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179

THE ONTOLOGY OF SIGNS AS LINGUISTIC AND NON-LINGUISTIC ENTITIES: A COGNITIVE PERSPECTIVE

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It is argued that the traditional philosophical/linguistic analysis of semiotic phenomena is based on the false epistemological assumption that linguistic and non-linguistic entities possess different ontologies. An attempt is made to show where linguistics as the study of signs went wrong, and an unorthodox account of the nature of semiosis is proposed in the framework of autopoiesis as a new epistemology of the living.

Key words: sign, semiosis, ontology, epistemology

1. Epistemological foundations

The concept of (mental) representation lies at the core of any theory of signs, but it is not a secret to anyone with an interest in semiotic issues (both philosophical and linguistic) that the concept of mental representation as used in contemporary literature is so fuzzy and elusive that its more or less consistent use unavoidably invokes one question that has to be answered prior to any productive discussion of the nature of cognition and cognitive capacities: *What is a mental representation?*

In contemporary philosophical theory of knowledge representations are understood as certain mental structures including intentional categories *(believe that p, wish that q)* which constitute the content of linguistic (semantic) structures at the deep level. In psychology, representations are typically described as conceptual structures individuated by their contents (Margolis and Laurence 1999) and defined in accordance with the traditional methods of analytical philosophy, that is, by positing sets of necessary and sufficient conditions that have to be met.

180

However, it has become obvious that despite a long history of discussion (Watson 1995), there is no way out of the philosophical dead-end within the framework of the old rationalist paradigm, since traditional analytical philosophy is incapable of providing a reasonably consistent and empirically sound unified theory of mental representations (Stich 1992). Attempts to re-evaluate the notion of representation without departing from the mainstream approach — for example, by introducing the "off-line" computational metaphor to describe representation as opposed to presentation which is accessed

in the "on-line" mode as it is causally or informatively, unlike representation, linked to the target (Grush 1997) — have not been particularly fruitful or illuminating. It seems that the entire philosophical framework for the analysis of representation is conceptually misleading as it implicitly builds its construals on the assumption that representations, in virtue of being semiotic phenomena, *have to do with codified equivalence and identity*, thus overlooking the simple fact that conceptually, in order to be codified (in the usual linguistic sense of the word), a phenomenon must first be grasped by a cognitive structure *which cannot be linguistic by definition*. Attempts to resolve the representational problem on purely linguistic (that is, non-cognitive) grounds are bound to be fruitless (see an interesting discussion in Croft 1998 and Sandra 1998).

A way out of this dilemma is suggested by autopoiesis as a new epistemology of the living. This new epistemology is founded on a biological concept of cognition and language (Maturana 1970; Maturana 1978; Maturana and Varela 1980; Kravchenko 2001a) which differs essentially from the conventional representational paradigms (whether cognitivist or connectionist or both). Whereas for the majority of researchers of the problem of mind the notion of cognition is tied to the idea of knowledge as processed information stored in mental structures accessible for identification and analysis via language as a representational (denotational) sign system (cf. Bickerton 1990; Dennett 1996), in autopoiesis cognition is not a means to acquire knowledge of an objective reality but serves an active organism in its adaptation to its experiential world. Information in this framework is understood as being constructed and codependent rather than instructional and referential (Murphy 1992), it is viewed as the capacity of certain physical entities for presenting alternative configurations and consequently of exerting different actions in regard to other components or the whole system (Moreno, Merelo and Etxeberria 1992).

The clear and indisputable advantage of the biological approach to cognition and language is that it offers an escape from the vicious circle by proposing a mechanistic (and hence, intrinsically non-reductionist) explanation of an

organism as a living system with a circular organization. Circularity is viewed as a specifying property of living systems which are described as *autopoietic systems*. Accordingly, language is defined as a domain of cognitive communicative activity (operations on signs) in the course of which signs are created that sustain this activity.

The crucial difference between the traditional and autopoietic views of language is that the latter assumes its connotational rather than denotational nature. As Maturana (1978: 50) points out,

> "denotation is not a primitive operation, it requires agreement consensus for the specification of the denotant and the denoted. If denotation is not a primitive operation, it cannot be a primitive linguistic operation, either. Language must arise as a result of something else that does not require denotation for its establishment, but that gives rise to language with all its implications as a trivial necessary result. This fundamental process is ontogenetic structural coupling which results in the establishment of a consensual domain. [...] Linguistic behavior is behavior in a consensual domain."

Correspondingly, the key notion of *representation* proposed by Maturana is also radically different from the traditional one. Representations are relative neuronal activities characterizing the state of an organism's nervous system as a structure-determined system; because of this, the sequence of changing relations of relative neuronal activity (description) that appears to the observer as determining a given behavior, is not determined by any functional or semantic value that the observer may ascribe to such a behavior but is necessarily determined by the structure of the nervous system at the moment at which the behavior is enacted. It follows that adequate behavior is, of necessity, only the result of a structural matching between an organism (dynamic system) and a medium. This conclusion gives the entire philosophical discussion about the nature of mental representations a genuinely scientific (naturalist) angle and is a giant step toward understanding consciousness and cognitive (mental) processes.

The basic tenet of autopoiesis (Maturana 1987) is as follows: "Everything said is said by an observer to another observer who can be himself or herself." In what follows, I will try to show where linguistics as the study of signs went wrong (we must not forget that "linguistics still remains a part of general semiotic as *a science of sign systems*" (Frumkina 1999: 31)), and propose an unorthodox account of the nature of semiosis in view of this autopoietic maxim.

2. On the definitive property of linguistic signs

If we consider an entity, such as a specifically organized sequence of sounds categorized as a word (e.g. *smoke*), there does not seem to be any ontological dependency between this entity and that entity of which the word *smoke* is believed to be a sign. Therefore, there is not any obvious relationship between the designator (manifest entity) and the designatum (non-manifest entity). It is this simple observation on which the arbitrariness-of-sign thesis (Saussure 1922) has rested and of which linguistic science is so reluctant to let go.

However, and this is also something quite obvious, it is possible to infer that signs are arbitrary only when an important epistemic maxim is ignored, namely, the maxim of primacy of phenomenology in cognition. Consequently, this inference cannot be but essentially false. Any entity, whether linguistic or non-linguistic, is identified and categorized as such only in the course and as a result of an organism's interactions with the environment. What we have become so much used to calling linguistic signs, opposing them to non-linguistic signs, for an observer are just another variety of constituents of the immediate environment (environmental niche) with which the observer may interact just like with any other entity.

The structuralist tradition to treat language as an autonomous self-sufficient system could not but reflect on how linguistic entities (signs) are treated: they are believed to be a special kind of entities whose ontological properties are radically different from those of non-linguistic entities. Among these properties one is considered to be crucial for the definition of a sign, that is, the so-called "producibleness" of signs since they are, allegedly, the product of humans' intentional creative activity aimed at making communication possible. Until recently, communication has been understood as exchange of coded information, and despite the development of inferential theories of communication (cf. Grice 1989; Akmajian et al. 1990), "when it comes to the study of language, the code

model still has us in its grip" (Wilson 1997). Indeed, such exchange (if we subscribe to the traditional view) is possible not only and exclusively through the medium of language, but through a variety of other means, including different bodily functions such as non-linguistic acoustic phenomena, gestures, smells, etc. which can hardly be characterized as coded signs. When the function of language is identified as communication, the following relevant circumstance seems to be overlooked: communication as a domain of cognitive interactions of organisms constitutes a basis for linguistic behavior, but it is not limited to it. Although this fact has not generally been questioned (which is

quite understandable, for were it otherwise, the following inference would inevitably follow: besides *homo sapiens*, no other biological species is capable of communication), every time the function of language is brought up for discussion a subtle metamorphosis takes place, and *communication* is identified with *languaging*: "Language, in its developed literary and scientific functions, is an instrument of thought and of the communication of thought" (Malinowski 1927: 297). Such understanding of the function of language prevails in contemporary linguistic literature (cf. Van Valen and LaPolla 1997). Yet this definition does not cover all the essential properties of language. According to Zvegintsev (1996: 50),

> "language is an activity that involves all the functions which make humans human. And language is an activity that generates the means for its realization in concord with the diverse functions possessed by language. <...> To limit the study of language to the study of its use as a means of communication and thought is to deliberately narrow the scope of one's research and forsake cognizance of the true nature of language in its entirety."

In autopoiesis, communication is an operational cognitive domain of interactions in which the interacting organisms cause orientational modifications in each other's behavior. If, in keeping with the biological theory of cognition (Maturana and Varela 1987), we accept an approach whereby information is understood as orientational activity modifying the behavior of the organism being oriented (Maturana 1983), then linguistic behavior (languaging) will be just one among many possible domains of orientational interactions, albeit the most effective one. These other means of communication may be viewed as intentional activities that include producible signs (screams, gestures, etc.); however, it does not make them kinds of linguistic behavior. So "producibleness" as a characteristic of signs does not possess the decisive value for defining their ontological properties.

Another consideration against viewing this characteristic as decisive is that "producibleness" as a property implies "createdness" of the entity this property qualifies. In regard to language, "producibleness" implies "creativity" as a specific feature of linguistic activity — not quite in the Chomskian sense, but in the sense that signs (words) are viewed as *artifacts intentionally created for the purpose of communication.* Such implication is admissible only and if the issue of the origins of language has been satisfactorily resolved. As long as it remains unresolved, the postulating of "createdness" as an essential property of signs seems to be methodologically inappropriate.

On the contrary, for humans acquiring language in a natural way the intentionality of "created" (by who? when? how?) signs constituting language as a system, is not an issue at all. From the very first moments of life, for humans as living organisms linguistic signs are natural constituents of the environmental niche they occupy, just like any other kinds of entities they begin to interact with, starting an inevitably long but indispensable process of acquiring and accumulating experience. As long as a baby / child / adolescent / adult is part of the human society, accumulation of linguistic experience continues, although the speed and intensity of the process change as it goes through different stages.

3. Causality

For a newly born baby linguistic signs that the baby begins to interact with *are not signs*, just like any other kinds of entities constitutive of the baby's environmental niche are not signs, either. If we consider the possible orientational effects of different environmental constituents, the sound of a thing accidentally hitting the floor will not be essentially different from the sound of a word uttered by someone, although their respective representations as specific states of neuronal activity will, undoubtedly, differ. Only when an interaction with the niche constituents of the same kind has occurred a certain number of times causing the elementary representational pattern to acquire a more or less regular character, elementary representations form a complex structure. It is this complex structure that, ultimately, enables us to speak of the emergence of a causal relation between two enactions as a result of which one entity becomes a sign of the other.

But the most interesting thing happens *after* such a relation has been established. A causal relation between two entities (more precisely, between their behavioral enactions) takes the form of a complex representation incorporating elementary representations of these enactions. One entity's enaction activates a corresponding elementary representation which induces an active state of another elementary representation. In such cases we say that one (ostensive) entity is the sign of another (non-ostensive) entity. But, and this is important, there is not a law that predetermines the sequence of an organism's interactions with the environmental constituents in such a way that an interaction with a linguistic entity necessarily either precedes or follows an interaction with a non-linguistic entity. By inference, *just like a word may function as a sign of some entity, an entity may function as a sign of the word*, that is, a semiotic relationship rests on *mutual causality*.

This inference unavoidably follows from the fact that signs constituting natural language are nothing but empirical objects included into an organism's interactional domain on exactly the same grounds as all other non-linguistic objects, namely, on the grounds of their ostensibility/perceptibility. Yet in linguistic philosophy (particularly, in semiotic) there is a tradition to treat linguistic objects as *a priori* ostensive entities whereas all non-linguistic objects that display a causal relationship with linguistic objects are treated as *a priori* non-ostensive entities. This epistemological premise is the cornerstone of all current theories of signs (cf. Keller 1998). But how adequate is it?

4. Where linguistic semiotic went wrong

If we try to conjecture an organism's domain of interactions (its niche) as some physical space constituted by a set of perceptible objects, the proportion of linguistic objects

found in it may turn out to be negligibly small if not zero. A human may be in a situation devoid of any acoustic or visual linguistic objects but full of different objects of a non-linguistic character. What happens in the course of this human's perception of (cognitive interaction with) these objects?

First, all perceived objects are categorized as recognizable and unrecognizable. In a trivial perceptual situation the latter would be far less in number than the former, or there may even be none at all. A recognizable object is an object which, when involved into an interactional activity, activates a complex representation (mental experiential/mnemonic structure, or concept). Constitutive of this complex representation is an elementary representation of a preceding interaction with this object, or a set of such elementary representations. Normally (that is, in the case of humans in good physical and mental health whose biological development took place under conditions defined as natural for the genus *homo sapiens*), this set would include a representation of the interaction with another, linguistic object, which stands in a causal relation to the perceived object. Both linguistic and non-linguistic objects (that is, their percepts) contribute to the formation of a single concept on equal epistemic grounds, that is, through experience which results in specific states of neuronal activities within the nervous system, or representations. Depending on which parts of the concept and to what degree of intensity are activated during object perception, the outcome configuration may comprise a representation of one or another linguistic object (such as a word) as a possible name for the perceived object. An important role in the process is played both by the characteristics of

the perceptual situation (the totality of factors bearing on it directly or indirectly) and *the observer's individual experience*.

Contrarily, an unrecognizable object is an object which, when involved in an interactional activity resulting in a specifically configured complex representation, does not make it possible for this particular configuration to "turn on" an existing mental structure comprising a representation of an interaction with a linguistic object, drawing it into a common conceptual structure. As a result, the problem of naming (conceptually identifying) the object may arise.

Second, in the conjectured situation just described the linguistic object has the status of a non-ostensive entity because the observer who perceives, identifies, and names the ostensive entity moves from the non-linguistic object to the linguistic object. This means that the perceived (ostensive) non-linguistic object enters a semiotic relationship with the linguistic (non-ostensive) object, so we can speak of *the semiotic multiplication of the world*.

It is important to note that such multiplication stands in direct relation to the measure of empirical (metaphysical) experience of the world an observer has, including, as a default condition, his broad experience of linguistic objects (cf. Bod 1998). The semiotic multiplication of the world leads to an increase of the possible interpretations of sign relations in a geometric progression; consequently, the capability of processing categorized cognitive experience embodied in signs in a non-contradictory manner becomes of paramount importance, making linguistic communication effective in the long run. As Eco (1984: 1) pointed out, "the concept of sign must be disentangled from its trivial identification with the idea of coded equivalence and identity; the semiosic process of interpretation is present at the very core of the concept of sign."

And, finally, third: since, to the observer, linguistic signs are empirical objects, perceived interactions between signs may also result in an emergence of causal relations. This assertion is relevant for the understanding of the genesis of linguistic competence (understood here in the generative sense as an abstract idealization of a native speaker's knowledge of the grammar) as it allows for a new approach to the cognitive origins of natural language grammar.

5. Cognition and grammar

With a few exceptions (cf. Langacker 1987; Geeraerts 1988; Heine 1997; Dirven and Verspoor 1998), it is true that in the past decade "the theoretical principles of cognitive linguistics or cognitive semantics have been applied little if at all to

... grammatical categories, most of the effort of cognitive linguists being directed to lexical semantics" (Dineva 1994: 149). However, the importance of such application is becoming more and more obvious (Turewicz 2000). It is almost a matter of routine practice today in the contemporary analyses of grammatical phenomena to make recourse to such concepts as *observer, experiencer, perceptual domain, personal space*, etc. (cf. Langacker 1991; Nemeth 2001; Kravchenko 2002 *inter alia*). It is symptomatic of the shift in the theoretical conception of natural language grammar. Within the framework of the bio-cognitive philosophy of language (Kravchenko 2001b) the function of language as a sign system is to accumulate and store humans' categorized experience (knowledge) of the world. The meaning of linguistic signs is experiential in nature since it emerges from an organism's interactions with the environment. As all our experiences are, ultimately, derived from perception, a scientific study of language is impossible without the study of perceptual processes. However, the human physiological makeup imposes certain limits on the number and quality of possible percepts, so it will not be an exaggeration to say that grammar must, fundamentally, be a relatively simple sign system of encoding cognitive experience. Therefore, a theory aiming at explaining grammar (or a part of it) should also be relatively simple and generally comprehensible.

To begin with, the traditional approach to grammar should be questioned, according to which grammar is understood as a system of explicit rules governing the functioning of language as a means of communication according to generative principles (that is, *a la* Chomsky and his ideological followers). The Chomskian view of grammar inadequately reflects linguistic reality for the simple reason that a grammar rule as a specific concept is the product of an observer's interpretive activity and its definition is predetermined by the initial set of coordinates used to construe this concept, i. e., by the currently accepted and used concepts about language including the concept of "grammar rule". Interestingly, this is one of the reasons why language is best acquired without any conscious application of rules even if they are known to linguistic science.

Traditionally, a specific grammar rule is formulated deductively by analyzing relations between signs (the conventional domain of syntax). In the course of such formulation it is usually overlooked that all possible normally observed relations between signs depend entirely on the observer's linguistic experience. In its turn, linguistic experience, by definition, implies other kinds of sign relations which constitute the domains of semantics and pragmatics (cf. Kravchenko 1996) and are empirically rooted in the *interactions of humans with the environment*. It follows that the nature of grammar understood not as a set

of rules for using signs formulated by someone (how competently?) but as some general principles underlying the mechanisms for reflecting interactional experience of the world in semiosis, cannot be explicated without addressing the issue of human cognitive activity (cf. Barlow and Kemmer 2000).

A more adequate approach would seem to be one that treats natural language grammar as a sign system for representing categorized cognitive experience (knowledge) wherein every grammatical category relates to some essential aspect of cognitive processing. The acquisition of natural language grammar is a natural autoreferential process in the course of which a child develops the ability to categorize perceptual data as concepts whose structures incorporate the causal relationships between linguistic and non-linguistic objects and to assign them specific cognitive values. These cognitive values are nothing but the experiential outcome of the interaction with the world, and they determine what is known as the speaker's linguistic competence.

6. Conclusion

As I have tried to argue, the traditional philosophical/linguistic analysis of semiotic phenomena is based on the false assumption that, epistemologically, linguistic and non-linguistic entities possess different ontologies. As a result, theoretical linguistic thought has been unable to come to grips with the reality of language which defies any attempts to mold it after logically construed models governed by sets of logically defined rules. The new epistemology of autopoiesis provides an effective alternative to the heritage of analytical philosophy in understanding what language is and what language does for an observer speaking to another observer in a consensual domain of their interactions with the observed world.

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