Andrea Valle

Paths – On the Formation of the Subject in a Theory of Semiotics

> The deep subject of any concrete semiotic critical practice is its very contradictory format.
> (A Theory of Semiotics, 1976: 317).

That semiotics has close relations with semantics, the latter having a logical-philosophical or rather linguistic origin, is a fact that is not only theoretically but also historically established. On one side, generative semiotics moves from structural semantics, so that the entire work by Greimas could be read as an expansion of his first work, his *Sémantique structurale* (Greimas 1966) properly indicating the opening of his research program (Fabbri 2000). On the other side, as a consequence of his philosophical milieu, Eco is not encumbered by the burden of linguistics: yet it is always in the light of the linguistic-structural semantic paradigm that he attempted in his crucial book, *A Theory of Semiotics*, that generalization of semiotics announced in the Italian translation (*Trattato di semiotica generale*, literally, *Treatise on general semiotics*). The thesis that I will try to develop in my contribution is that Eco's reflection on semantics in his *Treatise* (that I consider his *magna opus*) implies a specific theory of semiotic subjectivity that will remain operative in his later works. Violi (2007) has already investigated some issues related to subjectivity in Eco's Encyclopaedia. Here I will try to describe analytically how this specific subjectivity emerges in *A Theory of Semiotics*.

Models

How does this generalization, from linguistic meaning to meaning per se, occur in *A Theory of Semiotics*? In relation to this point, Eco's discussion sets up a sequence of three "models" of meaning. The word "model" is not accidental, as a modelling attitude is indeed crucial in Eco (Basso 2006). It is thus worth investigating the three models that Eco's theory of meaning takes into account: the "KF model", the "Revised Model (RM)", the "model Q" (discussed respectively in sections 2.10, 2.11, and 2.12 of *A Theory of Semiotics*). All the models share two features:

Andrea Valle, University of Turin, Italy

Compositionality: all models simply share "the method of semantic decomposition" (Violi 1997: 82). Hence the possibility of obtaining an inventory of units, that indeed can be subject to very different interpretations.

Graph structure: given a finite set of components (and independently from how they are obtained), it is possible to arrange the same set through a graph. The latter is a structure that, in its minimal form, consists of a finite set of vertices and a finite set of edges (Diestel 2000), seen as relations between the vertices (each element of the set of the edges is a pair of vertices) (Figure 1).
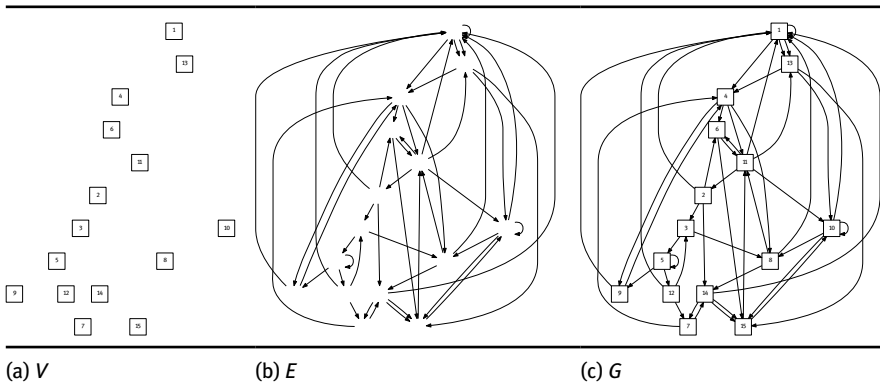

(a) *V*　　　　　　　　　(b) *E*　　　　　　　　　(c) *G*

Figure 1: Set *V* of vertices (a), set *E* of edges (b), graph *G* = {*V, E*}.

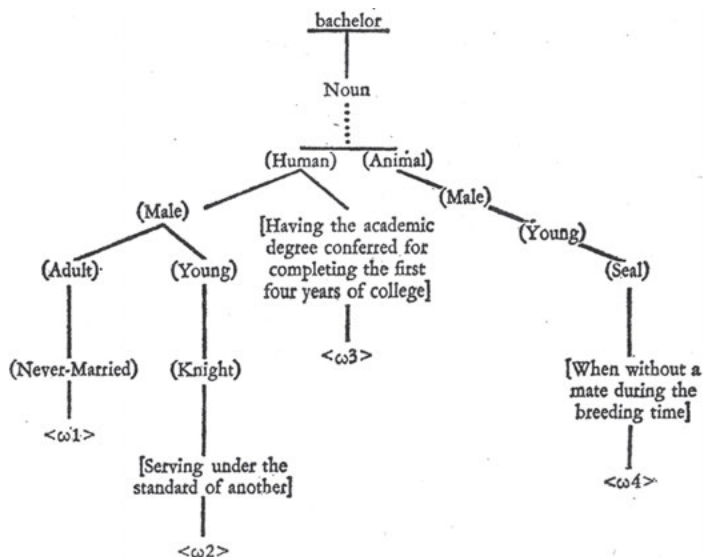The KF model is the one proposed by Katz and Fodor (Figure 2).

Figure 2: The KF model (ATS: 97)

In relation to graph modeling, the KF model provides:
- concerning vertices, a distinction between *syntactic markers, semantic markers, distinguishers, selection restrictions*;
- concerning edges, these are implicitly directed, which makes the graph a "directed" one. This implies that the graph must be traversed one way, without the possibility to go back. Edges are not labeled, as they represent only sequencing relations;
- concerning the type of the graph, KF is a tree;
- finally, concerning the dynamics of the process, it shall be assumed (as it is not explicitly stated) that the cognitive operation involves a dynamic element traversing the graph. The result is, in a technical sense, a "path" on the graph, i.e., a sequence of vertices.

The *cahier de doléance* (2.10.1 and 2.10.2) that Eco compiles discussing the KF model leads to a complete reformulation of the model, culminating into a critique of dictionary-based semantics in favor of the encyclopaedic format (later developed in AP and SFL).

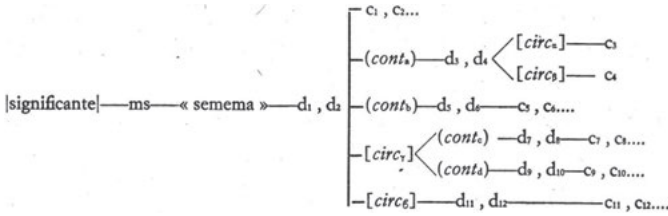In Eco's Revised Model, a graph structure for the "sememe" is proposed (Figure 3).

Figure 3: The RM model (ATS: 105).

In this case:
- concerning vertices, the available items are *sign vehicle, syntactic markers, semantic markers, contextual selections, selection restrictions*. In any case, Eco explicitly rejects any metalinguistic status for selections, intended as "semantic units just like the others except that they perform a switching function" (Eco 1976: 105);
- concerning edges, as in the case of the model KF, it is implicitly assumed that the graph is directed;
- yet, with regard to the type of the graph, the examples given in section 2.11 represent –in all cases– *trees*, *exactly* as in the model KF.

Finally, taking into account the dynamics of the process, a certain ambiguity is still present. For one thing is the data structure (the sememe represented as a graph), another one is the instantiation of a possible path, that is, the definition of a procedure.

The last model to be introduced is the model Q (Figure 4), which owes its name to a proposal by Quillian for lexical semantic memory: its fundamental postulate is an "infinite semantic recursivity" (Eco 1976: 121). Quillian's Semantic memory is the first model ever made of a semantic network and pioneered a wide range of other similar models flourished especially in the 70s in Artificial Intelligence (see Brachman and Levesque 1985) and Brachman (1985), studies closer to semiotics are Rastier (1991) and Violi (1997)). Since each marker constitutes "a sort of *embedded sememe*", it follows that from each marker another tree is generated, "and so on *ad infinitum*" (Eco 1976: 121). Semantic units become a "mass of interconnected nodes" (Eco 1976: 122), so as to form such an "polydimensional network" that cannot be represented "in all its complexity" (Eco 1976: 124). If a lot is expressly said about the previous models (KF and RM), little is said on the other hand, at least explicitly, about the model Q. In the few pages dedicated to its discussion, Eco states the *ante litteram* deleuze-guattarian rhyzomatic theoretical nature of the object (the rhyzome being explicitly mentioned by Eco in SFL, see Paolucci (2007) and Paolucci (2010)), but he dedicates only half a page to the dis-

cussion of how the model already works in Quillian, despite evidently the model Q is much more interesting for Eco than the KF.
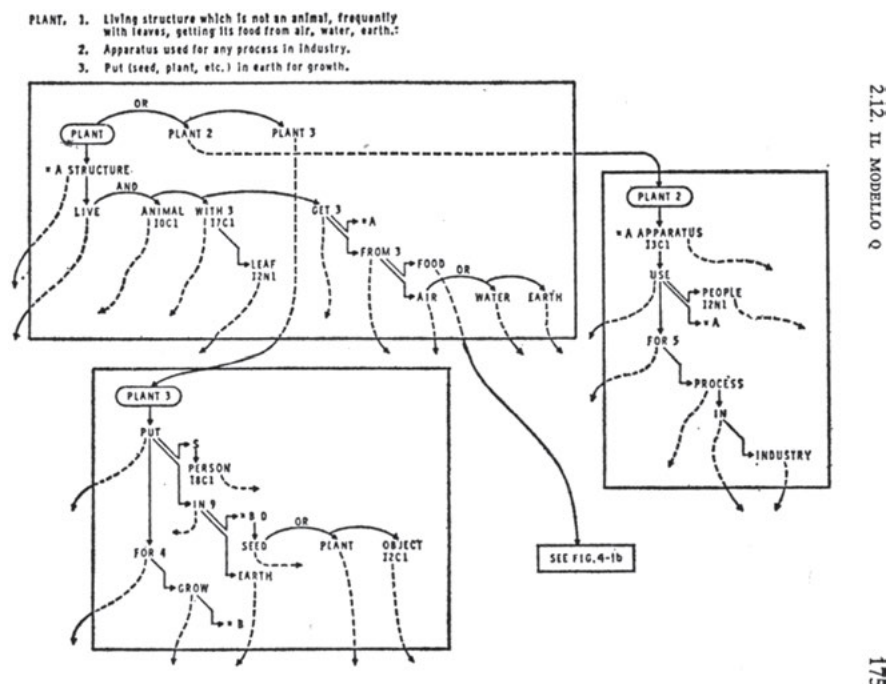

Figure 4: The Q model (ATS: 123).

The models and their relations

The linear ordering of the three models suggests a sequence that coincides with a progressive refinement of semiotic modelling. The KF only serves as the object of the *pars destruens*, to be demolished in order to build a new one, the RM. This progression between the first two models allows to extrapolate an incremental value in the model Q with respect to the RM. The model Q is the spearhead of a progressive conversion of semantics into semiotics.

An interesting feature of the model sequence is that only the RM is formulated by Eco, the first and third models being borrowed from other authors. If the KF is the subject of a careful philological analysis that prepares its complete dismissing, the model Q is accepted *in toto*: as a consequence, its description is

bare-bones, almost in an ostensive form, by reproducing the graphic example provided by Quillian.

This asymmetry is demonstrated by the short life of model Q in Eco's theory. In the timespan between *A Theory of Semiotics* and LF, Eco moves his interests from semantic networks to *frames*, and he integrates these hypotheses with other proposals always coming from Artificial Intelligence (e.g., *scripts*): this shift of interest, from "weak" to "strong slot-and-filler structures" (Rich and Knight 1991), is documented in LF and SFL. Such an evolution of the structures of representation for intentional semantics has been accompanied by the constant use of the RM, for example in textual and in metaphorological studies (respectively, in LF and SFL). Some aspects are particularly relevant in the model Q in relation to Eco's discussion:

1. the model has a precise formal structure;
2. it takes into account (the vertices of the graph) semantic units, i.e., cultural items: their origin is lexical (like in Greimas, one would say);
3. it does not include hierarchies except as local phenomena;
4. the structure of the graph is no more a tree, considered inadequate, but a cyclic graph (Quillian 1985: 107);
5. everything takes place within it, since the units of linguistic origin are inter-defined. To quote Quillian:

There are no word concepts as such that are "primitive". Everything is simply defined in terms of some ordered configuration of other things in the memory (Quillian 1985: 103).

There is indeed a characteristic "flatness" of such a network: a "uniformity" that was the main object of criticism to the model Q within Artificial Intelligence (Brachman 1985: 199): but such a criticism addresses exactly what is the main strength of the model Q both for Quillian and Eco.

And so, *why not use the model Q?* The latter has already been operative when Eco discusses it, having been effectively implemented on a computer in 1966 as a part of Quillian's doctoral thesis. The answer is at the end obvious: Eco explicitly states that "the model [Q], in all its complexity, is based on a process of unlimited semiosis" (Eco 1976: 122). The model Q is thus considered by Eco as a paradigmatic representation of the Global Encyclopaedia and of its main feature, its being "virtual, theoretical, hypothetical" (Violi 1992: 102). As a consequence, the model which is methodologically at work in later texts (LF, SFL) is the RM, while the model Q is invoked as regulative, epistemological hypothesis.

Thus, the modelling sequence in *A Theory of Semiotics* is actually a structure that, after the KF, bifurcates as a function of a contextual selection: if the contextual selection is "semiotics", then the RM is at play; if the contextual selection is

"philosophy", then the model Q is the relevant one. Such a bifurcation introduces a dualism that Eco will resume in its subsequent reflections. The RM is intended as a modelling application, while the Q model is assumed as a philosophical foundation that cannot have commerce with empirical elements, as it constitutes an epistemological limit.

Encyclopaedia and the traces of its subjects

It has been noted that in the Encyclopaedia "there is a theory, basically very precise, of the subject" (Violi 1992: 101). Pushing the observation further, it can be said that the pure model of semiosis coincides exactly with a theory of the pure semiotic subject. This asymptotic theory of the subject, a theory that must remain liminal, is developed in few pages of *A Theory of Semiotics*: the discussion of the epistemological limits (section 0.9), the presentation of the model Q (section 2.12), the ending considerations on the subject of enunciation (section 4, see Violi 2007).

Starting back from the model Q as a philosophical model, the Encyclopaedia as a regulative ideal takes the form of a very dense graph, its vertices consisting of cultural units and its edges representing possible, uniform connections, that is, pure chaining relations. The Encyclopaedia is a "knowledge representation" even more decidedly "uniform" (Brachman 1985) of Quillian's semantic memory, a "Flatland" (Paolucci 2007) (Paolucci, 2010) that requires a "surface theory" (Volli 1992: 82). What is guaranteed by the topological lattice of the Encyclopaedia is simply the possibility of a pure circulation: there are passages that connect places.

Now, what is made available by the Encyclopaedia is a repository of traces, according to what is essential in determining the semiotic sense: sense is always the *a posteriori* result of a process of reconstruction from its "externalization": "the man and the external sign are identical", Eco reminds by citing Peirce. The activity of this circulating subject should be *traced*, in the double sense of producing a sign and keeping it in memory.

"The subject [...] is *presupposed* by the statements" and "it has to be 'read' as an element of the conveyed content" (Eco 1976: 315). Eco's theory of modes of sign production outlines a semiotic historicity in the form of a set of productive operations (Valle 2007, 2016). In its phenomenology, the labor of *recognition* plays a central role. Thus, the task is to *recognize* (in the technical sense of the theory of sign production) the activity of the semiotic subject, starting from the traces that it has left.

The first determination of the subject is then expressed as a circulation on the Encyclopaedia. Here the subject is a tracing operator that circulates on the encyclopaedic graph (the "tracing process" of Quillian (1985: 101)). The most appropriate model for this subject is a myopic automaton that gropes abductively along the edges of the graph (Fabbri 1992: 179). Nothing more is said of the circulation process, but it can be assumed that such a subject acts like a finite-state machine (typically modelled through graphs), in which, given a vertex (a state), the probabilities to reach the next vertex (i.e., the transition to the next state through a certain edge) is independent from the probabilities that lead to the starting vertex. This would be a memoryless, so-called "Markovian", machine, a shortsighted automaton that moves from state to state, incapable of seeing behind him.

The pure operational nature of this automaton is however not directly describable. Rather, it is reconstructed through recognition (in Eco's technical sense) from the traces that it has left: from the "debris carried over from previous semiosis" (SFL: 45, see Violi (2007)), which alone constitutes the memory of its operations. As the subject of circulation/production is reconstructed from its traces, this subject coincides with a portion of the Encyclopaedia. Or more clearly, referring to the model Q, with a path on the graph of the Encyclopaedia: the subject is conveyed content, the one who has walked the path that has been recognised.

But, who recognizes the automaton subject? Rather than one, two subjects are thus given, or better, produced by semiosis. The model Q represents the way in which the semiosis is produced in its pure state, as a boundary condition unattainable per se, a condition of unrepresentability. Instead, coupled with the subject circulating on the encyclopaedic graph (the automaton), a second subject is given, who recognizes it by tracing its path. But to represent the Encyclopaedia is to look at it from outside, thus reintroducing a "panoramic subject". Put in these terms, the theoretical framework would be still tainted by a certain externalism. There would be two subjects, and the reconstruction of a dualism that cannot be tolerated in Eco's encyclopaedic Monism. In *A Theory of Semiotics* the issue of the subject is also discussed in the section on "Epistemological limit", in which an "indeterminacy principle" is proposed. The formulation of this principle adds a further characterisation to subjectivity. Interpretation – that is, semiosis – is, at any level, a production, for the very reason that in principle there is no higher level of interpretation: because of this principle, any interpretation (including an "epistemological" one) necessarily modifies the landscape that it crosses. For this reason, semiotics as an interpretative practice is not like "exploring the sea", "where the ship's wake disappears as soon as it has passed", rather it is "like exploring a forest": such an exploration imposes paths that become parts of the landscape (Eco 1976: 29). The Encyclopaedia is thus unrepresentable

simply because every representation is a production (SFL: 109, Violi (1997: 241)). Keeping track of a trace is to produce a trace, to trace another sign. Nor could it be otherwise, as *recognition is a mode of production*. Therefore the subject that recognizes the subject of a production is in turn a subject of production that introduces "ecological variations" in the encyclopaedic landscape (Eco 1976: 29). The model Q, with its "mille plateaux" topology, thus represents the "geographical" dimension of a "theory of surface": a *graphism* to be intended as a set of surfaces on which the encyclopaedic graph is placed, the sheet of existence mentioned in Peirce's essay on existential graphs. In the frame of this paradoxical determination of the Encyclopaedia as a multiple set of flatlands, the second subject, that of recognition, is then a subject-cartographer who incessantly charts a map, literally a "geography", by collecting the traces (the paths) that it recognizes.

Thus, the semiotic subject, as defined in *A Theory of Semiotics*, is both single and double. Eco himself warns that it is the "systematic and processual" double of semiosis (Eco 1976: 316). The philosophical modelization discussed so far is sketched in Figure 5, where a path – generated by the automaton (a) – is observed by a cartographer (b), whose labor of recognition at the end results in a new path on the graph (c). More precisely:

1. The subject does not coincide with the graph structure of the Encyclopaedia but with a principle of circulation on the structure: with the procedure (postulated but not specified by *A Theory of Semiotics*) required to traverse the graph. This automaton is the subject of sign production as a connection of semantic units in the continuum expression/content, the one that for Quillian derives new knowledge through an incessant "plane hopping" (Quillian 1985: 113).

2. But the circulation of this subject can be accessed only through the traces that it leaves, that are to be retrieved by a cartographer-subject. The latter, from its position of observation, keeps track of this activity by patiently updating the circulation map: it systematizes the process by drawing the plane on which the recognized paths lie.
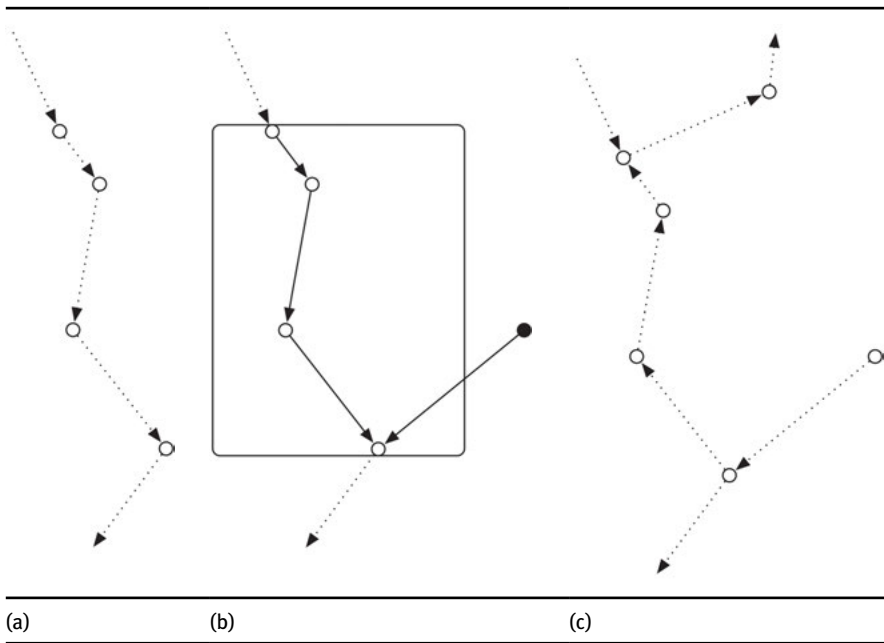
(a) (b) (c)

Figure 5: The automaton subject: process (a); the cartographer subject (solid circle): position and definition of the plan that has traced the path (finished, it is a systematic: in solid lines) (b); conversion of the cartographer into an automaton (new process, (c)).

3. However, the interpretation by the cartographer is in turn a sign production: that is, it is in itself a definition of a path on the encyclopaedic graph. Starting from the traces of the automaton, the cartographer reconstructs the path backwards, from end to beginning. This second subject then works exactly in the same way of the automaton: it circulates on the graph, in turn producing paths that change the structure itself of the graph. Thus, the cartographer can be retrieved as an automaton if seen by another cartographer: in fact, "semiosis explains itself by itself" (Eco 1976: 71).

4. Therefore, according to this double dynamics of the subject, "formation is the only content of the Encyclopaedia", as noted in a Pareysonian mood by Fabbri (1992: 185). A duplicity of the subject, but also a possible doubleness, that may create the effect of a panoramic view, the "ideological fallacy" – as Eco warns – of a cartographer who pretends to detect "objectively" the opera-

tions of an automaton, instead producing again the "subjectivity" of another path on the graph.[1]

Hence the duplicity and doubleness of the Encyclopaedia: the oxymoron of an oral book that is written while being read, and read while being written.

The Subject: a conclusion

The subject, the hidden opposite of the structure, is thus everywhere in *A Theory of Semiotics*, but in a specific configuration.
– The vitalistic subject-as-a-sign is produced continuously, in the manner prescribed in the second part of *A Theory of Semiotics*, the theory of sign production. The subject is alive and implicit in the myopic teleology of the inferential automaton.
– The subject is dead, or rather buried. Discussing the "figures of memory", Jacques Fontanille proposes a typology that includes, among the others, the "burial" and the "exhumation", figures "where the place, time and actor would be forgotten" (Fontanille 2004: 314). This isotopy of disinterment is indeed relevant. In fact, the forward teleology of the automaton is always coupled with a backward archeology of the trace.

---

1 In section 3.2.4 (but only in the Italian edition) Eco discusses the dynamics of semiotic structures by referring to System Theory and Second-order Cybernetics (TSG: 217, note 3), two theoretical approaches the includes the observation of the system inside the system itself.