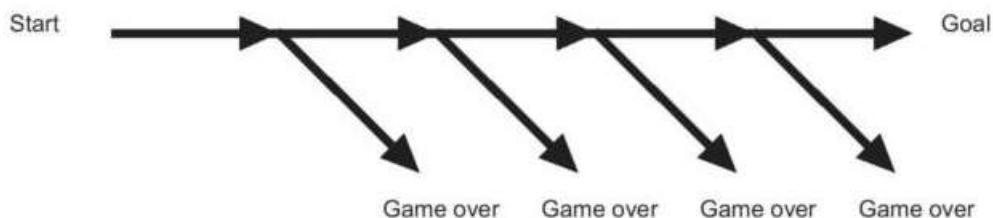
The Hobbit is a text-graphics hybrid adventure game where some of the world is represented in graphics and most is represented in text. The player interacts with the game exclusively through text input. To complete the game, the player has to overcome a number of challenges such as getting a key from some trolls without being eaten, escaping from a goblin, sailing a river on a barrel, slaying a dragon using a helper, and finally getting back home again. On the surface of things, *The Hobbit* is the more complex game, having large amounts of graphics, dialogue, and a quite varied setting. *Pong*, on the other hand is as simple as can possibly be. Katie Salen and Eric Zimmerman have discussed how it can be difficult to understand why *Pong* became a popular game:

People love pong. They do. But why? Really. What's to love? There isn't much to the game; a pair of paddles moves to blunt white lines on either side of a black screen, a blocky excuse for a ball bounces between them, and if you miss the ball, your opponent scores a point. The first player to score fifteen points win. (Salen and Zimmerman 2004, 13)

They then list six reasons for playing *Pong*, the second one being the following: "Every game is unique. Because the ball can travel anywhere on the screen, *Pong* is an open-ended game with endless possibilities. *Pong* rewards dedicated play: it is easy to learn, but difficult to master" (Salen and Zimmerman 2004, 15). Therefore, *Pong* gives us a very rudimentary example of how a game with very simple rules can provide variation and replayability. *The Hobbit*, on the other hand, contains a wider range of possible actions that the player can perform (picking up things, talking to people, using objects to manipulate the world). Even so, the complete solution to *The Hobbit* fits on a sheet of paper.” (9.63-9.71)

I) Proper virtual realities and lesser virtual realities:

“The traditional adventure game was based loosely on the fantasy genre inspired by Tolkien: a world of elves, trolls, dragons, caves, and treasures. During the 1980s, the genre changed from being text-based to being primarily graphical.” In *The Longest Journey* (Funcom 2000) the game protagonist, April Ryan, is on board a ship threatened by a storm. To save her, the player must perform a predefined sequence of events (figure 3.5- 3.8). If the player does not perform the right actions, the game is over. It is characteristic of progression games that there are more ways to fail than to succeed (figure 3.9). The progression structure yields strong control to the game designer: Since the designer controls the sequence of events, this is also where we find the games with cinematic or storytelling ambitions.



| Figure 3.9 |

” (9.90)

J) FOA vs SOA in terms of boundaries and violation:

“Emergent gameplay is usually taken to be situations where a game is played in a way that the game designer did not predict. The game designer Harvey Smith has argued extensively for systemic level design; game design that allows for emergent gameplay. He makes the distinction between desirable emergence, where the interaction between the different elements of the game leads to interesting gameplay, and undesirable emergence, where players find ways to exploit the rules in ways that make the game less enjoyable. The best-known example of the latter is the proximity mine problem in *Deus Ex* (Ion Storm 2000) [...] Some clever players figured out that they could attach a proximity mine to the wall and hop up onto it (because it was physically solid and therefore became a small ledge, essentially). So then these players would attach a second mine a bit higher, hop up onto the prox[imity] mine, reach back and remove the first proximity mine, replace it higher on the wall, hop up one step higher, and then repeat, thus climbing any wall in the game, escaping our carefully predefined boundaries. (Smith 2001).” (9.105)

“That rules and gameplay are asymmetrical, and that emergence games give the player freedom to play a game using different strategies, are in many ways flip sides of the same coin. This can be understood by way of what is broadly called “the sciences of complexity” (cf. Waldrop 1994), the study of systems (biological, economical, or otherwise) that exhibit an asymmetry between the simplicity of some basic rules and the complexity of the system. As Stephen Wolfram puts it: “Whenever you look at very complicated systems in physics or biology ... you generally find that the basic components and the basic laws are quite simple; the complexity arises because you have a great many of these simple components interacting simultaneously. The complexity is actually in the organization-the myriad of possible ways that the components of the system can interact” (qtd. in Waldrop 1994, 86).” (9.109)

“Progression and emergence are the two extreme ways of creating games. In practice, most games fall somewhere between these poles.” (9.138)

K) Playing as Filling the gaps:

“In most cases, the incompleteness of a fictional world leaves the user with a number of choices in the imagining of the world. Marie-Laure Ryan has proposed the principle of minimal departure, which states that when a piece of information about the fictional world is not specified, we fill in the blanks using our understanding of the actual world (Ryan 1991, 48-60). In a specific genre, we fill in the missing pieces by using a combination of knowledge of the real world and knowledge of genre conventions. In an adventure tale, we fill in the blanks using a combination of knowledge of the adventure genre and our knowledge of the real world, so although we have no real-world experience with witches, we assume that a witch in an adventure has magical powers” (10.8)

“The fictional world of *Donkey Kong* is only very superficially described, but it is possible to imagine a world in which Mario's girlfriend is kidnapped by an evil gorilla and has to be rescued. This is repeated on levels 1 and 2. On level 3, *Donkey Kong* kidnaps Mario's girlfriend again and apparently returns to the original hideout. It is harder to understand why Mario has three lives: Being hit by a barrel, by a fireball, or by an anvil should reasonably be fatal. Furthermore, the player is rewarded with an extra Mario at 10,000 points. This is not a question of *Donkey Kong* being incomplete, but a question of the fictional world being incoherent or unimaginable. While, technically, any world can be imagined, and we could explain Mario's reappearance by appealing to magic or reincarnation, the point here is that nothing in *Donkey Kong* suggests a world where people magically come back to life after dying. In an informal survey of *Donkey Kong* players, all players explained the three lives by appealing to the rules of the game: With only one life, the game would be too hard.” (10.12)

L) Projecting a fictional world through FOA: graphics, sound, text, cut-scenes, game title, box, manual, haptics, rules, the player's actions and time, rumors:

“Like other fictional worlds, the fictional world of a video game is incompletely specified. But where the viewer of a film or the reader of a novel is certain to have seen all the material that presents the fictional world of the story, video games are special in that skill is required to access all parts of the game. Video games are therefore uniquely prone to rumors and imaginings about the world of a game. In the arcade game *Battlezone* (Atari 1980), the player controls a tank in a simple 3-D environment; a mountain range and a volcano can be seen on the horizon. Atari engineer Lyle Rain recalls: “One letter came from a *Battlezone* fan who said that if you drove far enough you finally got to the volcano, and if you drove over the top of the volcano, you could go down into the crater. And he said that inside the crater there was a castle, and that you could go inside and explore the castle. Of course, none of this was true” (qtd. in Burnham 2001, 216). The game designer cannot control the player's interpretation of the game world, and the player may additionally believe that the game contains nonexistent elements and imagine the world accordingly. There is nothing in *Battlezone* that indicates the existence of a castle, but this player nevertheless believed that the game contained indications that he would find if only he got sufficiently far into the game.” (10.69)

M) Meaning though rules and semantics rather than one or the other:

“Rules and fiction interact, compete, and complement each other. A video game may project a world and the game may be played in only a part of this fictional world. Examining a number of game examples in detail, it turns out that fiction in video games plays an important role in making the player understand the rules of the game. A statement about a fictional character in a game is half-real, since it may describe both a fictional entity and the actual rules of a game.” (11.1)

“Even though fiction and rules are formally separable, the player's experience of the game is shaped by both.” (11.51)

“The interplay between rules and fiction of video games is what makes them half-real: real rules and fictional worlds.” (11.121)

N) Economics as related to meaning although not in a deterministic way:

“Even if games are not exclusively fictional worlds, they are nonetheless subject to constant interpretation. But what does a game mean? It is very hard to create convincing interpretations of the rules in a game themselves. One of the most discussed games is SimCity, where, as the mayor of a city, the player has to control land development, tax levels, and so on (see figure 4.12). SimCity is not the actual world, but a model, and this model is obviously based on a set of assumptions. Ted Friedman has claimed that “most fundamentally, it rests on the empiricist, technophilic fantasy that the complex dynamics of city development can be abstracted, quantified, simulated, and micromanaged” (1999). It shines through that Friedman is against this fantasy. But if we actually play SimCity, the experience is one of not being able to control a city. SimCity is an excellent example of a game of emergence where the complexity of the game is far higher than the complexity of the rules. In this way, SimCity is a prime example of how a city is unpredictable and uncontrollable. The most important issue here is that Friedman not only ignores what it is actually like to play the game, but also sidesteps the possibility of things like irony, parody, and poetic license.” (11.100)

3.4 Semiotics and digital culture

In almost all of the previous chapters we have already mentioned several times the importance of digital technology in the meaning-making processes occurring in virtual realities, making them something apart from audiovisual texts, narration and even from games. In this chapter we will directly face such topic by specifically focusing on six main features of virtual realities as digital artifacts that have already been evoked:

- 1) The automation of the rules corresponding to the indirect determination of the utterances, potentially representing unwanted and unplanned events by the users as well as the authors. Moreover, an automation outside of the usual contract between players becoming a criteria for distinguishing digital games from other types (Mosca, 2010).
- 2) The mechanic of saving and reloading as a logic of impossibility and aesthetic of rewriting.
- 3) The access to the original game files that can sometimes be modified (mods, hacks) as an ulterior feature of a conflict between authorships.
- 4) The invisible underlying code allowing virtual realities to have secrets, myths and rumors. From the most famous ones such as the GTA ghost cars to Battlezone:

“In the arcade game Battlezone (Atari 1980), the player controls a tank in a simple 3-D environment; a mountain range and a volcano can be seen on the horizon. Atari engineer Lyle Rain recalls: "One letter came from a Battlezone fan who said that if you drove far enough you finally got to the volcano, and if you drove over the top of the volcano, you could go down into the crater. And he said that inside the crater there was a castle, and that you could go inside and explore the castle. Of course, none of this was true" (qtd. in Burnham 2001, 216). The game designer cannot control the player's interpretation of the game world, and the player may additionally believe that the game contains nonexistent elements and imagine the world accordingly. There is nothing in Battlezone that indicates the existence of a castle, but this player nevertheless believed that the game contained indications that he would find if only he got sufficiently far into the game.” (Juul, 2005, 10.69)

- 5) The conflict between the tangible representation through signs and the computational possibilities:

“The relationship between game space and world space becomes more interesting in games with more elaborate fictional worlds, where the end of the game space has to be marked in more subtle ways than by using a white line or a wall. In Battlefield 1942, the player approaching the edge of the game space is informed by a textual message, "Warning! You are leaving combat area. Deserters will be shot. " This is known as invisible walls: The fiction gives no clue that the world ends, but for no apparent reason, the game space ends.” (Juul, 2005, 11.13)

“In text-based adventure games, the mismatches can be even more jarring, such as in this example from Witness (Infocom 1983):

>wait

The rain is falling heavily now.

>drink rain

(Sorry, but the program doesn't recognize the word "rain:")” (Juul, 2005, 11.58)

- 6) The prosthetic machinability of the user's reasoning and embodied actions required to succeed and excel in virtual realities subjected to failure.

Hence, whereas the meaningfulness of the interactions constituting the activity of playing was until now understood as a difference between authorships realized through enunciation (the user's story, ludic performance and aesthetic outcome as the result of a possibility among others more or less designed by the non-user), we will now add a second complementary difference for which the meaningfulness of such interactions depend on the conscious manipulation of the digital artifact (the user's story, ludic performance and aesthetic outcome as the result of a possibility among others more or less allowed by the specific form of authority constituted by the software).

The topic of the digital is however extremely vast, even by looking only within semiotics, and can be faced in a variety of ways. Therefore in this chapter we have decided to first of all motivate the exclusion of some paths of research and reflection in 3.4.1, and then to focus on Ruggero Eugeni's "La condizione post-mediale" as a key starting point to face all of our six main points. As a result, this chapter will be mainly focused on the relationship between digital culture and meaningfulness in virtual realities.

3.4.1 Dead ends

3.4.1.1 *Forsaking HCI semiotics*

A thesis on virtual realities, in which the computational process is a non-negotiable part of our definition of virtual reality, should reasonably deal with the existing literature in the field. Most notably the work of reference here is Andersen's "A theory of computer semiotics" (1997). In this work, however, we will not consider such literature for our discussion. The reason for this can be immediately seen in the following passages of critique to such semiotics written by Espen Aarseth and referred to some early works of the nineties:

"Jensen sees computer programs as representations and models of some aspect of the real world (1990, 44) and, later, argues that "the symbols as strings of binary digits" (46) can only mean what the programmers and system designers by convention have defined them to mean. As the incarnation of the signal-semiotic threshold, Jensen posits the "interface" (47), the visible front layer of the computer, since it functions both as borderline and membrane between the two systems. [...] Jensen's decision to posit the interface as a border between human semiosis and machine processing, on the other hand, makes it hard to see what relevance a semiotic approach and the idea of semiosis can have in the study of sign-producing machines. [...] The fundamental question, however, is whether a system capable of producing emergent behavior based on an initial state and a set of generative rules should be considered a semiotic system at all. Since it can exist without any semiotic output, as a closed process running inside a computer, the semiotic aspect is clearly arbitrary and secondary to the process itself." (Aarseth, 1997, pp.27-30)

"The idea that cybernetic sign systems are basically mouthpieces for their human designers and programers can also be found in Peter Bogh Andersen (1990, 137). Andersen's effort to examine computer communication from within a semiotic episteme is a comprehensive study of computer systems from the perspective of Hjelmslevian semiotics; only a small part of it is addressed here. Like Jensen, Andersen uses the interface as the empirical domain for his semiology." [...] Andersen dismisses C. S. Peirce's typology of symbols, indexes, and icons, since he finds them "not sensitive to the characteristics of computer-based signs, namely that they can be handled and interacted with" (199). Instead, he sets up his own classification system based on four features: permanence, transience, handling, and action. [...] From these four features, Andersen extracts seven classes of signs: interactive, actor, object, button, controller, layout, ghost (table 2.1)." [...] An interactive sign is permanent, transient, active, and can be handled directly by the user; the hero of DC is a good example. An actor is an active, transient sign that cannot be handled directly, such as an enemy in DC. Objects are inactive and transient, buttons are nontransient but not directly handleable. Controllers (e.g., "floors" and "walls" in DC) are nontransient, not handleable, but active. Layout signs are permanent, nontransient, and inactive-in other words, mere decoration. Last, Andersen posits a very strange sign indeed; the ghost sign, which is without permanent and transient features, cannot be handled or even perceived but, nevertheless, exists "by influencing the behavior of other non-ghost signs" (211). The ghost sign is a clear indicator of a main weakness of his otherwise fairly scrupulous semiology: in order to describe these phenomena as semiotic entities, he must invent a sign type that is without manifestation, a sign that seems to be pure content: in other words, not a sign at all." (Aarseth, 1997, pp.30-33).

What we see here is simply the Peircean and HCI facet of what we have criticized since the beginning: the intent of applying an already existing metalanguage and formal system to a new object. Although such work can be of high-value inside paradigms interested in meaning-making, it is extremely hard to apply this perspective to study the meaningfulness experienced in virtual realities. Social phenomena of human interpretation are here clearly in the background of more formal descriptions through typologies and metalinguistic attributions.

It could of course be argued that in the meantime, the last twenty years, this perspective may have evolved. Our bibliographic research, however, proved mostly the opposite. Not only there are no new major monographies about "computer semiotics", but in 2013 Andersen's work was still a main point of reference in the study of the semiotics of human-computer interaction (Brejcha and Marcus) and, more importantly, meaningfulness was still a very far preoccupation for such semiotic approach.

But even more generally, it is perhaps the very topic of the human-computer interaction that seems to oddly drive away the human and cultural dimension of such interaction from semiotics. A rather iconic example is the succession of the 2012 paper “Virtual reality as a communication process” (Marini, Folgieri, Gadia, Rizzi), the 2016 paper “Semiotics of virtual reality as a communication process” (Barricelli, Gadia, Rizzi and Marini) and the successive 2018 “Semiotic Framework for Virtual Reality Usability and UX Evaluation: a Pilot Study” (Barricelli, De Bonis, Di Gaetano, Valtolina). These three papers all come from the department of informatics and communication of Milan and, despite explicitly referring to the more “narrative” tradition of Eco and Greimas present a direction of research clearly different from ours:

“Our approach can provide guidelines for the detailed design of a VR solution to a given problem. Being VR interaction a communication process, the developers must be conscious of the criticality of how communication is implemented, selecting the appropriate level of detail and accuracy in visualization, interaction and modeling, selecting the appropriate sensory stimulation systems, and determining the necessary languages to be proposed to perform human–VR interaction.” (2012, p.241).

“As stated before, the aim of this paper is to explore the semiotics of VR as a communication process and therefore to analyse it according to the three abstraction levels that are typical in a communication process: syntactic, semantic and pragmatic. These three levels are in a strict relationship with what we consider the three main elements of a VR system: structure, model and interaction as we defined them in Marini et al. (2011). By the structure, we mean the organisation into parts, the shape of the parts, the assembly of the parts, etc., what in general becomes the 3D geometric model of the equipment, possibly enriched with a dynamic behaviour. By the function of the equipment, we mean the way each part works, the way the assembly works or, better say, how parts and assembly change as the time goes on or as an operator changes some part. By the underlying model, we mean what are the physical, chemical, in general technical or scientific principles that rule the function of the equipment” (2016, p.4)

“The Semiotic VR Framework can be used to classify and describe different kinds of virtual reality applications and to better understand communication in VR. It represents both a tool for evaluating existing VR applications and for supporting designers of VR systems in their decision making processes.” (2018, p.1)

Although on the surface several points of contact are present due to a common use of key terms (cooperation, subject, semantics, syntax, and so on) and even key issues (realism, immersion, presence) it is in reality extremely hard for us to effectively use such work. Now, we would be of course incoherent by criticizing the “usefulness” of such semiotics aimed toward design, and this is not at all what we are doing here. By highlighting such differences, we are only justifying the lack of a more in depth-discussion of several works related to the semiotics of computer and virtual realities. Finally, with more time at disposition for my research, I would have undoubtedly tried to also integrate such perspectives about computational semiotics and HCI semiotics which are undoubtedly part of a broad semiotics of virtual reality.

3.4.1.2 Forsaking hypertexts and electronic Texts

The second path that will be avoided is to consider the hypertext as an alternative model of meaning-making and solution to the difficulties of a textualist approach. Indeed, virtual realities present many characteristics and analytic difficulties which were studied between the 90's and the 2000's under the idea of "electronic text" or "electronic literature" which were recognized to "shifts the boundaries of what we consider to be literature [...] definitively ends the dream of the unproblematic reader" (Post, 2003). Moreover, many characteristics of our idea of virtuality as a certain logic of representation are indeed present in the central work of George Landow "Hypertext" which since the early nineties and until the nineties has been updated several times. Differently from Landow, however, we do not believe that this term, referring to a very concrete digital object and structure, can actually help us to grasp the specific process of meaningfulness occurring in virtual reality and their most relevant features. And for a very simple reason: at the end of the day this concept is rather vague and does not work to concretely examine all the specific forms of interaction and enunciation involved in virtual realities. It is indeed such generality that allowed Zinna (2004) to use precisely hypertextuality as a model of *writing-items* to talk about a great variety of forms involving "electronic writing" and which, undoubtedly, present several themes in common with ours: simulation and perception (p.174), authorship (p.194), interactive editing (p.219) and more. This issue was also remarked long before us by Maietti (2004), and yet instead of abandoning such metaphor he chose to keep using the term by coupling it with the perhaps even more metaphorical concept of labyrinth. Differently, in this thesis we want to avoid metaphors as much as possible and therefore will follow the same path of Ferri (2004) in disregarding this term which as a metaphor works wonderfully to explain virtual realities, but *only* as metaphor. In fact, what is exactly a hypertext?¹³¹

Classically, in its more historical sense associated with Ted Nelson, hypertext is a possibility of non-linear access to a certain content which facilitates reading and allows access to it through new logics. Using Christian Vandendorpe's definition¹³², hypertext can be defined as a "mutation" of "the most precious tool that man has invented to build his knowledge and develop the image of himself and the world: the text". And "since this one only exists based on reading, changes in the first will affect the second. You don't read hypertext like you read a novel, and browsing the web provides a different experience than reading a book or newspaper." (Vandendorpe, 1999, p.7). But this new "form" of text actually existed long before the Internet: book indexes and footnotes in The Encyclopedia had already hypertextualized reading and books before their time. (Vandendorpe, 1999, p.30). This change of the text acts on several levels: spatio-temporal, compositional, aesthetic, etc ... And each level, influencing the reading and the interpretation, theoretically defines a new experience of knowledge and acquisition of content: reason why the hypertext has been defined as a true medium in itself (Landow, 2006) and as a deep form, a language which determines the message conveyed according to McLuhan's famous theory (1964). However, associating these effects with a list of hypertextual characteristics, for example the more or less strong "tabularity" consisting in the existence "of several modules, each having a relative autonomy but being interdependent on each other, grouped together on a limited material space." (Florea, 2009), risks of leading us to several erroneous reasonings.

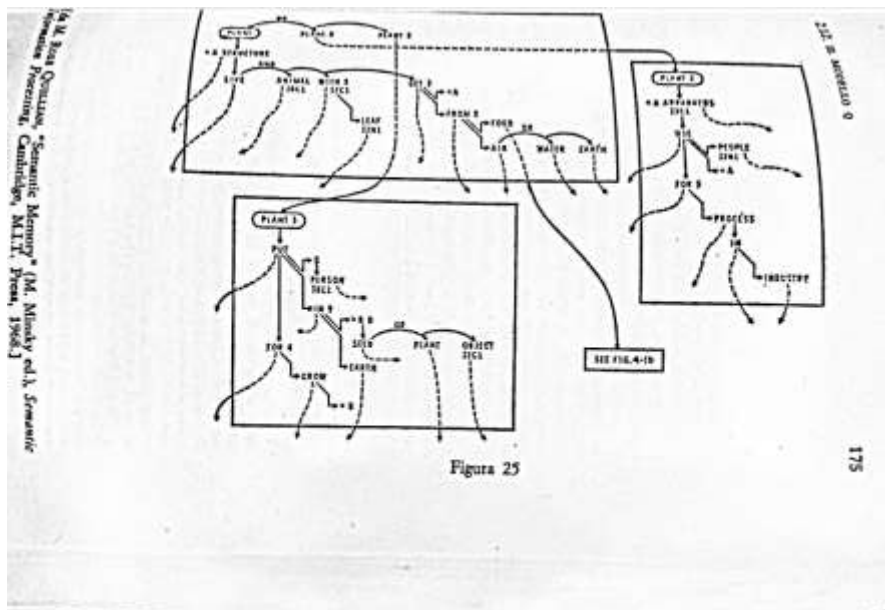
¹³¹ The following part comes from an article actually in print

¹³² Christian Vandendorpe, *Du papyrus à l'hypertexte. Essai sur les mutations du texte et de la lecture*, Paris, Éditions La Découverte, 1999. (my translation)

The first possible mistake is to consider the hypertext as a text which requires a certain formal aspect (a visible architecture) in order to have a hypertextual effect on its reader. On the contrary, we often forget that:

“Basically, every writer aims to create in the reader's mind a network - hypertext before the letter - in which tens, if not thousands, of items respond to each other. As Roland Barthes points out, “the classical text is therefore indeed tabular (and not linear), but its tabularity is vectorized, it follows a logico-temporal order. ” (Barthes, 1970, p.37, in Vandendorpe, 1990, p.46, my translation).

There is indeed a hypertextuality of content necessarily linked to the rhizomic structure of semantics (Paolucci, 2010), of the text as a socio-cultural and historical object (which is why Barthes in 1973 thinks of the text as an object that is a priori intertextual) and of knowledge. For Eco, indeed, semantics is not a question of minimal internal meaning (semes) but rather an open and dynamic space of contexts, of choice according to an encyclopedic section, which pushes him to refuse the classic distinction between semantics. and pragmatic (Paolucci, 2018). Identically also works our culture, which is by definition intertextual and hypertextual, and thus is the very subject which is defined by the world of signs which surrounds it and which can only interpret the world through other interpretations and texts which cannot be interpreted. are in no way sequential or consistent with each other. Eco explains this conception of semantics with a model called "Q" (Eco, 1975, p.175), borrowed from studies on cognition and artificial intelligence, a model which is indeed a set of possibilities around a lexeme and which visually seems very hypertextual.



But what is even more interesting is that this model comes from cognitive science which in recent years has shown us (Sporns, 2011) that our brain and cognitive system is a veritable interconnected and dynamic network. So, while in the 90s some were convinced that "formal" hypertexts (such as the web) would have changed the way we think (Sanders, 1995), today we know that they are only a reflection of our thinking. What is "hypertextual" is in fact the very structure of knowledge (such as Eco's Encyclopedia inspired by Dante's divine "volume" and Borges' library of Babel), of language and of thought. The texts can only reflect this situation and the exceptionality of a book or game would therefore be non-hypertextuality.

The second mistake would be to believe that the linearity of the reading is a choice that concerns only the author. On the contrary, no book has been able to prevent a different reading practice desired by its reader: like the man in the city who traces his course and invents his strategies of resistance to the imposed order (Certeau, 1990) and since reading is also a question of pleasure and *scuffing of meaning* (Barthes, 1973, p.22), the sterile linear word-by-word fruition of a text, without any rambling and without semantic ambiguity, is nothing but a (sad) utopia.

The third is to think of "tabulation" as significant in itself, hypertext as "special" a priori, while it is present in the newspaper we (used to?) read every morning. A hypertextual structure, visible or invisible as it is, is not in itself sufficient for hypertextual reasoning which necessarily leads to a wealth of content. On the contrary, while it is true that it is practically impossible to play the same part twice in Super Mario Bros (1985), its meaning and its meaning do not seem to vary greatly. Hypertext effects are therefore not a question of form but above all of use and content. Here is why :

"It should be noted that the greater or lesser degree of tabularity of a book will also depend on its content and use. Thus, the children's album often does not have a pagination: the young reader would have no use for it, since these books are intended to be read from cover to cover or contemplate for their images and that they do not suppose not thoughtful reading, accompanied by note taking and cross references. On the contrary, the scholarly work, which is aimed at readers whose time is precious, will multiply the tabular references: division into topics, into chapters, sections, paragraphs." (Vandendorpe, 1999, p.65, my translation)

Finally, the last mistakes regard the fact that:

"while a print novel is far from automatically linear, a hypertext is not necessarily nonlinear either. The pages or segments can follow each other in a rigorous way, forcing the reader to read in a fixed order, even more fixed than the pages of a book, because it is always possible to open it from the desired page, while this one can be programmed so as to fully control the reader's path." (Vandendorpe, 1999, p.47, my translation)

It therefore does not seem "possible to maintain a dichotomy between media of the "linear" type and "non-linear" media: more and more theorists today refuse such a divide (Aarseth, 1997, p.47)." (Vandendorpe, 1999, p.46, my translation). A hypertext can mark sections, suggest rules of the game, associations, and so we might think that, unlike normal text, it can be read several times and always have a different experience. And yet, if there is one thing that is precious in the great classic novels that have marked us, it is that by rereading them we have always been able to find something new and important: new openings and connections. And this for the simple reason that it is not the hypertext which is characterized by its dynamic aspect and its references: but the sign in its semiotic meaning: Saussurean (the value of the sign exists only in the relation with other signs) and Peircean (the meaning of the sign always depends on an interpreter, it is always mediated by another sign, the sign is always understood and seen locally under a certain aspect while its possible references are infinite).

We therefore see here a fundamental aspect of the concept of hypertext: while it is absolutely possible to classify textual configurations as "hypertextual" a priori, it seems however impossible to be able to predict the interpretive activity of reading from 'hypertextuality' of the text. It is because of this dichotomy that the idea has become so problematic that "according to a definition proposed by Ducrot and Todorov, the text is characterized" by its autonomy and its closure (p. 375) " (Vandendorpe, 1999, p.87). And it is for this reason that for Gadamer dialogue is the basis of any relationship with a text, because his point of view is focused on interpretive activity. Here, *in nuce*, is the origin of the various conceptions of hypertextuality and why from an analytical point of view, using the term "hypertext" as a synonym for network, connections and non-linearity does not seem a good choice to us.

And yet the success of hypertext as a metaphor (which has become a buzz word) is paradoxically and precisely due to all this vagueness which concerns both the structuring of the text (we are talking about hypertextuality for very different architectures between them) and the types of 'interactions with the text. This last concept is also known in game studies as a "naughty concept" precisely for this reason, and to put an end to its ambiguity, an author like Zimmerman has defined four different types of interactions: Interpretative (attribution of meaning), Functional (use of parts of the text such as the index), Explicit (click on a hypertext link or change the clothes of a doll sold with several interchangeable outfits) and Meta (use of the text to produce other text as in culture fans). However, even by limiting ourselves to the "Explicit" category, it is obvious that we find very different possibilities between them and that from a methodological point of view this does not really help us to understand the relations between the meaning, the interactions, and the structures of digital games. It is moreover to avoid all these problems that Aarseth "reduces" hypertext to explicit branching and "invents" the concepts of cybertext and ergodic text in order to be able to better account for the effects of meaning and the textual specificity of products like videogames. Hypertext loses its centrality, returns almost to its original definition, becomes technological and topological (Aarseth, 1997, p.43), and is included in these two new concepts (it is one type of ergodic text among others such as adventure games). After having criticized a certain ideological use of the concept of hypertext to include all forms of interactive narrative (Aarseth, 1997, p.48) and not very rigorous from a terminological point of view (Aarseth, 1997, p.59), hypertext is paradoxically defined by Aarseth as a text *less rich* in possibilities by contribution to the game numeric which allows more different combinations of parts of the text:

A hypertext such as *Afternoon* (Joyce 1990) will have a fixed number of scriptons (and textons), while the game *Adventure* (Crowther and Woods 1976) will have a fixed set of textons but a variable number of scriptons (texton combinations), determined by the progress of the play. In a MUD, where other concurrent users can type in anything, the number of textons is not known. (Aarseth, 1997, p.63)

What is interesting here is to see that for Aarseth the specificity of digital texts like video games is found in the capacity of calculation and production of textual units on the level of expression, something that the concept of 'hypertext does not contain:

"But perhaps even more disputable than the issue of these textual genres' various capabilities, is the question of what to call them. There is a tendency among hypertext theorists to call all electronic texts *hypertexts* (and to call paper-based texts with paths or similar devices *protohypertexts*), but this sort of imperialist classification not useful, considering the wide variety of textual types (many which are already known by other names, such as MUDs and adventure games). *Hypertext* is a useful term when applied to the structures of links and nodes, but it is much less so if it includes other digital texts as well. I suggest the term *cybertext* for texts involve calculation in their production of scriptons." (Aarseth, 1997, p.75)

All these examples prove, in short, that to say that such an object is hypertextual, in the human sciences, amounts in reality to saying very little. It suffices for us to think here of Genette for whom "there is no literary work which, to some degree and according to the readings, evokes some other and, in this sense, all the works are hypertextual" (1982, p.16). This does not of course mean that there is no difference between this article and a video game, on the contrary, formally hypertextual texts, with their architectures and their reading "rules", are of great interest because they push us to reflect on the textual possibilities and the effects of meaning that derive from them. Thus, if by saying that the book or the game is hypertextual we risk not saying anything interesting, in this risk hides the opportunity to analyze the specific hypertextuality of a certain cultural object. We are therefore not criticizing here the concept of hypertextuality as such, but rather its vague use: sometimes binary choice, sometimes explicit reference, sometimes implicit reference, sometimes interaction, sometimes Porfirio or Q model, sometimes labyrinth, etc.

Finally, not only is the concept of hypertext too vague, but it also loses its meaningfulness when applied to virtual realities in which, as we have seen several times, thousands of constant « decisions » made through “inputs” have absolutely no narrative nor semantic consequence.

In the next section we will now concretely look at several digital game to prove the criticality of such vagueness, and as always the readers already “convinced” by our theoretical arguments can skip to the next part.

3.4.1.2.1 *Forsaking hypertexts: case studies*

First of all, we need to abandon our generic definitions of hypertext and see how video games (and therefore virtual realities) can be defined as hypertexts. When we talk about hypertextuality in video games, we generally consider five main characteristics highlighted by Landow:

First, the player’s actions – clicking a mouse or manipulating a similar device, such as joystick – determines what the player encounters next. Second, like hypertext, games rely on branching structure and decision points. Since the places in the video game where the player acts produce potentially different results, they appear structurally identical to hypertext’s branching links. If one defines the production of different results by user’s choice (whether alphanumeric texts or actions), then hypertext becomes, as Aarseth claims, a subset of ergodic text. Third, games, like hypertext fictions (but unlike print narrative), are meant to be performed, and fourth, they are meant to be performed multiple times. Fifth (and this may only be a trivial point of convergence), the record of a game player’s actions, like the experience of reading a hypertext, appears linear since both the players of games and readers of texts make their way through a series of choices in linear time; of course, the range of possible actions, of roads not taken, themselves constitute a branching or multilinear structure but one that is not immediately available to players and readers. (Landow, 2006, p. 250)

Here again it is easy to see that we could extend these characteristics (manipulation, arrangement, variability, connections, apparent linearity within a structure which allows several paths) to the game *tout court* and that the distinction between interaction and hypertextuality is quite difficult. But leaving that aside, we can try to build a stereotypical hypertext model of video game storytelling. As a corpus for this model, we will choose twelve among the most famous games distributed between 1980 and 1992 and belonging to different genres. These games are:

1. *Super Mario Bros* (1985, NES, *Platform*)
2. *Megaman* (1987, NES, *Action-Platform*)
3. *Out Run* (1986, Arcade, *Racing Game*)
4. *Super Soccer* (1991-1992, SNES, *Football Game*)
5. *Double Dragon* (1987, Arcade, *Beat’em Up*)
6. *Street Fighter II: The World Warrior* (1991, Version Arcade, *Fighting Game*)
7. *R-Type* (1987, Arcade, *Shoot’em Up*)
8. *Wolfenstein 3D* (1992, MS-DOS, *First Person Shooter*)
9. *Metroid* (1987, NES, *Sci-Fi Action Adventure* :)
10. *Adventure* (1980, Atari 2600, *Fantasy Action-Adventure*)
11. *Legend of Zelda* (1986, Famicom, *Action-Role Playing Game*)
12. *Ultima I* (1981, Apple II, *Role Playing Game*)

This choice of texts is used to formulate a fairly general and simple model on which to try to construct a basic and starting hypothesis of the game emptied as hypertext. We are therefore going to deliberately leave aside genres that would challenge this model (puzzle games like Tetris) or more recent titles that present a higher degree of structural complexity (*Eve Online*, *Minecraft*).

At first glance these titles, which are among the most iconic in the history of video games, are really nothing out of the ordinary. All but one (*Megaman*) have a mandatory first level (which we could call “chapter”) and then a series of other “chapters” up to a final level which is again the same for all except one (*Out Run*). By level or chapter we mean here 1) a pre-established section of the text 2) of a certain proportionally long temporary duration (greater than one minute in most cases) 3) located in a specific context (the desert, the forest, the prison, the space base) forming part of a general context (the world, space, etc.) 4) characterized by its own topology 5) and by the presence of particular obstacles (enemies, vehicles, traps, etc.) 6) often having its own meta-textual closure (score, time, animations, loading, etc.). Indeed we can see that the situation is as follows:

1. *Super Mario* : Début : Monde 1-1 ; Fin : Monde 8-4
2. *Megaman* : Début: (6 variables) ; Fin: Dr Wily Stage
3. *Out Run* : Début : Stage 1 ; Fin : Stage 5A-5B-5C-5D-5E
4. *Double Dragon*: Début : Mission 1 ; Fin : Mission 4
5. *Street Fighter II*: Début: Ryu contre Dhalsim en Inde ; Fin: Ryu contre Bison en Thaïlande
6. *R-Type*: Début : Stage 1 ; Fin : Stage 8
7. *Wolfenstein 3D*¹³³: Début : Mission 1, Etage1 ; Fin : Mission 3, Etage 9
8. *Metroid*: Début : Aire 1 *Brinstar* ; Fin : Salle du Cerveau 46
9. *Adventure*: Début : Level 1 ; Fin : Level 3
10. *Legend of Zelda*: Début : Overworld Foret; Fin : Death Mountain -Ganon
11. *Ultima I* : Début :Est de *Britain* ; Fin : Passé – Mondain
12. *Super Soccer* : Début : Match contre la Belgique Fin : Match contre la Nintendo

There is, however, a big difference in these linear beginnings and endings compared to other cultural products. In fact, in four of our games the protagonist subject of these narrations can be chosen by the player. So the *Street Fighter* champion will depend on the initial character choice, the strongest football team in the world will depend on the team choice, Billy will be able to save his beloved on his own or with the help of his brother Jimmy, and in *Ultima* the world can be saved by a character created entirely by the player (who will choose their gender, race, class, qualities, weapons, and even their name.). But can this characteristic, fundamental for the richness of the meaning of the video game text, be defined hypertextual? In the case of *Street Fighter*, it is true that each character carries a different end of the text, but the sequence of these endings (finishing the game first with Ryu and afterwards with Ken, for example) has no bearing on the text, and for each character the story is determined from the start and therefore no player choice (other than the character selection at the very beginning) during the text matters. It is therefore easier to imagine this game as a completely linear work which presents several different versions of its story in succession rather than as a hypertextual work. This same reasoning can be applied for our three other cases and can, more in general, make us reflect on the fact that digital texts are texts which rather than determine univocal consequences each time we make a choice (which is the classic hypertextual branching) opens a series of variables in a world which is made to accommodate all the choices. Let’s make one final example: the protagonist of *Ultima* may be named John Paul or Jesus, but *nothing in the world and in history is waiting for one more than the other*.¹³⁴.

¹³³ It is true that each episode can be played separately, and that it was therefore possible to start with the last chapter (although not with the last floor), that said the game was distributed through a shareware system which first provided the first chapter and then the others. I thank Professor Riccardo Fassone for his confirmation and his point of view on this issue. Obviously this statement does not hold true for all video games in history, there are exceptions, but here we are focusing on our corpus and a rather general rule..

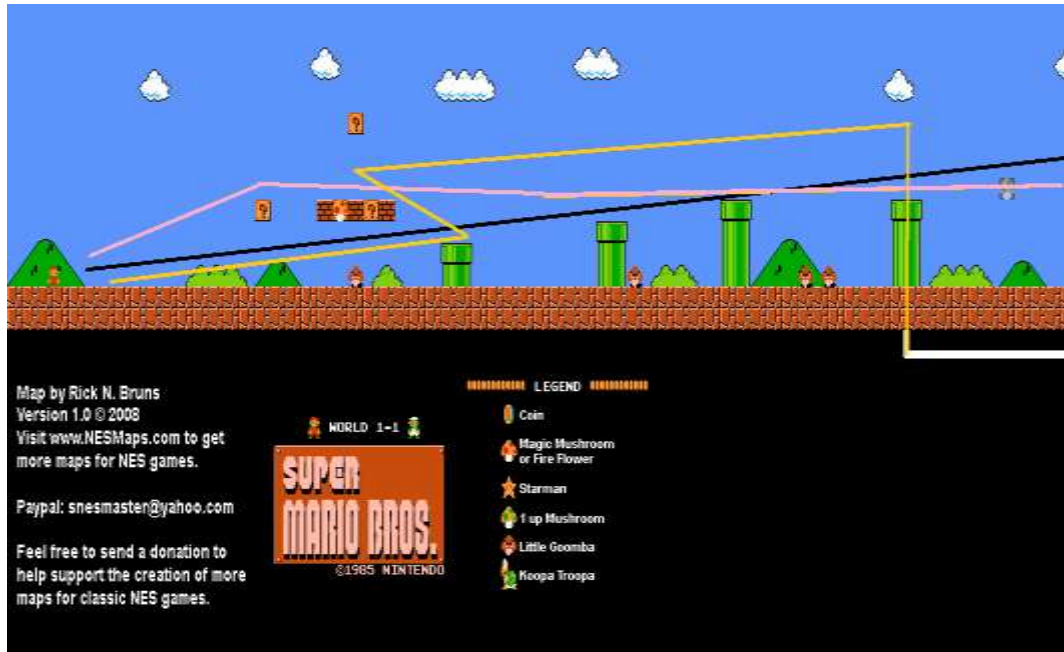
¹³⁴ Obviously this statement does not hold true for all video games in history, there are exceptions, but here we are focusing on our corpus and a rather general rule.

It is instead more interesting to see that a common principle of hypertextuality can indeed be found in the possibility of reaching the end of the text through several reading paths. In some cases this will correspond to a different order of fruition of the parts of the texts which are all necessary (*Megaman*, *Street Fighter* with a different character) and in others it will correspond to the possibility of not updating certain "chapters" of the text (Mario does not have to go through all the worlds, some *Ultima* quests are optional). *Metroid* is a case that has become famous precisely because it has both a great deal of freedom of order and a good number of optional choices. But for the purpose of this article the structure of *Out Run*, which makes it possible to achieve several ends from several possibilities that exclude others, is already sufficient to illustrate our point:

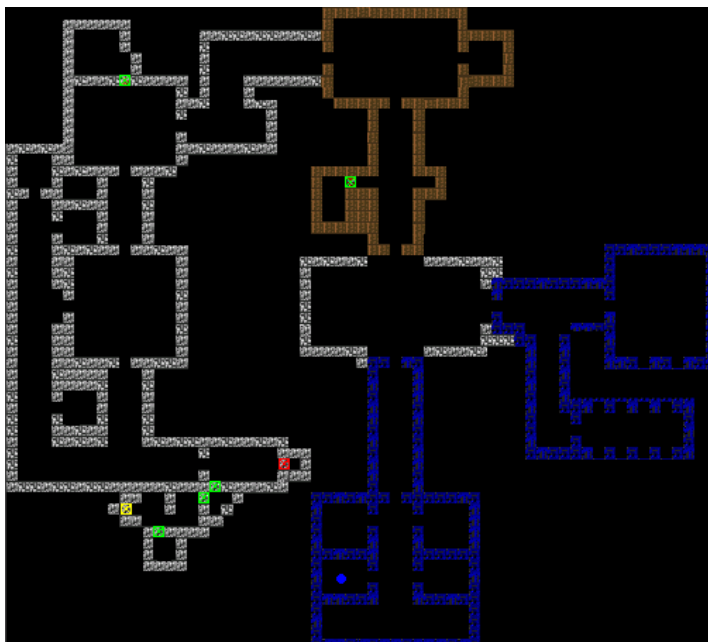


Having said that, we need to make some reflections here. Firstly, some titles (like *Double Dragon* and *R-Type*) do not seem to have any of these possibilities, and therefore video games cannot be characterized by this type of hypertextuality. Second, although the "narrative" content changes, the structure remains almost unchanged (*Out Run* stages to go are still five, matches are 15 in *Super Soccer*, tournament fights are 11 in *Street Fighter*). Finally, this hypertextuality does not seem to really produce multiple meanings of the text. The choice of *Megaman*'s first level will have no narrative impact on the other levels / chapters and neither on the ending, the same is also true for the order of Mario's worlds and for the episodes of *Wolfenstein*. So we are in a strange case: these video games, which should be hypertexts *par excellence*, present a somewhat disappointing hypertextuality. The hypertextual reading paths are most often few, and in some cases even absent. Not only are the four different endings of *Metroid* actually one and the same (the text and story don't change, what changes is a little animation of the character and a reveal of her gender) but they don't depend at all of a particularly important choice of the player but on the contrary of the time which it took to finish the game. It is difficult to conceive, in front of such a state of things, that the digital games became famous to be able to be replayed from the hundreds of times and so that their players can write their own story. To resolve this paradox, we have to go from the level of the *reading paths* (series of sections viewed in a pre-established rigid order) to the level of the *writing paths*, that is to say to the statements created by the player during the gameplay by pressing touches and making decisions that are not primarily narrative but above all spatial.

We have to move on to the idea of varying the text in terms of "free" possibilities that are not subject to fate. Indeed if we have defined hypertextuality as a series of alternatives to arrive at a final point B from a starting point A, then we can see that all our titles, without exceptions, have this possibility and even this need within what we have called a "chapter". We can see this clearly with Super Mario Bros¹³⁵ by marking with three lines three possible different routes:



This is even more evident in a title like *Wolfenstein*¹³⁶ where the levels are in fact a series of rooms to be explored, some of which are hidden, according to several possible routes and orders:



¹³⁵ <http://www.mariouniverse.com/wp-content/img/maps/nas/smb/1-1.png>

¹³⁶ <https://steamuserimages-a.akamaihd.net/ugc/927051893382906465/FDB5BCBC52B111B090FCAB571C4300ADFA8B1A1A/>

But that's not all. In fact, each of these routes in turn provides for a multiplicity of possible combinations of actions (movements, turns, attack, dialogue, etc.). Also in *Super Mario*, on almost every point of the X spatial axis we have for example at least four different variations of the text (Mario walks forward, backward, he runs, he jumps). Likewise in the first two seconds of a fighting game like *Street Fighter* we have hundreds of possible and varying visual statements of the phrase "x hits y". In the case of role-playing games like *Ultima*, even in the city each store offers shopping options that will influence the course of the battles and the adventure:



In addition, these actions are often not subject to a finite linear and temporal progression: Mario can literally jump in place to infinity and likewise the protagonist of *Ultima* can, despite the limitation of food which forces the player to choose his actions, "talk" to the seller dozens of times. In addition, each of these actions will often be subject to success or failure sanctions which will finally determine a general sanction with it also a hypertextual function: in case of success we will thus have access to new "chapters" while in in case of failure we will have to start from the beginning. Finally, there are all the variables that we had not considered until now and which nevertheless influence the game well and are the result of user choices: the difficulty in *Wolfenstein* and the music in *Out Run*. So if videogame hypertextuality resides, as we have seen with Landow, in a structural and agential possibility of variation of the text, guaranteeing the possibility of several readings of it, we must think of videogame hypertextuality on three levels:

1. Macro-narrativity determined by the FOA architecture: the adventure of Megaman starts with the fight against Bombman, the cup is given to the women at the end of the D route in *Out Run*.
2. Micro-narration of the gameplay determined by the FOA repertory of virtualities and rules of syntagms, resulting through enunciation in a meaningfulness grounded on SOA: the fight between Ryu and Bison unfolds in a certain way, the city of Britain is visited by the protagonist who takes certain streets rather than others, the difficult choice of *Wolfenstein* resulting in different performances, the choice of the team in *Super Soccer*)
3. Meta-Aesthetics: The influence of non-narrative aspects of the text such as the name of the protagonist or the background music in *Out Run*.

This brings us to three critical remarks on the issue of hypertexts applied to virtual realities:

First of all it is interesting to note that while the underground passage of the tube in *Super Mario* appears "obviously" hypertextual, it is less obvious to attribute a hypertextual nature to the very beginning of the level which nevertheless presents a bifurcation. Again, it is intuitive to think of Wolfenstein's nonlinearity with the order of exploration of parts rather than the freedom to traverse them in multiple discrete spatial coordinates. And yet it is precisely through this "free" form of writing in space that Adventure was able to create the first *easter egg*, the first hidden section, in video game history. And so are the multiple endings of *Metroid* or even the secret rooms and floors of *Wolfenstein* (which is not a question of order). By taking up the concepts of Deleuze and Guattari (1980), we could therefore say that the hypertext seems to be a form not of a free opening of (*smooth*) space, but on the contrary of a ramified and ordered *striature*. The difference between a classic novel and a hypertextual novel is obvious, hypertextual moments are inconstant events which interrupt a linear flow and which create singular reading paths by forcing a choice which excludes a certain number of portions of the text. But when the flow of statements is dynamic and the choice is constant, reflecting the digital nature of the video game which is not made up of "sections" already produced but which produces in real time the player's actions in worlds of possibilities, the comparison loses in force and becomes metaphorical.

Second, and as a consequence of our first observation, it seems that the "ideological" weight of hypertext is somehow tied to the idea of *fate* as a series of choices that lead to unintended consequences. Hence the prejudice that a hypertextual structure is capable of presenting us with a multiplicity of possible destinies and therefore of meanings: to make a choice in a hypertextual novel is not to escape this fatality which remains in the hands of the author, it is on the contrary to submit to a plurality of possible and pre-established fatalities. However, as we have seen, the great richness of digital games lies on the micro and meta level. We only have to think that the death of the main character depends precisely on a whole series of "choices" which have nothing to do with the storytelling but with the skill of the player. Furthermore, virtual realities are made of thousands of « decisions » or "inputs" which have absolutely no narrative nor semantic consequence. When the player takes a step forward in Mario there is no "branching" or pre-established consequence, it is only when this step is taken in front of a Goomba that a consequence (like death) is pre-established. . The importance of these last two hypertextual levels is, in the digital game, much greater than the first: this is precisely what makes them "stupid" for many people, given that their greater textual richness (in terms of the number of utterances variables) depends on a performative dimension. On the other hand, it is also for this centrality of play that in game studies was born the famous anti-narratological (Juul, 2001) controversy according to which video games are not narrations and cannot be studied as such. This meaningfulness is experienced by the player, who lives his own story (his own emotions, desires, frustrations) in terms of success, bankruptcy and discovery, but it is not inscribed in the text which does not even give us access to the reasons from subject. The player of Super Mario Bros can indeed take hundreds of different paths which will depend on "choices", but the text only takes these choices into account for a moment and at the end there will be no narrative consequence.

Third, finally and very briefly, the micro-narrative level is not just the player's space who is the only one to make decisions and create the blueprint for expressing the text. It is also the space for artificial intelligence, programming, "handling" (Triclot, 2017, p.45) of text from the computer which is sometimes forcing certain choices in real time. This is, in the panorama of the media, a unicum that hypertext cannot explain.

To both extend the validity of our arguments and offer an emblematic example of what we just affirmed, let's take a brief look at a last case study: the thriller *Danganronpa: Trigger Happy Havoc* (2010). This game presents the possibility for the player to be the "detective" of the situation, he formally chooses

- who to ask the questions,
- when to ask them,
- which crime scene to explore and in what order
- which arguments to combine to support his charges against the culprits.

To all effects, therefore, we could say that this is a hypertextual game with great spatio-temporal freedom in the manifestation of narrative events. But what actually happens is that the order of fruition of the statements has no impact on the narration and, consequently, on the interpretation: no murder can be avoided, no innocent can be wrongly accused, almost all the statements provided, must be read (with the sole exception of some personal dialogues between the protagonist and "friends" which have no real importance for the story), all clues must be found, and all possible orders carry no change and have no influence (listening to the declaration of x before y does not change the arguments of z, nor help interpretation of the facts). This is due to the fact that while the outer temporality (Volli, 2003) of fruition exists as a succession of moments, the inner and narrative temporality of events does not change according to the player's actions which are nevertheless represented within the narration. Not only does hypertextuality in no way change the deep syntax of the actions (Greimas, 1970), but it does not even change the more superficial aspect of the plot and the fabula and even arrives at the paradox of showing a completely unmotivated death of the protagonist in the event of Game Over. Finally, as in almost all video games, the player-reader does not have the possibility of cheating as he could in a book by skipping parts or starting from the end: the order he must follow is absolute. This specific example of *Danganronpa* points out that the concept of hypertextuality seems to promise by itself a textual and interpretive complexity which is mostly absent. Here the meaningfulness of the choice stands in the value of choosing itself, in the mirrored narrativity, and syntax prevail over both semantics and narration.

This why, in conclusion, other terms and paradigms of research seems more fruitful and explanatory than that of "hypertext", from Eco's *Opera Aperta* to the concept of text-matrix by Bettetini (1996) taken up by Ferri (2007).

3.4.2 Virtual realities in the post-media society

“La condizione Postmediale” (2015) is the second work of Ruggero Eugeni that we will use as a fundamental perspective to understand meaningfulness in virtual realities, although this time the author will be a fundamental reference to understand the specific role of the digital in the allowing for the meaningfulness of the experience to occur.

In this book, the main claim of the author is that “media” as we usually conceive them do not exist anymore and that such fact put us in “a-modern” era:

“22 gennaio 1984: teniamo a mente questa data, perché è il giorno in cui i media iniziarono a finire.” (p.8)

“Abbiamo fin qui parlato di “condizione postmediale”, in quanto l’aspetto più evidente del vivere contemporaneo è la fine della relazione con i dispositivi medialità che aveva caratterizzato la modernità; tuttavia, a partire da queste ultime considerazioni, possiamo definire la condizione postmediale come la prima *condizione amoderna*.” P.85

This disappearance is of course not one of the content or the technological devices: we still have tv programs and objects that we call “televisions”. What Eugeni points out is that media have always been more than a content and more than a tool, their meaningfulness (and thus importance for societies) has always depended on the whole social and cultural asset of the societies in which they were born and evolved:

“Al di là di questa tumultuosa serie di trasformazioni, mi preme sottolineare un aspetto di novità decisivo: la nascita dei media moderni è determinata dalla introduzione di specifici dispositivi. Con questo termine non intendo semplicemente gli strumenti tecnici, ma più ampiamente le situazioni sociali specificatamente dedicate al consumo di prodotti medialità: le forme della lettura, sia individuali che collettive; le modalità di esecuzione di musica registrata in spazi privati o pubblici; gli assetti della proiezione e della visione di film.” P.17

“La più importante invenzione della modernità è dunque quella dei dispositivi: ed è con essi che, possiamo dire, nascono i media.” P.18

This “devices”, or perhaps better “contrivances”, are directly related to the possibility of offering a *private experience* which is conceived for a *mass-experience*:

“secondo luogo (e di conseguenza) le situazioni sociali dedicate al consumo di prodotti medialità divengono al tempo stesso di massa e serializzate: esse permettono che intere folle abbiano accesso a un tipo di esperienza progettata, regolata, e dunque identica e ripetibile; un’esperienza del tutto privata dai caratteri della unicità e della privatezza, ma non per questo meno affascinante e coinvolgente per *ciascuno* dei soggetti che vi prende parte o che vi viene risucchiato. (P.18)

Such experience is however once again not only one of the content but is directly related to the subjective and daily *use* that individuals *did* of media:

“cioè dispositivi medialità (e prodotti destinati ad alimentarli) capaci di penetrare nell’esperienza quotidiana dei soggetti, di prendere possesso di alcune porzioni di tale esperienza e di trasformarla radicalmente: gli ambienti e le situazioni di lettura del romanzo popolare costituiscono come vedremo uno di questi dispositivi.” (P.14).

Although Eugeni is not explicitly saying it, it is reasonable to assume that the persuasive power of mass-media is also related of the way in which they become part of our life:

“I media di massa, o mass media, sono in grado di influenzare verticisticamente i gusti dei soggetti sociali, le loro tendenze culturali e la forma stessa del loro immaginario, ma anche i loro consumi, le loro ideologie e il grado del loro consenso ai differenti tipi di regime politico.” (p.21)

This point is extremely important. Indeed, this aspect was until now totally absent from our thesis in which we are focusing on virtual realities as a form of cultural production conveying content through interaction with devices. Yet, neither of the two can be fully understood without taking into account the sociocultural context in which all this happens. On the one hand, the new condition in which the user is substantially free from the spatial and temporal restriction which characterized the previous mass-media:

“Dal punto di vista del tempo i videoregistratori, che si diffondono dalla metà degli anni Ottanta, permettono un uso del televisore libero dai vincoli della programmazione palinsestuale – un tipo di consumo ulteriormente incentivato prima dall’acquisto o affitto di videocassette o DVD, poi dal video *on demand* e dai download di rete. Dal punto di vista spaziale, i media divengono ubiqui, sia per una moltiplicazione di siti in cui essi possono essere collocati (si amplia il numero di televisori in casa; gli schermi si “rilocano” in stazioni, piazze, aeroporti, mezzi di trasporto...); sia per l’introduzione di numerosi apparecchi di consumo “nomadico” e “mobile”: walkman, Ipod, Ipad, e lo stesso telefono cellulare usato per ascoltare musica o vedere filmati, rendono il consumo di media parte integrante della vita quotidiana.” (p.22)

On other hand, the very logic behind the production and distribution of content is no more the same, and the advent of the digital, for which has a big role in all of this:

“La seconda serie di fenomeni che esplodono alla metà degli anni Novanta del Novecento consiste nello sviluppo delle tecnologie di digitalizzazione dei materiali che compongono i prodotti culturali: parole, suoni, immagini fisse e in movimento vengono scomposti in elementi molecolari, ciascuno dei quali viene codificato in bytes (cioè stringhe di numeri binari, composti da 0 da 1); in tal modo tali informazioni possono essere manipolate, memorizzate, trasmesse o scambiate, e in ogni momento essere condotte a ricostituire in modo il più possibile fedele il materiale di origine. Lo sviluppo delle tecniche di digitalizzazione implica una svolta decisiva: i differenti materiali percettivi ed espressivi veicolati dai media vengono ora scomposti in molecole di informazioni considerate pertinenti, e in quanto tali entrano nella sfera di azione dell’informatica, la disciplina e la pratica di trattamento dell’informazione su base numerica (in particolare mediante quelle particolari procedure standardizzate che si chiamano algoritmi).” (p.23)

“Se nella prima fase di sviluppo dei media trovavamo una espansione del *testo tradizionale* (lineare e finito) e nella seconda dominava il modello del *flusso* (lineare e infinito), la terza fase è dominata dal modello dell’*ipertesto multimediale interattivo* (reticolare e infinito). Inoltre, i materiali mediali in forma digitale sono caratterizzati da due aspetti molto importanti: ogni copia che si effettua è identica all’originale, ed è disponibile a essere manipolata e modificata da chiunque abbia gli strumenti per farlo.” (p.24)

“In altri termini con il digitale viene radicalmente distrutta la gerarchia dei ruoli tra emittente e ricevitore che dominava nelle due fasi precedenti: l’emittente è solo in parte depositario di un “originale” dotato di valore più o meno sacrale, mentre il ricevitore assume alcune funzioni di autorialità o co-autorialità e di distribuzione di materiali mediali che erano prima appannaggio degli apparati di emittenza. Con un termine ibrido tra producer (produttore) e consumer (consumatore), si è parlato a questo proposito di una nuova figura di *prosumer*.” (p.24)

As we will see both in the next chapter and in our methodological proposal, this point is essential to understand the behavior of the users of virtual realities. Indeed, it is no coincidence that digital games are directly referred by Eugeni as a prototypical example of this new cultural condition:

“D’altronde, per rendersi conto di come operano queste logiche è sufficiente studiare il nuovo tipo di media che il digitale e il suo incontro con le reti di comunicazione hanno reso possibile: il *videogioco* – il media non a caso più caratteristico di questi ambienti mediali che implicano in ogni caso un aspetto leggero e ludico. I videogiochi prevedono sequenze *push* di taglio cinematografico su cui il giocatore non ha potere, ma più spesso si basano su una interazione *pull* in cui il giocatore è chiamato a compiere delle scelte e a subirne le conseguenze. Essi offrono al giocatore la possibilità di condividere con altri giocatori sequenze di partite, soluzioni a enigmi difficoltosi, oppure addirittura parti del mondo di finzione da lui stesso create (come accade in *The Sims*, che ritroveremo più avanti). Infine, oltre al fatto che molti videogiochi prevedono la costruzione di community on line, esistono videogiochi da giocare in forma “social”, assumendo un certo ruolo finzionale e collaborando con altri giocatori compresenti in rete quel momento per raggiungere determinati obiettivi (i cosiddetti MMORPG, *Massive Multiplayer Online Role-Playing Game*).” (p.26)

Now, both here and a little later “Come in tutti i videogiochi ci sono punteggi da conquistare, livelli di gioco da raggiungere, e coccarde che attestano il raggiungimento di un certo status.” (p.29), Eugeni is clearly oversimplifying what digital games are. In fact, cinematic cutscenes can be often skipped by the player (and so it would be very hard to talk about “push”) while the more interactive parts cannot be avoided and can be made so difficult that the player has no freedom at all if not the one of losing. However, the general point of the author is still valid and thus we can agree with him (also considering the length of the book and its non-exclusively academic aim). Eugeni’s idea is in fact that products such as digital games (or movies such as *Avatar* or a series such as *Lost*) can be taken as an example to discover the three fundamental *epos* underlying our new condition: *the naturalization of the technological experience* (p.36) changing our relationship with the *artificial* (p.41), *the subjectivation of the experience* (p.53) changing the subject from being in a static position to being part of a dynamic relation (p.62) and one of the *socialization of the experience*. These three *epos* are extremely representative of what virtual realities and are all included in our analyses. We will thus find in many different games what Eugeni highlight in “The Sims”:

“a sua volta tale modalità rimanda immediatamente a una terza modalità di gioco che definisco social: una ennesima intuizione di BillWright e dei suoi collaboratori della Maxis è stata infatti quella di rendere pubblicamente disponibili i codici software necessari per la costruzione di singoli elementi del mondo *Sims* da parte degli stessi giocatori; ne è derivata una intensa attività creativa da parte degli utilizzatori e un ancor più inteso stabilirsi di relazioni di scambio, implementazione collaborativa, consigli reciproci... tra gli utenti del gioco. Queste e altre iniziative hanno alimentato la costruzione di vaste comunità di giocatori che si tengono in relazione grazie all’uso dei vari *social media* propri del web 3.01.” (p.66)

“Una seconda modalità che ha incentivato la costruzione di relazioni social tra i giocatori è stato l’uso dell’“album di famiglia”. Nato originariamente (nelle intenzioni dei creatori) per documentare mediante fotografie dello schermo alcuni momenti della vita dei *Sims*, la funzione è stata successivamente usata dai giocatori per costruire veri e propri “fotoromanzi virtuali” che inventano storie tra *Sims*, o che riproducono in forma *Sims* serie televisive o film famosi, eventualmente reinventandone gli andamenti narrativi. Lo scambio di tali album ha costituito un forte motore di socializzazione in rete.” (p.66, footnote).

However, in this chapter we will especially on focus on the first two. Virtual realities are meaningful, indeed, because they come after a first and ambiguous moment of technologically mediated reality:

“Nuovi apparati tecnologici finiscono dunque per ristrutturare le condizioni e le forme dell’esperienza, e in particolare le categorie dello spazio e del tempo: l’esperienza si fa rapida, veloce, sfuggente e al tempo stesso frammentata, discontinua, spiazzante e shockante. La principale conseguenza di una simile trasformazione è la costituzione di una netta opposizione tra le due categorie del *naturale* e dell’*artificiale*. L’esperienza degli apparati tecnologici di nuova generazione sembra sottrarre il soggetto al proprio ambito di appartenenza originario per costringerlo a relazionarsi con dispositivi che sono in linea di massima estranei alla sua natura: il mondo dell’uomo e degli altri organismi viventi con le sue logiche, i suoi ritmi, i suoi limiti, viene bruscamente costretto a convivere con il mondo delle macchine e con le sue incommensurabili dimensioni, la sua incomparabile potenza, le sue incontrollabili esplosioni. [...] Insomma: l’artificiale entra sempre di più nella sfera privata, e raggiunge in alcuni casi una relazione personale e *intima* con i singoli soggetti. Il risultato è ambiguo. Da un lato proprio la pubblicità esprime al meglio il versante *euforico* di questa massiccia artificializzazione dell’esperienza, al tempo stesso personale e collettiva, intima e sociale. Dall’altro lato i numerosi racconti distopici che nascono in questo periodo esprimono l’aspetto *disforico*, inquieto e talvolta angosciato, della perdita di autenticità e di radicamento del soggetto [...] Insomma: i media tra la fine dell’Ottocento e la fine del Novecento hanno costituito delle *interfacce esperienziali* tra gli apparati artificiali della tecnologia e la naturalità del soggetto umano. Estendendo quanto ha mostrato molto bene Francesco Casetti per il cinema, i media hanno costituito lo *spazio di negoziazione della relazione tra il naturale e l’artificiale*⁹. [...] Tuttavia, in secondo luogo, i media offrono una simile esperienza dell’artificiale *all’interno di situazioni ristrette e controllate* (la sala cinematografica, il salotto di casa...): per questa ragione, i dispositivi mediali sono sia il luogo di una estetizzazione di questa esperienza (per esempio alcune forme del montaggio cinematografico riproducono gli shock percettivi tipici dell’esperienza urbana), sia il luogo di un addestramento delle capacità percettive dello spettatore a una convivenza con l’artificiale (proseguendo con il nostro esempio: le forme della continuità narrativa permettono di “suturare” i salti del montaggio insegnando allo spettatore a leggere le immagini come porzioni di un mondo coerente).” (pp.42-45)

A moment which resolve itself in “la vaporizzazione dell’opposizione tra naturale e artificiale quale strumento culturale pertinente nell’interpretazione dell’esperienza” (p.45), which is once again a critical point for our object of study. Interestingly, the author seems to suggest two different ways to inquire on such epos, one related to the cultural content produced by stories (the themes of game, movies, advertisements, etc.) and the other on the semiotic forms through which such stories are represented. Specifically, Eugeni focuses on the subjective and first-person used with a rhetorical intent in the advertisements for *Google Glass*:

“la soggettiva cinematografica è una figura puntuale retta da una grammatica specifica: la camera ci mostra un soggetto che guarda fuori campo (per esempio Jeff, il fotografo immobilizzato per la rottura della gamba di fronte a *La finestra sul cortile*, un notissimo film di Hitchcock del 1954) e quindi una immagine generalmente fissa o dotata di movimenti controllati, che corrisponde al punto di vista di tale personaggio (per esempio una immagine del dirimpettaio che litiga con la moglie – ciò che fa successivamente nascere in Jeff, e in noi, il sospetto di un possibile omicidio). Le inquadrature di *One day*, al contrario, non ci mostrano mai il personaggio che compie le varie azioni, ma sempre e solo quanto egli sta guardando e ascoltando. Inoltre questo punto di vista non è statico ma dinamico e relazionale: percorre strade e ambienti, incontra altri soggetti, si muove in ambienti complessi e ne cattura immagini e suoni. La seconda ragione del mio uso impreciso del termine “soggettiva” riguarda il fatto che la soggettiva cinematografica non tematizza la presenza di un dispositivo di registrazione del campo del visibile e dell’udibile – processo il cui risultato è appunto quanto ci viene mostrato. Al contrario, in *One day* il dispositivo dei *Google Glass*, per quanto non direttamente visibile, è costantemente operante, e costituisce una sorta di interfaccia percepibile tra lo sguardo del personaggio e quello di noi spettatori. Dal momento inoltre che, come ho detto, questo sguardo è mobile e prensile e rimanda quindi all’attività di un corpo esperiente, ecco che assistiamo a una sua intima connessione con il dispositivo di ripresa: corpo, sguardo e dispositivo sono un tutt’uno, nel momento in cui i primi due “indossano” il terzo – e non a caso i *Google Glass* sono una *wearable technology*, un dispositivo da indossare.” P.51

And refers once again to digital games to explain this new form of subjectivation of the experience:

“Mi viene in soccorso un termine usato nel mondo dei videogiochi. È innegabile una forte somiglianza tra il tipo di inquadratura usata in *One day* e quelle dei videogiochi “in prima persona” (p.50).

“Questo tipo di soluzione espressiva non viene etichettata facendo ricorso al termine classico di “soggettiva” (*subjective shot* o *point-of-view shot*), ma riceve piuttosto il nome di *first person shot*. Chiameremo dunque *first person shot* il tipo di inquadratura che abbiamo visto operante in *One day*. Possiamo dire dunque che il *first person shot* viene caratterizzato da due aspetti: il costituire la trascrizione immediata di una esperienza soggettiva di prensione incorporata del mondo, e l’implicare una relazione di simbiosi e ibridazione tra un soggetto umano e una macchina da ripresa. Ora, se assumiamo questa definizione di base, possiamo renderci conto di due fatti. In primo luogo il *first person shot* non è una “anti-soggettiva”, ma piuttosto una “iper-soggettiva”: esso realizza l’utopia di una soggettiva infinita e in grado di trascrivere perfettamente l’esperienza personale del mondo e del racconto, che il regime classico e moderno del racconto audiovisivo avevano inseguito, a tratti preconizzato, ma mai realizzato perfettamente per vincoli tanto tecnologici quanto culturali. In secondo luogo, tornando al presente, basta guardarsi un attimo intorno per accorgersi che il *first person shot* non è limitato ai videogiochi o ai video virali, ma è onnipresente nel mondo che ci circonda” (p.52).

“La seconda ragione di interesse risiede nel fatto che il *first person shot* esprime al meglio il secondo sistema epico che attraversa e innerva la condizione postmediale: l’epos della *soggettivizzazione dell’esperienza*.” (p.53).”

A particular perspective which once again can be understood when its phenomenological aspects are put in relation with our cultural context:

“Il *first person shot* emerge piuttosto dalla complessa e caotica serie di scambi, citazioni e rimodulazioni che coinvolge praticamente ogni istituzione e apparato sociale, sia mediale che non mediale. Esso è dunque un prodotto tipico della condizione postmediale e al tempo stesso, con la sua presenza e la sua diffusione, ne testimonia il grado ormai avanzato di sviluppo e di assestamento.” (p.60)

“Si apre così la strada per l’ipotesi che intendo proporre: il *first person shot* ha potuto diffondersi in modo così ampio in quanto esso esprime e incarna il secondo grande epos tipico della condizione postmediale: *la soggettivazione dell’esperienza*. Le linee portanti di tale epos sono facilmente riassumibili. Anzitutto, esso pone al centro dell’attenzione una idea di esperienza in quanto esperienza vissuta, sperimentata “on line”, e consistente in un atto di appropriazione percettiva compiuto dall’organismo di un soggetto nei confronti di una porzione dinamica di mondo. In secondo luogo, l’epos della soggettivazione racconta che il soggetto nell’atto di fare esperienza *costituisce se stesso* in modo dinamico e interattivo. Infine, questa costituzione del sé implica una relazione strettissima (“chiasmatica”, direbbero i filosofi fenomenologi) tra il fare esperienza e il rappresentarla a se stesso e ad altri – sia nel senso che l’esperienza che il soggetto viene facendo è immediatamente rappresentabile, sia nel senso che ogni rappresentazione di una esperienza soggettiva è a sua volta sperimentabile. **In questo felice scambio di prima e terza persona il soggetto si percepisce, si racconta, si costruisce.**” (p.61, grassetto nostro.)

Finding, in this particular point of view also the very first perspective belonging to the technology of VR:

“La quinta innovazione tecnologica alla base del *first person shot* è la cosiddetta *realtà virtuale*. Le prime ricerche relative alla realtà virtuale si collocano anch’esse nei primi anni Ottanta: per tutto il decennio la realtà virtuale sembrò la grande e decisiva innovazione digitale, alimentò appassionati dibattiti teorici e lanciò una nuova ondata di fantascienza, il cosiddetto *cyberpunk5*.” (p.56)

Finally, Eugeni here rejoin our epistemological choice of looking at the studies on the mind by explicitly referring to the new paradigm of neurocognitive sciences (p.62) in which the subject is conceived in such a way:

“un soggetto *embodied* (incorporato), *embedded* (inserito in forma viva in una nicchia ambientale), *enacted* (impegnato in un’attività di rappresentazione e autorappresentazione coinvolgente), *extended* (pronto a proiettarsi nelle rappresentazioni dell’esperienza di altri), *emerging* (emergente dall’intera rete “caotica” di queste esperienze), *affective* (non solo cognitivo ma anche affettivo) e *relational* (impegnato in una serie di interazioni sia con gli oggetti che con i soggetti del mondo).” (p.63)

In conclusion, this 2015 book can be reasonably deemed to be, from a semiotic point of view, a fundamental ground for the study of digital culture and of its products such as virtual realities. Now in this thesis, as we have pointed out since the introduction, we will not directly face the issues raised by the digital culture nor the problem of the contemporary society where media are integrated both between them and with us. And thus we will neglect a very important aspect of the meaningfulness and experience we are inquiring on. However, Eugeni’s work has a central part in our work since his theoretical claims on media and society are a very concrete perspective of research and can even be considered as a methodological suggestion for a semiotic analysis of virtual realities intended as content experienced through devices. Specifically:

1. The *epos of naturalization* is both a narrative theme and a concrete semiotic strategy used to create meaning in digital games. As an example, in our research about the conceptual shift in personhood (c.) made during our third year of PhD we looked precisely at the ways in which both the narrative content and the interactions were reorganizing the semantics of “*bíos e téchne*” (p.45).
2. The *epos of subjectivation*, which is characterized the blending of first-person forms and third person forms, is the essence of what a virtual reality is for its user and can once again be found in several texts as both a theme and an explicit condition of the player through interaction and enunciation. Indeed, the first-person shot is not the only way in which such form exists but, as we will, is the very basis of interactive experiences.
3. The *epos of socialization* underline why it is fundamental to analyze virtual realities in relation to the observable behaviors of the users, of their discussions online and of the non-designed content (from mods to funny videos in YouTube) created by them.

These three points are therefore fundamental compasses to understand the meaningfulness in virtual realities.

3.4.2.1 Blending the epos: beyond the media

The integration of different media corresponds to the integration of the different fundamental dimensions of meaning that, we claim, are at the very heart of meaningfulness in virtual realities. On the one hand it is the integration of the means of digital manipulation, which is why for example both on mobile games, computer games and console games it is possible to exploit the system in different ways (cheats, bots, mods, glitches, etc.) and all require to be aware of the digital nature of the product. On the other hand, it is the integration of a different semiotic languages (such as the audiovisual) and phenomenological means of access to the general semantics. A controller and the touch screen of a smartphone, while apparently very different, allow in fact for similar operations: sensorimotor involvement, perceptive tasks, embodied enactment, etc. This is why our methodological proposal, since it is based not on media but on this semiotic aspects, can be transversally used to analyze very different forms and kinds of virtual realities.

To make a concrete example about this fourth point, a mobile game such as *Honkai Impact 3rd* can rely on:

- Verbal signifiers to create stories, dialogues and characters
- Audiovisual forms such a subjective camera in the elevator and main menu constructing the player as a “commander” and visually embedding him to reflect a narrative strategy
- Visual aesthetics taken both from Japanese *anime* and 3D graphics, and also the possibility to read the *manga* of the game from the menu of the game itself
- Sensorimotor involvement during gameplay to cognitively represents the movements (through directions and primitive actions) and fights (through fast paced combinations of inputs) appearing on the screen
- Gamified aspectualisation of the future with features such the levels of upgrades (of characters, weapons and much more) and the content to unlock.
- Social interactions through the possibility of adding friends and of sharing content through social media
- And perhaps even the psychology of the “waifu” considering that the player is basically collecting fictional women (which however exists only thanks to the verbal and visual content representing them).

All of these elements constitute the complex structure from which meaningfulness can emerge, and none of them can be deemed as exclusive of a smartphone. Even the mechanics commonly associated with smartphones, such as a limited value used to play (the stamina) or the levels playable under 5 minutes or the daily rewards of various types, could be perfectly possible on a digital game or VR experience for pc or console. Our methodology, at the light of our a-modern situation of integrated media, thus allow to overcome the difficulties related to the different ways in which a virtual reality can be experienced. However, and still thanks to Ruggero Eugeni, we now know that by doing so we are still putting aside other aspects which, at a different level, is profoundly part of the experienced meaningfulness. Indeed, a mobile game such as *Honkai* influences the spatio-temporal relation of the user with reality: it *presumes* an ideal player login in everyday and at several different moments of the day, playing for briefs moments in very different places (school, work, bus, home), constantly online, and having continuously the game with him just as he has his phone.

These considerations are not only useful from an analytical perspective but also somehow highlights that these “epos” work actually as a cluster and a single fundamental assumption behind the digital culture.

3.4.2.2 *The death of the reader and the utopia of authorship*

There is an interesting connection between the epos of subjectivation and socialization described by Eugeni and Massimo Leone's "proposal" on the death of the reader (2018). Indeed, as we have seen the users of a virtual reality could be only hardly conceived as a "reader".

- They can participate in the economic development of games (kickstarter, indiegogo) and influence the process of their own creation (early access, direct requests).
- They can create original content and modify part of the software (and thus of the rules) with mods.
- They can be encouraged and given the informatic tools to create content for the community of the game (Minecraft, The Sims, Super Mario Maker).
- They can break the rules of the game in many ways, some planned by the designers (Fallout) and some which are not (Cheat Engine).
- They have to co-enunciate the content appearing on the screen by choosing among elements to combine and many time some of these combinations cannot be predicted.
- They can use the elements of the game to play with themselves (play as a form of I-I communication)
- They can use games to create their own commercial original content such as in the case of YouTubers and gameplay videos.

Now, of course most of this would be impossible both without the digital technology and outside of digital culture. Indeed, the connection between participatory/convergent culture and digital technology was highlighted in a very recent book titled "Discourses of (De)Legitimization Participatory Culture in Digital Contexts" published by Routledge in June 2020: a book comprehending among its many articles a work on "mods" by Stefan Werning. Yet, Leone's article actually suggest that this is not limited to a specific type of cultural artifact, such as ours, but a broader phenomenon:

"Roland Barthes's famous essay on the "Death of the Author" inaugurated an intense reflection on the progressive dwindling of the importance of the traditional biographic idea of "author in the activity of receiving and interpreting a text, especially a literary one. In the new epistemic era favored by the emergence and affirmation of structuralism, the meaning of a text was, indeed, no longer seen as stemming from an individual agency but from the social dimensions of language and culture. As digital communication is progressively supplanting many forms of non-digital meaning transmission, though, present-day semiospheres are confronted with a different scenario: on the one hand, "empirical" authors are actually becoming more and more prominent, meaning that audiences are starving for non-digital and "auratic" experiences of encounter with meaning, minding more meeting with authors, for instance, than reading their novels; on the other hand, given the easiness of meaning production with digital technology, the same cultures are going through a progressive "agony of the reader": individuals are so intent in creating new particles of meaning, with impatient and daily frenzy, that they never become patient readers of other people's meaning creations, especially if these challenge the instantaneousness that characterizes the contemporary digital communication. The shortness of present-day meaning creation and its lack of audience is bound to change the entire semiosphere." (p.72)

Furthermore, this cultural shift has also to do with the production of the text:

"But when, on the contrary, a writer writes a novel, for instance when Hemingway writes *The Old Man and the Sea*, what does he know about his readers? He does not know almost anything. He knows, perhaps, that the reader will be able to understand the language, or a translation of it, that she or he is willing to be told a story, although that too is no longer strictly evident with the modern novel, and that, most importantly, the cooperative reader will seek to interpret the text by seeking to follow the instructions contained therein, although she or he might not be always able to retrieve them, that is, the reader will not always be endowed with the necessary decoding skills. This is how poetry, literature, and, more in general, the arts, have usually thought of the relation between the sender of a creative text and its potential receivers, as a relation based essentially on a certain amount of mutual ignorance. The author knows that out there, at the other side of the communicative process, lies the potentiality of a cooperation; the details of this cooperation, however, are mostly totally ignored." (p.78)

On the contrary, as we have seen the “realism” through which virtual realities can work as embodied metaphors of the world is precisely allowed by a very detailed knowledge of the human psychology, perception and motor-activity. From the technical aspect, a zero degree of interpretation in the representation of reality is explicitly aimed in virtual realities and the more direct, visceral (as we have seen in c.) the empathy can be, the best. The universality of the mediated experience, almost identical among human beings of different culture and ages since it involves the most fundamental cognitive process of the user, is some kind of implicit utopy behind virtual realities and from this comes what we claim is a rhetoric. This is the exact contrary of what Leone’s describe as the essence of artistic communication and of its achieved universality across time.

“What is much more important is that they are not linked directly, through immediate empathy at the sight of another person’s crying, but through the textual tears that one finds in the last line of the poem.[...] Tu Fu, like every literary or artistic creator, had a reader in mind, but this reader corresponded to a vague idea, to an idea so vague that it ultimately comes down to a very abstract, but also very noble, presentiment of anthropological companionship, as perhaps this vague idea could be defined. Such presentiment is mostly a hope, an abstract and general hope, which nevertheless is at the fundament of the best creations of humanity. No matter in what century, culture, language, or class, a human being will recognize a universal form of sorrow in these lines, not because they were written on the basis of the author’s knowledge of the reader’s psychology, but because they were composed in total ignorance of it, seeking to find the most suitable expression to immemorial sadness.” (pp.79-80)

Finally, a fundamental feature of the death of the reader is the eagerness of leaving *footprints* and creating content for an *immediate* audience:

“Bloggers became a new voice, often with alternative, rebellious, or even anarchist undertones, praised in the west as forerunners of social and political change. The bloggers of Iran were considered as heroes, for instance, and even as martyrs when the establishment somehow repressed their writings. Attention for the innovative character of this new format, however, led many observers to neglect a structural change that was perhaps even more important than the superficial change appearing in their mere content: with the proliferation of authors, the category of readers shrunk more and more, to the point that even in the traditional domain of high literature, digital technology soon allowed practically everyone to become a writer, to author a blog, and even to self-publish a book with no or little cost. [...] On the one hand, these contents lack the proper structure that more traditional formats like novels or poems would have; on the other hand, since everybody is extremely busy in leaving these digital footprints in the digital environment, the category of the audience is progressively disappearing, and what is left is, on the contrary, readers that receive messages only in function of those by which they themselves will immediately reciprocate.” (p.81)

Therefore, we would like to propose here the idea that Eugeni’s two epos gave birth to what Leone’s is describing and that can be understood as a utopia: the *Utopia of Authorship*. Once again this concept is going to be very concretely used in our analysis and is not aimed at a direct reflection the digital culture.

3.4.2.2.1 Authorships between background and foreground

"Note that our character is capable of giving us a real feeling of three dimension. He can move further away, and come closer. He can turn so that we see all sides of him: he seems to have roundness, there's nothing flat about him. He can almost poke his finger in your eyes. When he leaves, whatever dimension he has given the scene leaves with him. Now the unnatural flatness of the background become evident, but beside being unrealistic the old-fashioned background can also create a false effect." Walt Disney, 1957¹³⁷

Since the early days of computer graphics, most digital games and their virtual realities were based on the possibility to determine a background and a foreground on the screen. Initially this was invented as a solution to the lack of memory and computational power of computers, as in the case of the cell colors used on very common console such as the NES. Additionally, there was the necessity to *dynamically* represent the character of the player and the enemies on a *static* world and background. This led to the birth of one of the most iconic elements of games: sprites. Sprites have indeed been defined as “movable objects” and are a two-dimensional bitmap that is integrated into a larger scene characterized by their animations. Sprites are thus different from the background made of *tiles* which are defined as objects with a fixed and non-movable location on the screen. Finally, other technologies were invented to give more depth to the background itself, such as with parallax scrolling which created several layers between background and foreground by using a characteristic of our own visual system. Despite all the possible layers, background and foreground are however still easily recognizable from a *causal* perspective: there is space in which the main avatar is clearly acting within and upon, which is the foreground, and another one which is almost independent from the player actions and movements, that is the background. This brief introduction to some of the mechanisms behind videogame graphics is very useful to better understand in what sense does the player cooperate and co-enunciates the text. Indeed, despite all the possible variations that we have previously presented as issues for the textual analysis, we can now better understand that there are actually several elements of the game that cannot be easily modified by the users even while they are actually playing the game.

The textual analysis focusing on the gameplay must then distinguish between:

- A. Background Static Entries: consisting of non-movable objects with fixed location afar from the main avatar
- B. Foreground Static Entries: : consisting of non-controllable objects with fixed location constituting the space *within* which the main avatar is moving and acting
- C. Foreground Dynamic Entries: consisting of movable objects with non-fixed location placed in the space *within* which the main avatar is moving and acting.

This background is thus defined by

1. A non-horizon: what the players is not moving toward and cannot hope to reach
2. A dimension outside of causality: what has no influence over the player and vice-versa
3. An enunciative context: an out of time situation where the player is filling textual gaps

¹³⁷ <https://www.youtube.com/watch?v=YdHTIUGN1zw&t>

As a simple example, in the game *Super Mario* (1985) the only dynamic entries that the players have the power to manipulate, and thus to use for creating meaning, are the succession of movement and actions made by the player's avatar on the foreground of the game world.



Everything else, is apparently totally out of his control and will assume the designed meaning. Moving fast-forward of 35 years, the 3D game *Star Wars: Jedi Fallen Order* features exactly the same situation with a controllable character moving into a world divided in what can be intuitively seen as a background (working as a panorama) and foreground¹³⁸.

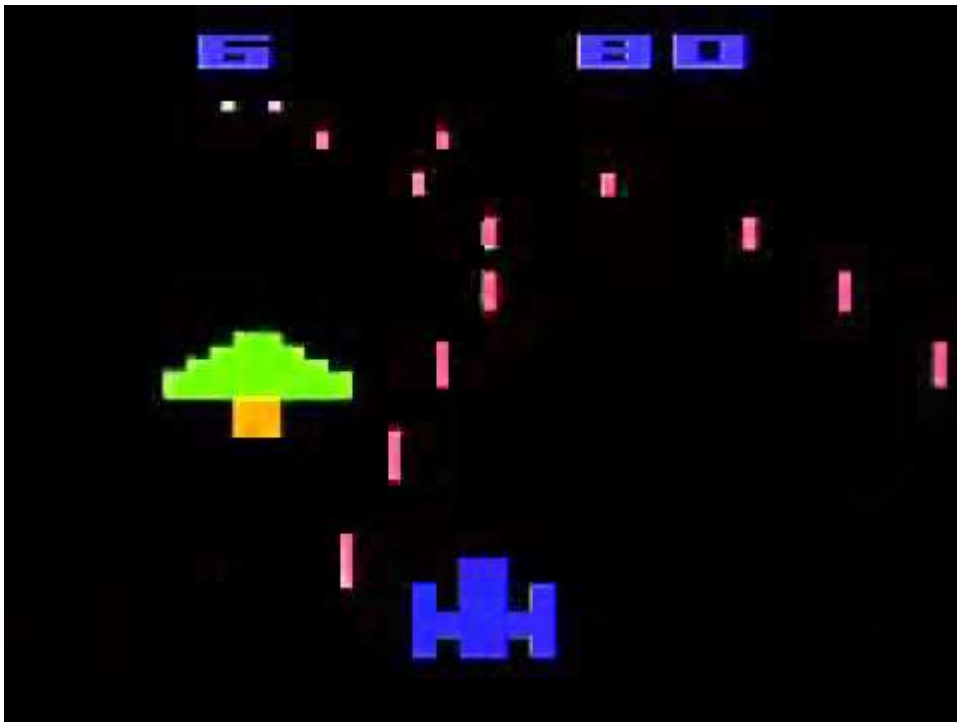


¹³⁸ <https://4wearegamers.com/2019/11/21/test-star-wars-jedi-fallen-order-sur-playstation-4/star-wars-jedi-fallen-order-20191115210143/>

Indeed, 3D games created since the beginning the illusion of the background disappearance but often moved this background to the side of the screen, as in the case of *Crash Bandicoot 3* (1998) where the player was seeing a seemingly 3d world but could actually only explore it by going straight and following the path (marked by the succession of the apples in this screenshot):



Thus the player would know where the straight path lead, they would verify themselves the virtual reality, but would never know what was inside and behind that tent. In this sense, it could be argued that in all these years not that much has changed since a similar situation can be found in one of the first videogame of history such as 1976 *Night Driver* for Atari 2600.



In this other example, taken from “Harry Potter and the Chamber of Secrets” (2002) we can clearly see how this background is marked as a flat surface inside a 3D world, with the difference between the tree and the represented forest acting as a narrative context and also as a spatial limit.



Likewise, this can also be witnessed in the 2014 digital reproduction of the chess game, with the background being here anything outside of the board which correspond to 1) any point of the virtual space which can be seen by the player but cannot be crossed and 2) any textual items that cannot be acted upon by the player nor can act upon him.



In strategic games such as *Conquest: Frontier Wars* (2001), a similar difference can be found in terms of a reality acted *into* (background) and *onto* (foreground):



Similarly, by looking at the VR version of the first-person shooter *Arizona Sunshine* we will still find the same opposition.

Finally, it should be noted how this distinction is valid also from the point of view of the audio, with the difference between ambient/ background music (BGM) and sound effects coming from the player and the adversary which constitutes the foreground.

The important point here is to understand that in virtual realities the background is not only a question of representation, but also discovered through interaction. An example in which I was personally involved is the game *Child of Light* (2014), which during the 2020 lockdown I bought as a gift to my mother to spend some time. My mother had never experienced any virtual reality or digital game, and I believed that she would not only love the art and story but also that it would be a game simple enough to play. However, I understood to be very wrong when she almost immediately told me that she was stuck in a staircase and couldn't even progress in the first "scene". Surprised, I played myself and found the problem:



While the protagonist reached this point by climbing the stairs, at some point the stairs became a background and the avatar could only go straight. My mother was this desperately trying to interact with and co-enunciates on what was now non-reachable and believed that she was doing something wrong. Indeed, what else could be the explanation ? The real answer can only be understood by totally breaking the narrative immersion, by acknowledging the digital nature of this representation, and even by considering some game design mechanics (“the author wants me to do this”). As an experienced player used to “test” the virtual reality of digital worlds from the early age of ten years old, it never crossed my mind that this “feature” could be a difficulty. Yet, it was one so important and so much recurrent in this game that she eventually abandoned it.

This first distinction can thus be useful on a variety of levels and for a variety of purposes, but it is still not enough accurate to really understand both the possibilities and the limits of the player in creating the meaning of a given virtual reality and experiencing it. From an enunciative perspective, we will rather distinguish between:

- A. Background Static Textual Occurrences: Everything forcefully appearing on the screen and independently from the player’s actions and choices.
- B. Background Indirect Dynamic Textual Occurrences: enunciates appearing on the background that are indirectly depending on the player’s input and choices.
- C. Foreground Indirect Dynamic Textual Occurrences: enunciates appearing on the foreground that are indirectly depending on the player’s input and choices.
- D. Foreground Direct Dynamic Textual Occurrences: enunciates appearing on the screen directly depending on the player’s input and choices.
- E. Metaground : The HUD mediating between the direct actions occurring on the foreground and the world of the player where such actions are taken and given value by the user itself.

This new distinction, on 3 layers and 2 levels of enunciation (background vs foreground, foreground vs extra-textual dimension), now allow us to take into consideration the real impact of the player on the text and its possible meanings. Going back to our first example we can see how in *Super Mario* the direct control of the character actually implies the possibility to indirectly determinate the enunciates relative to everything existing in the foreground that the character has an agency upon: enemies and destroyable bricks are two of the most intuitive example. But this distinction goes even further in granting to the player the possibility to indirectly trigger the scrolling background and the sound effects deriving from specific actions. Finally, when by breaking a brick Mario takes a coin and the score rises then we have another change on the expression level.

Thus when a player in *Super Mario Bros* is pressing the “Jump Button” he can co-creates a series of enunciates depending on this relation and of the situation:

- A. A plumber jumps on a sunny day while being outdoor in the nature (minimal meaning: action + context)
- B. While being outdoor in the nature on a sunny day, a plumber jumps, hit a brick with his head and breaks it (virtually real meaning: action + consequences on the world’s object in a context)
- C. Mario jumps on a sunny day while being outdoor in the nature, avoiding a giant mushroom that was attacking him and then kills him by stomping on his head (ludo-narrative meaning: action + consequences on the world’s object in a context in a narrative perspective limited to the element on the screen)

- D. While on his journey to save Peach, Mario, on a sunny day while being outdoor in the nature, jumps to avoid an evil Goomba that was attacking him and then kills him by stomping on his head, thus able to continue his quest toward Bowser's castle (narrative-meaning: action + consequences on the world's object in a context in a narrative perspective not limited to the element on the screen)
- E. The character jumps avoiding the enemy, then kills it and increases his total score (meta-level).

This distinction must, however, not be used to categorize once and for all the different elements of a game, for two different reasons. The first one is that depending on the virtual reality we are looking into, a same element can have different functions. For example, the movement of the player's avatar in Popeye (1982) will not have any impact on the occurrence of the background scene/stage.



Similarly, the horizontal scrolling of R-Type (1987) and later inspiration to this iconic game (Pulstar, 1995) does not depend on the player's moving forward or backward.

The second one is that while such a research could be useful in the field of game studies, it is not for the purpose of this work.

What matters is that we now have a better understanding of the co-production of meaning occurring and of the resulting meaningfulness depending on a *causal agency creating both directly and indirectly some of the sentences that constitutes the text and thus defining a foreground opposed to a non-enunciable background* which however comes to become meaningful as a result of the digital interaction.

But there is more, in fact this very situation is at the origin of some kind of *utopia* about a “real virtual world” without this distinction, without limit in this very particular sense, and the “obsession” for the players to go in places unreachable and to have an impact on the parts of the game that were initially not intended to be influenced by his agency.

We can then now understand why the players of *GTA V* online have desperately tried to destroy an indestructible dam¹³⁹ and also why the 2017 “fake” video¹⁴⁰ “Killing the dog from duck hunt??” could reach one million view since in the NES version the hated dog (making fun of you for your failures) could not be shot at while in the arcade version it could only be hurt.



The consequences of this *utopia of “total-rewriting”*, which is characteristic of digital culture, have been two and very different. On the one hand game designers have created virtual realities where this distinction has gradually faded, on the other one players have used the digital technology itself to reach this very background. In the next two paragraphs we will demonstrate with many examples how this occur, but for the readers not interested in this demonstration here is the important conclusion to both analyze virtual realities and understand the human behavior in them. Background and Foreground are thus, in conclusion, an effect of sense based on the opposition between the virtual world as a prewritten representation and as a writable place of presence. It is influenced by both the design/programming of the virtual space and of its interactive mechanics since it is strictly connected to agency and enunciation. Background and Foreground are a key factor in the production of meaning, requiring and allowing the user of a virtual reality to test the limits and possibilities of its digital world and additionally allowing him to leave in the space tangible traces of his own personal presence and actions. In this sense, the background is always a potential horizon of the player even though we have defined it by being precisely not one of the avatar and as a feature which is negating that the digital world is a real world. This requirements also make it so that users are curious and eager to trespass these very limits, to witness and trigger the disappearance of the background, since trespassing it means augmenting their agency into the digital world, their authorship by creating new, and sometimes “forbidden”, enunciates on the expression plane and to play with meaning itself. Both through game design and by using the digital code, being used to live in virtual realities and digital worlds implies thus to conceive reality both in the terms of a duality and of a co-enunciative and rewritable space where one’s knowledge and competence can be used to violate the rules governing and holding that specific reality.

¹³⁹ <https://kotaku.com/gta-v-players-have-spent-2016-trying-to-destroy-a-poss-1785946907>

¹⁴⁰ https://www.youtube.com/watch?v=wM_OCtwdO_U

3.4.2.2.1.1 The semiotics root of background and foreground

The perspective for which we are opposing two separated “layers” of meaning-making in virtual realities was in origin the one of Eugeni and Colombo’s 1996 “Il testo visibile”. And was later on adopted also by other semioticians such as Meneghelli and D’Armenio. In this first versions, these two “spaces” were based on the Saussurean idea of signifier/signified and were also the results of that biplanar visual semiotics criticized by Maldonado as inadequate for virtual realities. Four years ago, in our MD thesis we already explained all the issues related to such approach and for philological reasons we propose here a brief extract of such discussion:

“Fra alcuni dei concetti più ricorrenti della semiotica del videogioco, ripresi ancora in Meneghelli (2011), vi è certamente quello di spazio rappresentato e spazio rappresentante di Colombo ed Eugeni. Il primo essendo uno spazio finzionale profondo opposto al secondo che invece è astratto e bidimensionale e rappresenta una interazione fra game e giocatore (Meneghelli, 2007, p.109). Se tuttavia non li abbiamo presi in considerazione nel nostro capitolo sullo spazio del gioco è perché siamo convinti che si tratti di concetti fuorvianti in quanto legati a una estensione metaforica del concetto di spazio che, come quella di spazio fisico (Eugeni and Colombo, 1996, p.194) come CD-ROM (oggi tra l'altro sempre più virtuale con la progressiva scomparsa di supporti fisici su cui vengono venduti i giochi), non può essere molto d'aiuto per i problemi di una semiotica interessata alla creazione del senso e all'interpretazione del testo videoludico. Ciò a cui si riferiscono è assolutamente fondamentale, e vi è molta intelligenza e lungimiranza nel porli come significativi, tuttavia pensare questi elementi come *spazi* pone dei problemi. Prima di tutto la scelta terminologica pare sfortunata, in quanto richiama lo spazio “bidimensionale” della semiotica del visivo dove questo però si caratterizza proprio per non avere alcun tipo di contenuto e poter così permettere il rappresentato o per poter essere spazio della firma dell'autore o dei titoli sovrapposti all'immagine nel cinema (Ivi, p.196). Ma una tale condizione nel videogioco non è veramente data e si presta così a diverse interpretazioni. In Colombo e Eugeni, per il tipo di testo scelto, nulla se non il movimento del cursore per interagire indica quello spazio, per cui “tutto il mondo rappresentato è per certi versi un in interspazio” (*Ibidem*). In Meneghelli assume invece l'idea di cornice con un effetto di “schermo nello schermo” per spiegare la *mise en abîme* da cui dipenderebbe l'immersività (Meneghelli, 2008) e assume connotazioni propriamente spaziali oltre che indica un certo tipo di contenuto meta-testuale (Ivi, pp.112-114). In entrambi i casi, certo, questo spazio è tale per cui è possibile vedervi tracce dell'enunciazione dell'enunciario che dialoga col “game”. Nel primo caso dunque questo spazio non è poi così facile da rintracciare in quanto tale se non per delle iscrizioni esplicite che vi avvengono, ma questo non accade nella maggior parte dei videogiochi. Nel secondo invece si pongono una serie di problemi:

1) Giochi con cornici fisse ed effetti simili esistono, ma non si tratta di god games né della maggior parte dei giochi, quanto di giochi legati alle prime due generazioni di videogiochi (*Arkanoïd*, 1986) e/o che richiamano l'idea del “mini gioco” (*Wario Ware Inc*, 2003)

2) In moltissimi dei giochi “l'interfaccia” non può essere facilmente divisa fra ciò che è effettivamente visibile e agibile (Meneghelli, 2007, p.110) Anche D'Armenio (2014) nota questo ma ne conclude che semplicemente tutto coincide con lo spazio visibile (p.63), il che non ci aiuta molto.

3) Alla luce della centralità del piano ludo-narrativo, possiamo affermare che gli elementi di un HUD o della GUI non hanno molto di extra-diegetico: non sono affatto esterni “al mondo del gioco vero e proprio” (Meneghelli, 2007, p.111) e cambiano nel contenuto in tempo reale e in perfetta coerenza con la situazione. In uno soprattutto il numero di munizioni che scende in tempo reale, o di punti di vita, permettono passeggiate inferenziali, costituiscono sceneggiature e suggeriscono non solo interi spettri di azione ma costituiscono alcuni degli elementi fondamentali della tensione narrativa (es: “era ormai gravemente e ferito e senza munizioni, e all'improvviso altri dieci soldati spuntarono davanti a lui”). E come può la posizione durante una gara, tipicamente messa in periferia, non avere a che vedere con la narrazione? Non si tratta cioè solo di informazioni “per non perdere” ma di enunciati aggiuntivi e di un tipo di diegesi che ha a che vedere con la cognizione mediata fra giocatore, protesi digitale e mondo di gioco.

4) Pensando alla distinzione fra figurativo e astratto, crediamo sia abbastanza improbabile pensare che la storia di Mario sia quella di un idraulico che diventa più forte mangiando davvero dei funghi. Il fungo sta per il power-up secondo la stessa logica per cui vi stanno le ciliegie in *Pac-Man*. E questo rinvio segnico non ci pare affatto meno astratto, o meno figurato, di quello per cui in alto a sinistra la vita del protagonista viene rappresentato da dei cuoricini. E a proposito di cuoricini, pensiamo a come in *Castlevania: Symphony of the Night* (1997) è nel mondo di gioco che il personaggio trova dei cuori che poi compariranno nell'HUD come informazioni.

Bisogna dunque essere molto cauti nel partire dal presupposto che il videogioco sia sempre interessato a rappresentare un mondo “reale” (concetto che meriterebbe una tesi a parte) e che lo spazio rappresentante invece se ne distacchi proprio in quanto interessato a trasmettere contenuti simbolici.

5) Dal punto di vista centrale VS periferico, pare ancora più difficile separare nettamente i due spazi con appunto l'emersione di “marche del gioco meta-testuali e riguardanti il giocatore” (mirini, numeri, tasti, indicatori, scritte) assolutamente nel centro dello schermo, in modo dinamico, e persino nei testi che ricercano più immersività. La specificità di certi generi rispetto ad altri, inoltre, sta precisamente nell'includere o meno sul piano del “mondo di gioco profondo” sfere, luci, simboli, monetine e altro ancora che significano che si sta giocando. Il che è diverso dai casi citati da Meneghelli (Meneghelli, 2007, p.123) come il puntatore che “invade” lo spazio rappresentato o ancora la finestra di dialogo. Questa visione sembra fortemente dimenticare come il tipo di narratività del videogioco non sia quella di un romanzo o di un film, ma passi per gli elementi del gioco che ne costituiscono una parte importante. Proponiamo qui qualche esempio visivo dell'impossibilità di pensare a questo spazio del mondo fuori dal mondo di gioco, e questo proprio in virtù della caratteristica notata da Eugeni e Colombo della permeabilità (Eugenio and Colombo, 1996, p.197).

6) Infine, e conseguentemente a quanto appena detto, vi è l'idea che sia lo spazio rappresentato a essere “costantemente invaso dagli altri spazi, a cui necessariamente rinvia” (Ibidem) e che via sia un vero e proprio linguaggio che crea significato da questa compenetrazione di spazi grazie a effetti semiotici come incassamento di *débrayage* spaziali Meneghelli, 2007, p.124) che partono dalla cornice del monitor. Nel capitolo conclusivo del suo libro, infatti, Meneghelli scrive che “l'immersione, in quanto effetto di senso, può essere costruita attraverso varie modalità ma siamo convinti che dipenda sostanzialmente dalla messa in atto di strategie enunciative a un tempo oggettivanti e soggettivanti” (p.212) e citando in nota proprio lo spazio rappresentante come forma di spazio oggettivante contrapposto al mondo rappresentato soggettivante. Noi però abbiamo già visto che questi spazi non sono poi affatto così distinti di per sé, ma come semmai questa distanza viene percepita a partire dalle tracce del contenuto che le caratterizzano in quanto tracce di una diversa enunciazione. E d'altronde col passare del tempo le forme classiche della rappresentazione di queste informazioni caratterizzanti dello spazio rappresentante sono state rese sempre più deboli (a questa tendenza, tra l'altro, accenna la stessa Meneghelli, riprendendo Frascini, senza però dedicargli particolare importanza) e diegetiche con espedienti narrativi come display sulle armi col numero di proiettili (*Halo*), o ancora un orologio (*Golden Eye: 007*, 1997; *Metro 2033*, 2010) o un casco tecnologico (*Doom*, 2016) per essere informati della propria salute. Inoltre, in alcuni giochi come *Gran Turismo 5* viene data oggi al giocatore la possibilità di celare completamente l'HUD. Mentre il settore indie dimostra benissimo di aver capito questa importante lezione con giochi che sempre di più mettono in crisi il sistema “spazio rappresentante – spazio rappresentato” come *Limbo* o *Neon Drive*. Infine anche dal punto di vista della comunità dei giocatori sembra esservi questo stesso desiderio per la scomparsa dello “spazio rappresentante” per permettere una maggiore immersività, non è un caso se la mod più scaricata di *Skyrim* sia quello che riguarda proprio l'UI e la possibilità di celare l'HUD518 che conta 14 milioni di downloads. Ma pensiamo anche a videogiochi passati che hanno sempre alternato i due “spazi” senza alcun effetto di cornice o di “schermo nello schermo”. O anche a *Comanche* (1992) in cui i creatori introducono una visuale in prima persona nel piccolo schermo in basso che ci mostra il mondo finzionale rappresentato nell'HUD in basso a destra proprio in virtù del fatto che gli elementi “meta” sono al centro

Alla luce dunque dei tanti giochi che hanno scelte strategie enunciative-rappresentative diverse, e di una lunga “lotta” contro lo spazio rappresentante (inteso nel secondo senso) fino alla sua scomparsa sia nei giochi in prima che in terza persona e in generi diversissimi (platform, puzzle, fps, giochi di guida), e cioè della scomparsa proprio di quello spazio che secondo Meneghelli “rende possibile la creazione del mondo di gioco”, concludiamo allora affermando che al fine di una riflessione generale sul videogioco i due spazi di Eugenio Colombo non risultano efficaci per capirne gli effetti di senso.” (Giuliana, 2017, pp.197-203)

Once again, the here presented critique is nothing but actually a debt that we owe to Eugenio for having suggested how to look into one of the most fundamental part of virtual realities.

3.4.2.2.1b Closing the gap: background disappearance through design

Game designers have invented different solutions through the years to give to the player the impression of the background's disappearance, following an ideal of both total agency and total rewriting. Without pretending to be exhaustive, we will highlight here three of them which are extremely interesting from our perspective:

1. A visual-causal connection between the background and the avatar's action based on the simulation of depth.
2. The augmentation of the reachable and interactive space, and thus of horizons.
3. The possibility to leave tangible traces of the player's actions on the enunciative context.

The first solution was to *visually* bound it to the player's action, such as with the Parallax scrolling effect augmenting the impression of depth or with the projection of the avatar shadow on the farthest layer of the background, two solutions which can both be found in the 1986 game *Parallax* for Commodore 64.



The second one was to increase the space in which the player could act, which corresponds to increase of enunciative possibilities. In 2D games this can be seen in differently accessible layers and areas, such as in the following example taken from the first level of *Tombi!* which somehow fakes the representation of a background but puts in it a three-dimensional animated object inviting the player to find a way to reach it.



One More example can be found in *Yuu Yuu Hakusho: Makyou Touitsusen* (1994) in which “players can hop between a foreground plane and a background plane.”¹⁴¹

¹⁴¹https://www.gamasutra.com/view/news/265496/17_moldbreaking_fighting_games_that_all_developers_should_study.php

Another solution, extremely successful, has also been to allow a shift between the different 2D dimensions of the game such as in Fez (2012):



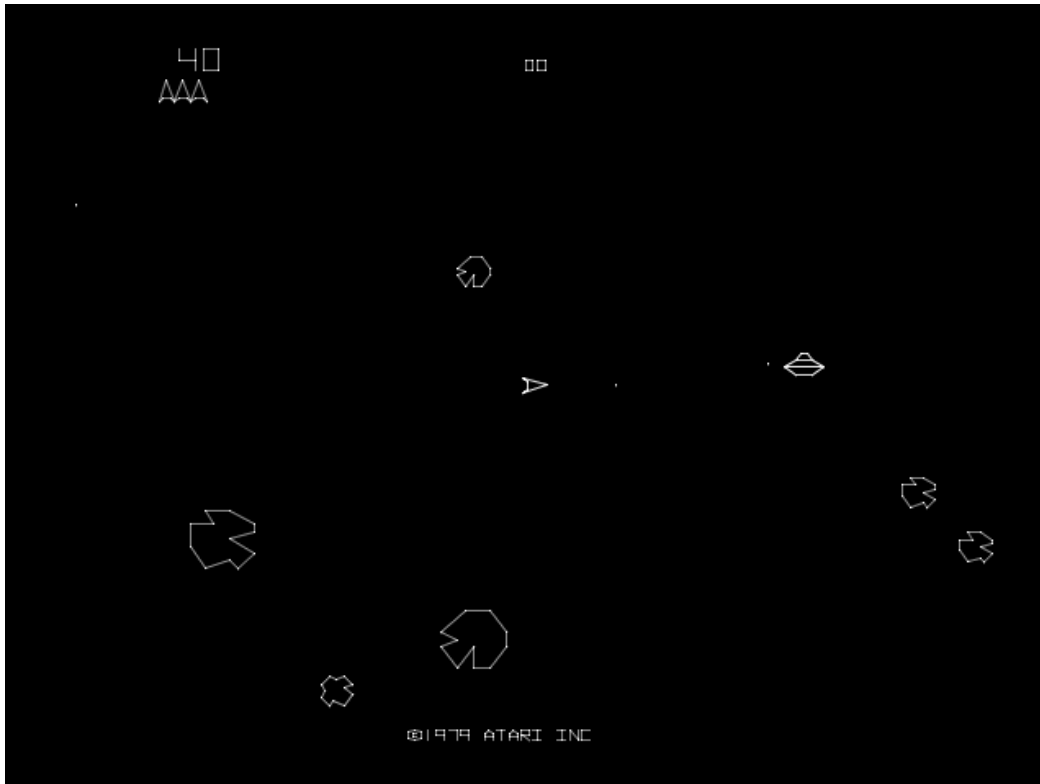
Or the less known Crush (2007):



A third possibility can be seen in the game Spore (2008) where, in the first section of the game, the background gradually becomes the foreground:



Yet, the most iconic characteristic related to this augmentation is without a doubt the introduction of a three-dimensional space and consequently of a third dimension of enunciation. Even in its first and “fake” form made through Ray-casting such as in *Wolfenstein 3D* (1992) and with the usage of sprites such as in *Doom* (1993), this new dimension got rid of the “flat” impression characteristic of 2D games transforming the background in a place toward which the player seemed to be directed. This is rather evident in the comparison between 1979 *Asteroids*, already the 1979 *Asteroids* presented an “open space” in which the player could be and go anywhere on the x and y coordinates (leaving the black background as the only figurative background of space) and the 1993 *Star Fox*.



Of course, the success of “true 3D” in fighting games can also be understood in these terms with the invention of the “side-step” mechanics in the 1994 PlayStation *Battle Arena Toshinden*, an invention that completely changed the experience of the game. In fact, by looking only at the visuals and neglecting the interaction of the avatar in the digital space it would be impossible to understand why this game was deemed “true 3D” in comparison with first actual fully 3d fighting game with polygon graphics *Virtua Fighter* (1993).



The third one, and perhaps most successful, was to introduce the possibility to leave in the enunciative context, the space-world of the game itself, some tangible traces of the player's doing up to the point of changing it permanently. Here the objects which were typically nontangible, and did not have a direct impact on him (outside thus of narrativity), could be acted upon. Walls, buildings, mountains, floors, ceilings, vegetation, roads, bridges, furniture and the very planet itself: while all these are typically part of a scenario and defines the limits of space itself, in some virtual realities they can be strongly influenced by the player.

The most obvious and successful feature allowing such a thing is the presence of destructible environments. One of the earliest and best example is possibly the 1988 Arcade game *Cabal* which also present a frontal third person view increasing this effect. What is interesting here is that while there is still a clear recognizable background constituted by the sky and the farthest mountains, all the other elements in between could be "tested" from the closest to the furthest away by shooting at them.



But most importantly, the feature of destructible environments has become a major one inside a variety of games and genres. In some cases, this destruction is a main value and reason of enjoyment such as in: Rampage, Red Faction: Guerrilla, Just Cause 2-4, Hulk: Ultimate Destruction, Rainbow Six: Siege, Planetary Annihilation: TITANS, Besiege, Crisis, Worms, War of Monsters, Dangerous Golf, Battlefield 4 (" You could leave your mark on Battlefield 4"¹⁴²), Crackdown 3, Fracture and Black (2006). And despite the new possibilities of destruction granted by the contemporary computational technology, we can already find it in some of the earliest videogame of history: *Space Invaders* (1978) *Battle City* (1985) and *Dig-Dug* (1982).

¹⁴²« 8 Most Destructible Game Worlds Ever On Xbox” – Xbox On - <https://www.youtube.com/watch?v=2L4uWRyIZvE> (min3.20-3.24)

Destructible environments are particularly interesting to observe in fighting games since they appear in three different versions:

1. Temporary Destruction
2. Permanent Destruction
3. Transitive Destruction (free floor fighting & multi-tiered stages)

The 2019 game *Jump Force* offer us several examples of temporary destruction/marks, such as in the following picture where we can see how the energy beam of Goku is burning the ground underneath, although few seconds after the ground will be restored to its previous state.



As an example of the second case, we can cite the now 13 years old *Dragon Ball Budokai Tenkaichi 3* was perhaps even more ambitious with the possibility of permanently changing the environment by destroying its elements up to the point of changing the place of the fight in a desolated planet.

Lastly, transitive destruction involves a destruction of the environment which ends in a transition in a new stage, typically by breaking walls and floors, erasing thus any traces of the destruction itself. Some of the earliest examples can be found in *Mortal Kombat 2* (1995) and *Dead or Alive 2* and *X-Men: Next Dimension* (2002), and this feature is still very present today in title such as *Tekken 7* or *Injustice 2*.

However, destruction is not the only way in which virtual realities allow their players to leave tangible traces of their presence into the digital worlds and to create the illusion of the background's disappearance. There is one feature far more convincing: the possibility to create and manipulate this space itself.

The first example that comes to mind is without a doubt SimCity (1989) where the game precisely consists in modifying what is figuratively a background: the terrain of the world itself. However, this background is not really one since it has a strong and permanent influence over the player and vice-versa.

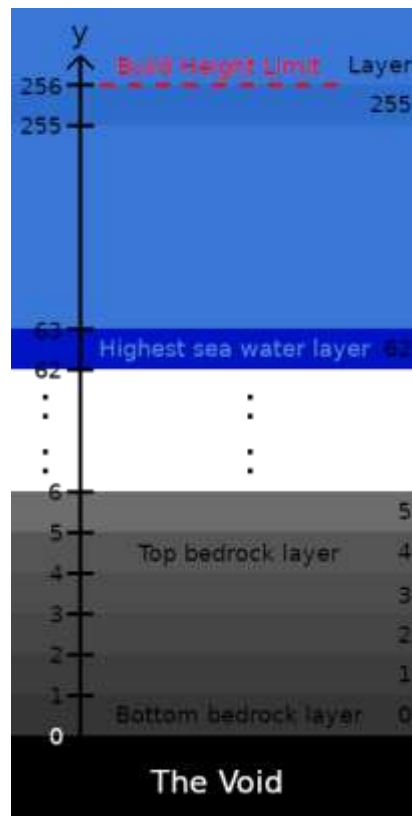


A later and more complex example is the previously mentioned 2008 title *Spore*. For the first part of the game the player is a creature living in a planet and ambient which present a very obvious background both its 2d and 3d sections. This background becomes however partially editable when the game becomes a “god-game” like and in the last part of the game the player can completely change the planet by using “terraformation”.

However the best and most iconic example is the videogame Minecraft, one of the most played game ever with 480 million players. In *Minecraft* the impression is that anything seen can be reached and modified, thus destroying the very premises of what is usually perceived as a background. Players can build structures up into the sky or deep into the core of the earth, they can modify and shape the world almost at their will.



This impression is however also an illusion. In fact, Minecraft presents several limits beyond which what is *seen* becomes a background. One of them is the altitude¹⁴³:



And of course even this digital world has its boundary, as we can read:

“The boundary of the world has several "layers". The first layer is the world border, which lies at X/Z $\pm 29,999,984$ by default, and establishes an arbitrary blockade to prevent the player from advancing.”¹⁴⁴

Despite the existence of these limits, what creates the impression of a world without background, and thus of a “full reality”, is the amount of effort and time needed to actually test and find them.

Background and Foreground are thus, in conclusion, an effect of sense based on the opposition between the virtual world as a prewrite representation and as a writable place of presence. It is influenced by both the design/programming of the virtual space and of its interactive mechanics since it is strictly connected to agency and enunciation. Background and Foreground are a key factor in the production of meaning, requiring and allowing the user of a virtual reality to test the limits and possibilities of its digital world and additionally allowing him to leave in the space tangible traces of his own personal presence and actions. In this sense, the background is always a potential horizon of the player even though we have defined it by being precisely not one of the avatar and as a feature which is negating that the digital world is a real world.

¹⁴³ <https://minecraft.gamepedia.com/Altitude>

¹⁴⁴ https://minecraft.gamepedia.com/World_boundary

3.4.2.2.1c Closing the gap: background disappearance through digital interaction

The previous examples have shown us how virtual realities can be intentionally and necessarily created with and between a foreground and a background. But since virtual realities depend on the digital code ruling them, and since the players can manipulate it in a variety of ways, this distance can disappear also through the digital interaction of the player itself. Indeed, if we continue to read the description on Minecraft's boundary we discover that:

"The boundary of the world has several "layers". The first layer is the world border, which lies at X/Z $\pm 29,999,984$ by default, and establishes an arbitrary blockade to prevent the player from advancing. **There are several methods of bypassing this border.** The second layer lies exactly one chunk further, at X/Z: $\pm 30,000,000$. At this point, there is an invisible wall preventing the player from advancing, even in spectator mode. Using commands like `/teleport` does not work, since the game does not accept any value beyond X/Z: $\pm 30,000,000$. This value is hard-coded into the game's source code. Other block interactions, such as TNT exploding or water flowing, affects blocks outside this limit. By using a minecart (in a superflat preset with the top layer as rails), the player can go even further, up to X/Z: $\pm 30,000,496$. At that point, the player is frozen in place until the minecart is destroyed, then they are teleported back to X/Z: $\pm 30,000,000$. The world border from the outside using the `/tp` command. The third and final layer lies at X/Z: $\pm 30,000,496$, which can be considered the absolute edge of the Minecraft world, as chunks no longer generate beyond this point, so it's impossible to advance past this point without the use of modifications"¹⁴⁵ (my bold)

The importance of "bypassing a border" has always been central in digital games and modern contemporary realities are no exception to this. Furthermore, this interest is transversal across the communities and different genres.

As an example, the Halo community as always shown interest in "exploring" the space of the game even though this title is a pretty linear first-person shooter not centered around exploration. In 2018 the YouTube Channel "MythicTyrant" proposed a series of videos¹⁴⁶ exploring the game both by tricks and mods to reach unreachable area, the last one was released in January 2020 and is the 113 one. The titles of these videos often present questions such "What's at the top of..." "What's at the bottom of..." "Can we reach..." which highlights very well the point that we are here discussing. The first one was about a "bottomless pit" which could have been almost described as a background since the player could see it but not explore it and would die while trying. By using a vehicle which is further in the game and going back to this pit, the Youtuber show his audience that this pit actually has its bottom and can be seen s any other part of the game.

Even specific tools have been conceived in the years for the "unplanned" exploration of virtual spaces, such as cheats or software removing collisions and thus allowing the player to bypass walls. One of the most famous example was the usage of such informatic tool to discover a "hidden" room in Time Splitters which was full of bananas and not made for the player to be seen.

¹⁴⁵ https://minecraft.gamepedia.com/World_boundary

¹⁴⁶ <https://www.youtube.com/watch?v=MVPApA5AT2c&list=PL5FAEE29C103098A2&index=3&t=0s>

Finally, even errors in the original code, known as glitches, became important and a value of digital games precisely for this possibility of allowing the player to reach even unfinished and non-rendered area of the virtual realities. A game such as *Skate 3* (2010) is precisely loved by its players for this possibility and several tutorials¹⁴⁷ can be found to trigger such glitches. And this is not new in skateboarding games since we could find it already in *Tony Hawk Pro Skater 2*:



Many more examples of this obsession to reach the unreachable, create impossible enunciations and cross the digital border can be found in our gaming facts, but what is important here is that we can now finally come to a definitive conclusion on Background and Foreground by completing our previous claim:

[...] Background and Foreground are a key factor in the production of meaning, requiring and allowing the user of a virtual reality to test the limits and possibilities of its digital world and additionally allowing him to leave in the space tangible traces of his own personal presence and actions. In this sense, the background is always a potential horizon of the player even though we have defined it by being precisely not one of the avatar and as a feature which is negating that the digital world is a real world. This requirement also makes it so that users are curious and eager to trespass these very limits, to witness and trigger the disappearance of the background, since trespassing it means augmenting their agency into the digital world, their authorship by creating new, and sometimes “forbidden”, enunciations on the expression plane and to play with meaning itself. Both through game design and by using the digital code, being used to live in virtual realities and digital worlds implies thus to conceive reality both in the terms of a duality and of a co-enunciative and rewritable space where one’s knowledge and competence can be used to violate the rules governing and holding that specific reality.

¹⁴⁷ “Skate 3 Tutorial: three easy glitches to get through almost any wall, floor or ceiling” – Helix Snake - <https://www.youtube.com/watch?v=kZCioBpqMN8>

3.4.2.2.2 SOA as inside digital manipulation

In 3.1.4, the chapter on the pragmatics of communication inside virtual realities, we defined the importance of creating new utterances as an aesthetic value. We then demonstrated in the chapter on second-order authorship that such value is pursued by pushing to the limit the combinatory possibilities granted by FOA through syntagmatic combinations and expansions of the repertory. To this we can now add the fundamental role of the understanding of the “code” to pursue such value. At the very basis of this idea, *the key notion is that each interaction within a digital system is potentially learning to the user something about the system*. Something that could be unplanned and exploited. One of the most amusing examples about this can be the “anti-bullet” effect of the frying pan in PUBG¹⁴⁸. Now, when we add to this the existence of thousands of users collaborating to discover the secrets of a system, we obtain the possibility of making impossible things happen. Let’s look at a simple example. In the videogame *Paper Mario* (2000) at some point the player is offered a new “fish companion” allowing him to pass on the water surfaces so that he can now reach places which were priorly unreachable and so fulfill his task of saving five little “Yoshis” by following the intended script. However in a virtual reality “unreachable”, this impossibility of the text, is more than a question of game design since it depends on the software. This allowed players such as the Youtuber “Stryder7x”¹⁴⁹ to actually represent on the screen something not only unplanned (such as Teabagging) but conceived as *impossible*. Very specifically, this will be done by using “Loading Zone Storages”. Now we will offer the transcription of the player’s own explanation of such method (therefore also aimed to be replicated by viewers) but not at all because it matters for our thesis or we expect our reader to understand it, instead only to easily prove the amount of informatic knowledge which is obtained by the users through the virtual reality itself:

“ LCS is a trick **discovered by Rob Dogg in 2012** which can be done by performing **perfectly timed jumps** after touching a loading zone delaying the transition to the next room the control stick must be neutral the frame before the jump input but you can actually move while the loading zone is stored if an angle is input on the same frame as the jump input making each individual jump technically double frame perfect' since this series of Gooch's requires so many frame perfect' inputs I've included a frame perfect' counter to track the number of precise inputs required to execute this optimally so let's get started. LCS is pretty cool especially because a few loading zones don't have **invisible walls** behind them. **I guess the developers got a little lazy** during chapter 5 because none of the loading zones and the jungle have these back walls so we could **jump right off the edge of the world** or with extremely precise movement we can maneuver around the loading zone and move long and out-of-bounds seam, the downside is we still have to LZs so the frame perfect jumps must continue the entire time by touching another loading zone while we have LZs the new loading zone overwrites it.”

We put in bold some key terms highlighting how this procedures requires not only some knowledge about informatics (example: invisible walls) but also an ideal impossible physical capacity and “integration” (frame perfect input even while not seeing the character) and is closely related to the already mentioned theme of the boundaries (edge of the world). Something amounting to so much effort that the name of who makes such discoveries is remembered. In this sense, worldwide spread practices such as *speed-running* cannot be reduced simply to “being good” but even more so to “knowing the software”, embracing the aesthetic of opacity of virtual realities and opposing a user which is always potentially an “hacker” of that very system. New utterances find therefore their meaningfulness both through their efficacy (new records) and though the fact that they can be uniquely created though software learning, knowledge and manipulation.

¹⁴⁸ <https://www.pcgamer.com/pubg-frying-pan/>

¹⁴⁹ <https://www.youtube.com/watch?v=8u2PqzWqSaE>

This is true both for narrative games in which players can represented unthinkable suicides such as in Super Mario 64¹⁵⁰ and for the history of the Wii Sports Resort Golf World Records¹⁵¹, performances which are the results of a collective work over years to “crack the code”, understanding not the rules but the way in which these rules are enforced and enacted, and therefore how they can be “bent or broken” (Matrix, 1999). The point of such discovery and violation, from a semiotic perspective, is that they clearly reflect a cultural shift between reader and author: each violation, each impossibility made possible, is a way for the user to express his subjectivity, presence, and mark his authorship in respect to others.

The emblematic case of such conflict, or perhaps better *passage* of authorship, is perhaps represented by the declaration of Doom’s creators about strafing or rocket jumping, which became common possibilities iconic of games. In the first case a different movement in space is possible through input combination:

“Straferunning is running forward and moving sideways (strafing) at the same time, which results in moving faster than is possible in either direction alone. One of the advantages is being able to jump farther than is otherwise possible. [...] SR40 (to the right) may be activated using Run, Forward, and Strafe Right (shift, up arrow, and period in the default keyboard arrangement) [...] SR50 (to the right) may be activated using Run, Forward, Strafe Right, Strafe On, and Turn Right (shift, up arrow, period, alt, and right arrow in the default keyboard arrangement).”¹⁵²

The second case consists in the players shooting missiles at their feet to create an original way of moving into the space, almost like flying and with the possibility of *skipping some designed part of the texts* (and we come back here to Barthes’ *eraflures*), by using and abusing the physics of the game. And in both case this was not designed by the creators:

“the only way you are supposed to reach the secret switch was by (1) getting the invincibility, (2) blasting a rocket into the wall so you would fly backwards into the box. We found out early on that it was possible to flip the switch from outside, so Sandy made the walls thicker. The advanced techniques of strafe-running, et al, did not come about for almost a year after DOOM's release so there was no way we could anticipate someone getting into the secret area any other way. Much like the way we never anticipated Quake's rocket-jumping.”¹⁵³

Talking about passage of authorship instead of conflict becomes essential to understand how today the famous “IGN” can propose a series of videos¹⁵⁴ of enthusiastic reactions of the developers of a given game to how the users are making possible the impossible with them having “no idea of what is going on”¹⁵⁵.

“I just wanted to say watching these world record runs always gets me thinking about the relationship between game designers and speedrunners. It's like quite an unusual relationship. In a certain way the speedrunners aren't like the normal streamers and youtubers who play games when they come out you know if you watch those people playing a game they're struggling to learn the systems and to master them just like you would if you were playing yourself and if you're the game designer watching a normal stream you're thinking to yourself yeah that's working pretty much exactly as I planned. Watching speedruns isn't like that and I think in a way the role of the speedrunner is like the exact opposite of the role of the game designer. A game designer painstakingly carves a beautiful sculpture out of wood first chiseling it out of a raw block and then gradually rounding off any rough edges making sure it works when it's viewed from any angle. The speedrunner takes that sculpture and they look it over carefully from top to bottom from every angle and deeply understand it and they appreciate all the work that went into the design all the strengths or the weak points and then, **having understood it perfectly, they break it over their knee. Well that's why I love speedrunners.**” (Bennett Foddy, June 2020)¹⁵⁶

It should be noted that the inside digital manipulation has not only to do only with the knowledge of a game, but more extensively of digital technology and software. Through such manipulation,

¹⁵⁰ <https://www.youtube.com/watch?v=3UDDdbXaGx0&t=14s>

¹⁵¹ <https://www.youtube.com/watch?v=XkKufyIiAY>

¹⁵² <https://doom.fandom.com/wiki/Straferunning>

¹⁵³ https://soulsphere.org/mirrors/www.rome.ro/lee_killough/history/doomqna.shtml

¹⁵⁴ https://www.youtube.com/watch?v=wqpYIrP_IRc&t=62s

¹⁵⁵ <https://www.youtube.com/watch?v=PH2-oM7IWpY> (min 1.48-2.15)

¹⁵⁶ https://www.youtube.com/watch?v=dGU5_UUalPA

perhaps the most iconic element of game as a series of meaningfulness event forming a *destiny* in relation to their randomness/virtuality, can be substantially erased. Let's think here at the usage of transfers of accounts¹⁵⁷ in *Grand Fate Order* (2015), at "savescumming" in rogue-like games designed to be played without ever saving such as *Dungeon of the Endless* or even at the manipulation of the consoles internal clock since *Pokemon Gold* (1999). Moreover, by exploiting the digital weakness users can trespass the boundaries and go in that "background" belonging to the programmers and finding "secrets". Events which are often reported inside the community, such as in the case of *Doom*¹⁵⁸ or *Counter-Strike*¹⁵⁹. Finally, a very interesting form of software manipulation from the inside and yet planned by the creators regards all the "editors" offered to the players to create their own levels via the very tools of development. There are many example of this among the story of digital games, regarding very different genre from strategic games to *Tenchu 2* (2000), and the most recent and successful case is without a doubt *Super Mario Maker* (2015) in which making the games is the game itself.



¹⁵⁷ <https://www.youtube.com/watch?v=FYPN5CLAYiE>

¹⁵⁸ <https://www.doomworld.com/forum/topic/33783-doom-64-secret-messages/>

¹⁵⁹ https://www.reddit.com/r/GlobalOffensive/comments/5uvymc/dust_2_remake_should_readd_the_memorial_to_justi/

3.4.2.2b SOA as outside digital manipulation

Since the introduction of this thesis we have claimed that one of the characteristic features of virtual realities was the fact of offering to the user the very means of their own production. Until now, however, this claim may have seemed fundamentally metaphorical: given that a text is determined by enunciation, a user co-enunciating is co-producing the text by co-determining its utterances. It is only by looking at the digital nature of such artifacts that we can see how our claim is far from being metaphorical. Indeed, by having access to the very files the users can have a direct knowledge about the code itself, without requiring interaction, as in the case of the discovery of a smell system in *Half-Life*¹⁶⁰. But more importantly, the users can modify a great variety of elements from the outside:

- New figurative elements which are often intertextual elements that can increase the play with culture.
- New rules, modified economies and more generally changes in the effort required
- New narrative content, from stories to characters
- New levels of transparency of the underlying processes
- AI overhaul

These modifications can obviously change the game or the player's pleasure against FOA, and sometimes even with remarkable intents: for example erasing the patriarchal ideology with "Donkey Kong" by making Pauline¹⁶¹ the hero or transforming *Street Fighter* so that the gorilla Harambe becomes the main player defeating the humans¹⁶². But are also often made as ameliorations of the FOA itself as in the case of *Alien: Colonial Marines* (2013)¹⁶³.

Moreover, in some extreme but culturally exceptionally significant cases, mods gave the birth to different games. In fact, two of the actually most played and famous e-sports are born this way: CSGO as the "counter-strike" mod from *Half-Life* (2009) and DOTA as a mod *Warcraft 3* (2002). This access to the file, together with the access the knowledge to manipulate them, is a real ownership of the "im-material" means of production of the game. It is true that developers may encrypt such data, and that in some countries laws have been approved so that when these modifications are used for cheating players can go even in jail¹⁶⁴, but it is also true that encryption can be and is often broken and that developers are often encouraging themselves the modification of their games.

Both by modifying the files or by using other softwares altering the processes of the game, the already infinite possibilities of virtual realities are even more increased and the difference between users and authors ends up by almost disappearing. Most importantly, when a closed and "non-functional" door is violated, such as in the case of the VR version of *Trover Saves The Universe*¹⁶⁵ (2019), the player transforms the fictional in to the functionally-real (Aarseth, 2007).

Finally, there is an increasing awareness of such possibility from within the artifacts themselves.

¹⁶⁰ <https://kotaku.com/half-life-npcs-can-smell-corpses-1818824392#:~:text=Scents%20can%20even%20get%20Bullsquids,emitting%20scents%20after%2030%20seconds.>

¹⁶¹ <https://www.cinemablend.com/games/Dad-Hacks-Donkey-Kong-Make-Pauline-Hero-53492.html>

¹⁶² <https://thenextweb.com/gaming/2016/09/17/someone-put-harambe-in-street-fighter-so-you-can-your-genitals-in-your-pants/>

¹⁶³ <https://www.eurogamer.net/articles/2016-04-04-modder-fixes-aliens-colonial-marines>

¹⁶⁴ <https://www.pcgamesn.com/south-korea-hack-mod-aimbot-law>

¹⁶⁵ <https://www.youtube.com/watch?v=HCC-A4v2tt8>

In the case of “Pony Island” (2016) the whole game is designed around the necessity of constantly manipulating the digital aspects of the game: since the first screen the “start game” title does not work by clicking on it and the player must go into the options to “fix it”. Additionally, the very puzzles that the user must solve are based on the logical structure of a game:



In the case of “Doki Literature Club” (2017), to reach the happy ending of the game the player must go into the folders of the game and erase a disturbing file. The game is designed to do so.

In conclusion, we see here a fundamental aspect of second-order authorship.

3.4.2.3 The Epos of naturalization and subjectivation in the commercials of virtual realities.

Eugeni's "La condizione post-mediale" begins with the description of the 1984 advertisements from Apple and, in all the book, looks at the new rhetoric of technology in different discursive objects such as the launching trailer for the Google Glass and the movie Avatar. Following this approach, which is extremely characteristic of semiotics, it can be interesting to look at the representation Eugeni's *epos* in the advertisements for virtual reality. We will thus take the example of some of the most iconic advertisements for the PlayStation and then compare their content with the one of the advertisements for the VR set Oculus Rift.

Since the very first console, the commercials for the *PlayStation* have focused on two main values implied between the rhetoric of another world: the *sensible* extension of *reality* and the *agentive* extension of *identity*. The basis of this idea can be found in the 1995 spot "S.A.P.S" (Society Against Play Station) (<https://www.youtube.com/watch?v=HbwvnaNJVZ4>) where the PlayStation is represented as very dangerous since it makes "users lose every sense of reality and enter another world". Indeed, this loss is a prerequisite to enter another reality. This other reality is for some aspects very similar to a dream or hallucination, as in the 1997 spot "Blown Away" for VHS (<https://www.youtube.com/watch?v=zOZr6HXSYPQ>) where some sort of shamanic ritual is opening the man to visions of other worlds and with a heavy focus on the materiality of the represented objects (fire, sand, colors and so on). However, this other world is also one in direct continuity with one of the empirical players, living (and no more dreaming) a double life as in the "Double Life" spot (<https://www.youtube.com/watch?v=QIW4HMI81hw>) where the verbal first-person is constantly repeated together with the idea of *doing* as in "I have commanded armies, and conquered worlds," and ending with the idea of "At least, I lived". Thus, a *real* first-person experience which in the context of selling a virtual reality is extremely interesting. Finally, we can see how these two aspects created the idea of a single extension and distortion of reality in the famous controversial spot "Mental Wealth" directed by Chris Cunningham (<https://www.youtube.com/watch?v=YWmbUMStlGI>) where an alien-looking 17-years old Scottish girl was apparently *not* talking about anything related to PlayStation. From a marketing perspective this spot is often described as aiming to shock the viewer and surprise them, which is undeniable. But a more in-depth semiotic look can highlight the fact that this video was actually about PlayStation as machine producing a virtual reality. In fact, not only we can find in the text some very meaningful sentences such as "land on your own moon" or "it's about what we can experience up-here (indicating the mind) but more importantly the face of the girl was subjected to one of the first stable¹⁶⁶ and extremely realistic CGI. The distortion of the face, one of the most symbolic element of "truth", was the distortion of reality opening to a new condition of uncertainty. In fact, viewers went looking for the girl to see her face which was belied as real¹⁶⁷ and, most importantly, even today this effect of real, despite the huge technological difference, is somehow maintained as proved by some recent (2015) comments such as

"She looks like an alien. They had to have used special effects right? Or does she really look like that? (update) Never mind. I found out its special effects. Thank goodness."

With the success of digital games and the evolution of technology this allowed for a clearer consciousness of virtual realities as neither here nor there, but rather as an odd *third place* as in the PS2 commercial directed, not casually, by David Lynch (<https://www.youtube.com/watch?v=Laf9vpJMDjA>) and as in the 2002 "Wolfman" (<https://www.youtube.com/watch?v=3OUcEjw5-Ao>) spot with the return of the "I" (as in double life) ending in "Be whatever you want to be in the third place".

¹⁶⁶ <https://computeranimationhistory-cgi.jimdofree.com/mental-wealth-playstation-1999/>

¹⁶⁷ <https://www.gamesradar.com/playstation-advert-1999-mental-wealth/>

More importantly, the virtual and the real became explicitly blended in the visual aspect of the commercials as in the “PS9” case (https://www.youtube.com/watch?v=rv9_AlimsiQ) where the component of the futuristic PlayStation was shown as entering directly into the body of the player and changing him, a spot filmed with a real actor moving into a virtual world.

Then, as virtual reality became more and more common, this third place lost its oddity and partial controversy. Thus the more iconic spot of the PS3 was now centered on the agentive extension of the player’s identity, as in the “For Michael” spot (https://www.youtube.com/watch?v=7_fPtazfALA). Here something extremely interesting occurred from a cultural point of view. While for centuries the audience of books, opera, painting and movies had to use the third person to describe to others the events represented, here we see the very characters using the third person to refer to the player as the “god” saving their life and giving them meaning. Moreover, the pictures of the players are shown as fulfilling the empty wall of the tavern as in a kind of pantheon. Additionally, the usage of having real actors in the same place of virtual characters and cities became normal as in the famous PS4 commercials of “It’s time to Play” (<https://www.youtube.com/watch?v=-zg6Ycnvs>), Greatness Awaits (https://www.youtube.com/watch?v=et5_YQO3L-M) and “Perfect Day” (<https://www.youtube.com/watch?v=VK03aVJekGg>). This is a radical conceptual shift if we think that initially even the commercials for MMORPGs were clearly representing two separated world and characters, as in the case of Everquest for the PS2 (<https://www.youtube.com/watch?v=zXLWmNuuSOA>). Moreover, the idea that the face of the characters are swapped with the one of the players is, culturally speaking, extremely important and became also one of the main figure used in E-sports as in the League of Legends 2018 spot for the World Championship (<https://www.youtube.com/watch?v=fB8TyLTD7EE>).

Finally, we can see in the new PS5 commercial “The Edge” (<https://www.youtube.com/watch?v=SvVNJSxkcmw>) how since 25 years ago the idea has not much changed and how in the PS5 “Play has no Limits” (<https://www.youtube.com/watch?v=Cj6AUuRs1A4>) the focus is put on the sensible dimension of this virtual reality: “Welcome to a world where you can feel more (we see a woman barefoot on ice), welcome to a world you can see with sound, welcome to a world where you can feel force at your fingertips, welcome to a world of immersion”. Such focus can easily justify why we are talking in our thesis about virtual reality without making a proper distinction between the VR specific technology since the proposed rhetoric is almost exactly the same. Indeed in the 2017 commercial for the Oculus Rift “Step into the Rift” (https://www.youtube.com/watch?v=5q6BcQq_yhw) and 2018 “Change The Game” (<https://www.youtube.com/watch?v=fnCmUWqKo6g>) we can find the same visual continuity between real world and the fictional one, the same focus on both an extension of identity through agency and extension of the world through sense. VR technology embraces the same utopias that we have highlighted, up to the point of explicitly claiming that thanks to them players can have more than one body and defy their very own reality as in the 2019 spot for the Oculus Quest “Defy Reality” (<https://www.youtube.com/watch?v=Di7dIhUFsbw>).

3.4.2.3.1 Playing *within* the machine

One of the most significant works of semiotics on the topic of digital games is without a doubt Gabriele Ferri's PhD thesis titled "Giocare con(tro) l'automa". More generally, this scholar has continuously studied and considered as the heart of meaning-making in digital games the particular situation of cooperative-conflict occurring in what we define as virtual realities:

"When considering that video games play against their users, it is important to stress that it is quite literally a pragmatic activity and not simply a textual strategy. Written texts remain static and do not actively interfere with their reader, even in the case of texts specifically designed to be ambiguous or misleading (e.g. murder mystery novels often contain decoys and other strategies to keep readers guessing) or art pieces whose open interpretation is part of the intended experience. The focus, instead, is on systems that actively contrast the play-er's actions: in other words, while a verbal text might be difficult to interpret while still being static, a video game may be difficult as its components react pragmatically to the player's actions. Of course, ludology has dealt with these specific characteristics of games, described as simulated challenges and their canonical form involves at least two subjects in mutual competition, each one enacting strategies and actions against an adversary (Järvinen 2007). In this context, electronic games are never completely solitary activities, as even single-player games require computer-generated antagonists or some kind of system or environment or set of rules to keep a certain level of competition." (2014, p.207)

An inquiry which, despite focusing on a greimasian translation of the events on the level of the actants, in part rejoins our discussion in conceiving meaning-making in virtual realities as the result of a difference among authorships:

"A first step in this direction is to recognise that players have indeed some authorial properties in video game experiences – at minimum whether a session actually takes place and, in general, the overall outcome of a session – and gameplay practices show both competitive and cooperative traits at the same time. It would be a mis-take to consider such competitive and cooperative parts in mutual conflict as both participate in creating a fully videoludic experience. they are cooperative as users are required at least not to produce aberrant behaviours – such as refusing to play, or deliberately killing their own avatar – and competitive thanks to the agonistic nature of games." (2014,p.208)

Moving both from meaning-making to meaningfulness and from a semiotics of games to one of virtual realities, and more specifically by focusing on the role of the digital interaction, we can however see of such idea needs to be slightly adjusted.

In fact, if we look more closely at the interactions of virtual realities we can see how learning to master a digital game goes hand in hand in understanding how the AI works, how procedural generation works, in which part the randomness is faked by the system, how interaction was designed and so on. This is in direct continuity with both the aesthetics of rewriting and impossibility: through errors and trials users do not simply learn what will occur in the "future" in terms of fixed event but more so in terms of system behavior under the form "if x then y or z". And the same is also true for non-gamified VR experiences in which the possibilities and impossibilities are learned by interacting with and within the virtual space.

Now, this immediately brings us to notice how acting in virtual realities entails the enactment of a learning based on a systemic example and behavior. More simply put, we act in virtual realities as potential machines, from within them: from the adoption of machinic point of views (Mazzuchelli, 2020; Giuliana, 2021) to the one of reasonings in terms of logical operations or software criteria and of machinic execution.

Indeed, if we look across apparently very different phenomena such as speedrunning and e-sports, we can see how they all share some common features such as the "perfect frame input".

A symbolic event of this may be seen in the fact about the famous developer Konami designing first a fictional videogame character with a prosthesis and then really creating such prosthesis (for marketing purposes) for a person¹⁶⁸. But far more concretely, an example of this naturalization can also be seen in the adoption from armies of console controllers because of the high-level of familiarity that we now have with them¹⁶⁹.

It is therefore in this sense of playing from within the digital that we can highlight a new culturally relevant dimension of the meaningfulness in virtual realities as a form of integration and exchange of skills and behavior between men and machines.

Title: “Self-Driving Cars Can Learn a Lot by Playing Grand Theft Auto.” “Hyper-realistic computer games may offer an efficient way to teach AI algorithms about the real world.[...] A technique known as machine learning is enabling computers to do impressive new things, like identifying faces and recognizing speech as well as a person can. But the approach requires huge quantities of curated data, and it can be challenging and time-consuming to gather enough. The scenery in many games is so fantastically realistic that it can be used to generate data that’s as good as that generated by using real-world imagery.”¹⁷⁰.

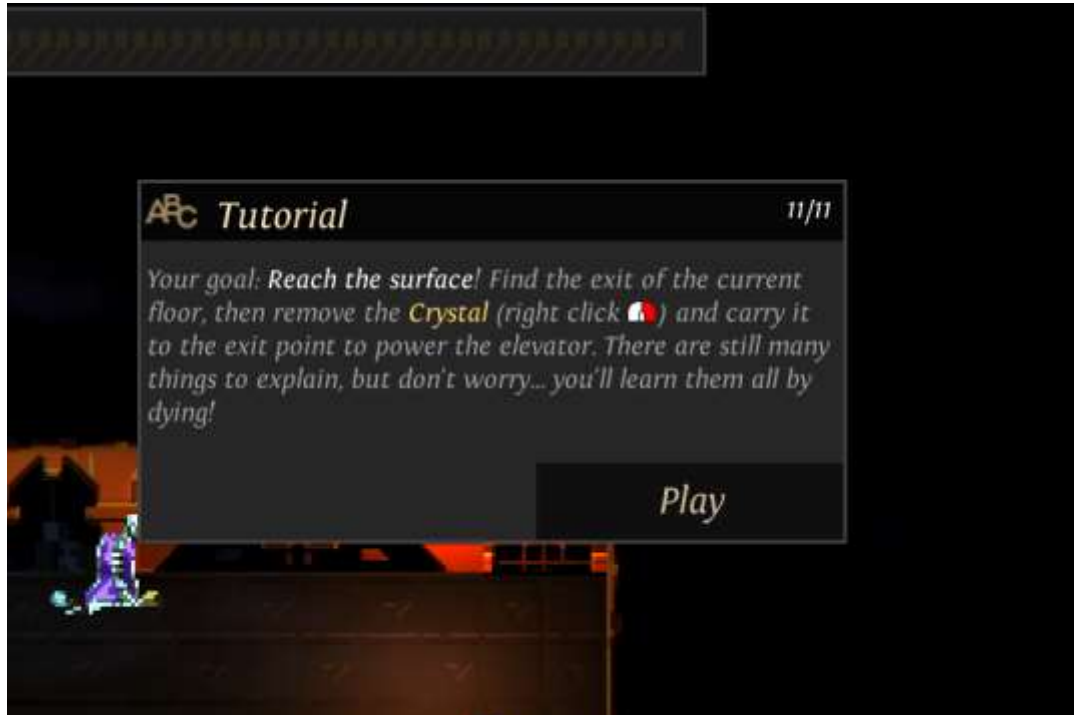
¹⁶⁸ <https://www.youtube.com/watch?v=NZNfKMW9uFg> “Bodyhack | Metal Gear Man - PART 1”

¹⁶⁹ <https://www.theverge.com/2017/9/19/16333376/us-navy-military-xbox-360-controller#:~:text=The%20US%20Navy%20is%20beginning,according%20to%20The%20Virginian%2DPilot.&text=Virginia%2Dclass%20submarines%20are%20getting,%2C%20helicopter%2Dstyle%20control%20stick>.

¹⁷⁰ <https://www.technologyreview.com/2016/09/12/157605/self-driving-cars-can-learn-a-lot-by-playing-grand-theft-auto/>

3.4.2.3.2 Trust issues in digital environments

Another interesting aspect of such naturalization and subjectivation, of the blending between the digital and the biological in terms of playing within a machine, can be found in the way in which the users of virtual reality must on the one hand rely on the digital representation to access information used to make choices, and on the other one can never truly *trust* the system often presenting either a form fake transparency or of explicit opacity relying on the automated simulation of games. The latter case can be immediately understood with case of the “tutorial” of *Dungeons of the endless* (2013)

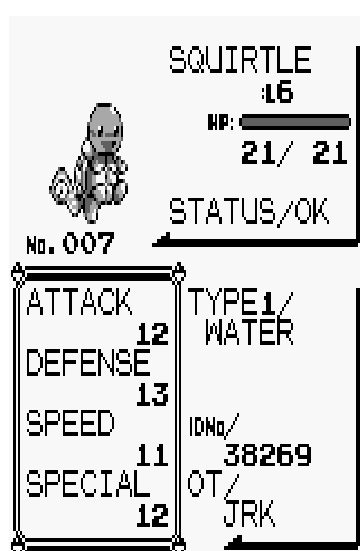


As in the case of the digital manipulation, the discovery and exploit of “hidden automated rules” can be used to produce “impossible stories” (the next pokemon case) but this is a slightly different case since reasoning in terms of software and digital programming is often simply required by the artifact itself (the case of hitbox). In this sense, users of virtual realities also learn to distrust the apparent phenomenological and narratological access to the representation. It is in this way that, for example the players of *Destiny* found that the gain of experience was misrepresented¹⁷¹. Moreover, this situation is sensibly different from most games since, on the hand, a game which does not fully reveal the rules is usually considered an *unfair* game. On the other hand, however, a player “gaming the system”, exploiting the rules, is a figure very close to the one of the *cheater*. Two aspects which are perfectly exposed by Idone Cassone in a recent work (2020). It is only inside the particular discourse of virtual realities that a new ethical dimension drastically changes the social perception of such situation. In fact, since the users have an illimited number of attempts to reach their goals, often failing without sensible consequences, and since they play against a machine (Ferri, 2008) than it becomes fair for the system to use its opacity against the users. But what matters the most is how, from our point of view, any user of a proper virtual reality partially embraces since the beginning the ethic and aesthetics of the *hacker*.

¹⁷¹ <https://arstechnica.com/gaming/2017/11/fan-analysis-forces-bungie-to-confirm-screw-y-xp-math-in-destiny-2/>

3.4.2.3.1.1 The Pokemon “no hit” run

A first and interesting case of “fake” transparency can be found in one of the most famous and successful games: Pokemon Red and Blue (1996, Game Freak). And, more specifically, for this thesis we will look at one of the very recent “run” of this game made by the YouTuber and Twitcher “Gamechamp 3000” which involved finishing the whole game without ever being hit: <https://www.youtube.com/watch?v=4ylEp-uu3EU>. In principle this should be doable since the game allows for the practice of grinding which, simply put, can allow the player of becoming incredibly stronger than all the enemies in exchange for hours of boring and repetitive tasks. Given that the game is a turned based RPG, what is needed is a player which becomes fast enough to go first and strong enough to “kill” the enemy in one single hit with one of the moves that can grant 100% accuracy. Now, the statistics ruling strength speed are explicit and apparently transparent in the pokemon’s description (first figure), while the 100% accuracy can be found in the description of the move¹⁷².

	Description <table><thead><tr><th>Games</th><th>Description</th></tr></thead><tbody><tr><td>StadStad2</td><td>A NORMAL-type attack. It is highly accurate, so it can be counted on to inflict damage.</td></tr><tr><td>GSC</td><td>An attack that never misses.</td></tr><tr><td>RSEColo.XD</td><td>Sprays star-shaped rays that never miss.</td></tr><tr><td>FRLG</td><td>Star-shaped rays that never miss are fired at all foes in battle.</td></tr><tr><td>DPPHGSSPBR</td><td>Star-shaped rays are shot at the foe. This attack never misses.</td></tr><tr><td>BWB2/YZ</td><td>Star-shaped rays are shot at the opposing team. This attack never misses.</td></tr><tr><td>XYORAS</td><td>Star-shaped rays are shot at the opposing Pokémon. This attack never misses.</td></tr><tr><td>SMUSUMFE</td><td>Star-shaped rays are shot at the opposing Pokémon. This attack never misses.</td></tr><tr><td>SwSh</td><td>Star-shaped rays are shot at opposing Pokémon. This attack never misses.</td></tr></tbody></table>	Games	Description	StadStad2	A NORMAL-type attack. It is highly accurate, so it can be counted on to inflict damage.	GSC	An attack that never misses.	RSEColo.XD	Sprays star-shaped rays that never miss.	FRLG	Star-shaped rays that never miss are fired at all foes in battle.	DPPHGSSPBR	Star-shaped rays are shot at the foe. This attack never misses.	BWB2/YZ	Star-shaped rays are shot at the opposing team. This attack never misses.	XYORAS	Star-shaped rays are shot at the opposing Pokémon. This attack never misses.	SMUSUMFE	Star-shaped rays are shot at the opposing Pokémon. This attack never misses.	SwSh	Star-shaped rays are shot at opposing Pokémon. This attack never misses.
Games	Description																				
StadStad2	A NORMAL-type attack. It is highly accurate, so it can be counted on to inflict damage.																				
GSC	An attack that never misses.																				
RSEColo.XD	Sprays star-shaped rays that never miss.																				
FRLG	Star-shaped rays that never miss are fired at all foes in battle.																				
DPPHGSSPBR	Star-shaped rays are shot at the foe. This attack never misses.																				
BWB2/YZ	Star-shaped rays are shot at the opposing team. This attack never misses.																				
XYORAS	Star-shaped rays are shot at the opposing Pokémon. This attack never misses.																				
SMUSUMFE	Star-shaped rays are shot at the opposing Pokémon. This attack never misses.																				
SwSh	Star-shaped rays are shot at opposing Pokémon. This attack never misses.																				

However, of course these information are only true if they are also on the level of the code, a level to which the player has *not* access. In fact, in the case of the move that never misses this is false because of an error. As a result the “no hit run” will always have a probability of failing, from which the entertainment offered by this particular run.

Additionally, another problem consists in the fact that in the unfortunate case of not being able of killing the adversary pokemon in one single hit, the enemy is very likely to counterattack in the best way. In fact, what is also not told to the player, and may be never known, is that the game is actually always knowing *beforehand* the choice made by the player in his turn and will act accordingly. While on the one hand the game never tells the player that it does not know his choices, on the other one it is extremely intuitive to give this for granted since otherwise it would be “cheating” and the player could not win unless the CPU is losing on purpose. Which is something actually occurring in some sense.

¹⁷² [https://bulbapedia.bulbagarden.net/wiki/Swift_\(move\)#Generation_I](https://bulbapedia.bulbagarden.net/wiki/Swift_(move)#Generation_I)

However, since the pattern of reaction are coded and fixed, this apparently form of cheating is actually what will grant to the runner to win thanks to an a-priori knowledge of the game.

Thus, in conclusion, whereas the transparency of the game is somehow “rigged” and should not allow such run, both the direct experience with the software (acknowledging that a move that should never miss actually misses, finding a pattern in the AI reaction) and the access to the game’s files, act as another form of undeniable transparency which is characteristic of the meaning-making in virtual realities.

3.4.2.3.1.2: Trust issues in digital environments: Overwatch's hitboxes

The next game that we will examine comes seventeen years after Pokemon and is the team-based online first-person shooter “Overwatch” (2016, Blizzard Entertainment). As other games of the first-person shooter genre, one of the main difficulty for the new player is to develop both a sensorimotor learning to control his avatar and a good eye-hand coordination to aim correctly and shoot at the enemy:



The idea and aesthetics behind the genre are a kind of hyper-iconism for which by using both his eyes to perceive the world and his hands to manipulate the object the player is using a weapon in a “realistic way”, of course also by making the correct inferences. However, interestingly enough, at his release the players could not really trust their eyes but would have a great advantage by considering the characters in their invisible form of configurations of polygons. Simply put, it was possible to aim over the head and still hit the head of an enemy. Which brings the players to affirm: “ When I play a game I don’t see all the bright flashy distractions, *I look for what’s really going on*. If you look at the game as a series of calculations done on geometric shapes in a three dimensional world *you’ll play far better than just winging it based upon what your eyes see*, visualize the code.”¹⁷³



¹⁷³ <https://www.youtube.com/watch?v=rQ-sip4-CFw>

3.4.2.3.1.3: Trust issues in digital environments: Cat Mario & Trap Adventure

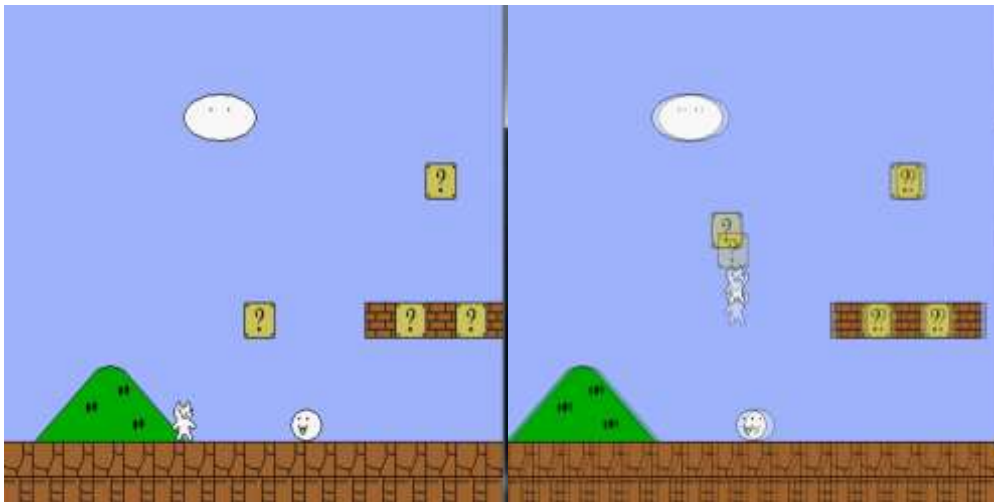
While the two previous example were “mistakes” (in the code and of the design), a fake transparency can also be used intentionally. One of the two most interesting examples are perhaps Cat Mario (Chiku, 2007) and Amnesia (Frictional Games, 2010).

In the first case the game appears as a clone of Super Mario Bros (1985) and more generally as a platformer. Now the important premise is that virtual realities usually postulate three preliminary phenomenological conditions:

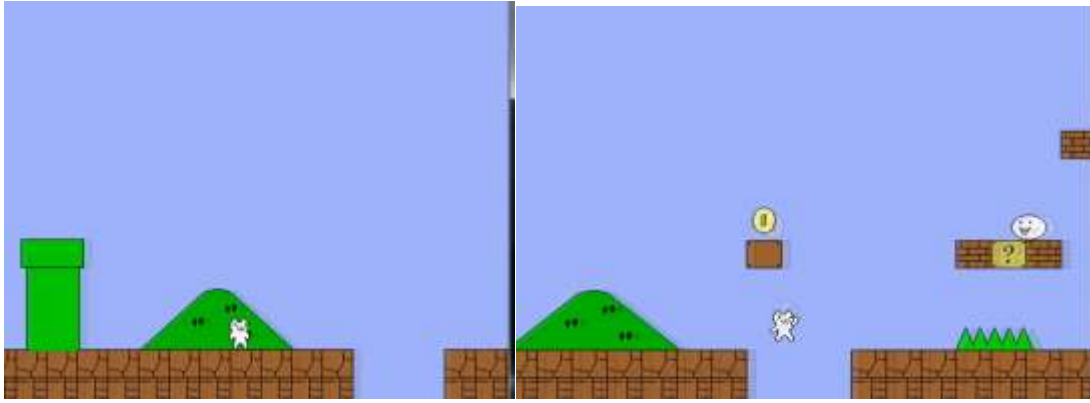
- 1) The player sees what the avatar sees
- 2) The avatar sees the virtual world similarly to how the player perceives the physical world
- 3) The rules of the virtual world, unless specified or implied by the narrative genre, are similar to the one of the physical one in terms of the player inferences.

Now *Cat Mario* (or Syobon Action) is a game which demonstrates very well how the actual access to the virtual world from the player is actually *crippled* and negates each of these three premises already in the first few seconds of the game.

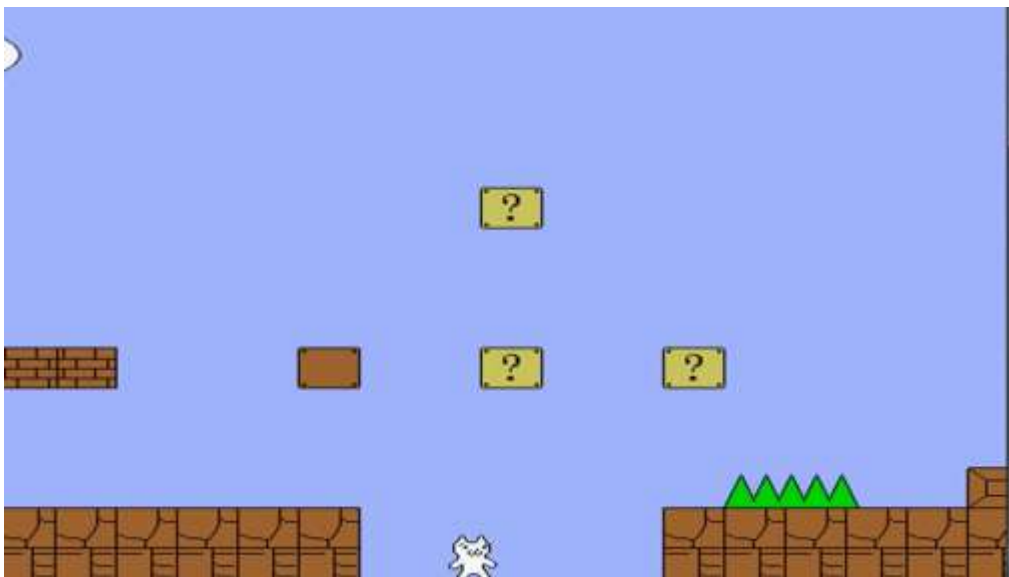
First of all, the first brick encountered by Cat Mario move by itself and seems to consciously avoid being touched by the avatar:



Shortly after, a ravine in front of the avatar suggests the player jumps, however there is an *invisible* brick which will be revealed only after the jump and kill him if the player doesn't trigger the jump before the edge. Something which cannot be known before dying a first time.



Then, at some point the ground beneath the player, which *looks exactly as the same* on which the player has been standing up until now, falls down and will therefore kill the player.



Whereas of course the game is designed to be a parody of Super Mario Bros, encouraging the player to try the same things and be unfairly punished to the point of being mocked, the interesting point is that the effect of surprise and unfair punishment is very likely to be experienced by any player. Indeed, the violation of the three premises is, on a deeper level, strictly related to the digital nature of virtual realities and their broader problematic. Finally, it can be interesting to note that *Cat Mario*, for its success in the gaming community, gave birth to a somehow successful genre of unfairly punishing platformers which are actually also puzzle-games. The most notable example is *Trap Adventure 2* (Oshiba, 2016) which became a spectacle viewed by almost 30 millions of viewers on the channel of PewdiPie: <https://www.youtube.com/watch?v=C1ObitoLwhM&>.

3.4.2.3.1.4: Trust issues in digital environments: Amnesia & Eternal Darkness

“ Players started making things on their own, there are no monsters around, they could just walk through the map. It’s all a façade. Then our hope is not letting the players like leak behind the curtains and see *what’s really going on*”¹⁷⁴ (min 0-0.22)

Thomas Grip, Creative Director of Amnesia

Another extremely interesting case of fake transparency is the case of the game *Amnesia: The Descent* (Frictional Games, 2010). In this first-person survival horror game there is an explicit mechanic for which the more the player’s character stands in the dark and the more his avatar will “go insane”, having hallucinations and so on. In the game several items have thus the purpose (use-value) of creating light to avoid this from happening, which is an element influencing the gameplay and behavior of the player. However, as revealed in an interview, the developers of the game had some balance issues related to this mechanic since for some players the game was too hard and for others it was too easy. So, they basically let both the representation of insanity and the knowledge of the sanity rule, but secretly removed this condition as a negative one:

“We don’t really say what the consequences are for this. But the player assumes, right, if you’re gonna lose your mind, I’m not gonna be able to play, he might die, he might, you know, be harder to control, he might attract the attention of monsters, and so on and so forth. I even think that [...] there is a hint that says “ if you go too insane, monsters are gonna have an easier way of finding you” *this is a lie*, there is no logic at all like that in the game, but we were planting an idea”. (min 6.22-6.59)

This is an extremely clear example of how a specific virtual reality can lie to its players, faking both its indirect and direct experience with the game, and thus underlying the inner paradox of virtual realities: players have to trust in what they are shown and told, but this trust is far from being reasonable and actually player cannot really trust it since there is almost always something “really going on” (an expression find both before from the player of *Overwatch* and here from the creator of *Amnesia*).

To conclude, it is important to point out how the idea of a sanity meter leading to visual hallucinations and in deceiving the player has actually it’s origin probably in the 2002 game *Eternal Darkness: Sanity’s Requiem* (2002). A game in which:

“The other distinctive gameplay aspect comes from "Sanity Effects", the game's standout concept that Nintendo patented. Upon beginning the game's second chapter, players must keep watch on a Sanity meter – a green bar which decreases when the player is spotted by an enemy. As the bar becomes low, subtle changes to the environment and random unusual events begin to occur, which reflect *the character's slackening grip on reality*. While minor effects include a skewed camera angle, heads of statues following the character, and unsettling noises, stronger effects include bleeding on walls and ceilings, entering a room that is unrealistic before finding that the character never left the previous room, the character suddenly dying, and fourth wall breaking effects such as "To Be Continued" promotions for a "sequel", and simulated errors and anomalies of the TV or GameCube. While the latter does not affect gameplay, they can be misconstrued by the player as being actual technical malfunctions.”¹⁷⁵

¹⁷⁴ <https://www.youtube.com/watch?v=sMl2la8-3-o>

¹⁷⁵ https://en.wikipedia.org/wiki/Eternal_Darkness#Gameplay



Hence, once again we can see how such effect depends not on a single game but on the overall discourse allowed by virtual realities.

3.4.2.4. Third order authorship? Software creating narration.

Authorship is a form of authority, of potential enforcement against the will of someone, in this sense the software of the virtual reality could be recognized as an author of the text. A clear example of such coercivity may be seen when the players of *Animal Crossing* (2001) try to exploit the software of the game by using the reset function of their console, an action causing the software to seemingly “defend itself” through the designed figure of “Mr. Resetti”:

“During play testing of *Animal Crossing*, players would reset the game and turn the system time backwards to make the daily stock at Tom Nook's store change. In order to prevent this, the development team implemented Mr. Resetti, in hopes that players who want to cheat would be deterred due to the long speeches. If a player resets the game enough, Mr. Resetti will want the player to type out sentences such as "I am stupid." and "I stink." [...] He is designed to make the player believe he knows them and is yelling directly at them[...].”¹⁷⁶

Although we would initially think that such authority is simply delegated by the proper human authors, and surely Mr. Resetti can legitimately be considered as nothing more than the digital simulacrum of the designers, in the previous four hundred pages we have seen a great variety of ways in which this statement is substantially false. Virtual realities are often outside of the control of their authors, not from a traditional interpretative point of view but from a very pragmatic one. In this sense, while the undeniable force of the rhetoric of the discourse of virtual reality may be incredibly ideological and convincing, it is also inevitably extremely fragile (Giuliana, 2021). One of the reasons for this is precisely due to the digital nature of virtual realities, with an “imperfect” code that can not only be exploited or contain mistakes, but that also allows unplanned and sometimes unthinkable possibilities.

There is however a perhaps even more interesting way of looking at this authorship, a point of view which highlights how virtual realities are artifacts in which non-humans agents and more specifically digital technology have a role that was previously the specificity of the human doing. This standpoint is the one for which, through automation and a certain degree of executive autonomy, the software creates “stories” or “experiences”, destinies, which were not specifically designed or imagined by the real authors. This can occur in four ways.

The first one concerns the delegation of randomness¹⁷⁷, a key element of the meaningfulness of play and narration, to the software which can not only fake it (*Mario Kart* series) but is also enacting a particular mathematical form of it. Now both in the form of input (*Slay the Spire*, 2017) and output (*X-Com*, 2012; *FTL*, 2012) randomness, this capacity of the software can create entire not only narrativity but worlds (*Minecraft*, *No Man's Sky*, 2016), setups (*Spellunky*, 2013), stories and in the end determines destinies and experiences of the players through the unexpected.

The second is related to the various ways in which the players interpret the “behavior” of other humanoid looking avatars which they know act as “the system”. The first and most basic form of such feature is related to the fact of software automata and human players sharing potentially the same actantial role of anti-subject (Ferri, 2014) or helpers. In fact, in many case such as fighting or racing games distinguishing between the play of the human and the execution of the software may be rather hard since they both share the same narrative programs, repertory of actions and follow the same syntagmatic rules.

¹⁷⁶ https://en.wikipedia.org/wiki/Mr._Resetti#cite_note-kotaku-2

¹⁷⁷ <https://www.youtube.com/watch?v=dwI5b-wRLic&t=4s>

A characteristic for which actually entire games can be based on such ambiguity (*SpyParty*, 2018) and even in VR users are faking themselves as AI¹⁷⁸. A distinctive trait opening on very interesting reflections on the idea of “person” (Giuliana, 2021). The second point is on the believability of other avatars in virtue of a content created by an AI. As an example, many years ago part of *Elder Scrolls IV: Oblivion* (2006), the convincing and immersive nature of virtual reality was also due to the invention of a “Radiant AI” which gave “goals” to NPC, a system which was since then improved so that the enunciation of the system and the one of the player would create a complementary story:

“According to Bethesda, The Elder Scrolls V: Skyrim's Radiant AI and storytelling systems combine to create a world players can wander through and engage with forever. Yet, by traditional definitions, what players engage with in Skyrim -- particularly the Radiant-generated material -- isn't exactly story. It's more like experience. [...] Within the Radiant AI system, Bethesda's encoded the idea of a quest which the player can pick up at inns throughout the province. One of its formulae is: “{NPC} has been captured, and is being held at {Location}.” Those variables are decided by the game on the fly. This would be an easy source of the infinite gameplay that Bethesda advertised, but Skyrim takes it a step further: To add meaning -- and perhaps drama -- the system determines which NPC should be captured by examining your character's history and picking an NPC that you've actually had a relationship with in the past. Maybe an old companion, or a shop owner you've sold surplus gear to. An NPC, that is, the player knows and might care about. Secondly, the system picks a nearby location that the player hasn't explored yet. Compare this to a random NPC in a random dungeon, and we have the beginnings of a procedurally generated adventure that might actually mean something to every player, different as their adventures may actually be.”¹⁷⁹

Today, the latest evolution of such “software-generated storytelling” based on the player’s doing in terms of a “memory” of the system may also be seen in the nemesis¹⁸⁰ system of the game “Middle-earth: Shadows of Mordor” (2014) and its 2017 sequel.

Amusingly enough, this behavior is still meaningful and in some sense realistic even when such AI does things wrong, such as the infamous case of *Fallout 76*:

181

Fallout 76 NPCs are looting player corpses, stealing their weapons and refusing to give them back

Sneak.

A determinant factor here is of course the figurative aspect of such NPCs as “humans” which are endorsed with an agency extremely similar to one of a real player but is perfectly known as belonging to the system. Finally, another recent and extremely interesting case of figurative relationship between human avatars and system may be seen in *Rim World* (2016) where the AI determining the narration of the player is represented as narrator¹⁸²:

The gameplay is driven by AI (Artificial Intelligence) Storytellers. The AI Storyteller that you choose will make decisions about what events it wants you to encounter and when based on the situation you are currently in and on the biases of that particular AI.

¹⁷⁸ <https://www.youtube.com/watch?v=1VqbxBtvr0I>

¹⁷⁹ <http://uk.pc.gamespy.com/pc/elder-scrolls-v/1217754p1.html>

¹⁸⁰ https://www.youtube.com/watch?v=Lm_AzK27mZY&t

¹⁸¹ <https://www.eurogamer.net/articles/2020-04-22-fallout-76-npcs-are-looting-player-corpses-stealing-their-weapons-and-refusing-to-give-them-back>.

¹⁸²

Current AI Storytellers

-  Cassandra Classic
-  Phoebe Chillax
-  Randy Random

The third way in which the digital system acts as an author from the perspective of creativity and of determining the player's experience is related to procedural generation (another form of AI) of the world itself as well as some of its most characteristic features. Once again here what the player is experiencing was not directly decided by the author which instead granted to the digital system the *means* to create the specific set of utterances for the player. Although examples such as the empty worlds¹⁸³ of *No Man's Sky* (2016) and the disturbing faces¹⁸⁴ of *Assassin Creed II* in the "Ezio" collection (2016) are a clear example of how such creation can fail and disappoint by creating meaningless differences, in most cases the results are rather good. The selection and combination of "traits" (asset) creating the world is done by the system itself. Even more interesting, in some case procedural generation is the starting point of the author's work, which *refines* what was generated, such as in the case of the previously mentioned *Oblivion*.

Finally, we have seen that the authors of virtual realities are first of creators of structures characterized by indeterminacy. Under this perspective, it is extremely interesting to notice how the unpredictability of the software, even in terms of errors, is another form of authorship enjoyed and recognized by the users:

"One weekend back in 2005, I was playing some late night GTA San Andreas. I was out in the southern area of the map, where it is heavily filled with trees, rocks and not much else. Suddenly, a car rolled down a hill. It was old, beat up and its red paint job stood out in the dark forest. I ran up to the car, only to find it was empty!? I didn't know what happened and was a bit creeped out, so I left the area quickly. [...] Not long after the game was released, players began reporting strange cars they found in the woods. These cars would drive down hills as if they had human drivers on the inside. But when examined, the cars were empty. People began calling these strange automobiles "ghost cars." [...] Unlike other famous mysteries in GTA San Andreas, like Piggysy or Bigfoot, ghost cars could easily be found. If you run around the woods of GTA San Andreas for long enough you will probably encounter a ghost car. After my first encounter with a ghost car, I began looking online for information about cars. I quickly found now-long lost posts about the ghostly cars from other fans. Some were telling the truth, telling tales that sounded like my creepy encounter. Other fans seemed to be making stuff up. [...] While this stuff might sound crazy today, 15 years ago it sounded a lot more plausible. GTA San Andreas seemed impossibly big at the time and it was still a new game. I remember reading these stories and thinking to myself that some of this could be true. **At the time the game felt like a puzzle box that nobody had cracked yet. I, like many other players at the time, spent hours searching the woods and deserts of San Andreas for secrets and creepy creatures.** I remember spending way too much time in the foggy woods using my jetpack to coast around, looking for the elusive Bigfoot. Now that we have ripped apart San Andreas and seen all the files and lines of code in the game, we know there aren't any strange creatures or ghosts.

¹⁸³ <https://www.forbes.com/sites/erikkain/2016/08/29/gamers-have-every-right-to-push-for-no-mans-sky-refunds/?sh=104353ea607c>

¹⁸⁴ <https://www.gamespot.com/articles/assassins-creed-2-remasters-weird-face-guy-is-back/1100-6446330/>

But before we knew all the answers, San Andreas felt like the real world. It was large and we didn't know everything. Back then, it really did feel like maybe aliens and other strange things could be lurking in the digital world of the game. And when we found ghost cars and could regularly spot them, it almost felt like a confirmation that anything could be in the game.”¹⁸⁵ (my bold)

For the purpose of this thesis we will not further discuss all the (actually extremely interesting!) details of AI created content, but we want to end this chapter by underlining how such specificity of virtual realities, which is explicit and part of the knowledge of its users, act as meta-discourse which is part of the meaningfulness of the experience itself. Virtual realities are experiences of technical wonder where the border between human and non-human is inherently problematized by the very *image* of the system as a possible and plausible form and agent of authorship. An aspect which is relevant also from a methodological perspective in the case of all the artifacts in which technology is a theme.

¹⁸⁵ <https://kotaku.com/the-gta-san-andreas-myth-that-turned-out-to-be-true-1836292183>

4. Understanding and analyzing virtual realities: a summary

4.0 (Re)Defining virtual realities

In the introduction we have defined virtual realities via several criteria that we can now understand better:

“1) software based cultural artifacts witnessed through computational means”

- Nothing new on this point

“2) presenting an aesthetic of indeterminacy, impossibility, opacity and hyper-iconicity”

- Indeterminacy: It is a textual characteristic regarding the combinatory possibilities of utterances and outcomes, the unstable narrative content, the elements of randomness, the software mediation and the file modification. All leading to the recreation of an evenemential dimension of meaning.

- Impossibility: It is a narrative logic allowing inside a same context for two opposite events to occur. As we have seen, it is mainly an aesthetic belonging to the SOA (there is no ending of Super Mario in which the princess is killed by the protagonist during a cutscene, but there are plenty of Super Mario that will never be able to rescue her).

- Opacity: It is related to the digital nature of the game for which the player is never truly aware of all the “rules and mechanics” and must discover by himself (or through the community) how the software is ruling the virtual world as well as how it is possible to bend and even break these very rules. Additionally, it also implies that the player is never “tricked” in thinking that the world he is in is the real one, therefore clearly excluding Augmented and Mixed reality.

- Hyper-Iconicity: It is a semiotic effect, grounded on both cognitive mechanism and technical means, for which the users perceives both a logical and physical continuity between several elements of his reality and the virtual one, this continuity act as a form of veridiction giving birth to the experience. The three main forms of continuity highlighted have been the phenomenological, the narratological and the sociological.

“ 3) requiring the user’s effort in terms of fallible agency, economic reasoning and physical involvement”

- Effort: It implies that the user must spend real time and real energies to progress through choices given to him by an oppositive system and within a context where the player must earn what he owns. Most importantly, the presence of effort is recreating an idea of projectuality which is substantially different from the one represented in other media.

- Economic Reasoning & Scarcity: As a consequence of effort, scarcity implies that each specific virtual reality can act as an economic system valorizing and allowing the trade of in-game resources to face the difficulty or to symbolically represent the user’s value. Simply put, some of the choices given to the players are more convenient than others up to the point of becoming even necessary in some cases. Scarcity also increases indeterminacy and projectuality.

- Physical involvement: a form of interaction making strong use of the user’s body and capable of creating semantic metaphors.

“4) which represents objects and events existing in a non-physical and discrete space and time”

- Discreteness: The perception of a continuous space and time which can be divided in specific moments (seconds, minutes, hours) or part (steps, meters, kilometers) where a certain event can occur at any given point or instant. Moreover, the infinity of possible paths undertaken in such situation are often qualitatively identical (i.e.: there are tens of ways to go from point A to point B which does not substantially alter the meaning). Finally, discreteness has a fundamental role in the evenemential dimension of the experience. Together with effort, this makes virtual realities extremely different from hypertextual structures.

“5) influenced by the player’s agency both from the inside (interactivity) and the outside (the code) of the text”

- Internal Agency: Any form of choice given to the user by the system, but also any form of exploit of the digital code.

- External Agency: Any form of influence on the software to modify it.

“6) who has a primarily role in the co-production of the utterances constituting the expression plane”

- Co-production of utterances: This layer of the SOA can be understood through the semiotic theory of enunciation since virtual realities always present a repertory (or paradigmatic axis) from which elements (such as actions) can be selected and combined. Furthermore, enunciation has a primary role in the possibility for the player to have a form of agency and to recognize a form of subjectivity. Finally, this is obviously related to the indeterminacy and can critically alter the original and intended meaning of a given virtual reality.

“7) with a mirroring consequence on narrativity”

- Macro-Narrativity: A path from a beginning to an end via a series of transformational states resulting in a good or bad outcome and thus proposing some axiological values.

- Micro-Narration: The chain of S-phrases made via combinatory rules which explicitly represent some events that, however, taken as a whole does not constitute a coherent narration.

- Mirroring: Both the fact that the fictional values are valorized in terms of the player’s object of values (time, effort and fun) and the fact that the empirical player and the fictional Subject share a same place and role inside narrativity (i.e.: when the fictional character is showing any kind of improvement this improvement also belongs to the empirical player)

“8) and who can and often must verify by himself the causes, properties, states and possibilities related to these object and events”

- Veridiction: This is related to both the opacity of virtual realities and the required effort. Additionally, the highly embodied involvement also acts as a form of veridiction.

“9) which are accessed and acted upon through prostheses simulating a phenomenological continuity between the user’s physical world and the virtual one”

- Prosthesis: The linguistic and non-linguistic means through which the user acknowledges a continuity between his reality and body and the ones given to him by the virtual reality. Indeed, the user cannot access to the world if not via the mediation of his agency and body.

“10) producing consequently a hybridization between linguistic and non-linguistic forms of intersubjective access to reality that ends up in being interpreted as a first-person experience”

- Subjectivity: We have seen how virtual realities present ten dimensions of subjectivity which are grounded on intersubjective means of access to the virtual reality and manipulation of it.

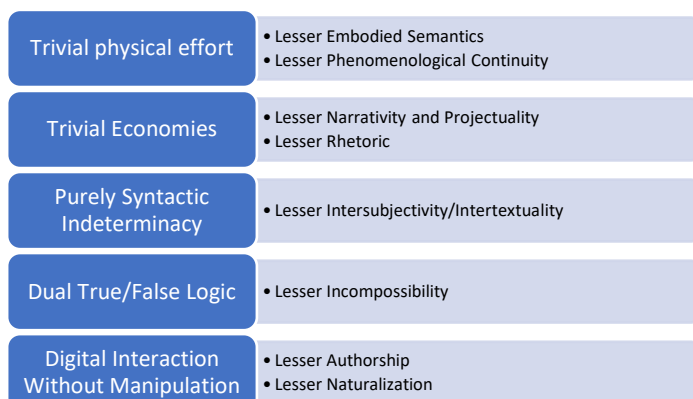
- I. The access to a given virtual reality as a possible world in terms of phenomenological continuity with the non-fictional world.
- II. The conscious agency behind the user movements and choices to act in such a reality.
- III. The embodied cognitive consequences of I&II in terms of semantics and veridiction.
- IV. The requirement of real and actual limited time and energy of the user.
- V. The narrative overlap between the real user and the main actant Subject.
- VI. The presence of aspectual forms of the future & projectuality.
- VII. The tangible self-expression of a linguistic content (act of parole).
- VIII. The necessity of often creating linguistic phrases of the type “ Noun-Subject”+”Verb”.
- IX. The encounter with forms of alterity, from AI to other users, sharing that same or similar possibility of expression and agency on the world.
- X. The enunciation as a form of dialogue with culture.

Finally, basing ourselves on Juul schema of games, we can now schematize the core elements of virtual realities to define the proper ones, the lesser ones and, by exclusion, the non-ones.

Proper Virtual Realities



Lesser Virtual Realities



4.1 The common sense assumption

Before any attempt to analyze a given cultural artifact recognizable as a virtual reality, the scholar should start from what I'd like to call the "common sense assumption". This assumption implies that:

1. Most virtual realities, therefore, concretely speaking most digital games and VR products, simply *mean* for their users *what* they explicitly represent in terms of narration and rules. Any "critical" attempt to find further, deeper and particularly complex meanings experienced and acknowledged by players of a game such as *Super Mario Bros* (1985) is doomed to have unfortunate outcomes. Of course, this explicit content is far from being insignificant and thousands of pages could be written on its cultural, sociological and technical premises. But these pages could already be written today without our work. Additionally, it is true that, to some extent, the content of our work could also be used to "interpret" some rare case of texts with obscure content and difficult interpretation. But surely this was not the original intent. In all our cases studies we'll never "discover" any hidden meaning but always be interested in *how* such content can be conveyed in a particularly *convincing* manner.
2. Meaningfulness and pleasure are a psychological events belonging to the individual which, similarly to the concrete interpretations of a reader, cannot be reasonably inquired or fully understood through a semi-objective approach such as the one we are proposing. No matter how much convincing can be the rhetoric of virtual realities, in no cases we should claim that enjoying a certain virtual experience then implies that the user is intimately sharing the given underlying set of values nor is actually being forcefully convinced of some ideas. On the contrary, we have seen how both the digital and playful nature of virtual realities is very likely to turn upside-down any "implicit message". Similarly, the most well-designed product cannot guarantee that every of its users will feel a same or even similar emotional experience. As a consequence, the textual features of meaningfulness that our approach is highlighting have an *intersubjective* nature: from embodied semantics to the importance of time they can reasonably be considered as *shared* among humans but must also be simultaneously acknowledged as *owned* by a particular individual and therefore the particular occurrence of any experienced/interpreted meaning can never be generalized nor given for granted.
3. Even the simplest artifact of virtual reality, when considered both as a dynamic text and practice, presents itself with a tremendous amount of content (each single possible occurrence) which cannot be reasonably analyzed as a whole. Which is why analyses should always start from a very concrete question different from "what is the meaning of such product". And yet we must never forget that this question is very likely to influence our own results, an issue which is extremely pertinent in the case of our own methodology.

4.2 Convergences: the three directions of analysis

The perspective and methodology proposed in our work can be used in three directions:

- Textual (FOA/Author-Centered)
- Interpretative (SOA/User-Centered)
- Discursive (Meta-Centered)

The textual inquiry is focused on a single object of study and must be as detailed as possible in regard to the specific characteristics of a given virtual reality intended as an object intentionally created to convey some sort of experience or idea. This direction is very likely to be preferred by design-focused research and to highlight virtual artifacts of particular cultural relevance. This part should highlight the typical hyper-iconism of virtual realities in terms of 1) semantic continuity between language (on the screen) and body (user's physical and cognitive involvement) 2) axiological continuity between fictional and individual values shared through a mirrored narrativity. Therefore, textual analysis is divided in two main parts:

1. The narrative and semantic inquiry on a central simulative theme produced via isotopies
2. The research on the valorization of this s-theme via effort and time on three different layers (narrativity, performance, proprioception).

The interpretative inquiry is interested in the interpretative acts and practices resulting from the interaction between a text and its users. It will thus be based both on how the text creates an empty place for the user's subjectivity and on objects which are different from the text itself, from gameplay videos to memes, from discussions on forums to articles on specialized websites. Interpretative analysis has usually two different types of objects of study:

1. Interpretation: textual production of the users which are coherent with the original content.
2. Usages: textual production which are sensibly manipulating the original text to create new meanings

Lastly, the discursive inquiry is aimed to find common rhetoric features and common themes across different occurrences of virtual realities and practices of the users. This direction is very likely to be preferred by media-focused research and for the general investigation on cultures and societies.

These three directions are different but absolutely convergent: the textual analysis alone is lacking, the interpretative one is impossible without the textual, and the discursive direction must rely on the previous two. These three directions are thus mainly a pragmatic question of priorities and levels of magnification: ideally, given enough resources and time, the three should go together.

4.3 First step of textual analysis: identifying an s-theme

Any textual analysis will start from two main elements:

1. *What* this particular virtual reality is explicitly about
2. *How* the user of virtual reality can/must act inside of it

The *what* is represented via *information* given through chains of signifiers constituting the manifestation plane and organized, from a logical point of view, in a narrative structure. This *what* can typically be found in elements of the FOA such as

- Title
- Fabula
- Cutscenes
- Narrative Epitexts
- Dialogues
- Item's Descriptions
- Music
- Pictures
- The repertory of explicit and available elements that will be combined on the screen.

All these should be used to reconstruct the mirrored macro-narrative structure of the given virtual reality as well as to understand the articulation of the micro-narrative layer.

The *how* is expressed via *instructions* executed through chains of actions and tasks organized, from a logical point of view, into a set of rules. This *how* can typically be found in elements such as:

- Tutorials & Rules
- Performative Epitexts
- Gamic elements of the interface (Hearts, Ammo, Indicators)
- The given point of view to act

Both the *what* and the *how* are:

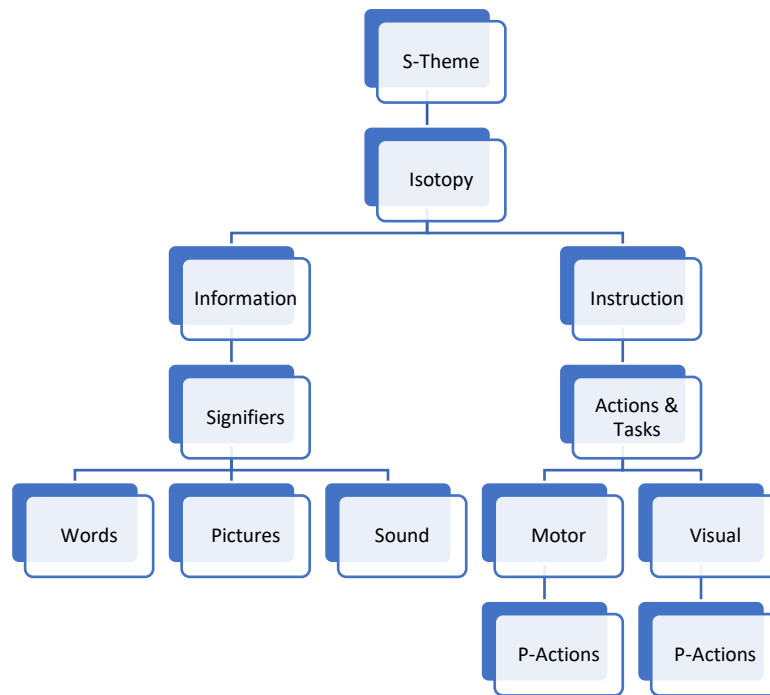
- *Stable* elements of meaning that can be referred to an *intentio auctoris*
- *Explicit* elements of meaning that are consciously acknowledged and can, to some extent, be verbally explained and described.
- *Recurrent* elements of the text that are relatively independent from the multiple occurrences of the different gameplay sessions.

The “simulative theme” of such virtual reality will therefore be reconstructed in terms of narrative and semantic *isotopies* which are *shared* between the *what*-level of meaning and the *how*-level of meaning. This S-Theme can be:

- An explicit narration, even in the form of a simple *script*
- A symbolic narration, usually focusing on a particular figure
- An explicit underlying social value
- An implicit form of behavior, usually related to the explicit system of effort

This reconstruction is done by deconstructing both the chains of information and the chains of instructions in their semantic content.

- The *what* can be analyzed in terms of words, pictures and sound
- The *how* can be analyzed in terms of motor and visual actions



In all the cases of virtual realities presenting the possibility of different main actors, choices and paths, the analysis will have to:

- 1) Postulate a first model on the basis of a first playthrough and then
- 2) Verify the validity of such first model through at least a second one that should be as much different as the first one.

4.4 Second step: identifying the valorization

Any given s-theme is not only represented on a double level (the content in terms of what and the how), but also valorized on a triple layer:

- The Narrative one
- The Performative one
- The Proprioceptive one

The narrative valorization is identical to the one of movies and novels and is thus grounded on both the greimasian model of narrativity and the cultural relevance of such item inside a given encyclopedia. Typically, s-themes are related to the *competence* for reasons that we will now see.

The performative one is unique and characteristic of virtual realities since it relies on an *opposite* system which can be defeated through the actual effort and time of the user. What happens is that fictional values postulated by a virtual reality and meaningful only from its inside (in the sense that other virtual realities could have different ones) are actually valorized in terms of what is really of value for the player (energy, time and even “fun” in the case of grinding).

This valorization of the s-theme can involve both the *what* and the *how* of meaning-making

What-features are:

- Represented actions (Example Jumping, Talking, Killing, Running, etc.)
- Represented items (Example: Weapons, Cars, Shoes, etc.)
- Explicit Mechanics

How-features are:

- Sensorimotor interactions implied/required (Example: Right timing, Button smashing)
- Cognitive operations implied/required (Example: Learning the IA patterns)
- Behaviors implied/required (Example: Prudence, High Attention, etc.)

This performative valorization occurs via three different criteria:

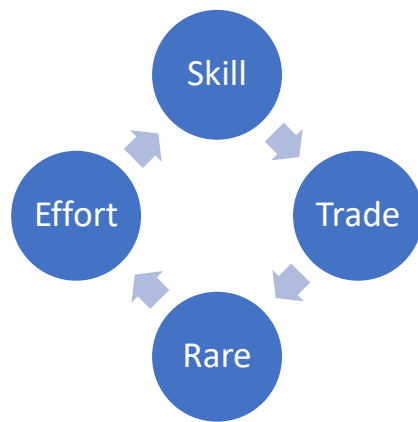
1. The *relational* value of a given *object* inside an economy
2. The *exchange* value of a given *object*
3. The *pragmatical* value of a given *skill*

The first type is determined by the overall *scarcity* of resources: rarer objects are more precious and more difficult to acquire. The rarity of items is one of the ways through which social distinction occur in online games and also at the base of their concrete economic value since in some cases (typically mobile games) they can be bought via real-money to avoid the user to spend time to acquire time.

The second type is determined by the overall use of a given resource: when common objects are everywhere but also constantly needed and/or needed in great amounts they become also precious. This is typically the role of money in RPGs, of Energy in Fighting Games and so on.

The last type is determined by the type of difficulty or obstacles requiring a form of learning from the user from the beginning to the hand. Aiming through eye-hand coordination in most simulations of war, motor-memorization of “combos” in most Fighting games, mathematical efficiency in RPGs and so on.

In many cases the performative valorization of an s-theme will be circular: a minimum of effort will bring to possess an object of exchange traded for a rare value which will reduce the effort needed until now and allow to use the face the greater effort required to progress:



Yet, many other possibilities can be valid and virtual realities without objects of exchange or rarity can perfectly exist: hardcore platformer games such as *Meat Boy* are a flawless example. What *cannot* occur is a virtual reality without any pragmatical value.

What's more, while in the past most games presented closed economic systems with fixed value associated to certain objects, the online-state of games is nowadays creating economies where such values are subjected to changes (simply put: a very strong sword or car can become weak with the next patch or update of the game). It should be noted that this valorization in terms of effort and time is also strongly related to what we have defined as the communicative (non-end of the experience), aesthetic (non-repetition of the content) and pragmatic (non-static state of the narrativity) values of interactions.

Finally, the proprioceptive layer of meaning is about the *induced* forms of feeling and emotions which are related to both what is represented on the screen and what is executed by the player. This is where virtual realities and movies share a common rhetoric of representing something as absolutely *true* via the visual systems. However, interactions also open for new possibilities let's think at the very basic possibility of making iconic movements or at the psychological consequence of a game require to "button mash" on the control pad thus creating excitement.

4.5 Last step: meaningfulness

All the previous steps should have given to the semioticians a clear view on the core elements of meaning-making inside a given cultural artifacts definable as a virtual reality. We should now know what this game is about and how this what is “argued” via the specific means of virtual realities.

The last part will then consist in choosing on an aspect of meaningfulness to focus on, and the directions are mainly five:

A) The most obvious one is the inner meaningfulness of a given texts in terms of a designed experience: the sociocultural relevance and/or recurrence of the particular s-theme represented via phenomenological, narratological and sociological continuity.

B) A similar yet somehow different possibility is to focus on a corpus of gameplays to confront the potentiality of a given virtual reality with the main structure of meaning. In this case we will focus on the specific enactment of the players’:

1. Reaching (Narrativity)
2. Knowing (Database)
3. Learning (Skill)
4. Owning (Authorship)
5. Breaking (Hack)

C) Then, moving further away from the original text, we can explicitly focus exclusively on the *uses* and derivative content of virtual realities (which will always be related to the original content).

D) We can also extract single aspects of virtual realities from their textual context and regroup them to make inquiries on a given portion of the semiosphere (example: common objects or behaviors valorized or common forms of valorization adopted)

E) Finally, we can extract single aspects of virtual realities from their textual context and regroup them to verify/criticize/improve the semiotic theory about virtual realities as a form of discourse by focusing on the most theoretical and philosophical aspects of it (subjectivity, authority, cognition, and so on.)

These five points define the boundaries of our proposal, the limits of its efficacy, and end this part.

5. Case studies: the metaphors we play by

5.1: The Simulation and valorization of martial arts in *Street Fighter 2*

Question: Is it really reasonable to claim that a beating game such as *Street Fighters II The World Warrior* has or even is a story? How can we define as “narrative” a game that, when concretely experienced by the player, is made almost only of interactive fighting moments? Up to which extent can we assert that the so-called characters of this game are similar to what is usually defined as a character? Finally, are there any kind of values or ideas actually conveyed by such a game?

5.1.1: Looking for a story

Street fighter 2 has explicit narratives in three different non interactive parts : the title, the booklet (the epitext) and during cutscenes at the end of the arcade mode. Additionally the equivalent of dialogues can be found after each match, with a single sentence repeated (i.e.: Ryu: “You must defeat Shen Long to stand a chance”).

The title has a story inside itself in two different ways. First of all in its letteral sense: it would be very unlikely to give such a title to the story of *Hiroshima Mon Amour*, and indeed the game is about people fighting in the streets. In a second sense the title can evoke narrations through intertextuality, both referring the previous game of 1987 and to other cultural products such as the 1974 movie *The Street Fighter* from Shigehiro Ozawa. Interestingly enough, even this very basic narration is however already problematic. In fact, even though such a title would suggest a narrative similar to *Double Dragon* (1987, Technos Japan Corporation, Taito), what actually happens is that the “streets” are where an organized tournament is going on and that those fighters are using something similar to superpowers instead of trash bins and bats. Additionally, even the reference to the previous chapter is a little odd since the male protagonist had almost red hairs and shoes (completely absent in this second chapter) and most of the previous characters are gone. So, the true reference in this case is the structure of the international tournaments of martial arts and some narrative continuity related to three main recurring characters (Ryu, Ken, Sagat).

In the booklet at page 10 the fundamental bases of the tournament are explained: eight fighters across the globe that will travel to face each other to be recognized as the strongest. We can also already notice some kind of valorization by reading that: “ it will take more than brute strength to earn the title of World Warrior”. Moreover if in the beginning the third person is used to describe the actors of this tournament, with the player being involved as someone choosing a champion, soon after the second person is used with the player that is now the character itself: “ When the match begins, **you** must use **your** punches, kicks and special moves to knock **your** opponent flat on his back”. This continues at page 15 titled “ Becoming a Street Fighter” : “ Becoming a true street fighter requires patience and practice. Listed below are a number of hints **which will help you survive** your first few matches”. However right after (p.16) the reader/player is thrown out of the text with the description in third person of the characters from a technical point of view (the name of his techniques and technical description of his playing style) but also from a psychological (“cool and calculating, Ryu is very patient in combat”) and narrative one (his past and bound with other character such as a master Shen Long, his nationality and birthdate, and his values “ He has devoted his entire life to the perfection of his fighting skills and has forsaken

everything else. Ryu has no home, no friends and no family”). Moreover the characters are also physically described (body & outfit) and in some case have intertextual references such as Zangief copying one of his move from Mike Haggar, character of *Final Fight* (1989). Interestingly enough, the main non-playable antagonists (Bison, Sagat, Vega, Balrog) are not described at all in this first version, whereas they will be in next version such as in the booklet of *Super Street Fighter II* (1993). Among all the different profiles, we can find some classical *scripts*: the disciple trained by a master (Ryu, Honda, Ken), the hero fighting to avenge the death of a friend or father (Guile and Chun-Li), the struggle to be recognized as the best (Ryu, Ken, Honda). Consequently, we also find a set of typical *figures*: the soldier, the fighter, the secret agent, the human beast/monster, etc. Also, the fact of blending fictional characters with references to the real world and nationalities is both reinforcing stereotypes (Russians fighting for the love of their country, American heroes being militaries, the senpai-kohai relationship of Japanese characters etc..) and creating a polarized version of the reality of the player with Thailand being a nation of criminals where all the antagonists are. Finally, despite the title “Street Fighter” the characters have unrealistic abilities that are explained mainly through mysticism (Ryu, Ken, Dhalsim).

So, we can see that there is something very similar to the beginning of a story in the booklet. But here is the problem: the booklet is not the game. The booklet could be ignored and is precisely non-interactive. So we must now look at the game itself intended as a set of concrete data that needs to be actualized through interaction. We must now look at the ending cutscenes to find the rest of this story inside the game itself experienced by the player. When we do so, *Street Fighter* seems to be the best educative and conservative product for children that was ever created: Blanka reunites with his lost mother, Chun-Li prays on the grave of her beloved father, Dhalsim go back to his family and happily eats at home with his son, Honda go back to his disciples/student that are now in harmony together with him and remember them that the discipline is very important, Guile is convinced by his wife and daughter to not kill Bison and to go back home to live a happy family life, Ken gets married with his old love, Zangief is complimented by the President of Russia in person for having shown the strength of the “soviet spirit”, and Ryu keeps following is do/way to perfection in fighting.

Without a doubt we can thus say that Street Fighter has its beginning in the booklet and the ending in the game, nonetheless the presence of multiple endings can seem problematic. Shouldn't a text with eight different endings be defined as 8 different stories rather than *a* story? From a purely narrative point of view yes, but from the point of view of narrativity no. In fact, although *Street fighters II* is a matrix-text containing a high number of alternative version of itself, with each character having a different story, we can see that in reality all these versions have the same narrative syntagmatic: A self-determined subject initially separated from something (vengeance, glory, perfection, family) will be able to reunite with what he cares for through a series of victories in a fighting tournament. Moreover, all these versions are somehow not contradictory since Bison will always be beaten. But more importantly all characters share a specific set of social and political values: friendship, family, peace. In some sense, the only alternative ending of Street Fighter is Ryu's one, with all the other one being almost equivalent from the point of view of the values conveyed (although Chun-Li happily beginning a new life as a single girl is also relevant). Finally, it is interesting to notice that the next releases of this game, such as “The New Challengers” (1992), are very different with the texts being able to end with Balrog becoming happily rich and famous with two prostitutes-like by his side, the player being able to choose if Chun-li should now live her life as a single girl or not, Sagat having murdering intents toward Ryu, and Bison dominating the world and plunging it into darkness. Yet even in these cases the syntagmatic stays the same.

The booklet and the endings of *Street Fighters 2* thus constitute one or more stories that (as almost any story) represent the world in some non-neutral manner and is based on many intertextual references. By choosing a character, and thus both a background and an ending, the players can choose to represent on the screen the version of this story that is closer to their own personal values through gender, race, nationality, and combat style. Furthermore, depending on the versions of the game the multiplicity of endings constituting that story can be somehow narratively coherent or not, but in any case the main narrative syntagmatic is still the same. Finally, because of the strongly stereotyped narration the endings are self-sufficient and the booklet is not required to make sense of what is represented.

However what kind of story is the one of Street Fighter? A really poorly written and very uninteresting one we could very well argue. Indeed, if we look at the main characteristics of the modern novel (Ricoeur, 21-23, 1984) we can see that our story has almost none of them: the focus on the social context and issues, the story of common men and women, the idea of the psychological development/transformation of a single and complex main character, the moral problem blended with the one of love, the episodic structure, the twist of fate and incident, the theme of consciousness, the singularity of bonds between characters, the narrative strategies aiming at a deep emotional involvement of the player, and so on are almost completely absent. Characters are *given* from the beginning and will not change in front of the player, the interactions between them are irrelevant, the story is about a tournament and the tournament is the only thing we are told about, any change (Guile renouncing to vengeance in the end) is unexplained and left to common sense, everything that is expected will happen and the crisis will always be overcome in an extremely reassuring way. Ironically, from a narrative point of view Street Fighter is a story almost without *action* (Ibidem, 23). Moreover, both from the narrative and the aesthetic point of view the once central value of *verisimilitude* (Ibid, 24) seem totally lost. Finally, the absence of modern characteristics does not end at all in the fundamental aesthetic of the post-modern novel.

So, does a story of this kind really matters to the overall meaning of such a text? This question is even more problematic when we consider that a single gameplay experience lasts in the best-case scenario (of a character never losing) around 20 minutes¹⁸⁶, while the endings last more or less from thirty seconds to one minute. So the question is if the remaining minutes of fights have anything to do with such a story and its values or if they are just a separate part of gameplay. Putting it in other words: we have a story at the beginning and ending of the textual experience, but what's in the middle? Could we cut this middle and still have the same story? To such a question we can give two different answers.

The first one is that in narrative terms this middle is of course very important under since without such fights this "story" would be to say the least not very interesting. If already in many movies such as *Lionheart* (1990) this would be true, it is even more in game with even less narrative complexity residing first of all in the absence of any introspection and in the coincidence of *fabula* and *intreccio*. Not only the fights visually represent the reasons (the superior fighting ability) leading to the experienced ending, but they also deconstruct the macro syntagmatic in a series of minor ones where the victory of the main character is constantly put-on doubt and the inferential activity of the player, virtually containing narrative moments such as the turn of events. In the Game Studies field this is known as ludo-narrativity and is possible thanks to the syntagmatic nature of virtual realities.

¹⁸⁶ Arcade Longplay [370] Street Fighter II: The World Warrior <https://www.youtube.com/watch?v=xI284D4y1q4>

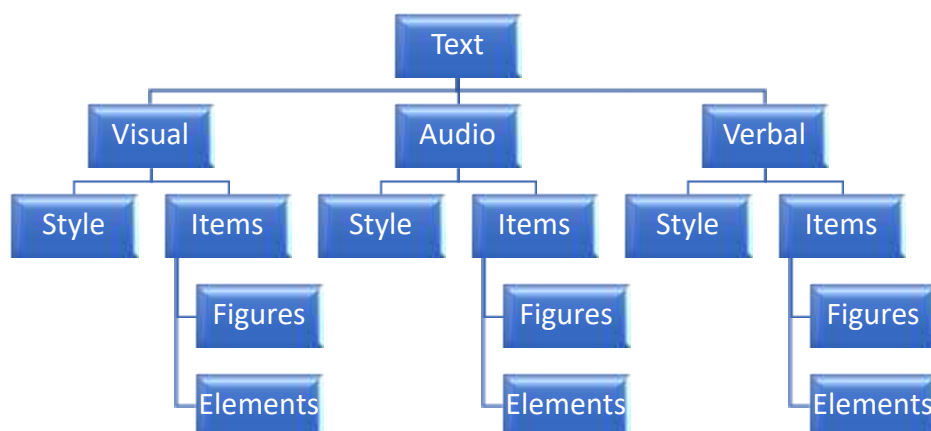
The second answer is that this “middle” is where all the narrative aspects are semantically actualized all along, an answer that is a little bit less intuitive and requires to go on a second layer of meaning making.

5.1.2 Narration through Semantics: Isotopies of Fight and Nations

Until now we have described Street Fighters only through its explicit narrative parts, mainly focusing on the verbal text explaining the narrative events and defining the character’s profiles. Yet it is not possible to analyze a game without taking into consideration its gameplay and focusing on the visual content. Indeed, the player is confronted with the identity of the characters and with the “story” for the first time when in front of the characters selection screen.



It is through the representation of the faces that, for example, the calm nature of Ryu described in the booklet is represented in opposition to the mouth and eyes of other characters such as Ken. Other characteristics of the face are also intertextual such as the width and expressivity of eyes that typically belong to the main characters of anime. But it is during the fights that such semantics traits really reveal both the story and the characters’ profiles through the main linguistic elements represented on the output device: pictures, words and music. To deconstruct them we will use the following schema that will lead us to a semantic and narrative core:



To better understand how to use such a schema we will take a concrete example, the matchup between Ryu and Ken. The reason for choosing this particular case is that, since we are looking for meaningful difference of narrative relevance, Ryu and Ken are the most difficult case due to their specular nature (almost same move set, same outfit, common Japanese name, similar music, etc.). So, if some results (explicit elements of narrative relevance to the story and the character's profiles) are nonetheless found, it will mean that such decomposition method can be recognized as valid.



If we focus on the content conveyed by the visual elements in this picture, we can see that meanings and narrations related to characters must be related to the signs representing their clothing and body in both connotative and denotative ways. Once we have contextualized the text (as a product of a certain period created in a certain culture for mass consumption), and without ever forgetting that texts are systems of organized signs assuming meaning in relation to each other (and so that signs will be used to differentiate these characters only between them), we can then semantically deconstruct the visual elements in the following manner:

Clothing:

Figures: Clothing Type: Karate *gi* + black belt : Experts of karate

Figures : Clothing Type: Karate *gi* + black belt: Japan/ Asia

Figures : Clothing Type: Bandana: Sweat & effort

Elements: Dress Color: White : Pureness / Light / Order / Clarity VS Elements: Dress Color: Red : Passion / Fire / Energy

Elements: Dress Color: White + Red : Japan VS Elements: Dress Color: Red : America

Body:

Figures: Hair Type: Short : Order VS Figures: Hair Type: Long : Disorder

Figures: Body Pose: Fighter

Figures: Body Posture: Upright : Not old

Figures: Body Posture: Upright : Proud

Figures: Hair Color : Blond : Rebel (Intertextuality)

Elements: Hair Color: Brown: Japan / Ordinary VS Elements: Hair Color: Blond: Not Japanese / Unusual

Elements: Skin Color: White : Not *

Elements: Skin Color: White : Human

Setting (Stage):

Figures: Encyclopedic References: Castle/Temple vs American Harbor : Spirituality vs Freedom

Figures: Geographic References: Castle/Temple vs American Harbor : Japan vs America

Items: Level Colors Tone: Darker vs Brighter, Colder vs Warmer,

We can then also apply this on the other kinds of verbal elements that are presents on the screen: words and music/sounds.

Character Names: Meaning & Homophonies: Ryu (relevant homophony “dragon”) VS Ken (spelled as “fist”, relevant homophony “sword”)

Character Names: Geographical localization: Japanese VS Japanese/English

Pronounced Moves: Meaning (Booklet) & Localization (as for names)

Moves’ Semantic Field: “Wave” or “ Dragon” : Mysticism

Referee Words: “Fight!” “You Win”, “ Perfect”: Semantic Field: Game/Fight

Other Words: KO/Round/Battle/Combo/Time/Score: Semantic Field: Game/Fight

And on the audio level:

Figures: Sounds: Impact/Crowd/Effort/Shouts : Semantic Field: Fight/Game

Figures: Music: Encyclopedic References: 80’s Rock (Ken & Ryu)

Figures: Music Genre: Geographical References: America

Figures: Music Instruments: Geographical References:

The semantic breakdown and encyclopedic reconstruction we have just done can then highlight the presence of two main isotopies of *Nationality* and *Fight* which are of course fundamental for the main story of the game. Moreover we have also seen how the semantic elements are fundamental in defining the character’s profiles. So, by using both Eco’s ideas of cultural unit and scripts, Barthes distinction between denotation and connotation and Greimas application of visual semiotics, we can now be certain of the fact that even without reading the booklet and without ever reaching the end of the game (and thus the cutscene) some key elements of Street Fighter’s narration will be constantly put right in front of the eyes of the player while he is playing.

It goes without saying that the approximative decomposition we have just made is very disappointing since it doesn’t tell us anything new or different from what is obvious by looking at the pictures of the game.

However the aim here was not only of answering to our question about the narration of this game but also to show how the linguistic elements of expression level have some semiotic possibilities of meaning-making which could or should be analyzed in potentially any game. Distinctions such as the plastic and figurative level of visual language were born to analyze cultural objects of great interpretative complexity belonging to the domain of the visual arts, a complexity totally absent in a game like *Street Fighter* (reason for which such deconstruction seemed so disappointing) but that could be present in any game using the visual language. Yet, to extend such method to other games we must face beforehand two more critical problems: the player's manipulation of this semantic level and the instability of semantics itself.

5.1.2.1 Semantic instability: critical issues & solutions

The problem of semantic instability is both a game-specific one and a theoretical one.

From the point of view of the game it refers to the possibilities in games of having characters wearing clothes of a different color, for example with Ryu wearing a black karate *gi* and thus losing the “Japanese traits” as well as the “Light” one and assuming the opposite one “Dark”. This problem is even more serious in recent games where it is possible to almost completely change the appearance of characters. To understand this issue let's make a concrete example. In the first attempt of a semantic deconstruction of the expression level in videogames, D'Armenio (2014) recreated a very good analysis of all the visual semantic categories conveying the “beastness” of Blanka in oppositions with categories belonging to other characters. In this analysis one of such categories of Blanka beastness was the nakedness, but in a game like *Ultra Street Fighter 4* it would be very hard sustain such a claim:



Then the second problem is related to dependence of semantics from the context (Rastier, Cavazza, Abeille, 1994) and to its instability (Paolucci, 2010). Indeed, at this point our reader has probably already noticed that our previous deconstruction was extremely compromised by the previous knowledge of the “story” and very convenient. In other words, for very good reasons, our analysis could appear as absolutely not empirical since it is mostly based on an interpretative guess and on the not-necessary choice of some words rather than others. For example Ken's *gi* is red and his hairs are yellow, the two colors of the soviet union flag, so why not give him the trait “Russian”?

Another example can be the white in the Japanese culture being use in funerals, so why not giving the trait of sadness (mourning)? Going back to the example of Blanka, another issue could be the following one: why the nakedness why the lower posture does not mean that Blanka is old (such as in *Tekken 3* with the character Bosconovitch) and why the green skin doesn't mean that Blanka is an alien? This is even more true if we look at another product of mass consumption such as *No Retreat, No Surrender* (1986, Corey Yuen), where we can see that the colors that we used to define "Japaneseness" in Ryu are the same that define Russia in that movie:



In other words, both the selection of visual elements to consider (white + red in Ryu but not yellow + red in Ken) the attribution of semantic traits to such elements (white + red = Japan and not Russia) and their connotation (oldness = bestiality) were not truly neutral or objective.

To such critical points there are however different answers and useful solutions

1. The first one is that, since we are interested in the actual interpretation of an idealized player, and since the attribution of meaning is almost never objective and outside of a context for such a subject, the interpretative work required by the analysis is never a problem *per se* but actually a requirement to produce a meaningful analysis. The problem for the scholar making the analysis is first of all to correctly and honestly select the encyclopaedical portion (Paolucci, 2010) that will justify the interpretative claims. This selection is not at all a purely methodological step but precisely what a player is doing when playing a game that he knows (for example through the title) belongs to a certain genre, allowing him to visually distinguish a duck from a dragon as in *Adventure* (1980):



2. The second one is to consider that meanings in texts are possible precisely because of internal *relations*, so the infinite vagueness and semiosis of all the possible concepts conveyed by a certain singular elements are further limited in the analysis by the set of pertinent textual elements. In other words, if we want to understand how the semantic level is capable of creating narrative profiles of characters we have to assume that they have some meanings in relations to each other. Once again this is both a methodological requirement and something experienced by the players in the sense that his interpretative attributions of traits during the gameplay is forcefully grounded on the confrontation between the characters of a specific game.
3. The third one is that the attribution of certain descriptors and their connotations do not need to be exclusive: Blanka and Zangief can both have some “beastness” (they are almost naked, hairy, brutal, etc.) attributed by the player and the analyst. Narrative profiles created through the visual elements belonging to the characters work as a set of traits and the traits themselves are qualitatively different among characters. This is precisely how language and semantics pragmatically works in contexts, allowing us to say for example that a good player of a sport is a “beast” without implying that he grew up in the wild. Finally, some traits of a specific set can have an augmented relevance in conveying an idea of under a certain aspect, such as the green skin of Blanka setting it apart from all the other characters and exceeding the beastness.
4. The fourth one is that the semantic plasticity of digital games is one key characteristic of such a medium, precisely allowing multiple versions of the narration and to reinvent in part the text, which is what more generally the anthropologic activity of *play* is all about. Because such plasticity is designed, games naturally tend to do not problematize the meanings conveyed by such variable elements of the expression level. For instance, in the unlikely case (we will see why unlikely in the following point) of a player guessing that Blanka is an alien coming from another world, the core meaning of both the text and the character profile is not compromised even during the gameplay and before discovering the “truth” during the gameplay. This is also why the attribution of traits is not a problem *per se* since meaning by far *exceeds* the linguistic-molecular level of combinatory elements.
5. Despite the great visual diversity that characters can assume, some digital text typically try to maintain some of the main semantic traits and encyclopedic references to avoid aberrant representation. A clear example can be found both in the colors available¹⁸⁷ for the skins of Blanka in *Super Street Fighter II* which will never be the typical white skin belonging to most of the human characters such as Ryu or Chun-Li.

¹⁸⁷ <https://www.zytor.com/~johannax/jigsaw/sf/st.html>



Similarly the skin of Ryu will never be black and his kimono will never be bright pink. In the later game *Ultra Street fighter IV* (2014) the introduction of costumes/skins also very often respect the original traits of the character. As an example Ryu will wear the mask of a white wolf and will also have a wakizashi, while ken will wear the mask of an eagle with very marked yellow beak and claws:



6. Although the possibility of modifying the characters appearance can also allow the players to originally create intertextual scripts and scenes, such as creating in Tekken 7 a possible fight between Walter White (Breaking bad) and Gene Simmons from the Kiss¹⁸⁸, the original model of the character is always the default one and available (not erasable).

¹⁸⁸ <https://www.youtube.com/watch?v=MYwZF38yJ10>, Threatty

7. Finally, although the visual content of the character representation has a main role in the interpretative process, it cannot be reduced to his body and clothing. Indeed, differently from the aspect of videogames characters, there are other visual elements that still have a semantic relevance but typically cannot be changed by the player. Moreover these elements are typically the one that are also present when the character of Street Fighter are used outside of their original text, such as in *Little Big Planet* (2008) custom levels recreating Street Fighter¹⁸⁹ and even in meme trolling videos¹⁹⁰

These elements are precisely the one that really define their profile in a unique manner: the moves and actions of such a characters, which can also be semantically decomposed. In the specific case of Ryu VS Ken in this specific version of the game such deconstruction can be extremely difficult since they almost have the same moveset. For example, the characteristic blu color of the “hadouken” is narratively and semantically coherent with Ryu but not at all with Ken, which in fact in the following titles will obtain a specific flaming hadouken and shoryuken. Yet, some differences still exist but require us to adopt a tensive perspective of meaning (Zilberberg, 2017) creation through difference. Then we will notice how for example the second throw of Ken involves one more “rolling” than Ryu’s, allowing us to describe it as more acrobatic or energetic, which coherently define the narrative opposition between Ryu and Ken.

Performative actions and movements are thus also culturally invested linguistic elements in many different ways:

Body Movements & Actions

Figures: Movement / Gait : Careful / Confident = Narrative Psychological Definition

Figures: Idle Type: Martial Arts Guard = Geographical Localization and Psychological Definition

Figures: Combat Moves Type : Martial Arts/ Karate (i.e.: Axe Kick, Mawashi Geri Kick) Guard = Geographical Localization and Psychological Definition

Figures: Special Combat Moves Type: Supernatural = Intertextuality & Definition

Elements: Special Combat Moves Color: Blu Guard = Intertextuality Psychological Definition

Figures: Overall Combat Moves: +/- refined VS +/- brutal ; +/- acrobatic; etc. = Narrative Psychological Definition

Winning Poses:

Figures: Serious VS Joyful

So to conclude we can see how the non-modifiable performative actions represented are a way to semantically stabilize the characters identity despite all the possible changes on the appearance of the character.

¹⁸⁹ <https://www.youtube.com/watch?v=hep0IHwH9oU> , Bracket Studio;
<https://www.youtube.com/watch?v=QM4eF-m8SsQ>, The8Bittheater

¹⁹⁰ <https://www.youtube.com/watch?v=ile2mDiofWw>, Street Troller:

5.1.2.2 Semantics & aesthetics

The last aspect to take into consideration about the semantic impact of the linguistic elements of the expression level is the artistic style of the game. In this thesis we are not offering a specific model to take into account, but it is clear that for example the cartoonish style of *Street Fighter II*, opposed to the realistic *Mortal Kombat* (1992), is perfectly coherent with the intertextuality of the game with the reference to products such as *shonen* mangas and anime.

5.1.3 Syntagmatic analysis

If the semantic analysis can help us to highlight the core elements of narration in a game, the syntagmatic dimension is fundamental to understand how the combination of actions and consequent events is creating the actual meaning of such game. Indeed, the narrative meaning of *Street Fighter* is without a doubt created in real time during the ludo-narration during which the fights occur and which consists precisely in the player selecting some moves among a possible repertory and performing them in succession and in relation to the ones made by the opponent controlled by the CPU. All the semantic elements analyzed in the previous chapter are, from an experiential and interpretative point of view, in fact non-meaningful as long as they remain virtual and confined as mere possibilities inside a database. The story itself of a succession of fights during a tournament ending in a final battle does not exist, in a game, until it is shown on the screen through the interactions and agency of a player. Therefore, the meaning can appear and occur only when the player is selecting a character and actually playing the game, and this “appearance” thus corresponds to an act of co-enunciation or co-creation of utterances which rely on some combinatory rules. Consequently, we have to distinguish between two different levels of the analysis: a narrative one and an enunciative one.

5.1.3.1 Mirrored macro narrativity

The first level refers to the idea that, from Propp through Greimas and Ricoeur, what we call “narration” is a syntactic structure of combined/organized core elements shaping meaning itself. Indeed, if we look at all the different stories of the different characters of *Street Fighters* we can find a common underlying formal structure and syntax which is very common in most western cultural products:

1. A main Subject (the chosen character)
2. Destinant of himself (as we know from the booklet and cutscenes)
3. Fighting for a cause (depending on the character) accomplished through winning the tournament (the goal or object of value)
4. Opposed to a main Antagonist (the final boss) and other minor Antagonists
5. Fighting for a cause accomplished through winning the tournament (object of value)

Thus we can say that each character is a subject separated from the start from its contended *objects of value*, and that consequently must accomplish a main *narrative programs* (winning the tournament) and a number of different but repeated *use programs* (winning each single fight).

This first model is useful for two reasons. First of all it helps to see how the often considered “non diegetic” elements of the screen like the health bar are actually narrative diagrams of the use programs, permitting for inferential activity (of both a player and spectator) and allowing classical narrative figures such as the twist of fate that we had defined as absent from the main narration.



Secondly, the model is interesting because it does not work very well. Indeed, the classical syntagmatic structure contemplates four distinguished moments: the starting manipulation (something or someone coving the subject to begin his “quest”), the final sanction (the positive or negative result) and in between the acquisition of a competence (the subject improving and acquiring new means to accomplish his goal) and the actuation of a performance (proving the acquisition of the competence and leading to a sanction). Yet, these two fundamental moments of the narrative syntax are completely absent from the narrative parts we have looked into until now. As we have seen, this is not something specific of *Street Fighter* but rather of most digital narrations, and so this “problem” precisely highlights a fundamental aspect of meaning-making in games: the blending of the representational narration with the performative action of the players. In fact, the series of defeats and victories of the player are the missing competences and performances bounded to his doing and represented on the screen. And if we look closely we can see that the player is his character not only because it manipulates him but also because it actually shares its narrative position inside the syntactic structure. Indeed, the player is:

1. A main subject
2. Destinant of himself
3. Fighting for a reason (the complex anthropological dimension of the play) accomplished through fighting and winning the tournament
4. Opposed to a main Antagonist (The CPU or another player) that is postulated as having to reach the same goal of winning the tournament

Whereas the narrative causes are of course not shared between player and character, everything else is. This is very important since the “story mode” in fighting games is usually only a possibility and the game has to make sense outside of it, thus without taking into consideration the introductions and ending cutscenes. Furthermore we have here just discovered a narrative dimension of the intersubjectivity that is so typical of games. Finally, we can thus see how the formal syntactic structure of the fight, both as a single event and through its repetition, is the narrative core of the whole game.

5.1.3.2 Micro narrativity through enunciation

We must now look at the second level of the syntagmatic analysis, which refers to the discrete units through which the player co-creates the utterances determining the meaning of what is happening on the screen. This second level completes the first one in creating the minimal events of meaning happening inside the macro-narrative syntax, fully enhancing and enriching the interpretative possibilities of the text. This is where a difference of meaning occurs between Ryu fighting a Bison without taking a single hit and giving him the final with its signature move “hadou-ken”, and with the same Ryu winning by repetitively crouching and giving a shy light punch.

We can now go back to *Street Fighter II* and recreate its specific micro-narrative syntactic structure allowing for the player’s enunciation and multiple possible meanings.

First of all let’s look at what the player can concretely combine, or in other words at the *interpretative classes of items present in the database/repertory of selectable virtual elements*:

- Actors (Characters)
- Items (The Character’s Appearances)
- Actions (Movements and Fighting Moves).

Each of these classes present different entries that can be combined in a discrete space and time by the player to create, for each fight, a different version of *who is doing what, where and when, and with which outcome*.

Actors= 8

Items= 8x2

Actions = 48x8 (characters) = 12 (Hit Positions) + 24 (Hit X Directions+Actions) + 6 (Special Hits) + 6 (Movements)

- Move Positions = 2 (Stand, Crouch)
- Move Actions = 2 (Walk, Jump)
- Move Directions = 2 (Forward, Backward)
- Damage Actions = 6 (HPMPLP,HKMKLK)
- Special Hit Actions = 6 (Throws + Quarter Circle or Half Circle or Full Circle + Hit / Charge + Hit / Ecc..) Blanka: 4, Chun 6, Dhal (6), Honda 6 , Guile 8 , Ken 5, Ryu 5, Zangief 11
- Extra: Block

As we can see whereas Street Fighters allows for 8 different narrative version of its same story based on 80 (10x8) possible matchups, it basically allows each single fight to produce infinite version of itself from the point of view of the sequence of the possible utterances happening at a certain moment during each fight. The high number of possible utterances will allow for the player’s creativity and for the main interest since it will correspond to many different interpretative inferences. Additionally, it will also correspond the most of the player’s effort and learning.

However, virtual realities are far from being a poetic means allowing for a total freedom of expression and such possibilities are somehow countered by the game as a system of rules:

- Each fight has a limited duration (although time limit can be disabled)
- Each visual utterance must occur inside a spatial structure identical to all the “levels” and relatively small.
- Each base utterance has a specific time of animation during which no other utterances can be made by the same player.
- Each utterance can be interrupted by the opponent’s utterances/actions
- Each utterance depends on two conditions of possibilities: positions (crouching, standing, air) and range (close)
- When hit, the player loses the control over his character for a brief time and also loses the possibility of creating utterances
- Each fight is limited by three rounds and a certain amount of health for each character after which the player’s control is interrupted
- The stage of the fight is not chosen by the player
- The succession of matchups is decided by the software

Interestingly, we can see here how a fight in a videogame can be seen as a communicative battle to deprive the opponent of his very possibilities of speech and so of writing his part of the story. Moreover we see here that in game like street fighter as in language the sentence is infinite in principle but not always finite in the concrete act.

5.1.3.3 Syntagmatic possibilities & narrative interpretation

By blending the syntagmatic possibilities of both the macro and micro-narrativity we can see how Street Fighter can, as a whole text, have mainly seven different interpretative outcomes:

Ideal Narrative:

- A. The main character wins all the fights by using all his techniques although the fights are progressively harder and many times it would be likely to think that he will be defeated.

Ideal Gamified Narrative:

- A. The main character alternatively loses and win through a process of trials and errors, until the final fight is won rewarding the player’s perseverance and learning.

Controversial Narratives:

- A. The main character loses at the very beginning and don’t continue
- B. The efforts of the characters and players are useless and victory will never be reached
- C. The protagonist is so bad at fighting that the story becomes ironic
- D. The main evil character wins
- E. The main character wins in an antiesthetic manner and/or unfair way

Boring Narratives:

- A. The protagonist is never in danger
- B. The same fight keeps repeating itself and thus the end of the story is never reached

Additionally, we can highlight how the possibility to fill the empty places of the main Subject with eight different *characters* and the almost infinity possibility of representing performance-trial with different utterances in terms of different *actions* belonging to these characters can represent one of the criteria for the player's caesura: (winning with all characters, seeing the special move of every character, and so on).

Finally, and as a consequence, it is first of all here that narrative values, like victory through perseverance, can only exist here through the player's doing in terms of semiotic production. This idea belongs to the player's narrativity as much, if not much more, as the one of the "story".

5.1.4 The embodied & proprioceptive representation of fighting

Let's do a little mental experiment and try to imagine a different way to play Street Fighters II. The game is exactly the same, the only difference is that each button on our pad will trigger a sequence of many moves (like low kick + high punch + flip backward, etc.). So, we now have to press only a single button every ten seconds. Or, other possibility, the game is now turned base with the player choosing a single action each turn. What happens? Well, on the screen the game shown would not be very different, nor the main rules, however our experience of the game would change dramatically. Not only in the sense that it would probably be more boring but, and this is our most important statement, the whole meaning-experience of the game would change in relation of different actions and cognitive tasks required to play.

In fact, a video game like Street Fighter does not only simulates visually a fight nor tells the story of fights but it also produces a mental simulation of it by requiring a certain performance. By looking at the "how" of the textual analysis we will find:

- The high rhythm of inputs (compared to a classical RPG)
- The need of combination and coordination
- The short-timed inferences (compared to a strategy games),
- The technical failure risk (choosing the right actions is not enough) and thus the motor learning involved
- The fundamental knowledge of the move set of the opponent
- The inputs semantised in terms of movements (half circle, down, etc.)

These are all solid example of a "fighting mental state" or we could say of a "fighting metaphor" that cannot be irrelevant. Music has also a very interesting role in this with the feature of the increasing of the tempo (and altering the chromatic scale in the Arcade Version) when one of the player is near K.O¹⁹¹, thus putting the player in a psychological condition coherent with its narrative positioning as S.

This influence of both the input insertion and of the logical inferences required by the rules of the games are what we have defined as the prosthetic dimension of meaning-making. For instance, imagining a turned based fighting game without discrete combination of inputs is not impossible, in fact such a game exists: the title is "Heavy Metal Thunder" a japan only release for the PS2 developed by Media Vision and published by Square Enix.

¹⁹¹ <http://www.checkthesplitter.com/post/fighting-game-interactive-music-study/#streetfighter2>

Now two things are interesting about this title, the first is that even in such a game there is a very limited amount of time to choose the action (reproducing thus a stressful and intense experiential condition of the player), and the second is that it is probably not only a commercial/cultural issue (the game is about a super violent tournament of robots, something admittedly appreciated more easily in the Japanese cultural context) if this game didn't become a main title in E-sports such as the EVO tournament. Although this last claim can seem totally unsupported, my point is that the designed input systems of most fighting games (such as Street Fighter) are based on the experiential enactment of an anthropological concept and situation. Of course playing such games is still very far from being involved in a real one, we are not here making any claim about "total representations" which is by itself a paradoxical idea but is nonetheless allowing to cognitively represent through interaction many significant *aspects* of both what we conceive as a fight and as we can imagine as a narration about fighting.

The perhaps most evident consequence of this embodied dimension was the release in 2016 of Chris Goto-Jones' "Virtual Ninja Manifesto" a book in which the author:

"[...] asks whether the figure of the 'virtual ninja' can emerge as an aspirational figure in the twenty-first century. Engaging with the literature around embodied cognition, Zen philosophy and techno-Orientalism it argues that virtual martial arts can be reconstructed as vehicles for moral cultivation and self-transformation. It argues that the kind of training required to master videogames approximates the kind of training described in Zen literature on the martial arts. Arguing that shift from the actual dojo to a digital dojo represents only a change in the technological means of practice, it offers a new manifesto for gamers to signify their gaming practice. Moving beyond perennial debates about the role of violence in videogames and the manipulation of moral choices in gamic environments it explores the possibility that games promote and assess spiritual development."¹⁹²

As we can see, here there is a direct reference to embodiment to explain why the simulation of martial arts in a virtual reality can be used as a form of teaching and thus of rhetoric in our own terms.

¹⁹² <https://www.amazon.it/Virtual-Ninja-Manifesto-Fighting-Orientalism/dp/1783489820>

5.1.5: Economics and projectuality

The last point to consider is now the relation between the user's performance and the use-value of each input-choice.

Indeed, the possible actions of the database available/producible at any given moment are actually not "equivalent" from the point of view of what we called the pragmatics of the game. If the enunciative possibilities seemed infinite, pragmatics is what both severely reduces such freedom and seriously intensify meaning through experience. Indeed, to each move action of the opponent the "correct answers", and consequently utterances which meets the happiness conditions, are only few. Let's see here a very simple example: in a Ryu vs Ken matchup when the opponent uses an *hadouken* at medium range the possibilities for the players of not being hit, and thus of doing a non-interrupted utterance and coherently acting as S of the macro-narrativity, are only six: immediately doing the same move, jumping at the right moment (upright, backward or forward) or blocking or crouching; and when the player also takes into consideration the set of possible actions of Ken then these answers becomes even fewer since a jump forward will very likely be punished by a *shoryuken*. But how much these factors will influence the actual freedom of the player? In the SNES version, it is for him to decide by selecting among seven different difficulties, from easy to hard which could also be described as from poorly to highly rhetoric.

Additionally, in *Street Fighter* (as in most fighting games) more complex actions, requiring more inputs and better timing, usually have higher damage or higher utility and are also visually represented with a major aesthetic investment. In fact, there are mathematical values attributed to each single possible "hit move" in terms of:

- Damage
- Range
- Speed
- Fall Back

Finally, the product itself will evaluate the player's performance in relation to some criteria which are explicitly shown both during and at the end of the match:



As we can see, in this first installment the combos, which we have highlighted as being extremely important, are only *implicitly* valorized as a way to win by losing less health and faster. This is due to the fact that in the original version of the game they were almost an unexpected outcome¹⁹³ allowed by the software and design, but in later versions, such as in Super Street Fighter 2 (1993), they will become explicitly valorized by the score:



These three points are extremely important since they are the *mathematical base for which a game like Street Fighter can deterministically claim a certain idea of “well practiced martial arts” in terms of use-value which, in this specific case, is a pragmatical value.* The embodiment that we just talked about, indeed, would be far less convincing without win and lose conditions through fundamental rules. A player could perfectly play against such rules, in the sense of doing always the less convenient action, and both the meaning on the screen and the experienced meaningfulness would drastically change, and yet he would not be able to “progress”. This is the narrative paradox of virtual realities that we have already discussed for which we can describe them as deterministically ideologic from the point of view of narrativity (the path from start to end) and yet anti-ideologic from the point of view of the enunciated micro-narration. There is thus a direct connection between *effort* and *reward* that happens in the experiential dimension of the game. Additionally and as a consequence, if there is some kind of far from convincing narrative moral in the cutscenes (peace, family, etc.), there is also another far more relevant and constant *ethics* in the activity of playing itself. This can be seen in the expert players' conception of “fairness” which consists mainly in *not* exploiting some unbalanced aspects of a game that would reverse the direct correlation between efforts and value. A very good example of this is present in the first episode of the anime *Hi Score Girl* (2018) where a victory is considered unfair first because of the virtual capacities of a certain character (Guile) being superior by default to the one of another (Zangief). Lastly, the performative valorization will also be responsible for a part of the player's *projectuality* and *caesura*: (playing to beat the high score, finishing the story with only perfect, etc...)

In conclusion, we see that even in a game without apparent “resources” economics have a critical impact on the text, the experience and their interpretations.

¹⁹³ <https://streetfighter.fandom.com/wiki/Combo>

5.1.6: Street Fighter as cultural discourse

5.1.6.1 Looking into the Semiosphere: Street Fighter in real life

A strong argument about our claims on Street Fighter II as a form of narration mainly based on the micro-narrative layer representing a macro-narrative struggle through gamified means can be seen in the cultural phenomenon of YouTube videos recreating the HUD of Street Fighter and putting other “characters” in the narrative positions of Subjects and Anti-Subjects. The viewer of this video has indeed no access at all to the “story” of the game itself, yet the HUD works in these videos not only as an intertextual reference but also exactly as a narrative diagrams. This goes from ironical videos of man being attacked by animals¹⁹⁴:



To the use of Street Fighter for politics with the example of the 2019 candidate Juanita Catano¹⁹⁵



From a cultural point of view, the gamified narrative structure of Street Fighter has thus completely exceeded the original rhetoric content about martial arts and has become a metaphor.

¹⁹⁴ Youtube Channel: Marca Blanca https://www.youtube.com/channel/UCwNJnf2ehFlx99_UJTQFRlg

¹⁹⁵ <https://www.unocero.com/videojuegos/campana-politica-street-fighter/>

Conclusively, at the light of our analysis, our reader will not be surprised to know that the series of *Street Fighter*, a game about martial artists from different countries fighting in a tournament to be recognized as the best of all, gave birth to one of the most iconic moments of electronic-sports where players from different countries, after years of training, face each other's during a tournament to be recognized the best of all (and earn in some case a relevant amount of money). This moment is called "moment 37" and occurred in 2004 when the Japanese player Daigo Umehara faced the American Justin Wong during the "EVO" tournament. A fight in which something unseen and highly improbable occurred, unseen and improbable in virtue of the difficulty of execution which required an extreme level of embodiment and mental focus. Not only that, but also improbable in narrative terms since, as in the best anime, when all seemed lost for a character there was an unexpected "come back" and twist fate where the losing character won with one of his super moves. In fact, comebacks are an extremely important part of the narration and aesthetics on many fighting games such as Tekken¹⁹⁶ or Dragon Ball Z¹⁹⁷ and much more.

Although the original video of quasi ten-millions views can still be found (<https://www.youtube.com/watch?v=pS5peqApgUA>) we would like here to briefly analyze the interpretation of such fight made in 2017 by the main YouTube Channel of information on E-sports "theScore esports". In this video¹⁹⁸ moment 37 has first of all a very clear historical and cultural relevance:

" In the history of e-sports, certain highlights have managed to transcend games: plays so incredible that no fan, regardless of game loyalty, can deny their brilliance. Think of Dota's 2 "the play", Coldzer's "jumping" in CS-GO and League of Legends " The X-Peke". However, before any others is one that stands alone, a play which is arguably the original iconic eSports moment and is quite possibly the most influential of them all: EVO moment 37." (00-38 seconds).

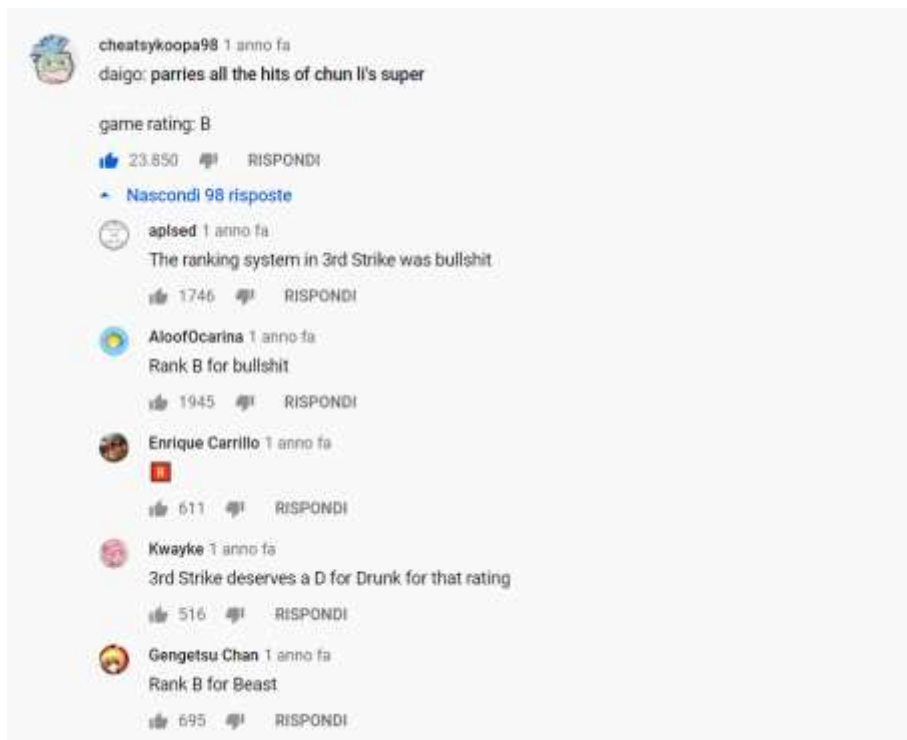
Secondly, the channel describes this fight by saying that the specific matchup, in other words the selection of characters of Ken against Chun-Li, was something that "both players knew in and out" (min 1.48). Now, as we have seen since the combinations are potentially infinite, this underlines the importance of pragmatics both for the spectators and the players: interpretative inferences can indeed be made on the basis of the game pragmatics/economics, this what a basically "known match-up" means. Pragmatics which are absolutely explicit for the players and which are far from being perfect. In fact, in the comments¹⁹⁹ of the original video it is possible to see how viewers are making fun of the very evaluation system of the game which gives to Daigo only a "B" for his win.

¹⁹⁶ The Top 10 Impossible Tekken 7 Comeback Rounds <https://www.youtube.com/watch?v=7XtdUJLsGQI>

¹⁹⁷ <https://www.youtube.com/watch?v=eoAGXIDEXkw>

¹⁹⁸ <https://www.youtube.com/watch?v=klaWV-szmnY>

¹⁹⁹ Screenshot taken in the day 01/11/2020



Thirdly, we can see that both during the interviews and the description of the fight there is a quasi-total overlap between the empirical player and the character in virtue of what we called a mirrored narrativity:

“Known for his skill, discipline and iron resolve, Daigo was feared and respected in the West” (min 1.00-1.06)

“ Any of the hits, even if blocked, would have been enough to knock Daigo out”

Finally, the discourse about the prowess of Daigo is explicitly related to his knowledge of the digital media:

“ Daigo had to perfectly time his parries for all fifteen strikes, which requires nearly frame perfect inputs” (min3.13-3.16)

Where “frame perfect inputs” mean that the players have to press the forward input within a ten-frame window, 1/6 of a second, for fifteen times in a row and exactly at the right moment depending on the specific tempo and pattern of that specific move. Something which cannot be achieved simply by looking at the animation of the hit and requires to know how the both the control pad and the software works. Such technical details are deeply parts of the meaningfulness of moment 37 understood as a real “event”, and we can find a proof of this also in the critique of today’s choice of designers to make “easier games” by “reducing the skill gap”²⁰⁰

²⁰⁰ Analysis: The Consequences of Reducing the Skill Gap : https://www.youtube.com/watch?v=iSgA_nK_w3A

These four points highlight all the previous claims we have made in this chapter, explaining in what sense a text such as *Street Fighter 2* has values and can be considered a narration but requires a very specific approach and perspective, grounded on cognition and mathematics as much as in literature, to be understood both as a text and as an object of cultural relevance. Additionally, it shows how such inquiry must include both the text and its productions as well as its interpretations. But more than that, the moment 37 also highlights, from a discursive point of view, how the innate epos of digital media can give birth, in virtual realities, to some very specific utopias. In the specific case of *Street Fighter*, especially the one of *Authorship* and *Body*

5.2 The economic meaningfulness of fire in *Dark Souls*

Question: Does the time and effort required to finish a game like *Dark Souls* has anything to do with its explicit narration and theme? More generally speaking, is it possible to highlight a direct correlation between the meaning conveyed through linguistics means (words, pictures, sounds) and the mathematics ruling the gameplay of a game like *Dark Souls*?

5.2.1 Darkness & hardship between narrative and gameplay

Dark Souls is a 2011 action Role Playing Game from FromSoftware that is famous for its suggestive narration, sinister aesthetics, strong orientation toward action and for being particularly hard and punishing. Its success gave birth to the term and genre of “soul-like” to indicate all the games with similar characteristic (one of the most recent example can be Hellpoint²⁰¹, 2020)

The darkness of the narrative and the symbolic importance of fire can easily be understood already from its prologue²⁰²:

“In the Age of Ancients, the world was unformed, shrouded by fog. A land of grey crags, archtrees, and everlasting dragons. But then there was Fire. And with Fire, came Disparity. Heat and cold, life and death, and of course... Light and Dark. Then, from the Dark, They came, and found the Souls of Lords within the flame. Nito, the first of the dead, the Witch of Izalith, and her Daughters of Chaos, Gwyn, the Lord of Sunlight, and his faithful knights...and the furtive pygmy, so easily forgotten. With the Strength of Lords, they challenged the dragons. Gwyn's mighty bolts peeled apart their stone scales. The witches weaved great firestorms. Nito unleashed a miasma of death and disease. And Seath the Scaleless betrayed his own, and the dragons were no more. Thus began the Age of Fire. But soon, the flames will fade, and only Dark will remain. Even now, there are only embers, and man sees not light, but only endless nights. And amongst the living are seen, carriers of the accursed Darksign.”

In fact, the player will play as an undead bearing the dark sign, which is described in the game as

The Darksign signifies an accursed Undead. Those branded with it are reborn after death, but will one day lose their mind and go Hollow. Death triggers the Darksign, which returns its bearer to the last bonfire rested at, but at the cost of all humanity and souls.

And the main goal of his/her character will be to reach the “Kiln of the First Flame” to either immolate himself to revive the fire or let the “Age of Darkness” and become the “True Lord Of Men”. Lastly, during his journey he will meet with several characters sharing a same fate, and one of the most charismatic and frequently encountered will be named “Solaire”, a character desperately searching for his “sun”:

“I am Solaire of Astora, an adherent to the Lord of Sunlight. Now that I am Undead, I have come to this great land, the birthplace of Lord Gwyn, to seek my very own sun!”

²⁰¹ <https://www.ign.com/articles/hellpoint-review>

²⁰² <https://www.youtube.com/watch?v=yIFzJ3wRgHw>

From the gameplay point of view (how in out terms), like many other games of this genre, this title is based on a common and simple idea:

1. To spatially and narratively progress the player must kill or (if possible) outrun enemies that are progressively stronger and harder to beat.
2. Killing enemies and exploring the virtual world grant to the player rewards that are progressively better (proportionally to the difficulty of enemies) and help him by making his character stronger.

Like most games, the narration of DS1 is based on *a system of effort, improvement and rewards*:

- There are two different kind of rewards: *an infinite and guaranteed* value usually called “experience points” (here resemantised in “souls”) used to directly make the character stronger (example: increasing the number of health points to withstand more hits) and a *potentially finite and inconstant* one called “items” that indirectly makes the character stronger only while consumed/used/wielded .
- Growing stronger progressively require more and more rewards so that the player must always face the greatest danger to easily obtain what he needs to improve his probability of progressing through the world and the story.

Furthermore, like many other games of this genre the difficulty to kill enemies and progress into the world resides in three main factors:

1. *Previous* knowledge of the game (patterns, behavior of the AI and level design),
2. Eye-hand coordination (correct combinations of buttons & right timing),
3. “Build” or Manipulation of mathematical values that are shared both by the player and the enemies (example: the number of hit required to kill or being killed, usually referred to as *health points*, that are represented by a certain number) and are affected by some permanent inner properties of the avatar (i.e the physical strength of a character determining how much he can hurt an enemy) and by the ownership of specific items that, while temporary wielded, influence those values (i.e: a weapon that deal more damage than others).

Whereas the first two factors are strongly affected by the player’s experience and psycho-physical skills, the third one depends on the rewards granted by the system: an experienced player could win the game without any kind of mathematical bonus thanks to his knowledge and sensorimotor skills, while a new player could win the game thanks to all the mathematical bonuses. Differently from what we have seen in Street Fighter, we have here two different economies: one for which the time and efforts of the player are exchanged for an in-game quantifiable benefit/value consisting in an advantageous variation of mathematical values (determining the odds of winning) and a second one for an out-game unquantifiable benefit consisting in the players expertise. This second benefit, corresponding to a pragmatcal one, is of course very different from the first since it requires an act of learning which is, as for any kind of learning, uncertain and cannot be simply “granted”. Of course it is reasonable to think that after a certain number of deaths in a given situation a player would become better and learn, through errors and trials, how to overcome a certain obstacle. But it would be ingenuous to be convinced that a player is in anyway *compelled* to do so: in many case the game will simply be abandoned.

However, differently from other games, *Dark Souls* has three rare features

1. “Souls” can be traded/sold for items (i.e: buying a certain armor with souls), while usually a different value is used in other games (like gold).
2. Players immediately obtain/carry the souls value but can invest/spend it only on few and rare points of the world represented as *bonfires*. These bonfires are also the place where they respawn after dying (check points) and near which merchants gathers.
3. If players are killed while carrying their value they “drop it” where they die, and if they die again before taking it back this value is lost forever.

Given this particularity, in this second case study we will mainly focus on how the core meaning of this game is mainly conveyed through the underlying mathematics of the game.

5.2.2 Enunciation, Transparency & Trust

At the beginning of the game, when asked to create his character, the player is put in front of a system of numerical values related to some names:



As we have seen, what we have here is however only an impression of transparency in a system of relative opacity since:

1. There is no explanation to what these names refer to and are used for in this specific game
2. The player must guess about the above point by both referring to his own *encyclopaedia* and by looking at all the different possible classes so that, for example, “intelligence” refers to the ability in casting spells and has nothing to do with being actually smart or stupid.
3. The player is asked to *choose* a particular set of values (which correspond to the class) without actually knowing what kind of difficulties will be faced during the game and so the actual use-value of these numerical values that have, consequently, only a narrative function. He simply *trusts* the system, believing that any choice may be the right one and that this choice is mainly a narrative one allowing for the player ‘subjectivity and authorship to take place.

From a semiotic point of view, through this screen the subject is therefore *choosing* its competence long before any narrative manipulation. Additionally, the selection of a competence corresponds also to a consequent potential positive performance and sanction (reaching the end of the game) that will partially change some common “ethical” values related to main characters of fantasy storytelling. Will the hero succeed through brute force, wisdom, mischief or faith? It is for the player to decide. This is not only a question of names but also of the very concrete utterances on the screen since the selection of a “class” will somehow force the player to a certain type of gameplay (a sorcerer will fight from afar and will need to carefully time his spell, while a warrior may rush toward the monsters).

However, soon after the game begins, something very specific to the role-playing genre happens by going into the character screen the player will be confronted with a new fact about the system and its values:



The player has indeed now discovered that *each base value actually corresponds to another number*, for example 11 vitality correspond to 594 health points. Here again the system's opacity reveals itself since:

1. The player is not explicitly told how the second numbers are created
2. It is immediately evident that these numbers come from different mathematical rules. Health for instance is determined by a mathematical ratio of 11×94 , while the stamina have one of 12×7 .

These mathematical values then are visually translated during the gameplay in the health (red) and stamina (green) bar:



Once again, it is not explained but it is possible to infer that the 594 points of health then correspond to 4 full red bars of 5 little segments plus the beginning of a fifth one with two segments. Which means that one bar corresponds to 135HP and that one segment correspond to 27 hp. It is important to note here that many players will very likely *not know* this ratio since by playing they will visually understand how much of their HP is lost by being hit by a certain enemy, and so how much dangerous it is. The same goes for stamina since the only important thing to know for the player is how many consecutive hits they can lend, another visually furnished information through the proportion of a bar. Similarly, they can put aside the problem of the relation between strength and damage since the second number, 20, is closer to the actual damage taken by enemy which also have a visual health bar helping the player to understand the actual use-value of this damage. Part of this is also due to what we have defined as the causal transparency since the game also offers both a visual representation of the enemies' health and a numerical value displaying the player's damage.



What we have just seen is interesting since, in some ways, the system looks also very *transparent* when we look at the game from the main visual-narrative level to the non-diegetic screen of the system: a 17 damage dealt on the ludonarrative level corresponds to a 20 point of damage derived from a 13 points in strengths and dexterity applied to that particular weapon which is also numerically described as a having a 20 points base damage and a scaling on strengths and dexterity of E/E.



Yet, very soon the player of *Dark Soul* will fight new enemies and will deal less damage. Since these enemies are represented as enormous or armored, it will be reasonable to guess that enemies also respond to the same system of the game, although their own set of values is not a granted information. Furthermore many item's descriptions are not explicit about their mathematical impact. An example is the Leo ring :

"One of the special rings granted to the four knights of Gwyn. The Leo Ring belonged to Ornstein the Dragonslayer. This ring strengthens counters with pierce weapons. His lugged spear is said to have sliced a boulder in two."

But, finally, the most interesting part comes after the first tutorial section when the player is advised to invest his obtained souls to become stronger by "levelling up".



Indeed, in this precise moment the player can witness that fact that the value will be invested in a not so predictable system. If on one side he can know the exact outcome of its investment (blue numbers), on the other side he has no means of knowing both the usefulness in the short and long term of its investment. This happens for two main reason:

1. The player does not know what difficulties will come in the future, and so if some kind of value should be invested in
2. The player does not know how with time his investment will grow.

Let's make a simple example to clarify this. We have seen before that each points invested in vitality corresponds to 94 actual health points. Thus, a player aware of this ratio would expect to reach a total of 688 maximum Health Points by investing one more point into vitality. However, the actual results is 616 (a total augment of +22), which means that the ratio and rule has changed and could probably also change in the future.

And in fact it will : **Level 13**=638: +22/ **Level 14**=659: +21/ +682: 698: +16 / 719: +21/ 742: +23 / 767: +25 / **(20)** 793: + 26 / 821: +28 / 849: +28 / 878: +29 / 908: +30 / **(25)** 938: +30 / 970: +32 / 1001: +31 / 1034: +33 / 1066 : +32 / **(30)** 1100: +34 / 1123: +23 / 1147: +24 / 1170: +23 / 1193: + 23 / **(35)** 1216: + 23 / 1239: +23 / 1261: +22 / 1283: +22 / 1304: +21 / **(40)** 1325: +21 / 1346: +21 / 1366: +20 / 1386: +20 / 1405: +19 / **(45)** 1424: +19 / 1442: +18 / 1458: +16 / 1474: +16 / 1489: +15 / **(50)** 1500: + 11 / **(60)**: 1588 / **(70)** 1675 / **(80)** 1758 / **(90)** 1837 / **(99)** 1900.

This will be true also for stamina, and with different mathematical proportions:

95-97-98-100-102-104-106-108-110**(20)**-112-115-117-119-121**(25)**-124-126-129-131-133**(30)**-136-139-141-144-146**(35)**-149-152-154-157-160**(40)** and after level forty there is no other increment.

Amusingly, we can compare this situation to a fictional *Monopoly* in which, rather realistically, the player must invest money to buy properties without ever knowing the exact amount of rent that he will earn in the future:

TITLE DEED CONNECTICUT AVENUE	
Rent	M8
Rent with color set	M16
Rent with 	M40
Rent with 	M100
Rent with 	M300
Rent with 	M450
Rent with 	M600
Houses cost	M50 each
Hotels cost	M50 each (plus 4 houses)

TITLE DEED VERMONT AVENUE	
Rent	M6
Rent with color set	M12
Rent with 	M30
Rent with 	M90
Rent with 	M270
Rent with 	M400
Rent with 	M550
Houses cost	M50 each
Hotels cost	M50 each (plus 4 houses)

TITLE DEED ORIENTAL AVENUE	
Rent	M6
Rent with color set	M12
Rent with 	M30
Rent with 	M90
Rent with 	M270
Rent with 	M400
Rent with 	M550
Houses cost	M50 each
Hotels cost	M50 each (plus 4 houses)

Although from the numbers we see an overall rule for which, after a certain level (usually 40), the bonus decrease, there is actually no way for the player of knowing this *before*. Finally, *Dark Souls* present no maps or whatsoever and thus belong to the regime of total opacity from the point of view of the spatial transparency. A characteristic which, paired with a structure of interconnected spaces with multiple possibilities since the very beginning, allows for a deep sense of exploration.

5.2.3 From use-value to semantics

We have seen that the semi-transparency of the system requires a trustful player who invests his earned rewards without having an immediate feedback about his actual gain. He is guessing that whatever the numbers are, they were designed for a balanced experience in a particular part of the game and thus *must* offer some kind of advantage. A guess which is rather ironic in a game presenting on his box the sentence “Prepare to Die”.

But what actually changes after his investment and how to calculate his actual benefit? Does any investment is actually useful? Let's now apply the definition of the use-value to the game mechanic of investing/consuming the earned souls (representing effort and time spent) to make the character stronger (by permanently modifying the mathematical statistics/values).

One usage (and therefore use-value) of statistics is related to the requirements for weapons and shields have mathematical requirements. Generally speaking, weapons capable of highest damage require to have invested many points in one or two entries: the Demon's Great Axe, that has the highest physical damage potential of any weapon in the game, require 46 points in Strength to be used normally. And since killing enemies impacts both the odds of surviving, the way of winning and the narrative progression, we can easily how both items and the mechanics of investing points have a very positive use-value. Yet, since many other factors influences the effectiveness of a weapon (range, speed, stun, combo, stamina consumption, damage type, buff possibilities, special attacks, weight) there is not really a “best weapon” and this value is also an *enunciative/aesthetic one*: statistics allows the player to write different version of the same stories by using different “items” to face dangers.

The values of Strength and Dexterity have thus a very high use value both in terms of effort and enunciation.

But not all statistics are item-related: “Vitality” for example is not a required statistics for weapons and have consequently no such use-value. In this second case the main use-value is thus related to the augmented possibilities of the player to survive (not die) not by killing but by being able to withstand as many hits from the enemies as possible. Once again this also has some kind of narrative and enunciative value: through vitality the players can hope to construct the idea of a protagonist that never falters.

But is the game concretely offering this possibility to the player? To calculate this (reader not interested in the actual math's can click [here](#) for the conclusion) use-value we will then consider the differences before and after the investment in relation to the upgraded function: *vitality is the value with the function of allowing the player to survive* (and thus opposes the end of interaction) to all the situations decreasing the HP of his character, any investment in vitality can then be defined as having a positive use-value when it raises the odds of surviving and expanding the narrative possibilities. This could seem self-evident, but actually this investment can have an effectiveness only under certain conditions. Indeed, a +20 points of vitality allowing the player to pass from 500 to 520 health points, would be totally useless if all the enemies in the world had a minimum damage power of 200 points. And we can now explain this in our own terms: since the mathematical difference would make no narrative difference from the point of view of utterances (i.e.: a character that would die in a certain number of hits before would die from the same number of hits), of interaction-progression (the cycle-game would end no differently), and of effort (the game would not be easier nor harder) then we could speak of a *negative use-value*.

However, since these situations change in relation to the specific areas of the game, we will focus on the case of the very beginning of the game where we have danger such as:

- Being hit by an enemy sword
- Blocking a hit by an enemy (no damage thanks to our shield)
- Blocking a hit with a sword
- Being hit by a grenade
- Blocking a grenade
- Falling from a cliff on a lower ground
- Falling into a ravine (instant death)

So, here is our question: what is the concrete difference between 12 and 13 of the vitality statistic? What the player couldn't do before and the player can do after investing his first souls in Vitality?

To evaluate the actual use-value of a specific increment in vitality we have to look at the amount of earned HP opposed to the amount of damage taken. This damage, however, will also depend on the gear of the character and set of mathematic values, which change for each class. This means that the use-value we will calculate here is only valid for our chosen class: a level 4 warrior and in relation to the specific area. Let's see now the damage output of the first enemies, the clothed undead, considering two of their main attacks (on 4 possible) after which they stop acting for few seconds (allowing the player to heal, attack or escape): a three-hit combo with a one-handed attack and a heavy two-handed attack.

One hand attack (first hit)

Pure Damage (No Armor): 106 HP = 6 Hits (636) for Game Over / Use value of + 22/616 HP = **Negative** (6 Hits=>6Hits)

Reduced Damage (Armor): 67 HP = 9 Hits (603) for Game Over / Use value of + 22/616 HP = **Positive** (9 Hits=>10Hits)

One hand attack (second hit)

Pure Damage (No Armor): 112 HP = 6 Hits (672) for Game Over / Use value of + 22/616 HP = **Negative** (6 Hits=>6Hits)

Reduced Damage (Armor): 71 HP = 9 Hits (639) for Game Over / Use value of + 22/616 HP = **Negative** (9 Hits=>9Hits)

One hand attack (third hit)

Pure Damage (No Armor): 96 HP = 7 Hits (672) for Game Over / Use value of + 22/616 HP = **Negative** (7 Hits=>7Hits)

Reduced Damage (Armor): 56 HP = 11 Hits (616) for Game Over / Use value of + 22/616 HP = **Negative** (11 Hits=>11Hits)

One hand attack (full combo)

Pure Damage (No Armor): 314 HP = 2 Hits (628) for Game Over / Use value of + 22/616 HP = **Negative** (2 Hits=>2Hits)

Reduced Damage (Armor): 194 HP = 4 Hits (776) for Game Over / Use value of + 22/616 HP = **Negative** (4 Hits=>4Hits)

One hand attack (first + second)

Pure Damage (No Armor): 218 HP = 3 Hits (654) for Game Over / Use value of + 22/616 HP = **Negative** (3 Hits=>3Hits)

Reduced Damage (Armor): 138 HP = 5 Hits (690) for Game Over / Use value of + 22/616 HP = **Negative** (5 Hits=>5Hits)

One hand attack (first + third)

Pure Damage (No Armor): 202 HP = 3 Hits (606) for Game Over / Use value of + 22/616 HP = **Positive** (3 Hits=>4Hits)

Reduced Damage (Armor): 123 HP = 5 Hits (615) for Game Over / Use value of + 22/616 HP = **Positive** (5 Hits=>6 Hits)

One hand attack (second + third)

Pure Damage (No Armor): 208 HP = 3 Hits (624) for Game Over / Use value of + 22/616 HP = Negative (3 Hits=>3Hits)

Reduced Damage (Armor): 127 HP = 5 Hits (635) for Game Over / Use value of + 22/616 HP = Negative (5 Hits=>5 Hits)

Two hand attack

Pure Damage (No Armor): 141 HP = 5 Hits (705) for Game Over / Use value of + 22/616 HP = Negative (5 Hits=> 5Hits)

Reduced Damage (Armor): 100 HP= 6 Hits (600) for Game Over Use value of + 22/616 HP = Positive (6 Hits=>7Hits)

Grenade Attack:

Pure Damage (No Armor): 141 HP = 5 Hits (705) for Game Over / Use value of + 22/616 HP = Negative (5 Hits=> 5Hits)

Reduced Damage (Armor): 113 HP= 6 Hits (678) for Game Over Use value of + 22/616 HP = Negative (6 Hits=>6Hits)

Shield Blocking Grenade (Armor): 37 HP = 17 hits (629)) for Game Over / Use value of + 22/616 HP = Negative

Shield Blocking Grenade (No Armor): 42 HP = 15 hits (630)) for Game Over / Use value of + 22/616 HP = Negative

Falling Damage:

Damage (No Difference with Armor): 95 HP = 7 Hits (665) for Game Over / Use value of + 22/616 HP = Negative

The data gathered here may seem terribly boring but are actually extremely interesting since this experiment proves that:

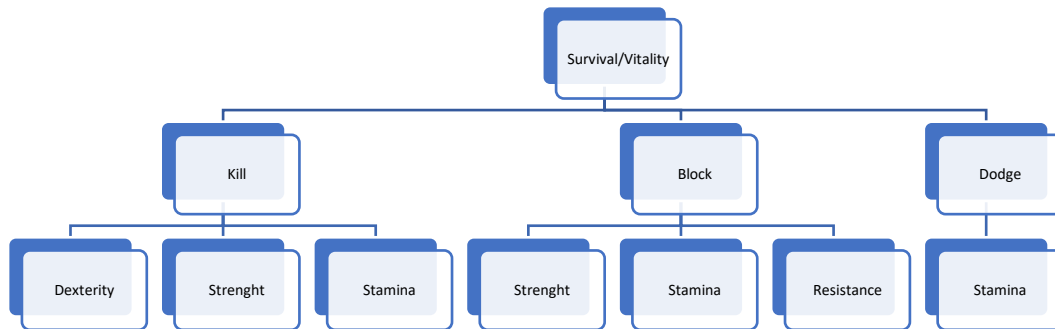
1. In most case the investment makes, on the immediate term, no difference in terms of hits before dying
2. In many case even two levels instead of one, a bigger investment granting the player 638 HP, would still not make a difference (violet numbers)
3. The use value of the items is, at least in the beginning, far superior to the one of the level since with the armor the number of hits increases in all the case. We can see this also by considering the max health possible, which is 1900 at 99 vitality, that would allow us to sustain 18 pure first one handed hits at the cost of 1549372 souls (an entire story mode of around 30 hours), while a score of 255 armor defense, technically available after 10-15 minutes (stone armor) or at mid-game (Havel in Anor Londo), would allow us to sustain 33 hits , or even an early (5-10 minutes) medium armor such as the elite knight with a score of 116 def would grant us the possibility to withstand 12 hits.
4. Without armor, 6 hits is the maximum number of possible non blocked damage sustained.
5. With armor, 7 is the average number of hits sustained, which makes arguably a little difference during an entire time play session.

These facts have a fundamental consequence:

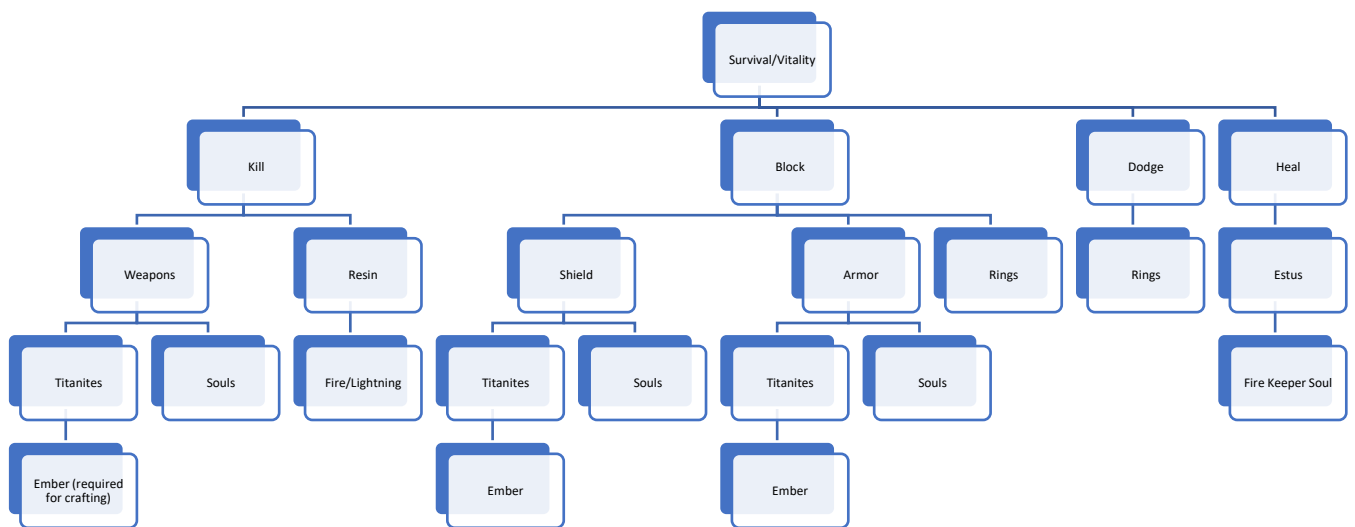
- Since 6 or 7 hits can be sustained in few seconds, and further enemies can even deal an average of 200-300 damage per single hit, the relatively “bad” use-value of health increases other use-value: health potions (named flastus esk), damage to kill the enemies as fast as possible and methods for avoiding direct damage like rolling and using a shield. And since physical attacks, rolling and blocking with a shield requires stamina, the value of stamina is increased. Furthermore, since the shields consuming less stamina to block requires a high amount of strength, the strength value is also determined and increased by the health one.

- Finally, since dodging attacks with rolls is a limited possibility (more or less one more consecutive dodge is possible each ten points of stamina) that consequently requires both a good-timing of the player and a knowledge of the enemies' patterns of attacks, the inner values of the games influence the outside behavior of the player, his emotions (the experience of a hard experience) and values of the game itself.

After these observations we can now outline a use-value hierarchy of *stats* for the “Warrior” class:



This hierarchy can then be put into relation with a second one referring to the names of items required to not die and win the game by spending the least possible amount of time and effort:



As we can see, the semantic entries of the repertory related to the fire and more generally of the light are omnipresent. Or in other words, to get stronger and optimize his odds of surviving the player will have to deal with fire-related items which are both precious because of their use-value and their scarcity since “Embers” and “Fire Keeper Souls” are a unique and finite kind of resources that require a great amount of effort to be obtained. Furthermore, our warrior will also be able to infuse his weapon with various elements, from which fire. A choice which would be extremely wise since most of the game’s more dangerous enemies are actually weak or non-resistant to fire²⁰³

²⁰³ (The final boss Gwin and the other lord Nito, one of the hardest boss fight Ornstein, the Firesage being non-resistant to fire, Gargoyles, and so on)

Finally, the importance of items and upgrades over mere statistics is also allowing for players of different classes, specifically of the “magic ones”, to experience the relevance of “fire” through the unique possibility of using only items and spells from the school of *pyromancy*. Indeed,

“The damage of pyromancies is determined by the spell and the power of the Pyromancy Flame, which can be upgraded and ascended to provide a greater output of damage. It is worth noting that although the Pyromancy Flame's stats seem to imply that it scales from Intelligence, this only applies to the damage dealt by its physical fist attack. Although Intelligence does not affect pyromancies spells directly, Pyromancies are still classed as Sorcery, and as such will benefit from the damage modifiers of items such as the Bellowing Dragoncrest Ring.”²⁰⁴

The “Pyromancy Flame” is an item that needs²⁰⁵ souls and interactions with specific characters located in the world (thus effort to reach these places) to be upgraded and ascended. Similarly, spells are bought with souls from specific merchant. The result is that it is perfectly possible to beat the game of Dark Souls without ever spending one point to upgrade a statistic, thus being at “level one”, and furthermore players doing so will also end up in being extremely strong.

The acknowledgements we have made (that might have look more interesting for game design than semiotics until now) highlight some very important features of digital games and interactive narration:

1. In these texts *semantic values* have a pragmatic nature deriving from interaction
2. The mathematical values are at the heart of the narration and meaning since they determine the possibility of any enunciations to manifest
3. The mathematical values at the base of the narration are *relational*
4. The central value (equivalent of Greimas Ov) is survival which corresponds to the possibility of continuing interacting and of producing utterances
5. The meaningfulness of these texts depends on the possible *endogenous fluctuation of the use-value* (different areas of the game, different types of enemies, different classes, different mathematical ratio at different levels).
6. The internal and fictional use-value have deep consequences on the experiential level outside of the text by determining a player state of mind

In brief: The importance of the symbolic element of fire in dark souls depend on the difficulty of surviving and therefore on the superior use-value of items in terms of survival, items which requires object of the game which are semantically related to fire (embers, bonfires, etc.)

²⁰⁴ <https://darksouls.wiki.fextralife.com/Pyromancies>

²⁰⁵ <https://darksouls.wiki.fextralife.com/Pyromancy+Flame+%28Upgraded%29>

5.2.3.1: Fire & humanity

So, we have already said and seen that items such as weapons have a positive use-value by increasing the possibility of surviving and progressing. More generally speaking, most items, both consumables and not, can be categorized as effective in relation to an increase of damage **or** by decreasing the loss of the player's HP. Yet, some items are somehow different like the "homeward bone" consenting the player to go back to a bonfire without the risk of losing the carried souls. Among these special items, one in particular is extremely interesting from a semiotic point of view: *humanities*. Since the introductory video, the narrative theme of Dark Souls is the related to the end of an era of "light" and the raise of an era of darkness that is implicitly associated with humanity (the lore of the game is actually complex and we will not enter into details here).

But is "humanity" following the same rules of semantic meaningfulness in relation to the particular use-value system as we have seen with fire? Yes it is. Indeed, the relevance of humanity can be seen by looking at the consumable items called humanities that are used to:

- Augment Item Discovery (Scarcity countermeasure)
- Augment Defense (Easier Survival)
- Augment Curse Resist (Easier Survival)
- Augment Bonfire number of Flask (Easier Survival)
- Augment Damage (Easier Kill)
- Allow NPC/Player Summon (Effort Gain – Anthropological Value)
- Allow Shortcut (Time Gain – Effort Gain)
- Related to Pyromancy

As we can see, humanities are the only item of the world covering by itself *all of the use-value functions*. Additionally, humanity is strongly bounded to the central isotopy of *fire* which also has a fundamental use-value since it represents the only safe zone for the player and at the same guarantee the *infinity of the resources of the game*. Lastly, humanities allow for players to create a unique form of fire-based damage which is superior to almost any others:

"The Chaos path adds Fire Damage to a weapon, but removes all stat scaling bonuses. This makes it a good choice for lower levels. However, Chaos cannot be augmented. This, along with the lack of stat scaling, ultimately means that Chaos weapons have an inferior damage potential in the long run. Uniquely for weapon upgrade paths, the Chaos path scales with humanity (up to 10). At 10 humanity, Chaos weapons are superior to Fire weapons (and, indeed, nearly all the other weapon paths in terms of raw damage) that are upgraded to the same level. However, they are inferior if the player is lacking in liquid humanity."²⁰⁶

In virtual realities semantic relevance is then directly related to the use-value and, as we will see in the next paragraph, to labor value and scarcity.

²⁰⁶ https://darksouls.fandom.com/wiki/Chaos_upgrade_path

5.2.4 Labor-Value & scarcity

In the last section, to claim that the defense value had a better use-value than health, we already introduced the dimension of temporality by comparing the amount of time needed to sustain a certain amount of damage. Time is indeed a central aspect of meaning-making in games, together with effort. Let's see this in detail.

As we have said, one central mechanic of Dark Souls is the possibility of losing the carried souls/experience. But why is this relevant? There are three main reasons related to the three main use-value of this value:

1. Souls influence the mathematical statistics by being used for levelling up
2. Souls are used in shops to buy weapons, shields, rings & armors to increase the statistics
3. Souls are used in shops to buy materials needed to upgrade the items in 2 (further increasing the stats)

However, this explanation is still not enough until we introduce the notion of time. In fact, what souls represent is an actual amount of time *spent to earn them*. What is extremely interesting about this is that, in the specific case of souls, the number of souls by itself means nothing. Since the souls earned at the beginning of the game and at the end are the same value and have the same use-value, what actually changes is only the amount of time needed at a certain moment to have them. Accordingly, there is actually nothing preventing the player to repeatedly kill the first and weakest enemies of the game until he reaches the average level (80) reached at the end of the game, thus becoming very strong. The only "thing" preventing this is the actual life-time of the player and its boredom! Indeed, to reach level 80 the player needs 1019240 souls, and the first 5 weak enemies grant him 60 souls each and requires more or less one minute to be killed (5-10 seconds each) as a group. Thus 1019240 souls at the beginning of the game have a *labor-value* equivalent to:

- 16.988 single enemies repeatedly killed
- 3.398 groups of five enemies killed
- 56 hours of play/work

The labor value is even bigger since to obtain this number of souls the player must do a repetitive and monotonous task opposed to the same value of playing itself (curiosity, unpredictability, the manifestation of different utterances, etc...). Furthermore, later in the game, when stronger enemies will drop more than 1000 souls each (The equivalent of 17 weak enemies) the value itself of "1000 souls" will totally change since it will correspond to a totally different amount of time spent.

But time is not the only factor that matters in determining the labor-value. Around 15-20 minutes after the beginning of the game the player can face the first boss, the Taurus demon, that will grant him 3.000 souls and can be defeated in few minutes (1-4). These 3000 souls, however, have a totally different effort value since:

- To reach the Taurus Demon the players must face/outrun multiple enemies
- To reach the Taurus Demon from the nearest bonfire a certain amount of time is required
- The Taurus Demon can kill the player in 3-4 hits and has 1,215 HP (requiring around 15 hits to be killed with the starting stats and gear of our class)

This highlight the importance of the cognitive efforts in determining the labor value which can be interpreted as:

$$\text{Time} * \text{Effort} (\text{Skills} + \text{Knowledge} + \text{Risks})$$

We can now better understand why losing souls is something that matters so much: it is not only a narrative matter of “not going on”, not only an enunciative matter of “repeating the same enunciates again and again” but it is a waste of the actual time and energy of the player.

Effort and risk are also central for the concrete interactions of the game. Indeed, if we look at the use-value of the damage value we can see that his function is to kill the enemy as fast as possible, with the minimum of one hit. Indeed, weapons have four different damage output (one hand r1, one hand r2, two hand r1, two hand r2), based on the **risk** taken to perform such attack:

- Attacks made by pressing R1's are faster,
- Attacks made by pressing R2's are slower but stronger
- One handed attack allows for a fast guard with the shield,
- Two-handed attacks allow for more damage but leave the player without the possibility of using a shield right after their attack.

Of all the four attacks, only the 2HR2 allows the player to defeat in one hit (1HR1:40-1HR2:69-2HR1:65-2HR2:84) the Clothed Undead (70HP). But none of them are sufficiently strong (1HR1:31-1HR2:59-2HR1:56-2HR2:73) to kill in one hit the Armored Undead of the same zone. However, beside the four main attacks there are other ways of increasing the damage:

- Counterattack: Hitting the enemy while he is attacking but before his hit lands or hitting the target immediately after having blocked with the shield one of his attack and unbalanced it
- Parry: Using the L2 button to use the shield to stop the attack immediately before being attacked, which require perfect timing and knowledge of the patterns, and that if failed put the player in an extremely vulnerable situation since he will fully take any damage

Now, if we look at the damage made by a parry we see that the number is 160, more than twice the strongest possible “normal attack”. This prove very well not only the presence of a common “high risk – high reward” mechanic, but more specifically that the sensorimotor skills and the memorization of patterns, which are a very specific kind of *effort*, have the highest possible value as interactions.

Nevertheless, there is one more factor that we need to consider about the labor-value: *scarcity*. Until now we have considered an *infinite* value of the world that the player is *guaranteed* to obtain when killing a foe. But not all the rewards in the game are like souls, on the contrary items usually fall into different categories based on:

1. Quantity Available: Finite / Infinite
2. Odds of Availability: Guaranteed / Probability
3. Time of Availability: Early Game / Late Early (Blighttown) / Mid Game / End Game
4. Area of Availability: Storyline (Main Path / Hidden) / Optional Area (Main Path / Hidden)
5. Mode of Availability: Kill (Weak Mob – Strong – Boss – NPC) – Exploration – Quest - Special
6. Price of Availability: Buy (Expensive-Inexpensive) – Trade (Expensive – Inexpensive) - Neither

To understand how this relate to the use-value and labor-value we will look at the case of titanites. First we need to know that weapons deal damage in relation to:

- Enemy statistics and resistances
- A base damage
- A “scaling” damage which augment in relation to specific values

Titanites are materials used to improve both the base damage and the weapon scaling and can be used fifteen time (from +1 to +15). From +1 to +5 titanites *shards* are required, from +6 to +10 *large titanites shards* are required, from + 11 to +14 titanite chunks are needed, and finally to bring the weapon to +15 a titanite slab is necessary. Finally, two special items are also required: the Large Ember and Very Large Ember.

- *Titanite shards*, a material used to upgrade weapons to +5 (on a maximum of +15) that can be bought for 800 souls or “farmed” by repeatedly killing enemies such as Balder Knights that have a **21% chance** of “dropping” them. Both the knight and the merchant can be found in the first area of the game.
- *Large Titanite shards*, the material used to upgrade weapon to + 10, can be bought only in the mid game (Sen Fortress, Anor Londo) for around 4000 souls, and **have a 2% chance** of being dropped by Slimes and **5% chance** of being dropped by Giant Leech, both **weak** enemies of the late early game. Few of them can also be **guaranteed** by finding them inside treasure in the late early (Depths, Swamp) and mid (Sen Fortress) game.
- *Titanite chunks*, a material used to upgrade weapons to +14 (on a maximum of +15) **that cannot be bought** have an **8% chance** of being dropped after defeating a Darkwraith or Giant Sentinels (**strong** enemies of the mid-late game) but are also **guaranteed** to drop from unique/rare enemies **that will not respawn** such as the Dark Knight in Undead Burg.
- Finally, the Titanite Slab (used to upgrade weapons to +15) that **cannot be bought** and have a **0.21%** chance of being dropped by Darkwraith but **three** can be **guaranteed** after doing some specific events: returning to the asylum and defeating the **boss**, finishing Catarina’s Quest (involving reaching **end-game and optional area**) and going to the DLC **in the area of an optional and final boss**.

It is evident that improving the weapon is gradually harder because the required materials **are gradually rarer** and thus require **more effort and more “work-time”**. The material scarcity is then consequently the factor that increases the narrative value and, in this specific case, will also correspond to a higher use-value.

Indeed, by using only souls (a common resource) to augment the damage of a weapon by increasing the levels we will obtain (*Enemy: Clothe Undead*):

Weapon: Longsword ; Character Stats: 99(STR)/99(DEX):

Damage: 1H-R1: 105/ 2HR2: 158

While by using a +15 sword with the starting level we would have:

Weapon: Longsword+15 ; Character Stats: 13(STR)/13(DEX):

Damage: 1H-R1: 171/ 2HR2: 294

This is true also for the humanities since consumed humanity (which gives the human form to the character) is the only resource in all the game that is immediately lost forever after dying and cannot be recovered. Furthermore, humanities cannot be bought and are usually rewarded after beating bosses which represent potentially the highest grade of effort and of rarity since they do not respawn. Humanity is then narratively important not only because of its high use-value but also because it's extremely *fragile and* apparently *rare*. We say apparently since, actually, more experienced players will discover ways of “farming” (obtaining through boring repetitive tasks) them²⁰⁷. Yet, despite this possibility they still maintain all the other properties and therefore their narrative importance.

²⁰⁷ <https://darksouls.wiki.fextralife.com/Humanity+Farming>

5.2.5 Mathematical determinism and free interpretations:

Until now our textual analysis has highlighted the very pragmatic reasons behind the meaningfulness and importance of fire and humanity in Dark Souls. However, this should not be mistaken with the idea that this game is a text which cannot but be interpreted as a somehow serious and tragic story around the symbolism of fire in a fictional world devoured by darkness. Most importantly, our focus on some of the virtualities of the game (melee focused characters and pyromancers, the usage of fire or chaos upgrades) should not be interpreted as a proof that all the other possibilities given by the game are so inconvenient that they are actually false choices. On the contrary, one of the reason behind the success of the game is without a doubt the great amount of combinatory possibilities, in terms of physical appearance statistics items paths player's actions and AI reactions, which led on the one side to a multiplicity of utterances creating texts which are sensibly different and on the other to a great sense of freedom, experience (both in terms of first-person loss and discoveries) and belonging to a community of dedicated players (also due to the semi-opacity that we have highlighted) which shared a certain emotional experience in this particular virtual world and which have devoted time and effort to pierce the secrets of such a punishing game. The result of this can also be seen in the production of a notable amount of YouTube videos based on the game with very often millions of viewers (between one and ten) and which are particularly interesting for us. In this last section we will focus on four different types of them:

The first type of interpretative productions consists in a series of videos which are about showing ways to be extremely and unbelievably strong both against other players and the game itself. So strong that the strongest enemies of the game are killed in one single hit or cannot seriously harm the players. Some examples are:

Dark Souls : How to make Giantdad : https://www.youtube.com/watch?v=EQD_QoZt-AY

HE'S BACK : <https://www.youtube.com/watch?v=oyA8odjCzZ4>

Dark Souls: Low Level One Shot Boss Challenge :
<https://www.youtube.com/watch?v=LWVloxk6p-I>

Dark Souls In 1 Hit : <https://www.youtube.com/watch?v=ONapMBuOz2Y>

There are several interesting thing about this. First, in both cases either pyromancy or chaos infusion is used. Secondly, semiotic figures are created by the players from the explicit semantic of the games: the item “mask of the father” and the item “armor of the giants” are both equipped to a character which becomes ironically “giant dad”. Thirdly, the giant dad “build” is based on one of the value that we described as “relatively negative by itself” which is vitality, thus showing how the combinatory possibilities are a key factor in the multiplicity of meanings. Finally, the second “one-shot” video is in some cases using a glitch, and precisely the one of weapon swapping, to create unbelievable damage without using anything related to fire or humanity. This is where the digital nature of virtual realities can further destabilize the meaning and possibilities of a text.

The second type of video is related the idea of making the game even harder than it is, thus playing with the use-value of the system and intentionally increasing the effort and time required. The best example of this can be seen in the idea of finishing the game with the worst weapon possible:

THE DARK SOULS EXPERIENCE: <https://www.youtube.com/watch?v=3OD9Qjta5q0>

Or playing with the self-imposed rule of never taking any hits:

Dark Souls Trilogy - No Hit Run: <https://www.youtube.com/watch?v=o-JMc7Ug9vs>

And we can also find other example such as players playing without modifying their statistics and without using pyromancy:

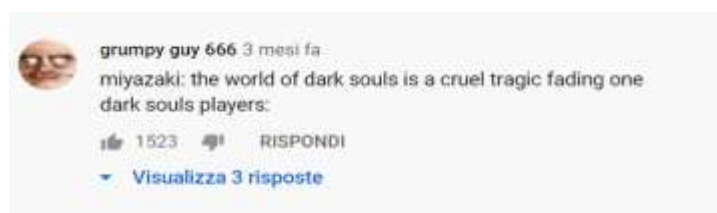
Soul Level One: How to Survive Your First SL1 Run in Dark Souls (Without Pyromancy) :
<https://www.youtube.com/watch?v=Ra3JLNAbVY0>

In all these cases what is extremely interesting is seeing how the multiplicity of the system's enunciative possibilities, including the one that we could have deemed as "bad choices", allow for a multiplicity of narrativity of the players which can choose their "own" goals. Finally, a third type of videos consists in both walkthrough of famous Youtubers and cartoonish parodies. What these two types of videos have in common is the fact they are using a dark narrative and punishing game to create ironic and parodic texts. Thus showing once again how the actual interpretation can always exceed any pure textual reconstruction and also the peculiar playful nature of virtual realities for which time and effort, which are certainly the most precious resources in our life, can nonetheless be *played* with and can be happily exchanged not in terms of victory but in terms of emotions (from laugh to anger), enunciation (the importance of the player's *own* story) and memories which will derive from a particularly hard experience. Here are some notable examples:

DARK SOULS #1 - Prepariamoci a morire (Yotobi) :
<https://www.youtube.com/watch?v=W6mD4bZfzvI>

Dark Souls - Part 1 (Pew di Pie): https://www.youtube.com/watch?v=Y6mO4n_A6Dc

When you go dark souls with your best mates :
<https://www.youtube.com/watch?v=bzJDimvPW1Y>



208

Dark Sauce (Dark Souls Parody): <https://www.youtube.com/watch?v=6M9ONL6BcbU>

In conclusion, we hope to have demonstrated how a rigorous textual analysis of virtual realities, made by taking into consideration not only the enunciative possibilities (the *what*) but also the mathematics of the game as well as the effort and time required by the players, can be used to understand the textual productions and interpretations circulating in our culture and born from the player's creativity and playful attitude.

²⁰⁸ Screenshot taken on the 08/11/2020

5.3 The Sensorimotor metaphor of brotherhood in *Brothers*

Question: Is it possible to find a sensorimotor cause behind the emotional and narrative meaningfulness of a given virtual reality?

5.3.1 : Input-based storytelling

As we have done with the other case studies, we will first if all look at the story which is the more explicit and unambiguous part of the text. *Brothers: A tale of two sons* tell the story of a beloved widower father falling sick and his two sons going on a dangerous voyage to save his life by finding a miraculous water. These brothers are in some ways the opposite: while the youngest is reserved and fragile the oldest is bold and strong. Something which is also visually represented by their different appearances:



During this journey they help each other to face many dangers and also to help many creatures. At the end of their journey the older brother falls in love with a girl that turns out to be a monster and captures them. They succeed in freeing themselves but have to face this monster, and during the fight the older brother dies to save the younger one. Finally, the younger makes it in time to go back to his home and save the father, and the story ends by showing the father and the younger brother praying on the graves of the older brother and of the mother/wife.

The story itself is good but not so original, and we can find in it also references to other famous tales (like Jack and the Beanstalk). But it is when we ask ourselves *how* the games tell this story that this text becomes a very interesting object of study. Indeed, the gameplay requires the two brothers to cooperate for solving problems and therefore to progress through to the story, a cooperation which has a sensorimotor dimension that will be examined in detail.

5.3.2 How to play, how to mean

In *Brothers* a single player must control the two main characters from what could be described as top-down third person perspective:



To control their movements in space and actions separately the players must, whether playing on a keyboard or with a joystick, use both hands simultaneously and in a somehow mirrored pattern given the particular mapping of keys:

Interazione fratello maggiore	Space
Fratello maggiore in avanti	W
Fratello maggiore a sinistra	A
Fratello maggiore indietro	S
Fratello maggiore a destra	D
Interazione fratello minore	R. Ctrl
Fratello minore in avanti	Up arrow
Fratello minore a sinistra	Left arrow
Fratello minore indietro	Down arrow
Fratello minore a destra	Right arrow
Ruota visuale a sinistra	L. Shift
Ruota visuale a destra	R. Shift

Indietro



However, the creative director of the game has explicitly stated that:

“You can play with a keyboard but that would destroy everything with the game. It's really extremely important that you use a controller.”²⁰⁹ Something which is reminded to the player both in-game and on the digital stores. For our analysis we will thus use the joystick mapping and look at the very first section of the game.

At very beginning, the player learns to make single action by coordinating the effort of the two brothers. This coordination is however very concrete from a sensorimotor point of view since the player has to press and hold two different inputs, left and right trigger, with his two different hands but simultaneously.



²⁰⁹ <https://www.digitalspy.com/videogames/a464326/brothers-should-be-played-with-controller-on-pc-says-creator-josef-fares/>

This will allow both the brothers to *hold* the cart by *holding* the two triggers with his indexes (hence a typical case of hyper-iconism), then to move it the player will need to coordinate his thumbs to direct the left and right analog stick in a same direction.

It is interesting to note that:

1. The cart can also be moved by only one of the brothers, but it will move very slowly, thus both visually and concretely representing a higher degree of *effort* required.
2. By pressing *opposed directions* of backward and forward, the cart will *not move*
3. To move the cart up and down the analog sticks can be moved in opposition, thus one up and the other down.

Then, immediately after the player must activate a lever to cross a bridge, however only one of the two brothers can do it. Consequently, the control moves to only one character, thus one analog and trigger, and a different *competence* is attributed to our subjects.



Once the bridge is crossed, the layer must then move separately each player under a broken ladder. Here, what is interesting to note is a *difficulty* in coordinating the movement since, as in the screenshot, the player may have to move the character on the right with the left analog and vice-versa.



Similarly to the cart interaction, to move the elevator the player must simultaneously hold the triggers and, in this case, make a circular movement with both analog sticks.



Finally, when reaching the water the player must hold the right trigger (younger brother) to hold the older brother who is the only one who can swim since the younger is scared of water.



Of course these are only the first few minutes of the game, but they are already enough for our purposes since we have already seen:

1. How primitive actions trigger sensorimotor metaphors and cognitive tasks
2. The relationship between effort and interaction as a valorization of coordination
3. The dependency between narrativity, narration, mechanics and mapped inputs.

In the next and last section we will now reflect on how these characteristics can become a metaphor of brotherhood and how such concept can be experientially conveyed.

5.3.3 Embodied semantics through performative valorization

To sum-up the previous description we can say that in *Brothers* the player sees the two brothers through a single-inclusive third person camera from above and controls both the characters at the same time by moving the two joysticks in both similar and different directions and is therefore facing a cognitive and motor difficulty: the need to coordinate ourselves to do the same things with the opposites hands (and cerebral hemispheres) of a same body & mind. What we have here, in both cognitive and sensorimotor tasks, is precisely a metaphor and interpretation of “brotherhood” in the terms presented by the game. Indeed, brothers are at the same time:

- Two but one
- Unique and alike
- Opposite and similar
- Diverse and complementary

And the cognitive and motor efforts to “coordinate” such a diversity for making it act as one is metaphorically a way to express both the value and difficulty of being brothers. Through the gameplay the story of the player’s experience is one with the story of the game: his tasks and difficulties are the same of the brothers. This also explains very well the psychological and emotional “trauma” that occurs when the gameplay changes at the end of the game since, with the death of the older brother, the younger one must swim by pressing both the right and left trigger. So, as we have seen in *Ico* (2001), the loss of a sensorimotor pattern corresponds to the loss of the character and has an emotional equivalent in terms of absence. An impact that has also been noted in other works before ours (May & Bizzocchi & Antle & Choo, 2015). Lastly, it is very important to highlight that this possibility depends on text as a whole thematizing brotherhood on many levels (from the title to the story and the arts) and cannot be merely explained by the mechanics of controlling both character at the same time through a controller : a good example of this can be *The Adventures of Cookie and Cream* (2000). The explicit narrative and content, since the title, opens up an encyclopedic section under which the inputs become meaningful signs. What is extremely interesting is to note that the “how” of the meaning is not about the dictionaried idea of brotherhood as a specific kind of relation between two (or more) human being belonging to a same family (essential property belonging to the foreground). On the contrary, it is related to the encyclopaedical and narrative concept of brotherhood characterized by: three key themes and features:

1. Similarity
2. Difference
3. Sharing

Brothers are *alike* as explicit in any definition of the dictionary (<https://dictionary.cambridge.org/dictionary/english/brotherhood>), yet they are also *different* up to the point of being often in *conflict* (from Cain and Abel to Romulus and Remus and Susanoo and Amaterasu) and they also have to *share* a common place and what is gifted to them by their parents (which in narratives often led to conflict). These three key themes and features are both directly related to the full complex meaningfulness of “brotherhood” and at the same time abstract and general enough to be individually represented in several ways and especially through the referential competence of the “reader”. To understand the specificity of virtual realities we must however distinguish the means by which such semantics and meaning of “brotherhood” can be represented.

On the one hand we have the linguistic elements represented on the screen through syntagms of significant which can acquire meaning through all the dimensions, thus also the non-linguistic one, of Patrizia Violi's semantic theory. Furthermore these lexical units are experienced in the context of the story. Similarity, difference and sharing are thus explicitly represented by the narration (in which brothers cooperate, have different skills, argue and share the same narrative role) and several elements of their aspects (the blond hair and the brown hair represents their different personality while their faces are similar in virtue of their genetic belonging). On the other hand, and this is the heart of our proposal, we have the non-linguistic elements which are absent from the screen but, as we will see later with cognitive theories, are present to the mind of the player, also in a linguistic form, because of the interactions required to play and progress through the story. To play, the player must coordinate the two *different yet same* joysticks controlled by the *two different yet same hands*, thus making the cognitive effort of *communication* and *coordination* between the right and left cerebral hemisphere aimed to motor action. Furthermore this motor action is also part of the cognitive tasks related to the explicit rules of the game for which the character must solve puzzles by controlling *two different characters at the same time* to perform different actions aimed toward a *common* goal (such as opening a gate). While we have no difficulty in thinking that the content conveyed by the game depends on the linguistic and narrative part, our claim is that the non-linguistic content represented through interactions (guided by the game's rules) has also a main part in the semantics of the game. Specifically, we argue that such cognitive content is integrated with the verbal one and can be associated with the topic of brotherhood since the interactions represent some elements which are condensed in the lexical units of "brotherhood". This occurs at two different levels:

1. In the isolated context of the sensorimotor program of action, abstract lexical entries are represented by using the player's perceptive referential competence and basilar cognitive process of categorization. We of course do not have access to such lexical content, but we can guess that it will take abstract forms coherent with the actions and instructions: *coordination*, *combination*, *right+left*, *both*, *same*, *opposite* and similar terms are very likely to be present to the mind of the player so that the correct motor instructions can be executed to play as we have seen in the work of Andy Clark. This content will be constantly repeated creating therefore, in semiotic terms, an *isotopy*. In this first context, due to the kind of semantic aspects activated, meaning is very likely to be stable since to perform action into the world the standard meaning of the entry "left" is the most common one. In this sense these conceptual entries, even if taken together, does not mean anything more than what they are supposed to mean.
2. At another level, however, the gameplay occurs at the same time of the verbal content and is contextualized by the whole text. This allows for these basilar lexical entries (we could almost talk of semantic primitives) to be associated through frames and scenes in a more complex way to the main topic of the game and to activate all the possible inferences. In this sense, "brotherhood" in a digital game such as this one is experienced in a particular richness depending on the different semantic processes involved in its representation and of the context of interpretation. In fact, it is only through the interaction that for example the player can subjectively experience a *failed coordination* with the related feelings of disappointment, fatigue, anger, discouragement or frustration. Ultimately, it is because of this level that a game with the same mechanics, or the same cognitive tasks undertaken in the physical world to act in our "real life", would not mean nor represent "brotherhood" by themselves.

These two levels, finally, have an important role in the player's semiosis and are determining what is perceived as the experience of a given virtual reality which in this specific case is metaphorical experience of brotherhood as a clear positive value.

5.4 Seeing intersubjectivity in *Everything*

Question: *Does the visual language of virtual realities, which long before digital games belonged to cinema, can have a primarily role in conveying a complex idea such as a philosophical perspective about the world? How does the point of view interact with the control of the camera and the control of an avatar to create meaning?*

5.4.1 Allan Watt's view of the world

Everything is a 2017 videogame in which the player can play as almost everything: a camel, an island, a Planck length, a cigarette butt, a galaxy, and much more. Differently from most digital games, the player cannot lose and has no enemies: the only goal here is to explore the procedurally generated virtual world by “embodying” everything that lives in it. This exploration is initially limited by the (partially) randomly attributed starting avatar of the player (an animal), but eventually and gradually the player will be allowed to shift control to any creature or object he meets: a plant he is in front of, the bacteria living in such plant, the planet this plant lives on, and so on. Such exploration and shift of control thus reveal to the player how everything is interconnected on different levels, which is the game's main message. A message that is explicitly based on the quotes and thoughts of the English philosopher Alan Watts (1915-1973). Indeed, we can find in the game both written and oral occurrences exposing five main ideas:

1. Everything is connected and interdependent since we *came out* of the world and we are still part of its constitutive process.
2. We are hostile to the external world because of the «absolutely unfounded theory» that we exist as «ourselves» only inside our skins, but actually we are never the same.
3. «There are no such things as things»: nothing is really separated from something else (thing is just a noun, language is not part of the physic world), space and things are inside a *continuum*.
4. Love, intelligence and beauty is only found in other beings; we can't know ourselves without others.
5. All different points of view we get by changing our level of magnification are correct; conflict on one level is harmony on another (such as it happens in our organism); on one level we are unique while on another « I am you and you are I»

Such view of the world is present since the very title and beginning of the game, and therefore constitute once again a very solid ground for the player's interpretation of the less “obvious” content of the game and consequently also for our analysis. As an example the first “audio file” that can be listened by the players are registrations of Watt's seminars which explains that:

“ I find it a little difficult to say what the subject matter of this seminar is going to be, because it's too fundamental to give it a title. I'm going to talk about what there is. Now, the first thing, though, that we have to do is to get our perspectives with some background about the basic ideas which influence our everyday common sense, our fundamental notions about what life is about. Ideas of the world which are built into the very nature of the language we use, and of our ideas of logic, and of what makes sense altogether. And these basic ideas I call myth, not using the word 'myth' to mean simply something untrue, but to use the word 'myth' in a more powerful sense. A myth is an image in terms of which we try to make sense of the world.”

“ You, as a human being, you grow out of this physical universe in exactly the same way an apple grows off an apple tree. So let’s say the tree which grows apples is a tree which apples, using ‘apple’ as a verb. And a world in which human beings arrive is a world that peoples. And so the existence of people is symptomatic of the kind of universe we live in. Just as spots on somebody’s skin is symptomatic of chicken pox. Just as hair on a head is symptomatic of what’s going on in the organism. But we have been brought up by reason of our two great myths—the ceramic and the automatic—not to feel that we belong in the world. So our popular speech reflects it. You say ‘I came into this world.’ You didn’t. You came out of it. You say ‘Face facts.’ We talk about ‘encounters’ with reality, as if it was a head-on meeting of completely alien agencies. And the average person has the sensation that he is a someone that exists inside a bag of skin. The center of consciousness that looks out at this thing, and what the hell’s it going to do to me? I recognize you, you kind of look like me, and I’ve seen myself in a mirror, and you look like you might be people.’ So maybe you’re intelligent and maybe you can love, too. Perhaps you’re all right, some of you are, anyway. You’ve got the right color of skin, or you have the right religion, or whatever it is, you’re OK. But there are all those people over in Asia, and Africa, and they may not really be people. When you want to destroy someone, you always define them as ‘unpeople.’”²¹⁰

“So we have this hostility to the external world because of the superstition, the myth, the absolutely unfounded theory that you, yourself, exist only inside your skin. Now I want to propose another idea altogether. Billions of years ago, you were a big bang, but now you’re a complicated human being. But so we define ourselves as being only that. If you think that you are only inside your skin, you define yourself as one very complicated little curlique, way out on the edge of that explosion. Way out in space, and way out in time. And then we cut ourselves off, and don’t feel that we’re still the big bang. But you are. Depends how you define yourself. You are actually—if this is the way things started, if there was a big bang in the beginning— you’re not something that’s a result of the big bang. You’re not something that is a sort of puppet on the end of the process. You are still the process. You are the big bang, the original force of the universe, coming on as whoever you are. When I meet you, I see not just what you define yourself as—Mr. so-and- so, Ms. so-and-so, Mrs. so-and-so—I see every one of you as the primordial energy of the universe coming on at me in this particular way. I know I’m that, too. But we’ve learned to define ourselves as separate from it.”²¹¹

Furthermore, these ideas are also explicitly present during the dialogues of the game as verbal occurrences that are not directly presented as belonging to the philosopher:



²¹⁰ <https://www.alanwatts.org/1-4-12-what-is-reality-pt-2/>

²¹¹ <https://www.alanwatts.org/1-4-12-what-is-reality-pt-2/>

The question for a semiotic analysis on virtual realities is if there are specific means used by digital games to convey such a message, and of course explicit verbal messages cannot be accounted as specific. Thus, what we have to look for in the game are non-explicit ideas and representations of *connection*, *likeness within diversity* and *completeness/harmony*. Ideas that we will regroup under the philosophical and cultural concept of *intersubjectivity*, which is the semantic entry that we will try to find at all the different levels of the game.

5.4.2 Performing philosophy through visuals and narratives

In respect to our other case studies, *Everything* is without a doubt a more difficult object of study since

- It presents no traditional narration or whatsoever
- It does not present any condition for winning or losing
- It does not present any particular mechanism of rewards through time and effort

However, by referring to the three main communicative values of virtual realities, we can easily see how a form of narrativity can be found in the progressive acquisition of different skills to act on the virtual world and thus on the production of new utterances. In fact, there are twelve fundamental interactions that are gradually learned in the following order: 1) Moving, 2) Thinking, 3) Talking, 4) Singing, 5) Grouping, 6) Separating, 7) Descending (becoming a smaller thing) 8) Transcending (becoming a bigger thing), 9) Dancing with alike things (giving birth) 10) Reading Thoughts, 11) Grouping with different beings, 12) Transforming into anything, 13) Knowing any thoughts.

As we can see, the mechanics of the game (the *how* of the content) are another explicit way of representing its main ideas and values. Even the logic of Watt's discourse, starting from the common conception of ourselves as a separate individual to critique it by defending a different view for which individuals are both part and made of "everything", is represented by the syntagmatic of the skills which are referred in the beginning to a single avatar and then allow him to manipulate much more and finally to transform into anything.



The final learned interaction thus acts as a form of positive sanction or ultimate reward: whereas at the beginning of the player was separated from this ability, in the end he is rejoined with this Ov. Lastly, the full array of possibilities also correspond to the maximum degree of authorship and manipulation of the digital text since it will allow the player to visually explore all the level of magnification of the virtual world and thus to potentially encounter, transform and control all the things living in it: the player starts as an animal on a planet and then will be able to explore two main higher levels of reality (planetary, galactic) and from here an abstract quantum level and then three main lower “levels” (particle-subatomic, atomic, bacteria-microscopic.

However, to grant further meaningfulness to these mechanics four main strategies are used, each one creating an isotopic layer.

Verbal Strategies:

1. By moving toward other objects and talking to them, the idea of connection and likeness is given by the narrative attribution of common anthropomorphic feelings and cultural scripts (Eco 1979) to objects and creatures of any kind.

Verbal-Visual Strategies:

2. By moving into the world through a third person view but being referred to via the first person we have both a linguistic form of subjectivity and alterity involved through the representation of the screen and the dialogues. Indeed, from a visual point of view there is a non-subjective effect deriving from the augmented perceptual possibility allowing the player to look at his “avatar” almost as a *translucent object*: “being shot through from all sides by an infinite number of present scrutinizes which intersect in its depths leaving nothing hidden” (Merleau-Ponty, 2005, p.79). On the contrary, from a narrative point of view, a classical form of mediated subjectivity is present since this situation could be explained as the one of an external narrator (third person camera above the subject) adopting an inside point of view of a character through an internal focalization.

Ludo-Motor Strategies:

3. By controlling in the same manner, that is with the same interactions, all beings and objects they all share a same greimasian competence and performance (i.e.: a planet and a camel can both sing in the same way).
4. By controlling in the same manner, that is with the same interactions and aspectual recreation of point of view, all beings and objects they can all be considered as a collective actant/subject (Greimas 1970) thus recreating the idea of the coincidence between singularity and multiplicity.

These points are especially interesting since they belong to an implicit and underlying layer of both cultural and linguistic structures guiding the creation of meaning-making. Nonetheless, what we have just analyzed is still mostly ignoring the involvement of a living embodied player and of a human mind. Moreover, it could be argued that these points are somehow vague and could belong to other games which does not have the same rhetorical intent. As a consequence, we have to complete this analysis by looking at the cognitive implications of the gameplay.

5.4.3 Embodied strategies of likeness within diversity

Everything shown until now was based on the premise that the semiotic means of producing meaning depends on linguistic elements (words and visual figures) represented on the screen that depends on a grammatical logic (narrativity) and are independent from the player itself. Now, we need to improve our analysis by considering the impact of a wider array of elements. Specifically:

1. The phenomenological situation of the player in relation to his avatar
2. The inferential activity demanded by the game to have access to the virtual world.
3. The sensorimotor, enactive and embodied involvement of the player.
4. The player's intentionality and enunciative agency

To understand how such features have a critical role in conveying the game's main value we need now to go back at the very beginning of the text. The game begins with the visual representation of a computerized luminescent point in an empty black space. Then soon after we are given the first fundamental instructions to 1) control the movements of the point with the WASD keys (movements automatically followed by a trail camera) 2) manipulate the interactive (non-fixed) camera above the point by using indexically the mouse and 3) to "think" by pressing the X key (and when we do so some questions appear on the screen). While learning these basic controls, the camera progressively moves closer to the glowing point until the moment in which it transform into the eye of an animal and for few seconds the player is no more in control while the camera moves around the animal until stopping in a "fixed" point behind his head, representing it with the already mentioned third person point of view. We are then free to explore the world both by moving our avatar and by manipulating the camera around it: as a camel in a desert in the case of our main and first gameplay session. After taking a few "steps" (in this game animals do not walk but roll!) we can read in the lower part of the screen "you are camel". Finally, we also notice that some elements on the screen look as extradiegetic because of both their different substance of expression and because they are bidimensional. These items belong to three different categories: indicators of possible interactions (such as clouds of thoughts indicating that the player can talk with this particular NPC), signs of previous interactions (such as pink lines appearing after singing) and tools to guide the player's projectuality such as the compass. From here on, the gameplay will be substantially the same and *exploration is going to be the only possible concern* of the player since he must (the task) move in the world to reach new things and trigger new interactions producing both new utterances and new possibilities of interactions.



So, in what sense can we say that the player “is” embodying the camel by exploring the world? We can distinguish between:

Visual Strategies:

- 1) Despite the use of a third person camera which is usually defined as an “objective” or “exterior” point of view (Casetti 1986), the direct control in real-time of the avatar presupposes an intentionality and a prosthetic subjectivity (the player *thinks* and *speaks* through a virtual point of perception looking like an animal) through which the fictional world is seen and discovered in a subjective form close to what can be defined a first-person view. There is thus here a similarity with Buckland considering objective shots as subjectively embodied (2000: 49) from the point of view of the spectator. The camera, and consequently our point of view, is *anchored* to the camel. Furthermore, the player makes sense of the virtual world through a hybrid perceptual and cognitive situation between movies and life, allowing him to make visual-cognitive operations like focusing: “This is because the screen has no horizons. In normal vision, on the other hand, I direct my gaze upon a sector of the landscape, which comes to life and is disclosed, while the other objects recede into the periphery and become dormant, while, however, not ceasing to be there.” (Merleau-Ponty, 2005, p.78).

Motor Strategies:

- 2) Although very basic, the cognitively kinesthetic image schemata (W as the upper key to go up) and the sensory-motor connections required to play also involve a subjective sense of presence into the virtual world.

Task Strategies:

- 3) The written verbal questions are in first person and, although related to the fictional subject represented, can also be interpreted as regarding the empirical player and his own present experience. Indeed, questions such as “Where I am supposed to be going?” or “Where I am?” make perfectly sense also outside of the narration since the player is visually immersed into a space and need to concretely orient himself through its own logical and perceptive capacities. Additionally, each action represented as an utterance is caused by the player’s selection of interactions which constitutes an act of enunciation through which the phenomenological intentionality given to the player can be fulfilled.

These three points highlight how the act of playing enacts non-pronominal figures and forms of subjectivity that belongs to the cognitive activity and sensorial experience. In other words, the prosthetics of audiovisual language and the pragmatics of the activity of playing are activating common cognitive structures of subjectivity and alterity that are not directly dependent on verbal language but which are grounded on every day’s phenomenological and embodied experience of the reader/spectator/player. Most importantly, *the visual motor and logical involvement of the player will be the same for all the “things”*, thus creating once again, although on a different level, a very strong isotopy of likeness and intersubjectivity. Consequently, the transversal attribution of cognitive and perceptive capacities belonging to the player but simulated on different cultural figures of “things” are also a fundamental way for the player to experience a similarity of thought and intents among a represented diversity of beings.

Now this is very important since the shared competence and performance previously acknowledged on the narrative level of *Everything* precisely correspond to shared activities of information processing and perception among different represented avatars: both as a bacteria and as a planet the player will play the game by applying not only the same narrative inferences, but even the same logics by moving in space and by visually interpreting the world, constantly asking himself fundamental questions such as: «What is that?» «How far is that?». Indeed, the player moving in the vast world of *Everything* will use basilar cognitive capacities based on perception and memory that are in many ways identical to the ones used by himself in the real world.

We consequently have two different levels of likeness: the player as a fictional avatar in terms of cognitive involvement (from perception of the world to inferences about it), corresponding here once again to the mirrored status of narrativity in virtual realities, and each different avatar being like others (in terms of competence and control). Concurrently, however, this *likeness* never results in a total immersion or overlapping and is a figure which always occurs together with clear verbal and visual forms of alterity. This alterity is also represented on two different levels: one regarding the player's mediated agency and access to the world and one regarding the different agency and access to the world of the different things.

In fact, what does it mean for a player to be a camel and to see the world *only* from *its* perspective?



If there is such a thing as a common experienced subjective-like form of intelligence and agency that is transversal to all the “things” of *Everything*, then is the diversity of perspectives only a question of figurative representation? Not quite. The reason for this is that at each different “level of magnification”, as in Alan Watt’s philosophy, the virtual environment changes granting both new set of actions and new interpretative possibilities through a same audiovisual and interactive configuration. We can see a very simple but convincing example of this by confronting the case of the camel with the one of the insect and of the pollen.



Each one of these three things not only visually reveals a previously hidden layer of the world but also comes with a different way to act: Camels will roll, while insects will jump and pollen will float. Movement is faster for the camel, slower for the insect and in the case of the camel will occur also by moving up and down. Differences which will therefore also change the way in which the player will understand and act in the virtual world.

More generally, the player is of course never really into the virtual world neither as himself nor as a “thing”. In fact, the transversal logics applied by the player are only applied through prosthetic means and are absolutely dependent on how the players has been put inside an empty position and a virtual world. The player is for example never really orienting himself independently but must always take into consideration tools such as the compass and the very specific visual and physical rules of *Everything's* virtual world. His access to the world's information is substituted and enhanced by different semiotic means nonexistent in his every day's life, such as clouds above the head indicating that they have something to tell him. His own visual knowledge of the world depends on his understanding how to manipulate the camera granting such vision and of the representative rules behind, and so on. Therefore, the real position of the player is not occupying the world as a thing (first-person, subjective, internal) nor as a spectator or puppeteer (third person, objective, external) but is actually occupying an *empty place*. Rather than a metaphor, this can be very concretely seen after grouping with other animals since the camera reveals at its center an actual *empty place* (picture on the right) that is the actual anchored position of the player. In fact, even what we would call as a first-person view can be recreated by moving the camera (picture on the next page).



So what the game offers to the player with the point of view is actually a semantically grounded (the thing represented) empty place filled as a *simulated* first-person subjectiveness allowing him to *see* what his consciousness would *visualize* or what the camel would *know* about the world he is into (in the same way in which the reader of this paper cannot see what is behind her but does not ignore it completely). Truly, subjectivity cannot be reduced to its most intuitive and immediate phenomenological representation (such as the common representation of first-person perspective) and extend far beyond the usual linguistic pronominal dichotomies.

We can thus see how intersubjectivity in *Everything* can be experienced as a question of the player's reasoning and perception that 1) never cease to be the player's own although represented as belonging to hundreds of different things 2) are never truly the player's own but always translated forms through prosthetics enabling him to subjectively experience the figures of alterity represented by the "things" of the virtual world. This highlight how the thinking activity of the player is fundamental to understand the core meaning-making process happening not only on the screen but into the player and in relation with the virtual environment through interactions, perception and agency concretely used to play. Cognitive activity occurring during games, once narratively and semantically grounded, can thus act as a form of experiential rhetoric representing intersubjectivity through:

1. A visual focus on a central empty position occupied during the game by diverse figures of “things”
2. A set of problem-solving tasks and cognitive instruments shared by all the different avatars/things
3. A shared prosthetically access to the virtual environment
4. A set of diverse situations and environment where points 2 and 3 are differently enacted
5. A continuum in the semiosis between a-priori embodied real world knowledge and virtual world.

This acknowledgement on the embodied and cognitive involvement of the gameplay completes the narrative part of the description and can further explain how Everything tries to achieve a way to experience Watt’s main values.

5.4.5 *Everything’s* experience outside of the text?

Allan Watt’s values of likeness within diversity and processual conception of identity have been described as not only a question of explicit narration or narrativity but also experienced through the specific rhetoric of digital games based on the usage of audiovisual language creating meaning as a result of its blending with the task of spatial exploration through control and competences. However we cannot deny that many of the game’s characteristics that we deemed as meaningful can be found in very different games in which we would probably not say so. As a first example, we can find in the role-playing game *The Witcher 3* (2015) almost the same configuration of cognitive embodiment:

	Effect of Closeness & Subjectivity	Effect of Distance & Alterity
PoV Type	Dynamic Manipulable Camera	3rd Person Camera PoV
Motor Interactivity	S-Motor Involvement & Kinesthetic Schemata	Non-meaningful Hardware Mediated Actions (press x to think)
Ludo-Narrativity	Projectuality & Enunciation	Scripts & Reading
Vision	Horizon	Translucent Object



Furthermore, if we look into a game such as *Space Station Silicon Valley* (1998), an action-platform game where the player is a robot chip taking control over the body of a number of different creatures in an alien world, we could find almost the same narrativity.



So, in what measure can we say that our analysis is actually grounded on something solid? If the experiential dimension of Watt's values mostly belongs to the "how" of the game and to its embodied dimension, then it would be very likely to think that both these two last examples also convey, at least to some degree, the same ideas...which is a far from an obvious and intuitive claim. This question brings us to conclude our analysis with two considerations.

The first one, in some sense most disappointing and boring, is that in this thesis, both in the theoretical part and in all our case study, we never endorsed the idea that a given semantic value and entry can be expressed mainly or mostly through a certain phenomenological situation and cognitive enactment, and therefore that the "narrative part" is less important in terms of interpretation and meaning-making. On the contrary, since semantic is by definition instable (Eco 1975:175; Rastier et al. 1994; Paolucci 2010: 369) it is clear that meaningfulness must be grounded and stabilized through the most unambiguous means of communication and signification; unambiguity determined on the basis of the cultural development of societies: which is what the explicit quotes of Alan Watts are precisely doing in *Everything*. The experiential dimension is at the center of this thesis mostly because a given idea represented in a virtual reality can both deepen such idea and grant him a somehow higher truth-value.

The second one, riskier, is that these similarities represent very-well the particular cognitive situation of many digital games involving a simultaneous in-and-out between semiotic forms of first and third person, resulting in an extended conception of body and identity through the avatar of the player. Additionally, even as a *practice* and pragmatic act of enunciation (Paolucci 2010: Ch. 5), the act of playing is indeed intersubjective and thus enacts a form intersubjectivity somehow by necessity. In some sense, Watt's ideas fit naturally well the means through which virtual realities make sense, and some rhetoric may be considered as a particularly fitted for such mean of expression *a priori*. Therefore the importance of considering the texts of virtual realities inside the broader context of digital culture.

5.5 The greatness of the Apollo 11 mission through guts and failures

Question: *How does the texts of proper virtual reality technology use the possibilities of the discourse of virtual reality? And can we apply the methodology previously used for digital games to a product classified as an interactive documentary for VR?*

5.5.1 VR, documentaries and digital games

VR technology is used for many purposes and in different fields, from entertainment to rehabilitation, but one application of virtual reality is (for us) particularly interesting: the creation of edutainment products that let the player/spectator witness in first person some real and often tragic historical events: *Apollo 11* (2016), *Titanic* (2017), *9/11* (2016), *Blitz 1943* (2018) and *Ustica* (2018) are all an example of this. Without any doubts one of the key features of these experiences is the spectator immersion through a first-person perspective in a full 360 degrees audiovisual environment: the immediacy of the multimodal *presence* granted by the “Renaissance of VR” and supposedly able to influence “users’ beliefs, attitudes, and actions at the micro-level” (Murphy, 2017). However VR is far more than an enhanced cinematic experience, indeed many VR “texts” also includes several features that are typical of games: given agency to the viewer, hypertextual structure (Landow, 2006), interactive montage (Nitsche, 2008), combinatory (Bartezzaghi, 2016, 78) and casual elements (*Alea* in Caillois, 1958), a first-person focused experience, the possibility of failing and improving (*Agon* in Caillois, 1958), strong sensations (*Ilinx* in Caillois, 1958), spatial exploration with points of interests, various kinds of affordances and the requirement of a non-trivial effort (Aarseth, 1997). Indeed, the interactivity of many VR products, documentaries included, is actually so common that the “plot vs interactivity” dilemma of digital games (Crawford, 2013, 50) is the main one that constantly emerged during our expert interviews in our period in Sofia.

In the case of VR documentaries this blending can become, however, quite paradoxical. In fact, on one hand they rely on an enhanced cinematic aesthetic of witnessing that mainly require a common third person discourse dominance (as objective shots and a background narrating voice) and a passive behavior that is well known for its effectiveness. Indeed, cinema was often used in history for propaganda (Stam, 2000) exactly for the impression of granting an objective representation of reality through moving pictures (Deleuze, 1983; Bazin, 1967 in Stam 2000) acting as *analogon* (Barthes, 1982) and working as *evidence* that could *testify* something “real” (Bettetini, 1987, 9-10). But on the other hand they also rely on gamified affordances (Majuri, Koivisto & Hamari, 2018) and semio-aesthetics of games that are directly opposed to the cinematic medium. In fact, as we have seen the discourse of virtual realities is characterized by:

- An active behavior of the user resulting in a dominant subjective effect related to a pretense of co-authorship
- The necessity of at least two opposite narrations in terms of represented values and events

Now such characteristics are quite the opposite of what we would call “history”, which aims to at least some degree of objectivity and cannot include opposite narrations.

Furthermore, while both digital games (Prensky, 2003; Gee, 2013) and VR are well known for having a general good impact on “learning”, many research proving this usefulness do not face the problem of the deep understanding of serious themes. In fact, it can be (at least at first) very hard to imagine how sensorimotor interactions, scores and “engagement” could help a teen-ager to “better under-stand” the 9/11 tragedy. It is of course true that many games greatly represent and re-enact historical moments and events on multiple levels (Cassone & Thibault, 2016), and also that there are important examples of edutainment games about history (and actually one of the first and most famous games that comes to mind is *Oregon Trail*), but these games are different from VR “documentaries” for five important reasons:

1. A first person perspective to witness historical events is rarely used (*Meriwether: An American Epic*, 2017, is an interesting exception even though it would be hard to talk about “events witnessing”).
2. The “emotional” aspect is usually not the main points of educational historical games (also due to general difficulties about transmitting emotions such as sadness through gameplay as in Zagalo, 2006 & 2017) whereas it is in most VR products.
3. While there are games about historical events that rely on a strong emotional impact, both “history-inspired” non-educational games (such as *This War of Mine*, 2014 and *Papers, Please*, 2013) and explicitly historical serious games (such as *Darfur is Dying*, 2006 and *Peacemaker*, 2007), they are based on *simulations* of situations and not on pretending to grant an actual *witnessing* or re-enactment.
4. These games are also commonly based on a mainly logical challenge and are characterized by a slow pace (especially due to the large amount of text reading in-volved) that act as a form of “distance”, two other aspects that are lost in VR.

This situation consequently creates important issues, as the problem of the “improper distance” that is nowadays faced by documentarist using VR (Nash, 2018). Indeed, even though history is always the result of a narration (Cassone & Thibault, 2016) and is consequently never totally neutral, can a first-person subjective history be still defined history? Can a first-person dramatic experience really be “educative” and help us to understand the complexity of historical events? The concept of a subjective narration of historical events is actually not new and is usually referred as *witness* or *memory* literature (Violi, 2009, 151-152), but interestingly enough it has usually been used as form of testimony of very traumatic events (ibid) while in VR it seems to be used by default for any kind of storytelling purpose. More importantly, this subjectivity is usually separated from the spectator’s one and allows for a dialogical form of discourse: the spectator is face to face with another human being that look at him and tells him his “truth”. This does not really happen in VR where, even when the spectator is embodied into a character that is talking to him in the background to explain “his truth” about the pictures seen in first person, the spectator can still choose the direction of the gaze and is very likely to be so focused on what is happening all around him that what is told will be ignored. Something emphasized also by the lack of someone’s else face looking at him and to look at. Although this “deficit of dialogue” could be judged as positive if related to the rhetoric of VR as the ultimate “empathy machine”, of a medium without mediation where we see and understand everything by ourselves, this idea is actually very tricky. A good example is the 2018 “Future of Reality” event in Sofia where Thomas A. Furness III talked about the possibility of “being” in Africa and “seeing” people suffering in real time right in front of us as a positive possibility granted by VR that could lead us to “help them”. An idea that is far from being non problematic. But things get even more interesting when VR documentaries do not only use a game-like subjective engagement but also introduce explicit gamified parts inside their narration.

In fact, can a *playful* documentary still be called a documentary? What is the usefulness of adding a potentially distracting mini-game to a very serious documentary? Should we consider these products games instead of documentaries and where is the dividing line between the two?

To answer to such questions, and to further test our methodology, we will analyze the text “Apollo 11 VR” (2018). Although not a tragic event by itself, the Apollo 11 full story is actually quite a narrative and dramatic one involving also deaths (prior to the launch) and fears as we can easily see in classical documentaries and movies about landing on the moon. Moreover, it is without a doubt a very strong emotional topic that rely on many strategies for the somehow ideologic purpose of being an example of the greatness of mankind, science and of America. More particularly, this specific VR experience presents different aspects of gamification and is consequently of interest for us. Therefore, we will now make a close reading analysis of this gamified VR documentary.

5.5.2 Description of the Apollo 11 VR experience

Apollo 11 begins with a dark screen and some sentences shortly explaining the historical background of the launch that involved a “competition” between USSR and USA. After this short introduction aimed to briefly contextualize the Apollo 11 event (and more importantly to lay solid bases for the inner implicit narration of the greatness of America), the spectator is now in a living room where he can watch Kennedy’s speech about the difficulty and greatness of this goal both through a small tv on the left and on the wall in front of him where the speech is projected.



In regard to this beginning we can already note that:

Interactivity & Embodiment:

1. We have no agency nor intentionality and thus our role is the one of an *observer*, however the user still has the freedom of gazing in different directions
2. There is no active nor passive body involvement beside the obvious hyper-iconism of being seated in front of a screen both inside VR and outside VR.

Narrativity & Point of View

3. The point of view is a first-person shot
4. Nothing relevant happens beside the speech, and thus we have a structure with a main narrative point of focus (the speech) and then multiple possible *descriptive syntagma* (Metz, 1974) that are the details of the represented room itself.
5. A fusion lamp and a ball chair are present in the living room as cultural figures and symbols of the futurism of the 60's (the idea of progress)
6. The music has a strong emphasis on the words " we choose to go to the moon".
7. The video of Kennedy is a modified one (in the sense that it is a montage)

Aesthetics:

8. The world is a digital one with the video of the speech being the only photorealistic visual material

These few observations already suffice to point out some of the most interesting aspects of the whole *Apollo 11* experience:

1. The dominant witnessing position is in continuity with the documentary style. This is enhanced by the fact that, although somehow visually hypertextual, the different combination of sequences hardly allows to "escape" or subvert the main intended message and experience.
2. Contrary to what we are used to see in documentaries, there is a dominance of a non-realistic matter of expression (the digital computer graphics instead of real footage) and even the photorealism of the speech is "faked" by its montage.
3. The "impression of reality" is created through a common VR enunciative trick of duplicating the text: we do not witness a VR "video" as real spectator, but we experience a video from within the VR text itself so that the room becomes a kind of "world 0" (Eco, 1979). On the one hand this contributes to an effect of "immersion" and "presence", while on the other hand it embraces the aesthetics of prosthesis and impersonal-first person: the user is neither fully himself nor the spectator but rather in a third space.

This first "scene" ends with the screen disappearing and the spectator is now "pushed" into space through the wall of the previous video and we look at the rocket getting closer to the moon while still listening to Kennedy, music and the astronauts. While the only action possible is still to look around without a body and we still have one main narrative focus (the rocket) and a whole "descriptive" environment to look at (the space itself), here we assist to two important changes. First, the visual-figurative elements of the chair disappear and thus we are no more represented as a "spectator" and neither an actor-subject. So what happens is that we have a way of grasping the pictures that seems subjective but that in fact obey to a third person discourse régime where we are outside of the main action.

Secondly, this effect of subjectivity is also enhanced by a shift in the perceptive and cognitive dimension of the user in relation to the different visual representation of space coming with a set of sensations related to finding ourselves suddenly into the “void” (possibly causing a feeling in the stomach). This elements strengthen the embodied subjective interpellation of the spectator, that cannot deny *his presence*, while still in a third person form of discourse (no agency, background narration, shot type, etc..).

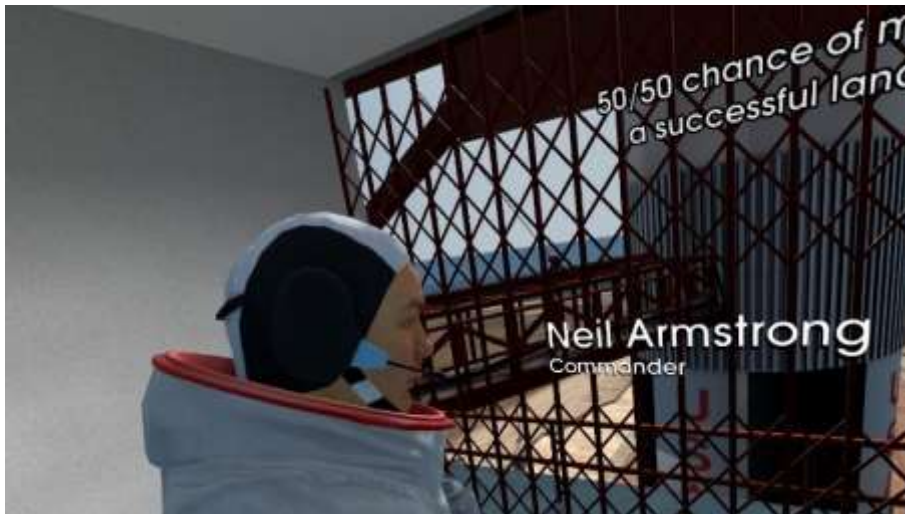
The third scene is once again introduced by verbal language and then let the viewer slowly “fall” down from the sky to the base of the rocket, showing this way the “huge” dimension of the spaceship.



Once again, the enhanced effect of subjectivity and of personal-testimony of these events is produced via the means of both embodiment and visual language. In fact, both the sensation of “falling” and the impression of being close to an enormous object (the rocket) is mostly non-negotiable since it also involves our brain in situating objects in our peripersonal space (Pellegrino & Ladavas, 2014). It is almost no more a question of conscious interpretation.

Then, when on the ground, the camera pushes us in the elevator into the body of an astronaut that will now go up (fourth scene). This takes us from the subjective-impersonal position to an embodied and classic subjective point of view that relies on a *collaborative* process (Eco, 1979) for which we interpret ourselves as “subject” by looking to the other actors as if they were a *mirroring model*.

But more importantly we enter into a *nameless* body, without knowing who this astronaut is and without even knowing the face of our own new “self”. Something completely different from “seeing” and understanding an event through the subjective point of view of someone else as in many documentaries. It must also be noted that all this happens in a fully digital world but where we have in background the real voice registration of the astronaut (Buzz Aldrin) and so here again we have a double “matter of expression” and a double *enunciative regime* (a first-person perspective that looks into a world and event narrated by a third person) through which we assist at the *discourse* of the Apollo 11 great achievement. Lastly, while in the lift we assist to an important detail: through the voice of Neil Armstrong we learn about the probabilities of success of the mission. However, while in both documentaries and movies the success rate is typically represented as terribly low, here we are not told about the previous incidents and we hear that the odds were actually pretty high with the only “unknown success rate” that is about the landing on the moon itself (50%). So we can already see here a meaningful narrative shift.



The fifth scene is once again a subjective one, where we are in the body of a pilot (now seated, with a perfect *mimesis* effect) inside the ship and before launch (with all the classical countdown). But more importantly it introduces a higher degree of embodiment, in fact even without actually moving we can now use our body to visually explore the interior of the ship and look through the window: in phenomenological terms we thus experience a grasping of different *profiles* of a given reality. This new situation is also particularly immersive because of being in front of so many buttons and having in our hands a gamepad to potentially interact with affordances. From a narrative point of view we still have one main focus, but here we are no more in front of it but we actually have to look through the window to see it as nothing really happens in the ship and we have no more feelings or aesthetic “pleasure”.

Finally, the sixth scene get us outside of the ship into the full open space through an impersonal subjective point of view and a renewed “sensational” interpellation and sense of presence. Moreover, through a change of perspective we can also hear a testimony, through a real-footage voice (Michael Collins), that is exactly about the different perspective that pilots have in space.

We will now skip the other scenes that follow the same pattern of enunciation with the alternation between subjective and impersonal subjective point of view, first- and third-person discourse, sensational and non-sensational situations, digital matter and “real” footage material with strong ideologic impact (discourses about the human nature, quotations about the greatness of science and Keplero prevision of the man going into space and overcoming the fear of the void, etc..). Instead, we will conclude this close reading by looking at the three gamified parts that are almost at the end.

The first “mini-game” is about grabbing the lunar module by using the arrows and the analog stick to align with it and then by pressing a button to accelerate/decelerate in order to get closer to it. Although very “simple” (though not immediately easy), this gamified part introduces four very important changes.

First of all now each objects in front of us can now hypothetically require to be “touched”, and thus we are finally given a stronger agency and intentionality that changes our mindset. Something that both excites us and worry us because of the overwhelming number of possible items to interact with and instrument to look at.



Secondly, the instructions given to play completely break the fourth wall.

Thirdly, there is now a strong narrative and psychological impact of this gamified part that represent the “real difficulty” of grabbing the lunar module through a gameplay that, by its experienced difficulty, becomes a fundamental part of the discourse about the exceptionality of this human event. More importantly, here, as in games, we can actually see an *incorrect* text and counterfactual history where we can see the astronauts fails to grab the module.

Fourthly, to grab this module we have to look through a lens in a very similar way as when “sniping” in games but this lens act as a fantastic *mise en abime*: indeed *we are looking through a VR headset into a world that we can see through the eyes of a pilot that must now look through a window to see into space and all this happens and we do all this by really moving our head and eyes.*



The second “mini-game” is about the landing on the moon and, *coherently with what we have been told by Armstrong precedingly*, this game is far harder than the precedent one. It requires to take into account more elements of the cockpit, more manual skills and there is also a time limit to avoid crashing or passing the moon.



As it happened to us and was confirmed by the VR-Express (and is it can be seen on gameplay videos on YouTube²¹²) this is a part that will likely be skipped for its story breaking impact due to difficulty (especially for non-gamer spectators).

²¹² <https://www.youtube.com/watch?v=mr9cs-5gU1Q>

The last “game” is a completely different one where we can freely “explore the moon” and interact with some items to learn more about it. More than, a game it is mostly a playful section of this interactive documentary. Differently from before here we still have agency and intentionality but no more losing or winning condition, as we can choose to go back to earth when we want. But what is really important is that because of the gut feelings caused by “jumping” we both experience a *paidia* kind of playfulness with *Ilinx* and have now access to a stronger experience of presence on the moon itself. It must be noted that, amusingly, there is a warning about this “sensations” and the documentary recommend to just teleport to avoid them and the risk of motion sickness. Lastly, this “freedom” once again will very likely produce a counterfactual history by “showing” astronauts jumping and messing around on the moon without caring about their supposedly important scientific research!

5.5.3 Conclusions

Apollo 11 VR is an extremely interesting text for us since it represents very well the contradictory nature of virtual realities in terms of meaning-making. On the one hand the immersive embodiment, gut feelings, agency, difficulty of performance, and semi-freedom of gaze work as an incredibly strong rhetoric to demonstrate the greatness and importance of the Apollo 11 mission in terms of personal or subjective *witnessing* and *memory* of this experience. In fact, for some users the only thing that will be remembered and learned in the long-run through this kind of documentary will very likely be related to the beauty of being into the open space, the joy of being/playing on the moon, the technical difficulty of landing on the moon and the complexity of the instruments onboard: all aspects that are usually considered as *trivial* and secondary even in historical edutainment. While names, dates, steps, incidents, historical context, biographical aspects of the astronauts and so on, all the elements that are usually the main focus of documentaries (even in the most “emotional” as *Last man on the Moon* based on a You-Me form of dialogue and testimony), are present only in a very marginal way. However, interestingly enough this “trivial” aspects are actually of a fundamental importance for the underlying ideology behind the Apollo 11 narration, and even more interestingly they rely as much on the audiovisual “aesthetics” granted by VR than on the *ludus* and *paidia* aspects that we have highlighted. On the other hand, however, these same elements and the digital nature of this document allows for a counterfactual representation of history inside a documentary (the mission failing, the astronauts playing on the moon instead of doing their mission, etc.) and are constantly denying the idea of an objective representation of the past and of a given reality.

6. Application of the methodology for the cultural inquiry

During the three years of my PhD the beforehand exposed and applied methodology has also been crafted for and tested on some broader cultural inquiries. Differently from the previous cases, the analysis of the “what” and of the “how” looked in these cases at a specific feature or topic across a consistent variety of different digital games and VR texts (usually above fifty). Furthermore, these analyses reflect more explicitly the interdisciplinary nature of our approach as the three following studies which are inspired by and based on authors working in the fields of sociology, philosophy and anthropology. However, since these research have already been published, and given the already excessive number of pages of this work, I will only report here my conclusions and findings as a proof of the utility and versatility of my proposal.

6.1: The representation of love and sexuality in the digital age

(Full paper: <http://ojs.nbu.bg/ojs/index.php/DASC/article/view/248>)

In “I KISSED AN NPC, AND I LIKED IT: LOVE AND SEXUALITY IN DIGITAL GAMES” the aim was to make an overview of the different ways in which love and sexuality were represented in digital games as well as the different means used to enact such stories between players and fictional characters. In regard to the representation, the first and most obvious way of representation was found in the narrative of games and the use of verbal language, and we highlighted the recurrence of three strategies and semiotic effects:

1. The reliance on cultural scripts and frames belonging to player’s encyclopedia to face the problem of the ludo-narrativity of games.
2. The feature of hypertextual choices, from dialogue lines to partners, understood as acts of parole and enunciation.
3. The usage of pronouns such as “I” and “He” that have their full meaning only when understood as impersonal forms reflecting a hybridization between first and third person.
4. A sense of authorship leading to see in the text the cultural values wished by the player to be present, up to the point of modifying the original code so that for example polygamous love is possible.

The second aspect contributing to the meaningfulness of love and sexuality in virtual realities is related the visual representation of bodies and faces. On the one hand it is possible to “fall in love” or be “excited” by them for their contemporary photorealism (which of course is only a characteristic of certain and actually few games), and on the other one for what they culturally stand for. We noticed indeed that in many games most protagonists, both men and women, are sexualized and stereotypically “beautiful”. More specifically we highlighted how “the beauty of these digital bodies is interesting because it stands at the crossroad between the bourgeois beauty of industry, the aesthetics of the technology behind them, and consumerist mass media beauty (Eco 2004: 366–414)”.

The third element is the presence of sex scenes which presents a diversity of sexual practices and orientations but in both mainstream and indie games are simultaneously moralistic in occurring very often inside love relationships and extremely puritanical in substantially hiding both the bodies and the pleasure.

We also noticed however both a series of texts, translations (porn movies with characters taken from games) and practices which act as a counter-discourse about this kind of severed representation of sexuality, and more importantly how they can allow the player to share a point of view which would be otherwise morally unacceptable (i.e.: playing as the rapist).

As a consequence of the second and third point, the fourth and final represented aspect of love and sexuality in virtual realities comes from the presence of nudity. We noticed how such nudity could present itself under a variety of different substance of expressions but in all the cases was hiding the genitals. We also noted that genitals and nudity, however, tended to be tolerated when put out of a sexual content, such as in the case of the representation of monsters. Finally, we found once again a great effort from the players to look for (such as with cheats) and reveal (with mods) the hidden nudity of the bodies represented in games.

But coherently with our approach and perspective, we also looked at the enactment and performance of love and sexuality in virtual realities.

In this regard, we first of all highlighted the interesting case of *We Dare* (2011) in which sexual acts such as spanking were not represented on the screen but actually required, or at least suggested, as a form of interaction through inputs.

A second way to represent through a performance an idea of love and sexuality can also be found in the rules of games enacted as fallible tasks creating primitive and cognitive semantics of abstract concepts. Love can therefore be represented as the issue of *disappearance* inside a series of moment of attraction and repulsions such as in the case of “The Marriage” (2007). Similarly, sex can become the task of finding “a way in” inside a labyrinth by reaching its center represented as a pink entrance.

A third dimension of the enactment of sexuality can be seen in the embodiment of virtual realities through sensorimotor and visual involvement. The sensorimotor congruence of QTE to the sense of physical presence offered by VR technology are two obvious examples, but the “experiential enactment through inputs can also involve very simple “psychological tricks,” such as mini-porn games wherein the player is given the task of continuously pressing a button as fast as possible (for example “to come”), they are actually creating an excited state of mind.”.

The fourth aspect of how sexuality can be enacted is related to the prosthetically extended vision of the player which, thanks to the possibility to direct his gaze, can accomplish actions such as *peeping* or focusing on some parts of the bodies of NPCs such as the breasts, groin or butts.

Fifthly, there is also the possibility of a proprioceptive enactment of sexuality such as with the function of vibration or suction of the devices used to play and that are directly felt by the players.

Lastly, we focused on how the importance of love and sexuality can be demonstrated in terms of time and effort in relation to the game rules and rewards inside four main “economies”: love and sex as a *necessity* if the player loses without them, as a *reward* if they are given to the player in exchange for a performance, as a value of *exchange* if they help him to fulfill more easily other tasks, and as a form of gratuitous act when they are allowed by the game but not directly part of the game mechanics nor a narrative focus.

6.2 The conception of personhood in the digital age

In “L’Oggettuale e la Persona nella cultura digitale” (2021, tbp) the aim was to examine the notion and representation of personhood across the history of digital games to inquire on a possible shift of this concept occurring in relation to the way in which digital technology has changed and is change our cultures. Therefore, we looked across 85 different games, from 1981 to 2020 and belonging to different genres, to find all the cases and figures in which the main common characteristics of the “person” (such as having a personality or having a body) were somehow absent and even more specifically at all those titles in which there was no more a clear opposition between being a person and being an object. Finally, our inquiry was guided by a recent philosophical work of Gaspard Koenig whose 2019 “La fin de l’individu. Voyage d’un philosophe au pays de l’intelligence artificielle” was precisely pointing at this issues although from a different perspective.

The paper starts by highlighting the both very old narrative about such opposition (such as the myth of Talos) and the relatively recent cultural visual texts in which such conflict is present (such as in the 1952 manga “Astroboy” and the 1956 Tv Series “Twilight Zone”), therefore underlining how digital games certainly did not “invent” such problematic. Then, it looks at some definitions of personhood in the dictionary to highlight five main characteristics:

1. Single/Individual
2. Incarnate/Tangible
3. Intelligent and Willing (thus opposed to the passivity of the object)
4. Contextualized as a person among others
5. Recognized by others as a person

These characteristics are then the ones studied and discussed in our work. The results are separated in two: the inquiry on the *stories* of digital games presenting an objectified idea of the person and the research on their *features* objectifying the player.

About the stories we found a great amount of text in which “machines” were occupying both the actantial position of the helper and of the subject in the narratives of the games, sometimes using the pretext of having in their software a part of a human’s memory or of possessing a form of human culture. In other titles machines can be companion or characters among and as others, to play with and as. In the specific case of the Fallout series, we noticed a very significant quantitative increase of the number of non-human and objectual companion. But perhaps even more interestingly we noticed in the series of *Pokemon*, *Final Fantasy*, *Xenoblade*, *Persona* and *Super Robot Wars* how the very semantic categories of the living and of the objectual are increasingly blended: material “things” think, have personality, speaks and can even be deities. Thus an idea of livingness of the object which find in the recent *Horizon: Zero Dawn* its apex. We also looked at their very common anthropomorphic representation (and especially at their eyes) and at how different ideas of machines as persons were also related to their linguistic capacities.

From a different point of view, we then looked at the forms of objectification of the players, or more generally forms “diminishing” his personhood, which are often required to play. We found the first one in the very recurrent figure of the avatar and in the partial paradox of what is a “character” in a digital game. Indeed very often these can be without identity or personality, and the access to their psychology is very often extremely minimal if not impossible. Avatars can be made as empty figures to be played by anyone, and consequently always require that a player abandons part of his identity without assuming any other. We also highlighted how this absence also implies a lack of willingness which is explicitly thematized in games such as *No More Heroes* or *Bioshock*. Additionally, we highlighted how even the mechanics of failing and reloading to succeed is actually denying the *destiny* of the player as individual. Lastly we focused on how both in the case of TAS and gameplay videos it can be substantially impossible to distinguish between the play of a human and of an A.I, up to the point of faking to be an AI or NPC as in the game *Spy Party*. The second figure of the objectification was instead found in the consequence of a sensorial and cognitive delegation which is needed to grasp and understand a given virtual world, and of course especially when the player is playing as a machine, robot, cyborg or man with some kind of prosthesis (which, as we highlighted, is increasingly more and more common). In many cases, in fact, the player’s senses and access to the world are no more humans and the player is looking at the software somehow through the eyes of another software. Players, for example, can have no need to orient themselves in space and can simply follow arrows leading them to their objective. Similarly in a game such as *Borderlands* the overwhelming amount of information on the screen is replicating a vision which in the past was attributed to cyborgs such as in the movie *Terminator* (Cameron, 1984). Once again this concrete delegation and integration of sensorial and cognitive prostheses to act in a virtual world, replicating a same access for all the players, is then thematized in many titles such as in *Soma*, *The Turing Test* and the series of *Deus Ex*. Finally, the last form of objectification we showed is related to the very intelligence, characterizing the persona and needed to play and win. Here we demonstrated how some of the cultural fundamentals of the old idea of intelligence could no more be valid in the age in which A.I can win extremely complex games such as Go or DOTA2. Not only does the AI of digital games can copy the patterns of humans, but very often humans learn to play from programmed AI. In many mobile games the very common function “auto-play” is actually doing a good part of the “work” or “effort” for them. Furthermore, in the case of e-sports, such as in the case of the moment 37, the skills that we recognize in players are actually capacities which first of all belong to machines. Finally, we highlighted how this was once again thematized in games such as “The Talos Principle” in which the only thing distinguishing the man from the machine is not his logic nor his ability to solve puzzles but the curiosity and disobedience through which the player is exploring the garden.

The conclusions of this research were two. First of all that there was a clear influence on the representation of personhood coming from digital technology and the impact and spreading of digital games in our society. Secondly that the concept of person could not be reduced to its fundamental and common oppositions but had to be understood as a *participative, inclusive* and *dynamic* notion which can be only determined from a cultural and historical point of view.

6.3 The meaning of the face in virtual realities

In “Il volto nei giochi digitali: Funzioni e valori” (2021, tpb) we followed Hans Belting 2014 work on the face to look at the digital translation of the three fundamental functions of the face: expression of feelings and non-verbal communication, representation of interiority and social values, and self-identity leading to subjectivity. For each one of these three functions we inquired on how they are implemented and how they are used and interpreted by players. To do so, we looked both into the features of almost one hundred games and at different kinds of interpretations produced by the gaming community such as articles, gameplay videos and online discussions. Faces in digital games are thus examined in their relations with the one of the player, with the other faces of NPCs and with the faces belonging to the avatars of other players. Moreover, we also examined how such faces are represented on the screen and used by the players: we distinguished between given faces, editable faces and absent faces (such as in first-person view games). Finally, in the conclusion we compared our main claims with the ones of game studies about the relation between avatars and subjectivity. This work therefore highlighted fundamental similarities and differences about the functions of the face in videogames. But it most importantly proved how a semiotics of the face can give insightful explanations on meaning-making in digital games and how the study of such games can be useful for the scientific inquiry on the face. We offer here our conclusions in their original version since they are self-explanatory and work as a good resume of our findings:

“By analyzing the expressive function of the face we have seen that it is configured in four types of relationships between player, avatar, NPCS and other players. Based on a corpus of seventeen emblematic games of the eighties, we observed a lack of expressive possibilities and potentialities of the face that seems to be present as a stereotypical and generic mask-face of the most basic emotions. Shortcomings that on a subsequent corpus of texts from the nineties (identifying a turning point in that decade) to date we recognized to be partly due to past technical limitations. At the same time, looking at both the games and the players' interpretations, we have observed that even today many limits on the use and expressive potential of the face remain both in the relationship with the faces of the NPCS and with the faces of the avatars of other players. We therefore came to the conclusion that a univocal discourse on the expressive function of the face is not possible, but that we must instead look at four determining factors: quality of expression in terms of a degree of configurative complexity, phenomenal access to the face, effectiveness of the face as a tool to act on the world, use of the face as a communication tool and as an interpretative text that is not always intentional. And we concluded that the reduced expressive function of the face is due to the fact that while the first factor has been a considerable investment, the other three still remain very neglected and problematic. These observations are fully reflected in the introductory theoretical part on the expressive function in which we observed the importance of facial dynamism (semiotically explainable in terms of tension and narrative) and how, in the absence of a dynamic-configurative complexity, the face means as a zero degree of signification through its anthropological and cultural potential. More generally, the last two factors are perfectly in line with Belting which makes the expressive meaning of the face inseparable from its doing and social interaction (2014, p.30)

We then analyzed the symbolic-representative function by observing how here the stereotypy of many videogame faces, which often represents the interiority and social identity of both the NPCs and the player's avatars, allows the videogame's face to express this potential as other visual texts. In fact, we have seen that it is possible to reconstruct a history of certain types of characters starting from the way in which their face is represented, as in the case of the soldier, and also how in opposition to this story some faces are born, as in the case shown by us of the new female protagonists bearers of different values. However, we also highlighted a certain symbolic-representative instability linked to two possibilities of intervention on the face (one indirect and one direct) characteristic of this medium: the player's preference for some faces over others who occupy the same actantial / actor position. (example: the beloved) and possible co-enunciative interventions on the face of the player's avatar. To address the second case we have outlined five ways of representing the face in digital games: absent or hidden face, pre-established face, altered face, selected face and created face. By providing for each three textual examples belonging to different genres and eras, we have shown their transversality. In addition, through the example of "ugly Shepard" we have shown how within genres that feature consolidated scripts the last three cases can actually affect textual interpretations, and we have provided examples of how this is used by youtubers to entertain their audiences. Finally we have also noticed how the possibility of changing the face does not in itself constitute a criterion for knowing if a player can actually play with the meaning of the text as nothing guarantees that those different types of faces actually make a difference and on the contrary we have mentioned cases of very similar types of faces and of games in which the main semantic marks of the face are rigid. With respect to the theoretical framework introduced, we have again reconfirmed the main ideas at the center of the semiotic debate: the face as an image that creates images through a series of texts (from the king to the soldier), the close link between social discursiveness and individual utterance that reiterates it (i.e. the modification of the face used by the player), the interpretative possibility of the face as manifested interiority and the strong cultural influence (of which the face becomes a product) that grant semantics and enhances some facial features. In light of all this, it is possible to insert the videogame face within Hans Belting's speech on the face in contemporary society which are mass-produced and consumed. (2014, p.218)

Finally, we investigated the function of identity in the faces of digital games. We confirmed the identity potential of the face in several transversally observable factors: the intention to reproduce real faces and the complaints of the players when these faces are not similar enough, the production of distinct faces and the complaints of the players for the reuse of models similar, the economic value of the face and the production of mods by the players to increase both the quality and the quantity of faces available, the narrative use of the face by the authors and the use of the face as "I" by of players in different practices (in YouTube videos, in photos, in mirroring themselves, in the "care" of the face created), the frightening effect of the concealed face and the creation of simulacral faces in non-playful contexts. In light of this, we then faced four problematic points: the problem of the possibility of differentiation less strong than biological faces, the characteristic reuse of facial models that creates identical faces, the case of faces absents from the screen and the frequent possibility of the face to change. . With respect to these, we have outlined some answers relating to the immanent sense of the face: the use of separate and specific textual sections to define the face, the internal relationship sign value of the face and the concept of collective actor. However, from here we have opened up to a broader and intersubjective semiotic vision of the face, no longer linked exclusively to a problem of mere similarity and distinction.

The videogame face is therefore the face of the player also as a function of the enunciation act that generated it and its topological value as a point from which you look. From here we have thus identified, covering the various relational possibilities that arise from the face (absent face, pre-established face, co-enunciated face and translated face), six different semiotic modalities for which the face can express an "I" and have an effect of sense of subjectivity:

1. as a sign of distinction within the text based on a relationship of opposition with other faces,
2. as an element of the manifestation at the center of a narrative,
3. as an iconic element of similarity that can only be explained thanks to the out-of-text,
4. as an act of co-enunciation,
5. as the threshold and boundary of a prosthetic gaze,
6. and finally as the empty position of a non-ego that can be occupied by the player's subjectivity and participates in his identity.

Once again from a theoretical point of view we have reconfirmed the main assumptions with respect to a semiotic conception not only of the face but above all of identity. Specifically, the six final dimensions of the face can in fact be traced back to two of an immanent nature (distinction and attitude), two of a transcendent nature (similarity and act of enunciation) and two that constitute a real threshold between the two (prosthetic gaze and subjectivity increased). Likewise, we have seen both that essential bond and the paradox that often returns in the pages of Belting return to the relationship between face and identity. And, compared to this potentiality of the face as a "not-me" that the historian traced not by chance in the statements of an actor, we have seen how the type of involvement of digital games, which push players to project an "I" on faces others, on the other hand, seem to make this possibility of identity of the face obvious.

What we have not discussed, but which seems to us to have emerged clearly, is instead how the semiotic mechanisms of each function (of the relationship between faces in the social context, of the relationship between face and encyclopedia, of the relationship between face-self and otherness) are all involved together in a semiosis which, it seems legitimate to suppose, has an important role in our interpretation of the world (be it physical or digital). Let's think for example of the dynamic-configurative aspect of the face which is certainly decisive on an expressive level but also has obvious consequences in being able to represent types of faces as well as in differentiating them by creating identities. Or again, let's think about how the possibility of modifying the face helped us shed light on the symbolic-representative function of the face which, however, also became a question of identity when we considered the act of enunciation itself as an expression of a self. Only through the comparison between the three different face functions it was possible to see these borders, contact and transformation points from which numerous effects of meaning-making comes from.

Finally, it is worth noting how the semiotic perspective used here is as coherent as it is integrative with the studies of game studies both with respect to the expressive question of the face (Isbister, 2006) and with respect to the theme of subjectivity experienced through an avatar. For example, in the field of psychoanalysis applied to video games we find the same need to detach the avatar from the question of physical similarity (Rehak 2003, p. 107). However, for obvious reasons of space and since it is a close but not identical theme to ours, we will refer here at the end to a single recent work by Daniel Vella, a work that examines a lot of literature on the subject of subjectivity in videogames and written by an author who is a reference figure on this topic.

In his "Who Am 'I' in the Game?": A Typology of the Modes of Ludic Subjectivity "(2016) the author notes in fact how initially in game studies the question of an "I" "was bound to a point of view and point of action (p.2) and then evolve into the more complex question of "who the player is, what the player can do, what the player is asked to do and what the player feels (2014, 113-4)" (p. 2). To respond to this complexity, in 2015 Vella himself proposed the notion of the position of the playful subject as "experiential Gestalt resulting from the aggregation of a set of formal mechanisms structuring the player's engagement with the gameworld" (p. 3) which had to be completed by notion of a playful subject understood as

the 'I' to whom the player ascribes experiences of the gameworld and actions within the gameworld. It emerges, in the course of play, as a subjective identity the player experiences as 'herself', in the first-person – albeit, crucially, as a 'self' that is distinct from her own identity as a playing individual outside the gameworld, and that is in large part determined by the game itself through its structuring of the ludic subject-position.

(*Ibidem*, p. 3)

A "Subject" that he distinguishes as embodied and transcendent to reflect both games with avatar (represented or absent as in first-person games) and games without. Analyzing the first type, which is the one that interests us most, we find multiple points of contact with respect to our statements.

First of all, he speaks of a "spatial standpoint within the gameworld - an origo or point of origin to which deictic terms like 'here,' 'there,' 'ahead' or 'to the left' relate" (Leirfall 2013, p. 4) , which is evidently connected with the possibility of the face as a topological point and threshold that we have detected. Furthermore, this subject is also defined in relation to its possibilities of action in the world with respect to its objective, which again fits perfectly into our conception of the face as an actantial anchor figure, and especially if we think about the fundamental role of semiotic modalities centered precisely on power and duty in carrying out a certain narrative program. Characteristic of this form of subjectivity is also for Vella a properly embodied dimension that happily meets the prosthetic concept we have spoken of. Finally, the author's reflection then continues to outline various types of this embodiment relating to the number and type of controlled avatars, a distinction partially attributable to our distinction between semiotic subjectivities, sometimes also understood as collective actors. Ultimately, we are pleased to note that not only does our semiotic approach meet the main claims about subjectivity in the field of game studies, but how it can complement them. Vella in fact, through a mainly phenomenological perspective, in this important work makes no reference to the face as a particular object and much less does it take into consideration how subjectivity can pass through its fundamental functions linked to lying, to recognition (one's own and of the other), the relationship between gazes, the enunciation of a self, and the intersubjective and cultural nature of identity understood not only as a phenomenological "I" but also as a semiotic non-ego. This absence of the face on the one hand reminds us that the face is not a sine qua non condition of subjectivity, and allows us to shed light on some texts such as *Adventure* (1979) or *Thomas Was Alone* (2012), showing that, with respect to the actantial function, the face is an anchor and projection object that can also be replaced by a generic body. On the other hand, it seems to us that Vella's vision can greatly benefit from our perspective which allows for finer analyzes of the effects of meaning desired by the authors, of the resulting interpretations and of the subjectivities experienced by the players who certainly do not understand "I" in the same way. when they move a cube or when they move their alter-ego with a face created by themselves and related to other faces."

7. Social impact of our semiotic theory

Since the very beginning of this thesis we dared to talk about our intent and purpose of creating a semiotic work which would be *useful* on the different levels in which the concept of usefulness assumes different meanings: from renewing and testing the theoretical fundamentals of our field of research to the creation of concrete virtual realities. In the introduction we highlighted this usefulness as something much needed in relation to the legacy of what semiotic has been, but now we can add that this usefulness is something that also comes from both biographical reasons and the very concrete situation created by the pandemic of Covid-19. Indeed it was, to say the least, psychology and emotionally a very hard situation to face from the point of view of *feeling* to be doing the right thing in spending hours on *Super Mario* and the semiotic foundation of experience in terms of cognitive semantics while both in the hospitals and in their homes many people were *tangibly in need*. In this last chapter we will therefore briefly expose the already finished, ongoing and future social application of our theory and methodology of analysis.

7.1 Finished projects: Edugamers and Medical Formation

In fall 2019 I started my collaboration with the new-born and crowdfunded “Edugamers” (<https://www.edugamers.cloud/>), an association in Turin, Milan and Rome which had the aim to create professional figure that had to help families having trouble in understanding and evaluating their children’s gaming hobby. Edugamers would have to both explain to the parents what digital games were and to observe the children while playing to evaluate potential dangers related to unsafe gaming habits. To do so, however, Edugamers had first of all to be trained and taught about both the meaning-making mechanics of digital games (what is the sense of playing) and the meaning-making practices of players (what do the players do in virtual realities). Convinced by their intent to transmit inside the families a positive idea of the gaming culture, I reached for them and proposed my expertise. Despite a first moment of reticence due to both my academic origin in the humanities (therefore conceived as opposed to concrete application) and my strange and socially unknown field of expertise (“semiotics”), I persuaded the director and was hired as a teacher for both an introductive lesson in December and a brief course of semiotics of digital games during spring 2020. The course ended with many manifestations of appreciation and, as the director referred to me, the course was appointed by the workers among the most useful.

First planned in presence for March 2020 and then reported to May 2020 as an online meeting, I had the luck to be invited as a teacher for the doctors and medical staff of Turin’s hospital of Settimo torinese. I held two “conferences” among them, both about very concrete issues and applications. The first one was related to the project of a VR center for physical and psychological rehabilitation in this hospital and required a basilar formation of the doctor on the usage and efficacy of VR for clinical purposes, which in turn required to understand how do we make sense of virtual realities from both a sensorial, cognitive and semiotic level. The second one was based on the emergency of Covid-19 and was about the usage of virtual realities and digital technologies to help communication between patients in quarantine and relatives. In both cases our semiotic approach was greatly appreciated and as pointed out by the responsible Alessandra Luciano, was referred in the final evaluation as one of the most interesting and useful.

7.2 Ongoing project: Horizon: Digital Games Psychology

Started in 2019 and planned to be released in Spring 2021, the methodology of analysis of virtual realities became the base for the development of a digital game for teen-ager suffering from anxiety but also at a broader audience unaware of this very common problem in Italy. The game was endorsed by the association “Horizon: Psicologia dei Videogiochi” and validated by the team of psychologists working inside this association. We obviously cannot offer the results for this game yet but hope that it will reach his goal.

7.3 Projects to come: NOVIS, Blind Console

In 2019 I met the main creator of the first virtual reality set for blind users, named “Blind Console” (<https://www.novisgames.com/>). At that state of the project the hardware part was still in development and so semiotics was not yet required. Nonetheless, a great interest for our semiotic approach and transversal expertise was expressed as well as the interest for future collaborations to realize specific software to create complex narrative and meaningful experiences without relying on the pictures. We sincerely hope that such collaboration will occur and so that semiotics will be involved.

8. Conclusions & future researches

I cannot deny a certain perplexity and even embarrassment for the fact that this work of more than five hundred pages can be substantially resumed in the following two. After discussing so much about the preciousness of time, I am worried to have fundamentally wasted the one of my readers. What's more, the fundamental banality at the heart of my discussion is simply undeniable and shocking. Indeed, after all, I have mainly argued that:

Virtual realities are meaningful experiences because they involve real humans concretely using their bodies as much as their brains, and concretely investing their limited time and energy, to interact with a digital cultural artifact (and sometimes with other humans through it) by following the logics and values of their own physical and social reality for the purpose of recreating, both on the screen through tangible signs and inside their minds through thoughts and emotions, something belonging to a projectuality shared between users and creators. In this sense, their main cultural and social function is to extend, recreate and subvert what we define reality.

Although this obviousness was mostly missing from the semiotic literature on digital games and virtual reality, a lack which was the starting point of my PhD three years ago, I think that I can now better understand that the reasons for such deficiency were not only theoretical and methodological but can be also found in the fact that neither semiotics nor three years of research are needed to reach such conclusions. This is where comes the topic of the scientific value of the *how* behind the *what*. In this regard I proposed that:

The sense of immersion and presence, from which the definition of such texts as experiences in opposition to other texts conceived as representations, of virtual reality must be understood in terms of an acknowledged phenomenological (embodied), narratological (effort & co-creation) and sociological (value) continuity. A continuity which is both very concrete and the results of several mediations and interpretative strategies which make virtual realities a privileged object of study for semiotics.

The embodied dimension of meaningfulness can be understood through the four main notions of: cognitive semantics, prosthesis, metaphor and habit creating an effect of phenomenological continuity. A perspective which both redefines the object of a semiotic of experience and reestablishes the possibility of a dialogue with the more empirical studies on cognition since the experienced meaningfulness of virtual realities depends on very concrete aspects of how we act (i.e.: primitive actions) and interpret (i.e.: perception) the physical world through our body.

The involvement of the user's time and energy, joined into the concept of effort, can be explained into the perspective of interactivity as a form of socio-economics of meaning relying on a mirrored narrativity (narratological continuity) to valorize encyclopedic units or lexical entries and to transform action-oriented goals into projectuality and time into temporality. Additionally, since such economics of meaning rely on a system of scarcity and value they also inevitably involve a sociological continuity. A perspective which overcomes the limit of a textualist approach to meaning-making but does not discard it completely and tries to improve it. Moreover, a topic which open the reflection on a new form of rhetoric.

The co-creation of the text between its users and its creators can be understood through both a renewed theory of enunciation and within the social context of post-media, participatory and digital culture. A perspective allowing semiotics to highlight the both subjective and intersubjective relevance of the very act of interacting in virtual realities in a variety of different ways and for the variety of different purposes. In this sense, the narratological continuity is also one regarding a passage of authorship in the acknowledged difference between the text of the author, the enforcement of the software and the will and power of the player to represent one specific representation among many possible and impossible ones. Here the linguistic perspective on the relation between subjectivity and enunciation rejoins the perspective on the inner characteristics of digital culture highlighting a shift in the very means of production of cultural artifacts. Virtual realities become writing spaces in which the diversity of syntactic combinatory possibilities creates a network and are at the heart of the text. Finally, such standpoint also allowed us to highlight the particular integration of the user with digital technology in both sensorial and logical terms, resulting in a naturalization of non-human access to information.

However, is this explanation satisfying? Only partially. On the bright side, it mends both different types of semiotics (of media, of experience, of culture, of interpretation, of the text, of practices) and renews our field of research with others after a long period of incommunicability. Furthermore, it allows for a roughly structured methodology to be applied on different artifacts (all “genres” and all usages of virtual realities) and different media (pc, console, smartphones, VR, etc..) independently from the socio-historical context and for very different types of inquiries (from what a specific virtual text means to the meaning of the spread of such virtual texts inside our cultures). Such methodology more extensively allowed to justify our claims of virtual reality being a discourse under two different perspectives:

- A particularly “convincing” way of representing the world and proposing specific values
- A meta-discourse for which virtual realities, almost independently of their content, all seem to postulate: the fall of authority, the self-centered extension of subjectivity and the positiveness of indeterminacy. Characteristics which when put together clearly distinguish virtual realities from proper games and narration as cultural genres. Additionally, topics of great philosophical and sociological relevance that were not faced here but should hopefully be in a near future.

On the other side, however, there are four main issues.

The first one is about the epistemological foundation of our proposals, which in some case can be debatable and even non directly refutable (such as the idea of the semantic activity within our mind through physical interactions and problem-solving tasks). The second one is about the originality of such solutions, since most ideas and theories were not mine and I have “simply” put together and showed the interconnection between them. To face my platypus, I created another one; and it would be unfair to feel proud of works belonging to others. The only true original idea of my thesis (although influenced by my tutor) is to define virtual reality as a new form of discourse and logic of narration based on indeterminacy which passed from being a characteristic of the 60’s artistic *avant-garde*, studied by authors such as Umberto Eco, to a commercial and most importantly common way of representing the world. An idea which however requires to call virtual realities things such as digital games and to exclude from proper virtual realities many VR experiences exploiting only the aesthetic of what I define as a virtual reality: a terrible choice from the point of view of the marketing. More importantly, this unique proposal is probably not enough to justify all the missing bibliographical references that were somehow put aside in favor of the needs of my own hypothesis of research.

Another issue, deeply connected to the previous one, regards the metalinguistic aspects of my work and a possible incoherence between my polemic introduction and the actual results. It could be said, after all, that in my work I have simply substituted some well-established interdisciplinary terms with others belonging to linguistic and semiotics (such as how the problem of fiction was translated into an issue of semantics). In my defense I could say that I did this only to explain the richness and meaningfulness of virtual reality through the richness and meaningfulness of language, narration and interpretation. Yet, this is far from being a spotless and neutral justification. Finally, the last question is about the results of my methodology and more extensively of both my general perspective and specific analyses. On this point, it is also extremely hard to objectively evaluate the quality of my work. Empathizing with my general disappointment for my own work, my dear colleague Vincenzo often told me how semioticians naturally deal with the paradoxical issue of having to explain a joke which, after being explained, don't make laugh anyone and loses any meaning. This led me to think at two recurrent metaphors inside semiotics: the one of the microscope and the one of the strip-tease. Although apparently similar, I think that they reflect the two very different aspects of our objects and work. The microscope is able to reveal the formal properties of what we study and to create classification of many types, and it is a mostly boring process until we find the right lens leading us to our "metalinguistic discovery". The strip-tease is about the human richness inscribed within and around our object of study, and although being a thrilling process of gradual discovery, when it ends all the eroticism is lost and we begin to wonder about the meaning of what we have found. Despite a microscopic approach with many textual analyses, this thesis wanted to be a strip-tease of virtual realities and this probably explains why the potential social usefulness and interdisciplinary value of my work was chosen as a criteria to attest the quality and meaning of my results. A criteria which, I know very well, is highly debatable.

Despite all these issues, our work should have proved and put the bases for several future researches. We want to list here the fourteen most relevant:

1. A more detailed and scientifically accurate semio-cognitive theory of the semantic dimension related to embodiment through prosthesis for the purpose of establishing a proper cognitive semiotics of experience on solid bases.
2. A theoretical research on the relationship between structure of language and phenomenology, opening a dialogue with existing theories such as the one of the semantic forms (Cadiot and Visetti, 2001) and their scholars such as Professor Bondi (2008) that has already expressed interest in our work and for future collaborations.
3. A more specific inquiry and collaboration between phenomenology and semiotics. Indeed, there is already an existing and excellent work on the phenomenology of games by Daniel Vella that, despite discussing in the last few years several of our main ideas (subjectivity, projectuality, time, identity and so on) has been only sporadically referenced only because we could not discuss rightfully his work without having a strong theoretical ground.
4. The philosophical research on the relationship between the implications of digital culture and interactions with post-humanism, especially on the topic of the integration required by virtual realities that since the early work of Andy Clark (2004) and until today (Parisi, 2019) is at the center of a very interesting and promising debate to rethink some key concepts of culture such as the one of *intelligence* (Ienca, 2019).

5. An interdisciplinary research extending our preliminary study on the role of faces in virtual realities: their different cognitive effects in relation to both their substances and functions, the evolution of the technologies allowing their production, their role in the creation of identity, their movements between physical reality and virtual one, and potentially much more.
6. An inquiry between semiotics and cognitive sciences on the topic of the memory which was a center of gravity in the work of Umberto Eco and also at the light of the worldwide phenomena of both retrogaming and nostalgia for virtual worlds. This research could face issues such as the reconstruction of no more reachable places of the physical world, the construction of memorials for the dead²¹³, and the role of the episodic memory in creating a subjective evenemential experience.
7. A transversal study between psychology, cognitive sciences and semiotics on the topic of affection in virtual realities and towards non-human characters. Also facing the complex and yet extremely actual changes in sexuality and pornography²¹⁴.
8. A specific and comprehensive research on the meaning of spaces in virtual realities, from their architectures to the practices inside them, from their birth to their disappearance (Thibault, 2019).
9. The research on the relationship between virtual realities and visual culture (Somaini and Pinotti, 2016).
10. The inclusion of proper aesthetics of computer graphics and of their discursive role.
11. The extension of other cultural artifacts presenting the logic of virtual reality.
12. The inclusion of a proper sociological and economic theory to explain or at least examine a far broader range of phenomena occurring in virtual realities and to enhance the theory of the economy of meaning. In fact, while several terms are clearly inspired by economic theories such as the Marxist one (use-value, labor-value, means of production, etc.) we could not face such theory in our thesis.
13. The historical and philosophical reconstruction of the birth of the discourse of virtual reality, which was here only briefly mentioned in 3.1 through the works of Maldonado and Ryan.
14. The amelioration of the here proposed textual methodology through an improvement of the actual semiotics of games, for both design purposes and as instruments for the cultural critique.

Lastly, I can only conclude by saying that I hope to have at least sincerely demonstrated the relevance and potentiality of both my object of study and of a semiotic approach to it without having to rely on either the socially quantitative-pragmatic aspects of virtual realities (PIL, number of players, VR for healthcare, etc.) nor on *a-priori* theoretical validity of our “discipline” (all is signs, all is language, etc.) and outside of the stereotype of semiotics as a field interested only in pointing out that a certain thing (the body, the virtual, perception, etc.) is culturally conventional ending up in almost denying the real. If this is true, then I have reached what was perhaps the most important goal of my research.

²¹³ <https://www.destructoid.com/minecraft-fans-create-touching-memorial-for-beloved-server-host-547633.phtml>

²¹⁴ <https://www.eurogamer.it/articles/2018-12-12-news-videogiocchi-fortnite-e-bowsette-tra-i-piu-ricercati-su-pornhub>

8.1 Acknowledgements

I would like to thank my tutor Professor Massimo Leone who trusted me and treated me as a colleague since the very beginning. Moreover, who almost gave me a heart-attack by telling me with enthusiasm at some point during the second year: “What if you put games apart and focused on experience?”. The result of such traumatic yet precious suggestion can be easily seen.

I would like to thank Professor Claudio Paolucci who encouraged me to do this PhD and that discussed with me several of my ideas during these years. Moreover, I cannot but thank him for his own work which has been fundamental for my own thesis: I practically robbed him of everything (even a book published just two months before the end of my research!) although hopefully I did it for a good cause.

I would like to thank Professor Sebastiano Vecchio who gave me constant moral and intellectual support during these three years. Professor Vecchio who looked at my first hypothesis of research with so much embarrassment that I didn’t even try to fix it and started anew, hopefully for a better one.

I would like to thank Professor Ugo Volli who chose me for this PhD now almost four years ago and who continuously dialogued with me on the topic of experience. His kindness, originality and critical attitude have been for me a true compass and inspiration for my own work.

I would like to thank Professor Kristian Bankov for accepting me in Sofia during my period of research and for all his enthusiasm toward my work. It is only thanks to him that I had the possibility to expand my thesis from digital games to virtual realities by the meeting both the VR artist Momchil Alexiev and Georgi Stoyanov from the VR Express company.

I would like to thank Professor Espen Aarseth that I met in Turin during DiGRA 2018 and approached me to express his interest in my “prismatic” semiotic approach despite have been generally very disappointed with our discipline. This led to a second meeting and amazingly rich discussion in Copenhagen, at the end of which we agreed on a conference on the semiotics of games that should have been held in Italy before the global epidemic.

I would like to thank Professor Riccardo Fassone for his interest in my project since the very beginning and up until the end of my PhD. Our discussions have been not only fruitful from the point of view of the content of this thesis but also very encouraging for its interdisciplinary purposes.

Last but not least, I would like to thank the whole team of PhDs and researchers working in Turin. Although some of them may seem more present than others for obvious reasons due to the common topic of game, they are actually all part of my work. But more importantly: the intimately human and non-merely professional relationship with Antonio, Bruno, Cristina, Eleonora, Elsa, Federico, Gabriele, Jenny, Marco, Mattia, Remo, Samanta, Silvia, Simona, Simone, Victoria and Vincenzo is the very reason for which I overcame the toughest and most disheartening moments of my research, and finally reached the end of it.

Bibliography

- Aarseth E. (1997) *Cybertext: Perspectives on Ergodic Literature*, Baltimore and London: The Johns Hopkins University Press, 1997.
- Aarseth E. (2007). *Doors and Perception: Fiction vs. Simulation in Games*, in Marion Froger (a cura di), *Intermedialités: Histoire et théorie des arts, des lettres et des techniques*, Montréal, Canada, Revue intermedialités.
- Aarseth E. (2010) *Define Real, Moron! Some Remarks on Game Ontologies*. DIGAREC Keynote-Lectures 2009/10, Publisher: Potsdam University Press, Editors: Günzel, Stephan and Liebe, Michael and Mersch, Dieter, pp.50-69
- Aarseth E. (2012). *A narrative theory of games*. In: FDG '12 Proceedings of the International Conference on the Foundations of Digital Games, pp. 129-133
- Aghajan, Zahra M, Lavanya, Acharya, Jason J, Moore, Jesse D, Cushman, Cliff, Vuong & Mayank, R Mehta. (2014/2015). *Impaired spatial selectivity and intact phase precession in two-dimensional virtual reality*, *Nature Neuroscience*, 18, 121–128 (2015).
- Aksakal N. (2015). *Theoretical View to The Approach of The Edutainment*. In: *Procedia - Social and Behavioral Sciences* 186 (2015) 1232 – 1239. 5th World Conference on Learning, Teaching and Educational Leadership, WCLTA 2014.
- Arcagni S. (2018) *L'occhio della macchina*, Einaudi, Torino.
- Argenton L. and Triberti S. (2013) *Psicologia dei Videogiochi. Come i mondi virtuali influenzano mente e comportamento*, Apogeo, Milan.
- Bankov K. (2018) “Scarcity and Meaning: towards a Semiotics of Economic Transaction”, In: Cobley P. and Alteanu A. (eds). *Semiotics and its Masters Vol. 2*. De Gruyter Mouton, Berlin.
- Bankov K. (2019) *From gold to futurity: a semiotic overview on trust, legal tender and fiat money*, “Social Semiotics”, 29 (3): 336-350.
- Bankov K. (2021, forthcoming) *The Digital Mind: Semiotic Explorations of Digital Culture*, Springer, London and New York.
- Baricco A. (2018/2019) *The game*, Einaudi, Turin.
- Barnabé F. (2017) *L'énonciation vidéoludique: analyse du jeu Portal*, in Maria Giulia Dondero, Anne Beyaert-Geslin & Audrey Moutat (a cura di), *Les plis du visuel. Réflexivité et énonciation dans l'image*, 155-178, Lambert-Lucas, Limoges.
- Barricelli B.R, De Bonis A, Di Gaetano S. and Valtolina S. (2018) “Semiotic Framework for Virtual Reality Usability and UX Evaluation: a Pilot Study” (CEUR WORKSHOP PROCEEDINGS). - In: M. De Marsico, L.A. Ripamonti, D. Gadia, D. Maggiorini, I. Mariani. - [eds.], *Games-Human Interaction*, pp. 1-6.
- B. R. Barricelli, D. Gadia, A. Rizzi & D. L. R. Marini (2016): *Semiotics of virtual reality as a communication process*, “Behaviour & Information Technology”, DOI: 10.1080/0144929X.2016.1212092.
- Bartezzaghi S. (2016) *La ludoteca di Babele*, Turin, Utet.

- Barthes R. (1953/1972), *Le degré zéro de l'écriture*, Seuil, Paris.
- Barthes R. (1957) *Mythologies*, Seuil, Paris.
- Barthes R. (1964a/2002) *Elementi di Semiologia*, Einaudi, Turin.
- Barthes R (1964b) *Essais Critiques*, Edition du Seuil, Paris
- Barthes R. (1966) *Introduction à l'analyse structurale des récits*, « Communications », 8 :1-27.
- Barthes R. (1967) *The Death of the Author*, "Aspen Magazine", n° 5/6.
- Barthes R. (1970/2011) *La Retorica Antica. Alle origini del linguaggio letterario e delle tecniche di comunicazione*, Bompiani, Milan.
- Barthes R. (1973) *Le plaisir du texte*, Paris, Éditions du Seuil,.
- Barthes R. (1973) article "Texte (théorie du)", *Encyclopaedia Universalis*, 1973.
- Barthes R. (1980/2003) *La camera chiara: Nota sulla fotografia*, Einaudi, Turin.
- Barthes R. (1982/2001) *L'ovvio e l'ottuso*. Einaudi, Turin.
- Bartle R. (2003) *Designing Virtual Worlds*, New Riders, San Francisco.
- Bavelier D., Green C.S. (2003) *Action video game modifies visual selective attention*, "Nature" 423:534–537(2003).
- Bavelier D., Eichenbaum A. and Green C.S. (2014). *Videogames: play that can do serious good*, "American Journal of Play" 7:1, 50-72.
- Bavelier D., Gozli D.G. and Pratt J. (2014) *The effect of action video game playing on sensorimotor learning: Evidence from a movement tracking task*, "Human Movement Science" 38C:152-162.
- Bavelier D., Focker J., Cole D. Beer A.L.(2018) *Neural bases of enhanced attentional control: Lessons from action video game players*, "Brain and Behavior", 2018;8:e01019
- Bavelier D., Bediou B., Green C.S. (2021) *Action Video Game Training and Its Effects on Perception and Attentional Control*, In: Strobach T., Karbach J. (eds) *Cognitive Training*. Springer, Cham.
- Belting H. (2014) *Facce: Una storia del volto*, Carocci, Rome.
- Benjamin, W. (1936/2013), *L'opera d'arte nell'era della sua riproducibilità tecnica*, Rizzoli, Milan.
- Benveniste E. (1974) *Problèmes de linguistique générale I et II*, Paris, Gallimard.
- Bettetini G. (1987). *Il segno dell'informatica*, Bompiani, Milan.
- Bettetini G. (1996) *L'audiovisivo: dal cinema ai nuovi media*, Bompiani, Milan.
- Blomberg J. (2018). *The Semiotics of the game controller*, "Game Studies", 18:2, <http://gamestudies.org/1802/articles/blomberg>

- Bobick A.F (1997) *Movements, Activity, and Action: The Role of Knowledge in the Perception of Motion*. In: Royal Society Workshop on Knowledge-based Vision in Man and Machine, London, England, February 1997.
- Bogost I. (2007) *Persuasive Games: The Expressive Power of Videogames*, MIT Press, Cambridge.
- Bogost I. (2006) *Unit Operations: An Approach to Videogame Criticism*. MIT Press, Cambridge.
- Bolter J.D (2001) *Writing Space: Computers, Hypertext, and the Remediation of Print*, Routledge, New-York.
- Bolter J.D and Grusin R. (1999/2000) *Remediation. Understanding New media*, MIT Press, Cambridge.
- Bondì A. (2008) “La teoria delle forme semantiche tra diversità linguistica e stabilizzazione semiotica», In: Giuliani, Barni (ed.), *Il logos nella polis*, Rome, Aracne, pp. 239-252.
- Bondì A. (ed.) (2012). *Percezione, semiosi e socialità del senso*, Mimesis, Milan.
- Boniolo G. et al. (2007) *Individuo e persona. Tre saggi su chi siamo*, Bompiani, Milan.
- de Borst A.W., Sanchez-Vives M.V., Slater M., de Gelder B. (2018) *First person experience of threat modulates cortical network encoding human peripersonal space*, “bioRxiv” 314971; doi: <https://doi.org/10.1101/314971>
- de Borst A.W., Sanchez-Vives M.V., Slater M., de Gelder B. (2020) *First-Person Virtual Embodiment Modulates the Cortical Network that Encodes the Bodily Self and Its Surrounding Space during the Experience of Domestic Violence*, eNeuro 20 April 2020, 7 (3) ENEURO.0263-19.2019; DOI: <https://doi.org/10.1523/ENEURO.0263-19.2019>
- Bourdieu P. (1984) *Homo Academicus*, Les Editions de Minuit, Paris.
- Brandt P.A. (1995) *Morphologies of meaning*. Aarhus University Press, Oxford.
- Brandt P.A. (2004) *Spaces, domains and meaning. Essays in cognitive semiotics*. Bern: Peter Lang.
- Brechja J. and Marcus A. (2013) “Semiotics of Interaction: Towards a UI Alphabet”. In: Kurosu M. (eds) *Human-Computer Interaction. Human-Centred Design Approaches, Methods, Tools, and Environments*. HCI 2013. Lecture Notes in Computer Science, vol 8004. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-39232-0_2
- Brown D. (2007) “Gaming DNA – On Narrative and Gameplay Gestalts”, In: *Proceedings of Digra 2007*, Url: <http://www.digra.org/wp-content/uploads/digital-library/07311.40380.pdf>
- Buckland W. (2000) *The Cognitive Semiotics of Films*, Cambridge University Press, Cambridge.
- Cadiot P. and Visetti Y.M. (2001) *Pour une théorie des formes sémantiques : Motifs, profils, thèmes*, PUF, Paris.
- Calabrese O. (1987/2013). *Il Neobarocco. Forme e dinamiche della cultura contemporanea*, La casa Usher, Lucca.

- Caillois R. (1958) *Les jeux et les hommes*, Gallimard, Paris.
- Caputo S. and Barbero C. (2018) *Significato. Dalla filosofia analitica alle scienze cognitive*, Carocci, Rome.
- Casetti F. (1986) *Dentro lo sguardo. Il film e il suo spettatore*, Bompiani, Milan.
- Casetti F. and Di Chio F. (1990) *Analisi del Film*, Bompiani, Milan.
- Choppin B. and Collogna A. (edited by) (2020) *Ex machina: robots et machines de l'antiquité*, Les Belles Lettres, Paris.
- Clark A. (2004) *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence.*, OUP USA, Oxford.
- Clark A. (2008) *Supersizing the mind: embodiment, action, and cognitive extension*, Oxford University Press, Oxford.
- Clark A. and Miller M. (2018) *Happily entangled: prediction, emotion, and the embodied mind*, "Synthese" (2018) 195:2559–2575.
- Colas-Blaise M. and Tore G.M. (2020) « Re- » *Répétition et reproduction dans les arts et les médias*, Editions Mimesis, Sesto S. Giovanni.
- Colombo F. and Eugeni R. (1996) *Il testo visibile*, Carocci, Rome.
- Cosenza G. (2008) *Semiotica dei nuovi media*, Laterza, Rome-Bari.
- Crawford C. (2013). *On Interactive Storytelling*. Second Edition. New Riders.
- D'Armenio E. (2014) *Mondi paralleli. Ripensare l'interattività nei videogiochi*, Unicopli, Milan.
- D'Armenio E. (2019) *Dai sensi ai dati. Le protesi audiovisive tra percezione ed enunciazione*, "Ocula", 20, DOI: 10.12977/ocula2019-20
- Damasio A.R (1994/1995) *L'errore di Cartesio. Emozione, Ragione e Cervello Umano*, Adelphi, Milan.
- Danesi M. (2016) *Semiotics of Emoji: The Rise of Visual Language in the Age of the Internet*, Bloomsbury, London.
- De Certeau M. (1990) *L'invention du quotidien. Tome 1. Arts de faire*, Gallimard, Paris.
- De Mauro T. (a cura di), (1970&2003) F. de Saussure, *Corso di linguistica generale, riedizione con aggiunte e correzioni*, Laterza, Rome-Bari.
- De Mauro T. (1970) *Introduzione alla semantica*, Laterza, Bari.
- De Mauro T. (2011) *Prima lezione sul linguaggio*, Laterza, Rome-Bari.
- Degenaar J. and O'Regan J.K. (2017) *Sensorimotor Theory and Enactivism*, "Topoi", 36: 393–407
- Deleuze G. and F. Guattari (1980) *Mille Plateaux: Capitalisme et schizophrénie*, Editions de Minuit, Paris.
- Deleuze G. (1983). *L'image-mouvement. Cinéma 1*, Les Editions de Minuit, Paris.

- Deterding S., Kahled R., Nacke L. E. & D. Dixon (2011). *Gamification: Toward a Definition*. CHI, 2011, May 712, 2011.
- Dusi N. (2014) *Dal cinema ai media digitali. Logiche del sensibile tra corpi, oggetti e passioni*, Mimesis, Milano.
- Eco U. (1962/2013) *Opera Aperta. Forma e indeterminazione nelle poetiche contemporanee*, Milan, Bompiani.
- Eco U. (1963/2013) *Diario Minimo*, Bompiani, Milan.
- Eco U. (1964/2008), *Apocalittici e Integrati. Comunicazioni di massa e teorie della cultura di massa*, Bompiani, Milan.
- Eco U. (1968/2016) *La Struttura Assente*, La nave di Teseo, Milano (EPUB).
- Eco U. (1975/2013) *Trattato di semiotica generale*, Bompiani, Milan.
- Eco U. (1978/2015) *Il Superuomo di Massa. Retorica e Ideologia nel Romanzo Popolare*, Bompiani, Milan.
- Eco U. (1979/2013) *Lector in fabula. La cooperazione interpretativa nei testi narrativi*, Bompiani, Milan.
- Eco U. (1990/2011) *I limiti dell'interpretazione*, Bompiani, Milano.
- Eco U. (1992) *Diario Minimo*, Bompiani, Milan.
- Eco U. (1993/1995) *The search for the perfect language*, Blackwell, Oxford.
- Eco U. (1994) *Sei Passeggiate nei Boschi Narrativi*, Bompiani, Milan.
- Eco U. (1997) *Kant e L'Ornitorinco*, Bompiani, Milan.
- Eco U. (2001) *La bustina di Minerva*, Bompiani, Milan.
- EKMAN P. (2003) *Unmasking the Face: A Guide to Recognizing Emotions from Facial Clues*, Malor Books, San Jose, CA.
- Eugeni R. (2010) *Semiotica dei Media. Le forme dell'esperienza*, Carocci, Roma.
- Eugeni R. (2014) *Rhetoric, Film And*. In: Branigan E. and Buckland W. (2014) *The ROUTLEDGE ENCYCLOPEDIA OF FILM THEORY*, Routledge, London, p.408-412.
- Eugeni R. (2015) *La condizione postmediale*. La scuola, Brescia.
- Eugeni R. and Catricalà V. (2020) *Technologically Modified Self-Centred Worlds. Modes of Presence as Effects of Sense in Virtual, Augmented, Mixed and Extended Reality* in Biggio, Dos Santos and Giuliana (2020) *Meaning-Making in Extended Reality. Senso e virtualità* Aracne, Roma, pp. 63-90.
- Eskelinen M. (2001) *The Gaming Situation*, "Game Studies" 1:1, url: <http://www.gamestudies.org/0101/eskelinen/>
- Fabbri P. (1998/2000) *La svolta semiotica*, Laterza, Roma-Bari.
- Fabbri P. and Marrone G. (2000) *Semiotica in nuce. Volume I. I fondamenti e l'epistemologia strutturale*, Meltemi, Roma.

- Fabbri P. and Marrone G. (2001) *Semiotica in nuce. Volume II. Teoria del discorso*, Meltemi, Roma.
- Fassone R. (2017) *Every game is an island. Endings and extremities in video games*, Bloomsbury Academic, New York – London.
- Fassone R. (2017) *Cinema e Videogiochi*, Carocci, Rome.
- Ferraro G. (2019) *Semiotica 3.0. 50 idee chiave per un rilancio della scienza della significazione*, Aracne, Roma.
- Ferraro G., Finocchi R. and Lorusso A.M. (edited by) (2018) *Il metodo semiotico*, Edizioni Nuova Cultura, Roma.
- Ferri G. (2002) “Interpretative Cooperation and Procedurality. A Dialogue between Semiotics and Procedural Criticism”, dans COMPAGNO, Dario et COPPOCK, Patrick. (ed.), *Computer games between text and practice*, E/C Anno III, n.5, 2002, p.15-20.
- Ferri G. (2007) “Narrating machines and interactive matrices: a semiotic common ground for game studies”, in A. Baba (Ed.), *Proceedings of the Digra 2007 Conference*, 2007, p. 466–473.
- Ferri G. (2014). *To Play Against: Describing Competition in Gamification*. In: Fuchs, M. Fizek, S. Ruffino, P. Schrape, N. Rethinking Gamification, pp 201-222, Meson Press, Lü-neburg.
- Feyerabend P. (1975/1993), *Against Method: Outline of an Anarchistic Theory of Knowledge*, Verso, London-New York.
- Fischer H.M., Raab M. & Werner K. (2018) *Moving arms: the effects of sensorimotor information on the problem-solving process*, “Thinking and Reasoning” 25 (2):171-191.
- Floch J-M. (1990/2002) *Semiotica Marketing e Comunicazione, Dietro i segni le strategie*. FrancoAngeli, Milan.
- Florea M.L. (2009) *Tabularité : des textes aux corpus*, « Corpus », vol. 8, 2009, pp. 177-196.
- Fontanille J. (2004) *Figure del corpo. Per una semiotica dell'impronta*, Meltemi, Rome.
- Fontanille J. (2008) *Pratique Sémiotiques*, Presse Universitaire Française, Paris.
- Fontanille J. (2011) *Corps et Sens*, Presse Universitaire Française, Paris.
- Fradà G. (2018) *Semeiotica medica nell' adulto e nell' anziano - Metodologia clinica ed esplorazione morfofunzionale*, Piccin, Padova.
- Frasca G. (2003) “Ludologists love stories too: notes from a debate that never took place”, in *DiGRA '03 - Proceedings of the 2003 DiGRA International Conference: Level Up*, <http://www.digra.org/digital-library/publications/ludologists-love-stories-too-notes-from-a-debate-that-never-took-place/>
- Frasca G. (2003) “Simulation versus narrative”, in Wolf M.J.P and Perron B. (eds), *The Videogame Theory Reader*, Routledge, New-York.
- Frochlicher P. (2007) “Narrazione ed esperienza estetica. L'incredulità di San Tommaso di Caravaggio”, Marrone G. Dusi N. and Lo Feudo G. (2007) *Narrazione ed esperienza. Intorno a una semiotica del quotidiano*, Meltemi, Roma.

- Gadamer H.G (1960/2000), *Verità e Metodo*, Bompiani, Milan.
- Gadamer H.G. (1991) *L'Art de comprendre : écrits II. Herméneutique et champ de l'expérience humaine*, Paris, Aubier, 1991.
- Gagliano M. (2014). *Peirce e la semiotica cognitiva*. Rivista Italiana di Filosofia del Linguaggio, 2014, 179-191.
- Gavvani A.M, Walker F.R, Hodgson M.D and Nalivaiko E. (2018) *A comparative study of cybersickness during exposure to virtual reality and "classic" motion sickness: are they different?*, "J Appl Physiol", 125: 1670–1680, 2018.
- Gee J.P. (2013). *Learning systems, not games*. Texas Education Review, pp. 1:147-153
- Genette G. (1982) *Palimpsestes*, Le Seuil, Paris.
- Gerosa M. (2007) *Second Life*, Meltemi, Rome.
- Giannitrapani A. (2013) *Introduzione alla semiotica dello spazio*, Carocci, Rome.
- Giese, M., Poggio, T.: Neural Mechanisms for the Recognition of Biological Movements. Nature Reviews 4, 179–192 (2003).
- Giuliana G. (2017) *Struttura aperta e senso: libertà e limiti della significazione nei videogiochi*, MD Thesis, Bologna, Supervisor: Claudio Paolucci.
- Giuliana G. (2018). *Quilting the Meaning. Gameplay as catalyst of signification and why to co-op in game studies*, Proceedings of DiGRA 2018 Conference, Turin, Italy.
- Giuliana G. (2019) "I kissed an NPC and I liked it: love and sexuality in digital games" In: *Digital Age in Semiotics and Communication*.
<http://ojs.nbu.bg/ojs/index.php/DASC/article/view/248>
- Giuliana G. (2021, forthcoming) *Funzioni e valori del volto nei giochi digitali*, "Lexia", 37-38, Aracne Editrice, Rome.
- Giuliana G. (2021, forthcoming) "L'Oggettale e la Persona nella cultura digitale", In Ponzo J. and Vissio G. (eds), *Persona*, Accademia Press, Turin.
- Giuliana G.T and M. Alexiev (2020), "Deconstructing the Experience. Meaning–Making in Virtual Reality Between and Beyond Games and Films", in Biggio, Dos Santos and Giuliana (2020) *Meaning-making in Extended Reality. Senso e virtualità*, Aracne, Roma, pp. 63-90.
- Giuliana G.T. (2020), *BLM E CULTURA DIGITALE*, "Il Pickwick"
<http://www.ilpickwick.it/index.php/extra/espressioni/item/4207-blm-e-cultura-digitale>
- Goddard C. and A. Wierzbicka (2002) *Semantic primes and universal grammar*. In Goddard C. and A. Wierzbicka (eds), *Meaning and Universal Grammar – Theory and Empirical Findings*, Vol. I, , 41–85. Amsterdam, John Benjamins.
- Goddard C. and A. Wierzbicka (2007) *NSM analyses of the semantics of physical qualities: Sweet, hot, hard, heavy, rough, sharp in cross-linguistic perspective*, "Studies in Language" 31(4): 765–800.
- Goto-Jones C. (2016) *The Virtual Ninja Manifesto: Fighting Games, Martial Arts and Gamic Orientalism*, Rowman & Littlefield International, Lanham.

- Greimas A.J. (1970/1984) *Del senso*, Bompiani, Milan.
- Greimas, A.J. (1966/2002) *Sémantique structurale. Recherche de méthode*. PUF, Paris.
- Greimas A.J. (1976) *Sémiotique et sciences sociales*, Seuil, Paris.
- Greimas A.J. (1986/1991) “Della Nostalgia, Studio di semantica lessicale”, In: Pezzini I. (ed.), *Semiotica delle Passioni*, Esculapio, Bologna.
- Grice P. (1975). "Logic and conversation". In Cole P.; Morgan J. (eds.). *Syntax and semantics*. 3: *Speech acts*, New York, Academic Press. pp. 41–58.
- Grodal T. (2000). “Video games and the pleasures of control”, In: D. Zillmann & P. Vorderer (Eds.), *LEA's communication series. Media entertainment: The psychology of its appeal* (p. 197–213). Lawrence Erlbaum Associates Publishers.
- Grodal T. (2003) “Stories for Eye, Ear, and Muscles: Video Games, Media, and Embodied Experiences” in Wolf, M. and Perron, B. (edited by), *The Video Game Theory Reader*, Routledge, London & New York, 2003.
- Grodal T. and Gregersen A.L. (2008) “Embodiment and interface”. In: Perron B. and Wolff M. (eds.), *Video Game Theory Reader 2*, Routledge, New York, pp. 65-83.
- Grodal T. (2009) *Embodied Visions: Evolution, Emotion, Culture, and Film*, Oxford University Press, Oxford.
- Hadot P. (2005) *Esercizi spirituali e filosofia antica*, Einaudi, Turin.
- Haigh-Hutchinson M. (2009) *Real-Time Cameras. A Guide for Game Designers and Developers*, Morgan Kaufmann Publishers, Burlington.
- Hand S. and Varan D. (2008). “Interactive Narratives: Exploring the Links between Empathy, Interactivity and Structure”. In: *Proceedings of the 6th European conference on Changing Television Environments (EUROITV '08)*. Springer-Verlag, Berlin, Heidelberg, 11–19. DOI:https://doi.org/10.1007/978-3-540-69478-6_2
- Harrigan P. and Wardrip-Fruin N. (eds) (2004) *First Person. New Media as Story, Performance, and Game*, MIT Press, Cambridge.
- Hartley, T., Lever C., Burgess N. and O’Keefe J. (2014) *Space in the brain: how the hippocampal formation supports spatial cognition*, Philos Trans R Soc Lond B Biol Sci. 20120510, doi: 10.1098/rstb.2012.0510
- Hawreliak, Jason (ed.) (2019) *Multimodal Semiotics and Rhetoric in Videogames*. New York: Routledge.
- Hébert M., Bulla J., Vivien D. and Agin V. (2017) *Are Distal and Proximal Visual Cues Equally Important during Spatial Learning in Mice? A Pilot Study of Overshadowing in the Spatial Domain*. “Front Behav Neurosci” 2017; 11: 109.
- Herrera F., Bailenson J., Weisz E., Ogle E., and Zaki J. (2018). *Building long-term empathy: A large-scale comparison of traditional and virtual reality perspective-taking*. PloS one, 13(10), e0204494.
- Huizinga J. (1938/2002) *Homo Ludens*, Einaudi, Torino.

- Idone Cassone V. (2019) *SUB SPECIE LUDI. Gamification, Ludification and the boundaries of Play*, PhD Dissertation, University of Turin, Supervisor: Ugo Volli.
- Idone Cassone V. (2020) *Secret Games, Puzzle Narratives and Playful Decrypting: gamified narratives in contemporary media narratives*, “Versus”, 1:105-120.
- Idone Cassone V. and Thibault M. (2016). *The HGR Framework: A Semiotic Approach to the Representation of History in Digital Games*, “Gamevironments”, 5: 156-204.
- Ienca M. (edited by) (2019) *Intelligenza?. Per un'unione di intelligenza naturale e artificiale*, Rosenberg & Sellier, Turin.
- Isbister K. (2006) *Better Game Characters by Design. A Psychological Approach*, Morgan Kaufman Publishers, San Francisco, CA.
- Isbister K. (2016) *How Games Move Us: Emotion by Design*, MIT Press, Cambridge.
- Jakobson R. (1966/2012) *Saggi di linguistica generale*, Feltrinelli, Milan.
- Jenkins H. (2006) *Cultura Convergente*, Apogeo, Milan.
- Jenson J. and De Castell S. (2009). *From Simulation to Imitation: New Controllers, New Forms of Play*. In: *Breaking New Ground: Innovation in Games, Play, Practice and Theory*. Proceedings of DiGRA 2009.
- Jervolino D. and Pititto R. (eds.) (2004) *Linguaggio Fenomenologia. Ricerche Cognitive*. Ananke, Turin.
- Juul J. (2001) *Games telling stories? A brief note on games and narratives*, “Game Studies”, volume 1, n°1, 2001.
- Juul J. (2005). *Half-real: video games between real rules and fictional worlds*. Cambridge, Mass: MIT Press.
- Kapell, M., W. and A. B.R Elliot. (eds). (2013). *Playing with the past: Digital games and the simulation of history*. Bloomsbury, N.Y.
- Klemmer S.R., Hartmann B. and Takayama L. (2006) “How bodies matter: five themes for interaction design”, In: *Proceedings of the 6th conference on Designing Interactive systems.*, New York, NY, USA, 140–149. DOI:<https://doi.org/10.1145/1142405.1142429>
- Koenig G. (2019) *La fin de l'individu. Voyage d'un philosophe au pays de l'intelligence artificielle*, Editions de L'observatoire, Paris.
- Konderak P. (2018) *Mind, cognition, semiosis: Ways to cognitive Semiotics*, Maria Curie-Sklodowska University Press, Lublin.
- Kushner D. (2003) *Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture*, Random House Inc, New-York.
- Lacan J. (1973) *Le séminaire. Livre XI. Les quatre concepts fondamentaux de la psychanalyse*, Seuil, Paris.
- Lakoff G. and Johnson M. (1980/2012). *Metafora e vita quotidiana*, Bompiani, Milan.

- Landow G.P. (2006) *Hypertext 3.0, Critical theory and new media in an era of globalization*, Johns Hopkins University Press, Baltimore.
- Landowski E. (1998/2000) “Per l’abitudine”, In: Fabbri P. and Marrone G., *Semiotica in Nuce Volume I. I fondamenti e l’epistemologia strutturale*, Meltemi, Rome.
- Landowski E. (2007) “Unità del senso, pluralità di regimi”, In: Marrone G. Dusi N. and Lo Feudo G. (2007) *Narrazione ed esperienza. Intorno a una semiotica del quotidiano*, Meltemi, Roma
- Larsen B.A. and Schoenau-Fog H. (2016), “The narrative quality of game mechanics”, in Nack F. and Gordon A.S., *Interactive Storytelling. 9th International Conference on Interactive Digital Storytelling, ICIDS 2016, Los Angeles, CA, USA, November 15–18, 2016, Proceedings*, Springer, New-York.
- Leone M. (2017) *Per una semiotica del mondo contemporaneo: L’età neobarocca, 30 anni dopo*, XLV Congress of the Italian Association for Semiotic Studies, University of Cassino, October 8, 2017 [SE; SC, VS].
- Leone M. (2018a) *Gioco e metodo: Suggestimenti per una semiotica fragile*, in G. Ferraro, R. Finocchi, e A. Lorusso (a cura di), *Il metodo semiotico*, “E/C”, 24:207-223.
- Leone M. (2018b) *The Semiotics of the Face in the Digital Era*, “Perspectives”, 17: 27-9.
- Leone M. (2018c) *The Death of the Reader: Meaning in the Era of Digital Narcissism*, “LANGUAGE AND SEMIOTIC STUDIES”, 4:3, pp.72-83.
- Leone M. (2020) *On insignificance. The loss of meaning in the post-material age*, Routledge, London-New York.
- Leone M. (2020) *The Limits of Digital Interpretation: Semantic Versus Syntactic Connectedness*. “Int J Semiot Law”, 33: 969–982 .
- Levinas E. (2004) *Totalità e Infinito: Saggio sull’esteriorità*, Jaca Book, Milan.
- Levy P. (1997). *Il virtuale*. Raffaello Cortina ed., Milan.
- Lorusso A. (2010) *Semiotica della Cultura*, Laterza, Rome-Bari.
- Lorusso A.M. (2015) *L’abito in Peirce. Una teoria non sociologica per la semiotica della cultura*, “Rivista Italiana di Filosofia del Linguaggio”, 0(2). Available at: <http://www.rifl.unical.it/index.php/rifl/article/view/311> (Accessed: 13February2021).
- Lorusso A.M (2018) *Il metodo semiotico: interrogazioni e interpellanze*, “E/C”, 24:9-22.
- Lotman J.M. (1977) *La cultura come mente collettiva e i problemi dell’intelligenza artificiale*, “Centro Internazionale di Semiotica e Linguistica. Università di Urbino”, numero 66 settembre 1977
- Lughi G. (2015). *Interactive storytelling*. In Arcagni, S. (2015). *I media digitali e l’interazione uomo macchina*, Aracne, Rome.
- Madary M. and Metzinger, T.K. (2016). *Real Virtuality: A Code of Ethical Conduct. Recommendations for Good Scientific Practice and the Consumers of VR-Technology*, “Front. Robot AI” 3:3.

- Majuri J., Koivisto J. and Hamari, J. (2018). *Gamification of education and learning: A review of empirical literature*, Proceedings of 2018 Gamifin, Pori, Finland
- Maietti M. (2004) *Semiotica dei videogiochi*, Unicopli, Milan.
- Magnè B. (2004) *Introduction, La vie mode d'emploi*, Le Livre de Poche, Paris.
- Malafouris, L. (2014) *How things shape the mind. A theory of material engagement*. The MIT Press, Cambridge.
- Malafouris, L. (2018) *Mind and material engagement*, «Phenom Cogn Sci» 18, 1–17.
- Maldonado T. (1992/2015) *Reale e Virtuale*, Feltrinelli, Milan.
- Malvasi L. (2009) *Racconto di corpi. Cinema, film, spettatori*, Edizioni Kaplan, Turin.
- Manovich L. (2010) *Software Culture*, Edizioni Olivares, Milan.
- Manovich L. (2013) *Media after software*, “Journal of Visual Culture”, 12:1, pp. 30-37.
- Marini D., Folgieri R., Gadia D and Rizzi A. (2011/2012), *Virtual reality as a communication process*, “Virtual Reality” 16, 233–241 (2012).
- Marino G. (2020) *Frammenti di un disco incantato. Teorie semiotiche, testualità e generi musicali*, Aracne, Rome.
- Marrone G. (2005/2009) *The Ludovico Cure. On Body and Music in A Clockwork Orange*, Legas, Toronto.
- Marrone G. Dusi N. and Lo Feudo G. (2007) *Narrazione ed esperienza. Intorno a una semiotica del quotidiano*, Meltemi, Rome.
- Marsciani F. (1991) “Uno sguardo semiotico sulla vergogna”, In: Pezzini I. (ed.), *Semiotica delle Passioni*, Esculapio, Bologna.
- Marsciani F. (2007) *Tracciati di Etnosemiotica*, FrancoAngeli, Milan.
- Mazzucchelli F. (2020) *Sguardi artificiali. Strategie di enunciazione della visione macchinica*, in *Atti del XLVII Congresso dell'Associazione Italiana di Studi Semiotici di Siena*, 25-27 ottobre Siena.
- Melcer E. and Isbister K. (2016). “Bridging the Physical Learning Divides: A Design Framework for Embodied Learning Games and Simulations, In: *1st International Joint Conference of DiGRA and FDG*, Url: https://www.researchgate.net/publication/301895359_Bridging_the_Physical_Learning_Divides_A_Design_Framework_for_Embodied_Learning_Games_and_Simulations
- Meneghelli A. (2005). *Pratiche di gioco e significazione in atto*, “Ocula”, vol.6.
- Meneghelli A. (2007) *Dentro lo schermo. Immersione e interattività nei god games*, Unicopli, Milan.
- Meneghelli A. (2011) *Il risveglio dei sensi. Verso un'esperienza di gioco corporeo*, Unicopli, Milan.
- Metz C. (1964) *Le cinéma, langue ou langage ?* « Communications » 4, pp.52-90.

- Metz C. (1974). *Film Language. A semiotics of the Cinema*. University of Chicago Press.
- Mori M. (2013) *Manuale di bioetica. Verso una civiltà biomedica secolarizzata*, Le Lettere, Firenze.
- Mosca I. (2010) *I giochi e le regole*, “Tangram”, 23:51-61.
- Mosca I. (2013) *From Fiction to Reality and Back*, “Int. J. of Games and Computer-Mediated Simulations”, 5: 13-31.
- Murphy D. (2017). *Virtual Reality is ‘Finally Here’: A Qualitative Exploration of Formal Determinants of Player Experience in VR*. In: Proceedings of DiGRA 2017.
- Murray J.H. (1998) *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, MIT Press, Cambridge.
- Musatti C. (1961) *Psicologia degli spettatori al cinema*, “Rivista di psicologia”, 3: 191-220.
- Nash K. (2018). *Virtually real: exploring VR documentary*, “Studies in Documentary Film”, 12:2, 97-100, Routledge, London.
- Nitsche M. (2008). “Videogame e montage. Alcune considerazioni sul montaggio interattivo”, In: M.Bittanti (ed.), *Intermedialità: Videogiochi, cinema, televisione, fumetti*. pp. 83-106, Unicopli, Milan.
- Nussbaum M. (2004) *L’intelligenza delle emozioni*, Il Mulino, Bologna.
- Pablé A. and Hutton C. (2015) *Signs, Meaning and Experience: Integrational approaches to Linguistics and Semiotics*, De Gruyter, Berlin.
- Palaus M., Marron E.M., Viejo-Sobera R. and Redolar-Ripoll D. (2017) *Neural Basis of Video Gaming: A Systematic Review*, “Front Hum Neurosci.”, 11: 248.
- Paolucci C. (edited by) (2007), *Studi di semiotica interpretativa*, Bompiani, Milano.
- Paolucci C. (2008) *La "lingua scritta della realtà" tra visibile e dicibile. Pasolini, Eco, Peirce e Deleuze*, «VS», 2008, 106, pp. 67 – 83.
- Paolucci C. (2010) *Strutturalismo e interpretazione*, Bompiani, Milano.
- Paolucci C. (2011) *The "External Mind": Semiotics, Pragmatism, Extended Mind and Distributed Cognition*, «VS», 2011, 112-113, pp. 69 – 96.
- Paolucci C. (2016) *Umberto Eco. Tra Ordine e Avventura*, Milano, Feltrinelli.
- Paolucci C. (2016) *Interpretare e sentire: un modello semiotico tra fenomenologia e scienze cognitive*, «ERMENEUTICA LETTERARIA», 2016, XII 2016, pp. 29 - 42
- Paolucci C. (2017) *Prothèses de la subjectivité. L’appareil formel de l’énonciation dans l’audiovisuel*, in *Les plis du visuel. Réflexivité et énonciation dans l’image*, Limoges, Éditions Lambert-Lucas, 2017, pp. 53 – 68
- Paolucci C. (2018a) *Three Pragmatist Legacies in the Thought of Umberto Eco*, «EUROPEAN JOURNAL OF PRAGMATISM AND AMERICAN PHILOSOPHY», 2018, X-1 2018, pp. 1 - 12

- Paolucci C. (2018b) *Eco and Pragmatism*, «EUROPEAN JOURNAL OF PRAGMATISM AND AMERICAN PHILOSOPHY», 2018, X-1 2018, pp. 1 - 222
- Paolucci C. (2018c) *Quale metodologia semiotica dopo la fine della svolta linguistica? Il caso della teoria dell'enunciazione*, in: *Il metodo semiotico*, Roma, Nuova Cultura, 2018, pp. 73 – 90.
- Paolucci C. (2020) “Una percezione macchinica: Realtà virtuale e realtà aumentata tra simulacri e protesi dell'enunciazione”, in F. Biggio, V. Dos Santos e G. Giuliana (a cura di), *Meaning-Making in Extended Reality: Senso e virtualità*, Aracne Editrice, Roma, 43-62
- Paolucci C. (2020) *Persona: Soggettività nel linguaggio e semiotica dell'enunciazione*, Bompiani (Kindle Edition), Milano.
- Parisi F. (2019) *La tecnologia che siamo*, Codice Edizioni, Turin.
- Paz-Alonso P.M., Bunge S.A., Ghatti S. (2014) *Emergence of Higher Cognitive Functions: Reorganization of Large-Scale Brain Networks During Childhood And Adolescence*, Oxford Handbooks Online, Online Publication Date: Jul 2014 DOI: 10.1093/oxfordhb/9780199935291.013.003
- Pierce C.S. (1868) in Maddalena G. (ed.) (2008) *Scritti Scelti*, Utet, Turin.
- Pellegrino G. and Lådavas E. (2014) *Peripersonal space in the brain*, “Neuropsychologia”, 66: 126-133.
- Pestre D. (ed.) (2015) *Histoire des sciences et des savoirs. 3. Le siècle des technosciences*, Editions du Seuil, Paris.
- Pezzini I. (ed.) (1991) *Semiotica delle Passioni*, Esculapio, Bologna.
- Pinker S. (2009) *How the mind works*, W. W. Norton & Company, New York.
- Pinotti A. and Somaini A. (2016). *Cultura Visuale: immagini, sguardi, media, dispositivi*. Einaudi, Turin.
- Pirandello L. (2014) *Uno, nessuno e centomila* (1926), Einaudi, Torino.
- Polidoro P. (2017) “Spectator in Fabula: A Model of the Interpretative Cooperation in Visual Texts”, in Thellefsen T. and Sørensen B (edited by), *Umberto Eco in His Own Words*, De Gruyter Mouton, Berlin.
- Polidoro P. (2019) *Tensioni e passioni nella prima sequenza di Saving Private Ryan*, “Carte Semiotiche”, vol 5, pp. 46-59.
- Polidoro P. (2019) *Image schemas in visual semiotics: Looking for an origin of plastic language*, “Cognitive Semiotics”, vol 12, p.533-547.
- Post J. (2003) “Requiem for a Reader? A Semiotic Approach to Reader and Text in Electronic Literature”, in Van Looy J. and Baetens J (eds.), *Close reading new media. Analyzing Electronic Literature*, Leuven University Press, Leuven.
- Post J. (2009) “Bridging the Narratology-Ludology Divide. The Tetris Case”, in Compagno D. and Coppock P. (eds.), *Computer games between text and practice*, E-C Rivista online di studi semiotici, http://www.ec-aiss.it/monografici/5_computer_games.php

- Prensky M. (2003). *Digital game-based learning*, “Computers in Entertainment (CIE) - Theoretical and Practical Computer Applications in Entertainment CIE Homepage archive”, Volume 1 Issue 1.
- Prinz J.J. (2006). *Gut Reactions. A Perceptual Theory of Emotion*. Oxford University Press, Oxford.
- Queneau R. (1961) *Cent mille milliards de poèmes*, Gallimard, Paris.
- Radianti J., Majchrzak T.A., Fromm J. and Wohlgenannt, I. (2020). *A systematic review of immersive virtual reality applications for higher education: Design elements, lessons learned, and research agenda*, “Computers & Education”, 147.
- Raessens J. (2012). “The ludification of culture”. In: Fuchs M., Fizek S., Ruffino P., Schrape N. (eds.) (2014). *Rethinking Gamification*, pp 201-222, Meson Press, Lüneburg.
- Rastier F., Cavazza M. and Abeillé A. (1994) *Sémantique pour l'analyse. De la Linguistique à l'Informatique*, Masson, Paris.
- Rehak B. (2003) “Playing at Being: Psychoanalysis and the Avatar”, in M. Wolf e B. Perron (a cura di), *The Video Game Theory Reader*, Routledge, Londra e New York, NY, 103-28
- Ricoeur P. (1983) *Temps et récit I. L'intrigue et le récit historique*, Editions du Seuil, Paris.
- Ricoeur P. (1990) *Soi-même come un autre*, Editions du Seuil, Paris.
- Rizzolatti G., Fogassi L., Gallese V. (1997) *Parietal Cortex: from Sight to Action*. *Current Opinion*, “Neurobiology” 7, 562–567.
- Rizzolatti, G., Fogassi, L., Gallese, V (2001) *Neurophysiological Mechanisms Underlying the Understanding and Imitation of Action*. “Nature Reviews” 2: 661–670.
- Ross A.S. and Rivers D. (eds.) (2019/2020) *Discourses of (De)Legitimization Participatory Culture in Digital Contexts*, Routledge, New-York.
- Ryan M.L. (2001/2015) *Narrative as Virtual Reality 2*, Jhon Hopkins University Press, Baltimore.
- Salen K. and Zimmerman E. (2004) *Rules of Play - Game Design Fundamentals*, The MIT Press, Cambridge.
- Sanders A. (1995), *Hypertext, Learning, and Memory: Some Implications from Manuscript Tradition*, “Text”, 8: 125-43.
- Savan D. (1991) “La teoria semiotica dell'emozione secondo Peirce”, In: Pezzini I. (ed.), *Semiotica delle Passioni*, Esculapio, Bologna.
- Scardicchio S. (2010) *Dal dato alla coscienza: i «qualia» come proprietà dell'esperienza*, in Perone U. (2010) “Filosofia dell'avvenire”, Rosenberg & Sellier, Torino, p. 118-127.
- Schettler A., Raja V. and Anderson M.L. (2019) *The Embodiment of Objects: Review, Analysis, and Future Directions*, “Front. Neurosci”, 13:1332.
- Schneider E., Wang Y. and Yang S. (2007) “Exploring the Uncanny Valley with Japanese Video Game Characters” in Baba A., *Proceedings of DiGRA 2007*, <http://www.digra.org/wp-content/uploads/digital-library/07312.11004.pdf>

- Semenenko A. (2012) *The Texture of Culture. An Introduction to Yuri Lotman's Semiotic Theory*, Palgrave Macmillan, New York.
- Sheehan M. and M. Nachman (2014) *Morphological and Population Genomic Evidence that Human Faces Have Evolved to Signal Individual Identity*, "Nat Commun", 5: 4800
- Shelley M. (1818/2011) *Frankenstein, or The Modern Prometheus*, Garzanti, Milan.
- Siabra-Fraile J. (2009) "Manic Miner under the Shadow of the Colossus: a Semiotic Analysis of the Spatial Dimension in Platform Video Games", in Compagno D. and Coppock P. (eds.), *Computer games between text and practice*, E-C Rivista online di studi semiotici, http://www.ec-aiss.it/monografici/5_computer_games.php
- Spence I. and Feng J. (2010) *Videogames & Spatial Cognition*, "Review of General Psychology", 14:2, 92–104.
- Sporn O. (2011) *Networks of the Brain*, The MIT Press, Cambridge.
- Sontag S. (1966/2013) *Against Interpretation. And other essays*, Picador, New-York.
- Stam R. (1999). *Film Theory: An Introduction*. Wiley-Blackwell, Hoboken (NJ).
- Suits B. (1978/2005) *The Grasshopper: Games, Life and Utopia*, Broadway Press, Ottawa.
- Surace B. (2019) *Il destino impresso. Per una teoria della destinalità nel cinema*, Kaplan, Torino.
- Thibault M. (2017). *Play as a Modelling System – a Semiotic Analysis of the Overreaching Prestige of Games*. In: Proceedings of GamiFIN Conference 2017, Pori, Finland, May 9-10.
- Thibault M. (2019) *A semiotic exploration of catastrophes in game worlds*, *Linguistic Frontiers* 2(1).
- Thibault M. (2020), *Ludosemiotica. Il gioco tra segni, testi, pratiche e discorsi*, Rome, Aracne.
- Triclot M. (2017) *Philosophie des jeux vidéo*, Éditions La Découverte, Paris.
- Vanderdorpe C. (1999) *Du papyrus à l'hypertexte. Essai sur les mutations du texte et de la lecture*, La Découverte, Paris.
- Varela F., Thompson E. and Rosch E. (1993). *L'inscription corporelle de l'esprit, sci-ences cognitives et expériences humaine*, Editions du Seuil, Paris.
- Vecchio S. (2005) *La puffa di Babele. Storie e analisi di testi*, Bonanno, Acireale-Rome.
- Vecchio S. (2017) *Un prisma agostiniano di filosofia del linguaggio*, Bonanno, Acireale-Rome.
- Vella D. (2016) "Who Am 'I' in the Game?: A Typology of the Modes of Ludic Subjectivity", in Dormann C, *Proceedings of the First International Conference of Digra and FDG*, http://www.digra.org/wp-content/uploads/digital-library/paper_234.pdf
- Vella D. & Gualeni, S. (2019). *Virtual Subjectivity: Existence and Projectuality in Virtual Worlds*. In: *Techne': Research in Philosophy of Technology*, 23:2.
- Violi, Patrizia (2007), «Lo spazio del soggetto nell'enciclopedia», in C. Paolucci, a cura di, *Studi di semiotica interpretativa*, Bompiani, Milano, pp. 177-202.

- Violi, P. (2009) *Image as Testimony: Use of photographs in Literary Reconstruction of Cultural Memory*. In: Demaria, C; Daly, M, *The Genres of Post-Conflict Testimonies*. CCC Press, Nottingham.
- Volli U. (2003) “Tempo interno e tempo esterno ai testi”, in: Casetti F., Colombo F. and Fumagalli A. (eds.), *La realtà dell'immaginario. I media tra semiotica e sociologia. Studi in onore di Gianfranco Bettetini*, Milan, Vita e Pensiero.
- Volli U. (2008) *Lezioni di Filosofia della Comunicazione*, Laterza, Roma.
- Ward D., Silverman D. and Villalobos M. (2017) *Introduction: The Varieties of Enactivism*. “Topoi” 36, 365–375.
- Waris O., Jaeggi S.M., Seitz A.R., Lehtonen M., Soveri A., Lukasik K.M., Söderström U., Hoffing R.C., Laine M. (2019) *Video gaming and working memory: a large-scale cross-sectional correlative study*. “Comput Human Behav”, 97:94-103
- Waterworth J.A and Waterworth E.L. (2014) *Distributed Embodiment: real presence in virtual bodies*. In: Grimshaw M. (edited by), *The Oxford Handbook of Virtuality*, Oxford University Press, New York, 589-601.
- Wierzbicka A. (2006). *Shape in grammar revisited*, “Studies in Language” 30(1): 115–177.
- Wierzbicka, A. (2007). *Bodies and their parts: An NSM approach to semantic typology*. “Language Sciences” 29(1): 14–65.
- Wolf M. and B. Perron (2003) “Introduction”, in M. Wolf e B. Perron B. (eds), *The Video Game Theory Reader*, Routledge, London & New York
- Zagalo N., Torres A., Branco, V. (2006). *Passive Interactivity, an Answer to Interactive Emotion*. In: 5th International Conference on Entertainment Computing, in Lecture Notes in Computer Science, Springer, Volume 4161/2006.
- Zagalo N. (2017) *Narrative Design of Sadness in Heavy Rain*, “Journal of Science and Technology of the Arts”, Volume 9, No. 2 – Special Issue Narrative and Audiovisual Creation 2017.
- Zilberberg C. (2012/2017) *La structure tensive. Suivi de note sur la structure des paradigmes et de sur la dualité de la poétique*, Presses universitaires de Liège, Liège.
- Zimmerman E. (2004) “Narrative, Interactivity, Play, and Games: Four Naughty Concepts in Need for Discipline”, in WARDRIP-FRUIIN N. and HARRIGAN P., *First person: New media as story, performance, and game*, Cambridge, The MIT Press, p.154.
- Zinna A. (2004) *Le interfacce degli oggetti di scrittura: teoria del linguaggio e ipertesti*, Meltemi, Milan.
- Zizek S. (2016) *Che cos'è l'immaginario*, Il Saggiatore, Milano.
- Zlatev J., Racine T.P., Sinha C. and Itkonen E. (2008). *The Shared Mind. Perspectives on Intersubjectivity*, “Converging Evidence in Language and Communication Research”, Volume 12, John Benjamins Publishing Company, Amsterdam.
- Zlatev J. (2012) *Cognitive Semiotics: an emerging field for the transdisciplinary study of meaning*, “The Public Journal of Semiotics”, IV(1), October 2012.

Zlatev J. (2015) *Cognitive Semiotics*. In: Trifonas P. (eds) *International Handbook of Semiotics*. Springer, Dordrecht.

Zlatev J. (2018) *Meaning making from life to language: The Semiotic Hierarchy and phenomenology*. In *Cognitive Semiotics*, 11:1, 20180001.

Ludography

(MW: Microsoft Windows; NES: Nintendo Entertainment System; PSX: PlayStation X, SCE: Sony Computer Entertainment)

1. 343 Industries, *Halo 4*, Microsoft Game Studios, Xbox 360, 2012
2. 989 Studio & Verrant Interactive, *Everquest*, Sony Online Entertainment, MW, 1999.
3. 2K Boston, *Bioshock*, 2K Games, MW, 2007.
4. 4A Games, *Metro 2033*, THQ, MW, 2010.
5. Acquire, *Tenchu 2*, Activision, PS1, 2000.
6. Activision, *Pitfall!*, Activision, Atari 2600, 1982
7. Advanced Microcomputer Systems, *Dragon's Lair*, Cinematronics, Arcade, 1983
8. Advanced Communication, *Dr. Jekyll and Mr. Hyde*, Toho & Bandai, 1988.
9. Ambrella, *Hey you, Pikachu!*, Nintendo, Nintendo 64, 1998
10. Amplitude Studio, *Dungeon of The Endless*, Sega, MW, 2014.
11. Amusement Vision, *Super Monkey Ball 2*, Sega, GameCube, 2002-
12. Apogee Software, *Duke Nukem*, Apogee Software, MS-DOS, 1991
13. Arc Systems, *Dragon Ball FighterZ*, Bandai Namco Entertainment, MW, 2018.
14. ArenaNet, *Guild Wars 2*, NCSoft, MW, 2012
15. Argonaut Games, *The Emperor's New Groove*, SCE, PS1, 2000.
16. Arkane Studios, *Prey*, Bethesda Softworks, MW, 2017.
17. Arkane Studios & Machine Games, *Wolfenstein: Youngblood*, Bethesda Softworks, MW, 2019
18. Asmic Ace Entertainment, *LSD: Dream Emulator*, Asmic Ace Entertainment, PS1, 1998.
19. Atari, *Pong*, Atari, Arcade, 1972
20. Atari, *Space Race*, Atari, Arcade, 1973.
21. Atari Inc., *Asteroids*, Atari Inc., 1979
22. Atari Inc., *Adventure*, Atari Inc., Atari 2600, 1980
23. Atari Inc, *E.T. the Extra-Terrestrial*, Atari Inc, Atari 2600, 1982
24. Atari, *Star Wars*, Atari, Arcade, 1983.
25. Atari Games, *Gauntlet*, Atari Games, Arcade, 1985
26. Atlus, *Persona 3*, Atlus & Koei, PS2, 2006.
27. Atlus, *Persona 4*, Atlus & Square Enix, PS2, 2008.
28. Atlus, *Persona 5*, Atlus & Deep Silver, PlayStation 4, 2016.
29. Avalanche Studios, *Mad Max*, Warner Bros Interactive Entertainment, PS4, 2015
30. B.B Studio, *Super Robot Wars V*, Bandai Namco Entertainment, PS4, 2017.
31. Bandai Namco and Sora Studios, *Super Smash Bros. for Wii U*, Nintendo, Wii U, 2014.
32. Bandai Namco and Sora Studios, *Super Smash Bros. Ultimate*, Nintendo, Switch, 2018.
33. Banpresto and Bandai Namco Games, *Mobile Suit Gundam: Bonds of the Battlefield*, Banpresto and Bandai Namco Games, Arcade, 2006.
34. Bethesda Game Studios, *Fallout 3*, Bethesda Softworks, MW, 2008.

35. Bethesda Game Studios, *The Elder Scrolls V: Skyrim*, Bethesda Softworks, MW 2011
36. Bethesda Game Studios, *Fallout 4*, Bethesda Softworks, MW, 2015.
37. Big Blue Box Studios, *Fable*, Microsoft Game Studios, Xbox, 2004
38. BioWare, *Mass Effect 2*, Electronic Arts, MW, 2010.
39. BioWare, *Mass Effect 3*, Electronic Arts, MW, 2012
40. BioWare, *Star Wars: Knights of the Old Republic*, LucasArts, Microsoft, 2003.
41. BioWare, *Baldur's Gate 2: Shadow of Amn*, by Interplay Entertainment, MW, 2000
42. Blizzard, *Warcraft III: Reign of Chaos*, Blizzard, MW, 2002.
43. Blizzard Entertainment, *World of Warcraft*, Blizzard Entertainment, MW, 2004.
44. Blizzard Entertainment, *StarCraft II: Wings of Liberty*, Blizzard Entertainment, MW, 2010.
45. Blizzard, *Overwatch*, Blizzard, MW, 2016.
46. Bluehole Studio, *TERA*, Gameforge, MW, 2011
47. Broderbund, *Prince of Persia*, Borderbund, Apple II, 1989
48. Buff Studio, *My Oasis*, Buff Studio, Android, 2017.
49. Bulkhead Interactive, *The Turing Test*, Square Enix, MW, 2016.
50. Bungie, *Destiny*, Activision, PS3, 2014.
51. Bungie, *Halo: Combat Evolved*, Microsoft Game Studios, Xbox, 2001.
52. Bungie, *Halo 2*, Microsoft Game Studios, Xbox, 2004.
53. Bungie, *Halo 3*, Microsoft Game Studios, Xbox 360, 2007.
54. 343 Industries, *Halo 4*, Microsoft Game Studios, Xbox 360, 2012.
55. Capcom, *Ghosts 'n Goblins*, Capcom & Taito, 1985
56. Capcom, *Megaman*, Capcom, NES, 1987.
57. Capcom, *Megaman 3*, Capcom & Nintendo, NES, 1992.
58. Capcom Production Studio 4, *Resident Evil 4*, Capcom, GameCube, 2005
59. Capcom, *Devil May Cry 4*, Capcom, MW, 2008.
60. Capcom, *Devil May Cry 5*, Capcom, MW, 2019.
61. Capcom, *Street Fighter*, Capcom, Arcade, 1987.
62. Capcom, *Street Fighter III: 3rd Strike*, Capcom, Arcade, 1999.
63. Capcom, *Monster Hunter: World*, Capcom, PS4, 2018.
64. Capcom, *Resident Evil 5*, Capcom, PS3, 2009.
65. Camouflaj, *Republique*, GungHo Online Entertainment, Android, 2013.
66. CD Projekt Red, *The Witcher 3: Wild Hunt*, CD Projekt, PC, 2015
67. CD Projekt Red, *Cyberpunk 2077*, CD Projekt, PC, 2020
68. Chiku, *Syonbon Action / Cat Mario*, Chiku, MW, 2007.
69. Chris Hecker and John Cimino, *Spy Party*, Chris Hecker, MW, 2018.
70. Coleco, *Rocky Super Action Boxing*, Coleco, ColecoVision, 1983
71. Comcept & Armature Studio, *ReCore*, Microsoft Studios, MW, 2016.
72. Core Design, *Tomb Raider 2*, Eidos Interactive, PS1, 1997.
73. Creative Assembly, *Total War: Rome II*, Sega, MW, 2013.
74. Criterion Games, *Burnout*, Acclaim Entertainment, PS2, 2001.
75. Criterion Games, *Burnout 3: Takedown*, EA Games, PS2, 2004.
76. Criterion Games, *Burnout Paradise*, Electronic Arts, PC, 2008,
77. Croteam, *The Talos Principle*, Devolver Digital, MW, 2014.
78. Cyan, *Myst*, Broderbund, MW, 1994.
79. Daniel Mullin Games, *Pony Island*, Daniel Mullin Games, MW, 2016.
80. Deck13 Interactive, *The Surge*, Focus Home Interactive, PS4, 2017.
81. Delight Works, *Fate/Grand Order*, Aniplex, Android, 2015.
82. Dice, *Mirror's Edge*, Electronic Arts, MW, 2009.

83. Digital Extremes, *Warframe*, Digital Extremes, MW, 2013
84. Dejobaan Games, *Elegy for a Dead World*, Dejobaan Games, MW, 2014.
85. DMA Design, *Lemmings*, Psygnosis, Amiga, 1991.
86. DMA Design, *Grand Theft Auto*, BMG Interactive, MW, 1997.
87. Doug Smith & Hudson Soft, *Lode Runner*, Broderbund, Apple II, 1983
88. Dreadlocks Ltd, *Dex*, Dreadlocks Ltd, MW, 2014.
89. EA Canada, *FIFA 12*, Electronic Sports, PS3, 2011
90. EA Romani & EA Vancouver, *FIFA20*, EA Sports, PS4, 2019
91. EA Vancouver, *EA Sports UFC 4*, Electronic Arts, PS4, 2018
92. Eidos Montreal, *Deus Ex: Human Revolution*, Square Enix, MW, 2011.
93. Eidos Montreal, *Deus Ex: Mankind Divided*, Square Enix, MW, 2016.
94. Ensemble Studios, *Age of Empires II: The Age of Kings*, Microsoft, MW, 1999.
95. Epic Games, *Fortnite*, Epic Games, MW, 2017.
96. Evolution Studios, *World Rally Championship*, SCEE, PS2, 2001.
97. Firaxis Games, *XCOM2*, 2K Games, MW, 2016.
98. Flow Fire Games, *Synthetik: Legion Rising*, Flow Fire Games & Whisper Games, MW, 2018.
99. Frictional Games, *Amnesia: The Dark Descent*, Frictional Games, MW, 2010.
100. Frictional Games, *Soma*, Frictional Games, MW, 2015.
101. FromSoftware, *Bloodborne*, SCE, PS4, 2015.
102. FromSoftware, *Dark Souls*, Namco Bandai Games, PS3, 2011.
103. Frontier Developments, *Elite Dangerous*, Frontier Developments, MW, 2014
104. Galactic Café, *The Stanley Parable*, Galactic Café, MW, 2013.
105. Game Freak, *Pokemon Blu Version*, Nintendo, Game Boy, 1996.
106. Game Freak, *Pokemon Silver Version*, Nintendo, Game Boy Color, 1999.
107. Game Freak, *Pokemon Fire Red*, The Pokemon Company Nintendo, GBA, 2004.
108. Game Freak, *Pokemon X*, The Pokemon Company Nintendo, 3DS, 2013.
109. Game Freak, *Pokemon Moon*, The Pokemon Company Nintendo, 3DS, 2016.
110. Game Freak, *Pokemon Sword*, The Pokemon Company Nintendo, Switch, 2016.
111. Gearbox Software, *Borderlands 2*, 2K Games, MW, 2012.
112. Gearbox Software, *Borderlands The Pre-sequel*, 2K Games, PS3, 2014.
113. Gearbox Software, *Borderlands 3*, 2K Games, PS4, 2019.
114. Ghost Town Games, *Overcooked*, Team 17, PS4, 2016.
115. Gottlieb, *Q*bert*, Gottlieb, Arcade, 1982
116. Grasshopper Manufacture, *Killer 7*, Capcom, PS2, 2005
117. Grip Games, *The Impossible Game*, FlukeDude, MW, 2009.
118. Guerilla Games, *Horizon Zero Dawn*, Sony Interactive Entertainment, PS4, 2017.
119. Grasshopper Manufacture, *No More Heroes*, Rising Star Games, Wii, 2008.
120. Hal Laboratory, *Pokemon Snap*, Nintendo, N64, 1999.
121. Harmonix, *Amplitude*, SCE, PS2, 2003.
122. Harmonix, *Amplitude*, Harmonix, PS4, 2016.
123. Hello Games, *No Man's Sky*, Hello Games, MW, 2016.
124. Honey Parade Games, *Shinobi Master Senran Kagura: New Link*, Marvelous, Android, 2017.
125. id Software, *Wolfenstein 3D*, Apogee Software, 1992
126. id Software, *Doom*, id Software, MW, 1993.
127. Id Software, *Quake*, id Software, MW, 1996.
128. Illusions, *Koikatsu Party*, Illusions, PC, 2019.

129. Imagineering, *Penn & Teller's Smoke and Mirrors*, Absolute Entertainment, Sega CD, 1995 (Containing *Desert Bus*)
130. Imangi Studios, *Temple Run 2*, Imagi Studios, Android, 2013.
131. Inis, *Gitaroo Man*, Koei, PS2, 2001.
132. Insomniac Games, *Ratchet and Clank*, SCE, PS2, 2002.
133. Interplay Productions, *Battle Chess*, Interplay Productions, Amiga, 1988
134. Interplay Productions, *Wasteland*, Electronic Arts, Apple II, 1988.
135. Ion Storm, *Deus Ex*, Eidos Interactive, MW, 2000.
136. Irem, *R-Type*, Nintendo, Arcade, 1987.
137. Japan Studio & Pyramid, *Patapon*, SCE, PlayStation Portable, 2007.
138. Jelly Vision & Vivarium, *Seaman*, Sega, Sega Dreamcast, 1999.
139. K2LLC, *Tenchu: Wrath of Heaven*, Activision, PS2, 2004.
140. Kagami Works, *Mirror*, Paradise Project, MW, 2018.
141. Kalisto Entertainment, *The Fifth Element*, SCE, PS1, 1998.
142. KingsGroup Holdings, *State of Survival*, KingsGroup Holdings, Android, 2020.
143. Kiloo and SYBO Games, *Subway Surfers*, Kiloo Games, Android, 2012.
144. Klei Entertainment, *Invisible, Inc.*, Klei Entertainment, MW, 2015.
145. Kojima Productions, *Metal Gear Solid 4: Guns of the Patriots*, Konami, PS3, 2008.
146. Kojima Productions, *Death Stranding*, Sony Interactive Entertainment, PS4.
147. Konami, *Contra*, Konami, Arcade, 1987.
148. Konami, *Castlevania: Symphony of the Night*, Konami, PS1, 1997.
149. Konami, Pro Evolution Soccer 5, Konami, PS2, 2005.
150. Konami, *Yu-Gi-Oh! GX: Tag Force 3*, Konami, PSP, 2008
151. Konami Computer Entertainment, *Suikoden*, Konami, PlayStation, 1995
152. Konami Computer Entertainment Japan, *Metal Gear Solid*, Konami, PlayStation, 1998.
153. Konami, *Metal Gear Solid 2: Sons of Liberty*, Konami, PS2, 2001.
154. Konami Productions, *Metal Gear Solid V: The Phantom Pain*, Konami, PS4, 2015
155. Konami, *Metal Gear Survive*, Konami, PS4, 2018.
156. Kronos Digital Entertainment, *Fear Effect*, Eidos Interactive, PlayStation, 1999
157. Larian Studios, Divinity Original Sin II, Larian Studios, PC, 2017
158. Lilith Games, *AFK Arena*, Lilith Games, Android, 2018.
159. Lindenlab, *Second Life*, Lindenlab, MW, 2003
160. Looking Glass Technologies, *System Shock*, Origin Systems, MW, 1994.
161. Looking Glass Studios & Irrational Games, *System Shock 2*, Electronic Arts, MW, 1999.
162. Lucas Arts, *The Curse of Monkey Island*, Lucas Arts, MW, 1997.
163. Lucasfilm Games, *Habitat*, Quantum Link & Fujitsu, Commodore 64, 1986
164. Ludeon Studios, *RimWorld*, Ludeon Studios, MW, 2018.
165. Maxis, *SimCity*, Maxis, Amiga, 1989.
166. Maxis Redwood Shores, *The Sims 2*, Electronic Arts, PS2, 2004
167. Maxis Redwood Shores, *The Sims 3*, Electronic Arts, MW, 2009
168. Maxis, *The Sims 4*, Electronic Arts, MW, 2014
169. Maxis, *Spore*, Electronic Arts, MW, 2008.
170. MicroProse, *Sid Meier's Civilization*, MicroProse, MS-DOS, 1991.
171. MicroProse, *Formula One Grand Prix*, MicroProse, Amiga, 1992.
172. Midway, *Mortal Kombat*, Midway, Arcade, 1992.

173. Mike Bithell, *Thomas Was Alone*, Mike Bithell, MW, 2012
174. Monolith Productions, *F.E.A.R. 2: Project Origin*, Warner Bros Interactive Entertainment, MW, 2009
175. Monolith Soft, *Xenoblade Chronicles*, Nintendo, Wii, 2010.
176. Monolith Soft, *Project X-Zone*, Bandai Namco Games, 3DS, 2012.
177. Namco, *Pac-Man*, Namco & Midway Games, Arcade, 1980
178. Namco, *Tekken 3*, Namco, PlayStation, 1998
179. Namco Bandai Games, *Tekken 6*, Namco Bandai Games, PS3, 2007
180. NanaOn-Sha, *Parappa the Rapper*, SCE, PS1, 1996.
181. Naughty Dog, *The Last of Us*, SCE, PS3, 2013
182. Nautilus, *Shadow Hearts: Covenant*, Asuze, PS2, 2004.
183. Ninja Kiwi, *Bloons TD6*, Ninja Kiwi, MW, 2018.
184. Ninja Theory, *Enslaved: Odyssey to the West*, Namco Bandai Games, PS3, 2010
185. Ninja Theory, *DMC*, Capcom, PS3, 2013.
186. Ninja Theory, *Hellblade: Senua's Sacrifice*, Ninja Theory, PC, 2017.
187. Nintendo, *Yume Kōjō: Doki Doki Panic*, Fuji Television Network & Nintendo, NES, 1987.
188. Nintendo EPD, *The Legend Zelda: Breath of the Wild*, Nintendo, Switch, 2017.
189. Nintendo EPD, *Ring Fit Adventure*, Nintendo, Switch, 2019.
190. Nintendo EPD, *Animal Crossing: New Horizons*, Nintendo, Switch, 2020.
191. Nintendo EAD, *Super Mario Bros*, Nintendo, NES, 1985
192. Nintendo EAD, *The Legend of Zelda*, Nintendo, NES, 1986.
193. Nintendo EAD, *Super Mario 64*, Nintendo, Nintendo 64, 1996
194. Nintendo EAD, *The Legend of Zelda: The Wind Waker*, Nintendo, GameCube, 2002
195. Nintendo EAD, *Super Mario Maker*, Nintendo, Wii U, 2015.
196. Nintendo R&D1, *Donkey Kong*, Nintendo, Arcade, 1981
197. Nintendo R&D1, *Duck Hunt*, Nintendo, NES, 1984.
198. Nintendo R&D1, *Metroid*, Nintendo, NES, 1986.
199. Nintendo R&D1, *Metroid II: Return of Samus*, Nintendo, NES, 1991.
200. Nintendo R&D1, *Super Metroid*, Nintendo, SNES, 1994.
201. Nintendo R&D3, *Mike Tyson's Punch-Out!!*, Nintendo, NES, 1987
202. Nintendo R&D4, *Super Mario Bros. 2*, Nintendo, NES, 1988.
203. Nintendo SPD, *Wario Ware D.I.Y.*, Nintendo, DS, 2009.
204. Novalogic, *Comanche*, Novalogic, MW, 1992.
205. Number None, *Braid*, Number None, Xbox360, 2008.
206. Ocelot Society, *Event 0*, Ocelot Society, MW, 2016.
207. Omega Force, *Dynasty Warriors: Gundam 3*, Bandai Namco, PS3, 2010.
208. Origin Systems, *Ultima I: The First Age of Darkness*, Origin Systems, Apple II, 1981.
209. Origin Systems, *Ultima Online*, Electronic Arts, Microsoft, 1997
210. Outfit 7, *My Talking Tom*, Outfit 7, Android, 2013
211. Pajitnov Alexey, *Tetris*, Pajitnov Alexey, 1984.
212. Parallax Software, *Descent*, Interplay Productions, MS-DOS, 1995.
213. People Can Fly and Epic Games, *Bulletstorm*, Electronic Arts, 2011.
214. Planet Moon Studios, *Giants: Citizen Kabuto*, Interplay Entertainments, MW, 2000
215. Platinum Games, *Nier: Automata*, Square Enix, PS4, 2017.

216. Polyphony Digital, *Gran Turismo 2*, SCE, PS1, 1999.
217. Polyphony Digital, *Gran Turismo 5*, SCE, PS3, 2010.
218. Polyphony Digital, *Gran Turismo 6*, SCE, PS3, 2013.
219. Polytron Corporation, *Fez*, Trapdoor, MW, 2012.
220. Psyonix, *Rocket League*, Psyonix, MW, 2015.
221. Quantic Dream, *Detroit: Become Human*, Quantic Dream, MW, 2018.
222. Rare, *GoldenEye 007*, Nintendo, Nintendo 64, 1997
223. Raven Software, *Soldiers of Fortune*, Activision, PS2, 2000.
224. Rebellion Developments, *Sniper Elite 3*, Rebellion Developments, MW, 2014
225. Remedy Entertainment, *Max Payne*, Gathering of Developers, MW, 2001
226. Respawn Entertainment, *Apex Legends*, Electronic Arts, MW, 2019
227. Respawn Entertainment, *Star Wars: Jedi of the Fallen Order*, Electronic Arts, MW, 2019
228. Respawn Entertainment, *Titanfall*, Electronic Arts, MW, 2014.
229. Riot Games, *League of Legends*, Riot Games, MW, 2009.
230. Rockstar North, *Gran Theft Auto: San Andrea*, Rockstar Games, PS2, 2004
231. Rockstar North, *Gran Theft Auto V*, Rockstar Games, MW, 2015.
232. Sega AM2, *Virtua Fighter*, Sega, 1993.
233. Sega, *Out Run*, Sega, Arcade, 1986
234. Silicon Knights, *Eternal Darkness: Sanity's Requiem*, Nintendo, GameCube, 2002
235. Sledgehammer Games, *Call of Duty: Advanced Warfare*, Activision, 2014.
236. SNK, *Psycho Soldier*, SNK, Arcade, 1987.
237. SNK Playmore, *King of Fighters XII*, SNK Playmore, PS3, 2009.
238. SNK, *Samurai Showdown 2019*, SNK, PS4, 2019.
239. Sonic Team, *Sonic the Hedgehog*, Sega, Sega Genesis, 1991
240. Sony Online Entertainment, *Star Wars: Galaxies*, Lucas Arts, MW, 2003.
241. Squad, *Kerbal Space Program*, Private Division, MW, 2015.
242. Squanch Games, *Trover Saves the Universe*, Squanch Games, MW, 2019.
243. Square, *Final Fantasy*, Square, NES, 1987.
244. Squaresoft, *Chrono Trigger*, Square, Super NES, 1995.
245. Squaresoft, *Final Fantasy V*, Square, Super NES, 1992.
246. Squaresoft, *Final Fantasy VI*, Square, Super NES, 1994.
247. Squaresoft, *Final Fantasy VII*, Square & SCE, PlayStation, 1997.
248. Squaresoft, *Final Fantasy VIII*, Square & SCE, PlayStation, 1999.
249. Squaresoft, *Final Fantasy IX*, Square, PlayStation, 2000.
250. Squaresoft, *Final Fantasy X*, Square & SCE, PS2, 2001.
251. Square Enix, *Final Fantasy XII*, Square Enix, PS2, 2006.
252. Square Enix, *Final Fantasy XIII*, Square Enix, PS3, 2009.
253. Sukeban Games, *VA-11 Hall-A: Cyberpunk Bartender Action*, Ysbryd Games and AGM PLAYISM, MW, 2016.
254. Taito, *Gun Fight*, Taito & Midway, Arcade, 1975
255. Taito, *Arkanoid*, Taito, Arcade, 1986
256. Taito, *Bubble Bobble*, Taito, Arcade, 1986
257. Tamsoft, *Battle Arena Toshinden*, Takara, 1995.
258. Teambondi, *L.A Noire*, Rockstar Games, PS3, 2011
259. Team 17, *Worms*, Ocean Software, Amiga, 1995.
260. Team Ico and SCE Japan, *Ico*, SCE, PS2, 2001.
261. Team Ico, *Shadow of the Colossus*, SCE, PS2, 2005.

262. Team Salvato, *Doki Doki Literature Club!*, Team Salvato, MW, 2017.
263. Technos Japan, *Double Dragon*, Taito, Arcade, 1987
264. Tecmo, *Solomon's Key*, Tecmo, NES, 1986.
265. The Pixel Hunt, *Bury Me My Love*, Dear Villagers, Android, 2017.
266. Tinytouchtales, *Card Thief*, Arnold Raders, Android, 2017.
267. Toby Fox, *Undertale*, Toby Fox, MW, 2015
268. Traveller's Tales, *Mickey's Wild Adventure*, Sony Imagesoft & Walt Disney Computer Software, 1996.
269. Ubisoft Milan, *We Dare*, Ubisoft, Wii, 2011.
270. Ubisoft Paris & Milan, *Just Dance*, Ubisoft, Wii, 2009.
271. Ubisoft Paris, *Just Dance 3*, Ubisoft, Wii, 2011.
272. Ubisoft Montreal, *Assassin's Creed*, Ubisoft, PS3, 2009.
273. Ubisoft Montreal, *Tom Clancy's Splinter Cell: Conviction*, Ubisoft, 2010.
274. Ubisoft Montreal, *Tom Clancy's Rainbow Six Siege*, Ubisoft, MW, 2015.
275. United Game Artists, *Space Channel 5*, Sega, Dreamcast, 1999.
276. Valve, *Half-Life 2*, Valve, MW, 2004.
277. Valve, *Portal 2*, Valve, MW, 2011.
278. Valve and Hidden Path, *Counter-Strike Global Offensive*, Valve, MW, 2012
279. Valve South, *Left 4 Dead*, Valve, MW, 2008.
280. Visual Concepts, *NBA2K2020*, 2K Sports, PS4, 2019
281. Westwood Studios, *Command and Conquer*, Virgin Interactive, DOS, 1995.
282. Westwood Pacific, *Command and Conquer: Red Alert 2*, EA Games, MW, 2000
283. William Eletronics, *Joust*, William Electronics, Atari 2600, 1982.
284. Wormwood Studios, *Primordia*, Wadjet Eye Games, MW, 2012.
285. WOW Entertainment, *Typing of the Dead*, Sega, Arcade, 1999.
286. Xdev, Clever Beans and Creative Vault Studios, *Wipe'out Omega Collection*, Sony Interactive Entertainment, PS4, 2017.
287. Yuke's, *WWE Smackdown! Here Comes the Pain*, THQ, PS2, 2003
288. Yuke's, *WWE 2k18*, 2K Sports, PS4, 2018.
289. Ys Net, *Shenmue III*, Deep Silver, MW, 2019
290. Zynga, *FarmVille*, Zynga, Browser, 2009.

VR

1. Alcon Interactive Group, LLC, *Blade Runner 2049: Memory Lab*, Alcon, 2017.
2. Aldin Dynamics, *Waltz of the Wizards*, Aldin Dynamics, 2016.
3. ARTE Experience, *Alteration*, ARTE, 2017.
4. Aurora Games, *Together VR*, Aurora Games, 2018.
5. B4T Games, *Epic Roller Coasters*, B4T Games 2017.
6. Baobab Studios, *Invasion!*, Baobab Studios, 2016
7. Baobab Studios, *Crow: The Legend*, Baobab Studios Inc., 2018.
8. Bluehole, *Valkyrie Blade*, Bluehole Inc, 2017.
9. CCPGamesShanghai, *Gunjack*, CCP Games, 2016.
10. Cloudhead Games, *The Gallery - Episode 1: Call of the Starseed*, Cloudhead Games, 2016.
11. Derek Ham, *I am a man*, Derek Ham, 2018.
12. Epic Games, *Bullet Train*, Epic Games, 2016.
13. Epic Games, *Robo Recall*, Oculus, 2017
14. Experius VR, *Nefertari: Journey to Eternity*, Curiosity Stream, 2018.
15. FarBridge, *Masterworks: Journey through History*, CyArk, 2018.
16. Felix & Paul Studios, *Introduction to Virtual Reality*, Felix & Paul Studios, 2016.
17. Felix & Paul Studios, *Through the Ages: President Obama Celebrates America's National Parks*, Felix & Paul Studios, 2016.
18. Four Quarters, Escalation Studios and ForwardXP, *Please don't touch anything*, Forward XP, 2016.
19. Hammerhead VR, *ABE*, Hammerhead VR, 2016
20. HandMade Game, *Rooms: The Unsolvables Puzzle*, HandMade Game, 2016.
21. HelloEnJoy, *Fantasyth: Chez Nous*, HelloEnJoy, 2017.
22. Here Be Dragons, LLC, *Dispatch*, Here Be Dragons, LLC, 2017.
23. Here Be Dragons, *Ghost in the Shell*, Oculus Studios, 2017.
24. High Voltage Software Inc, *Damaged Core*, High Voltage Software Inc, 2016
25. Illusion, *VR Kanojo*, Illusion, 2018.
26. Immersive VR Education, *1943 Berlin Blitz*, BBC Media Applications Technologies Limited, 2018.
27. Immersive VR Education Ltd., *Apollo 11 VR Experience*, Immersive VR Education Ltd., 2018.
28. iNFINITE Production, *The Autism Simulator*, iNFINITE Production, 2016.
29. Kite & Lightning, *Senza Peso*, Kite & Lightning, 2016.
30. Lightspeed Studios, *NVIDIA VR Funhouse*, Lightspeed Studios, 2016.
31. Limitless Ltd, *Gary the Gull*, Limitless Entertainment Ltd, 2016.
32. Limitless Ltd, *Reaping Rewards*, Limitless Entertainment Ltd., 2017.
33. Magnopus, *Mission: ISS*, Oculus, 2017.
34. Minority Media Inc., *Time Machine VR*, Minority Media Inc., 2016.

35. Monobanda, *Remembering*, Monobanda, 2018.
36. Oculus, *Dead and Buried*, Oculus, 2016.
37. Oculus, *First Contact VR*, Oculus, 2016.
38. Oculus, *Dear Angelica*, Oculus Story Studio, 2017
39. Oculus, *Henry*, Oculus Story Studio, 2016.
40. Owlchemy Labs, *Job Simulator*, Owlchemy Labs, 2016.
41. Penrose, *Allumette*, Penrose Studio, 2016
42. Penrose, *The Rose and I*, Penrose, 2016.
43. Play:D, *The Red Stare*, Play:D, 2017.
44. Playful, *Lucky's Tale*, Playful, 2016.
45. PlaySide Studios, *ZR: Zombie Riot*, PlaySideVR, 2016.
46. Quantic Dream, *Heavy Rain*, SCE, PS3, 2010
47. Ready at Dawn, *Echo VR*, Oculus Studio, 2017.
48. SCE London Studio, *Playstation VR Worlds*, Sony Interactive Entertainment, 2016.
49. Schell Games, *I Expect You To Die*, Schell Games, 2016
50. Solfar Studio, *Everest VR*, Solfar Studio, 2017.
51. Tender Claws, *Virtual Virtual Reality*, Tender Claws, 2018.
52. The MindVerse, *The Mindiverse*, MindVerse, 2017.
53. Three One Zero, *Adrift*, 505 Games, 2016
54. Turtle Rock Studios, *Face Your Fears*, Oculus Studio, 2017
55. Unknown Worlds, *Subnautica*, Unknown Worlds, 2016.
56. Vertigo Games, *Arizona Sunshine*, Vertigo Games, 2016

Sitography:

www.buzzfeednews.com

www.gamedesigning.org

www.gamefaqs.com

www.gamespite.net

www.gamespot.com

www.gamesradar.com

www.giantbomb.com

www.goombastomp.com

www.knowyourmeme.com

www.kotaku.com

www.mmo-champion.com

www.neogaf.com

www.neoseeker.com

www.nexusmods.com

www.pcgamer.com

www.polygon.com

www.quickmeme.com

<https://realsport101.com>

www.reddit.com

www.steamcommunity.com

www.stylestallife.com

www.thegamer.com

www.treccani.it

www.usgamer.net

www.youtube.com

<https://www.youtube.com/channel/UCNvzD7Z-g64bPXxGzaQaa4g> (Game Ranx)

<https://www.youtube.com/watch?v=o-OWxQBZjqM&list=PL8JRxyt5IapuaRPMC0zq6esmfewskjx18> (“Incontri sul Senso” 2017-2018: “Semiotica del Volto”, a cura di Massimo Leone, Università di Torino)