

# WHAT SPACE FOR PERFORMATIVITY IN COGNITIVE SCIENCE? INSIGHTS FROM CODISCO 2017

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## I. INTRODUCTION

The aim of the tenth edition of the CODISCO conference was to explore part of the theories about performativity born within the context of Cognitive Studies. Since we lack a precise definition of «performativity», we will try to find one by analysing what the academics who followed one another during the conference said about this topic. First of all, we need to address the heterogeneous nature of the guests who joined the debate: on the first day of the CODISCO experts in biology and evolutionary theories were hosted; on the second day, guests held dissertations about media theories, pragmatics and informatics; the third day was about the embodied cognition paradigm and the ethical implications of cognitive and physical human empowerment; lastly, the fourth day involved experts in neuroscience and philosophy of language.

We will not have enough room to deepen every presentation. Thus, we will focus on two main questions, trying to answer them: why does most of the theories we heard about during the conference, despite the ambiguity of the term, share a common interest in performativity? Is performativity something that could help us in order to study human cognition?

## 2. EVOLUTIONARY THEORIES THROUGH THE LENS OF PERFORMATIVITY

The first speaker to be hosted was Alessandro Minelli, an Italian biologist who is one of the nation's premier experts in Evolutionary Deve-

lopmental Biology (informally known as Evo-Devo). The main point of his argumentation was that the criteria used by biology in order to distinguish biological individuals one from another cannot address some situations. I.e., the criterion of *uniqueness*, according to which different organisms have different genetic makeups (see Pradeu 2012), cannot explain why monozygotic twins are not the same person. According to another classical criterion, *delineation*, two different individuals are separated by physical boundaries (*ibidem*). This criterion, however, cannot account for the existence of distinguished organisms that share the same body (take, for instance, the Siamese twins or the bacteria that live inside us). The last criterion, *persistence*, is the weakest one: there is nothing, in fact, that insures that organisms remain the «same» biological individuals despite constant change. This is the reason why Minelli encourage to think about development as «an ongoing performative act. It involves a score (DNA), an orchestra for interpretation (to choose what DNA is a gene) and improvisation (i.e. altering anatomy by changing gene expression patterns)» (*cfr.* Minelli, Pradeu 2014, § *Development as performance*). According to Minelli and Pradeu, «development is a creative choreography of molecules, cells, tissues, organisms and ecosystems» (*ibidem*).

The academic who took the floor after Minelli share his opinion. Lambros Malafouris, a Creativity and Material Culture expert, thinks that human evolution is a creative process, that is not solely influenced by our genetic constitution (Malafouris 2010). One of the most powerful processes to impact on our development is our engagement with material culture. This process is not unidirectional, as we are all used to think: in the same way we shape and create objects and technologies, these latter produce a feedback that constantly remodel the structure and the functional architecture of the human brain (Malafouris 2008). This is what the author calls *metaplasticity* (Malafouris 2010); this concept is similar to what Richard Grusin, on the second day of the conference, defined as «radical mediation» (Grusin 2015).

Even Alessandra Falzone, whose speech followed Malafouris' one, thinks that evolution is a partially unpredictable process. According to the Sicilian researcher, the genetic makeup of the organisms is just a part of their developmental history. As shown by some researches (i.e. Fitch 2000; Pisanski *et al.* 2016), in fact, there are animal species – dogs, pigs, non-human primates like marmosets – that share with humans a similar vocal tract; however, these species are

not able to produce language. The reason for this inability lies both in the different evolutionary histories of such species (the different environmental challenges they had to face, the exaptation processes they went through, etc.) and in their whole bodily constitution, which in turn depends on their evolutionary history (see Pennisi, Falzone 2010). Thus, in order to understand why certain structures enable certain functions, we cannot simply study the anatomical configuration of the individuals: we need to get to the bottom of *the use* they make of such anatomical features (Pennisi, Falzone 2015). In other words, if we want to find out what binds together structures and functions (which is the main aim of Evo-Devo), we need to look both at the evolution and at the performative acts of the species. Nunzio Allocca, the last guest to speak on the first day of the CODISCO, emphasised the importance of taking into account the role of the body in the production of language too, reminding us that Aristotle was the first one to talk about *lògos* in terms of a function that does not solely depend on the brain (Lo Piparo, 2003; Pennisi 2014), but rather on a whole system that encompasses tongue, lips, teeth, palate, larynx, epiglottis, trachea, esophagus and lungs.

Taken together, all the theories we have briefly mentioned show some common ground: according to them, if we want to understand why human cognition is what it is, we need to look both *inside* and *outside* the human body. Our phenotypic and functional features depend on our genetic development, which in turn depends on our interaction with the environment. Thus, we can state that the ways we perform through our body and mind are the outcome of the combination between physical and environmental *constrains* and *possibilities*: performativity is a theoretical-methodological approach which aims to define the nature of these constrains and these possibilities by paying attention to the practical use we make with our mind-body system in a given environment.

### 3. PERFORMATIVITY AS A MODEL FOR THE STUDY OF COGNITION: INTERSUBJECTIVITY, DECISION MAKING, LANGUAGE

The idea that our cognition is generated by the interaction among body, mind and environment is the core of the *embodied cognition* (i.e.

Shapiro 2010). We do not have enough room to go into the details of this approach; thus, we are going to highlight some key element of it by mentioning what Vittorio Gallese said during his speech on the third day of the CODISCO.

Vittorio Gallese's presentation was about the role of *simulation* in human cognition. When the renowned Italian neuroscientist talks about simulation, he refers to an *embodied* simulation. Since he and the rest of the team led by Giacomo Rizzolatti made their famous discovery (Rizzolatti *et al.* 1996; Gallese *et al.* 1996), in fact, we know that humans' and monkeys' brains have a special class of neurons that discharge both during the execution and the observation of motor acts: the *mirror neurons*. Specifically, Gallese and others found out that mirror systems are activated both when humans see their conspecifics accomplish specific goal-directed motor actions such as grasping, holding or manipulating objects (Iacoboni *et al.* 2005) and when they recognize some emotion by the changes in others' facial expressions (Gallese 2006). Putting together this data, Gallese proposed the «Motor Cognition Theory» (Gallese *et al.* 2009): according to this hypothesis, we do not understand others' intentions and beliefs by representing them in propositional form – as the ToM-based theories claim (i.e. Premack, Woodruff 1978; Baron-Cohen *et al.* 1985) –, but through the activation of our mirror neuron system, which leads to an «analogical» simulation of the neural configuration necessary in order to produce the mental state we witnessed. The basis of our mental ability of giving meaning to people's actions (intersubjectivity) relies on bodily mechanisms that are triggered by being immersed in social contexts.

In the same way ToM-based theories are nowadays insufficient in order to explain intersubjectivity, classical models on decision making do not clarify how people make choices. On the second day of the congress, Mark Turner claimed that we need to replace the models developed by Game Theory (for a review on such models, see Lucas *et al.* 2015) with an alternative theoretical approach. The right approach could be his *Blending Theory* (Turner 2014), according to which choosers are not totally rational and predictable agents, but rather *Wayfinders*. People become wayfinders when, during the decision-making process, they face – blend with – a lot of contextual issues: they blend with their previous self, with present others, with the simulation of what another might do, with the laws, with physical abilities and disabilities and so on. Put in other words, making choices is a way to move in-

side the space bounded by those constraints and possibilities we talked about in § 2; decision making is a performative act.

Even when it comes to language, we need to get rid of some classical conceptualization. According to Pennisi, who gave the last speech of CODISCO 2017, Chomsky is one of the main responsible for the diffusion of the idea that language is a function that does not depend on environmental and bodily factors (Chomsky 1965). Even in his last works, Chomsky describes the morphological correlates of language as «peripheral organs», or «externalization devices, like the printer attached to a computer, rather than the computer's CPU» (cfr. Berwick, Chomsky 2016, 9). Pennisi claims that such ideas are unsustainable (see § 2) and suggests to put the study of language, as much as the study of cognition, into a methodological frame that takes into account the ethological, social, technological, cultural and individual aspects of performativity. It is to be hoped that an approach like this will become a paradigm for Cognitive Science.

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