

Dialogism and biosemiotics

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The notions of ‘modeling’ and ‘interrelation’ play a pivotal role in Sebeok’s biosemiotics. In dialogue with Thomas A. Sebeok’s doctrine of signs, we propose to inquire into the action of modeling and interrelation in biosemiosis over the planet Earth, developing the concept of interrelation in terms of ‘dialogism’. Indeed, in the light of Sebeok’s biosemiotics we believe that the concept of dialogism may be extended beyond the sphere of anthroposemiosis and applied to all communication processes, which may be described as being grounded not only in the concept of modeling, but also in that of dialogism. And remembering that the concept of dialogue is fundamental in Charles S. Peirce’s thought system, we also propose that the approach we are formulating be viewed as an attempt at developing the Peircean matrix of biosemiotics.

Modeling systems theory and global semiotics

‘Modeling’ and ‘interrelation’ among species-specific semioses over the entire planet Earth are two issues that Thomas A. Sebeok’s puts at the center of his ‘doctrine of signs’ — the expression he prefers to ‘science of signs’ or ‘theory of signs’. The present paper focuses on these two topics developing them in the light of our own personal perspective. The term ‘dialogism’ in the present paper designates a development with respect to the condition of interrelation in global semiosis, as described by Sebeok. In our opinion modeling and dialogism are the basis of all communication processes.

Another pivotal topic in Sebeok’s ‘doctrine of signs’ is his belief that humans alone are capable of ‘semiotics’, that is, of consciousness, of what we may designate as ‘metasemiosis’, the capacity to suspend the immediacy of semiotic activity and deliberate. A consequence of no small import for semiosis as we are describing it, is that only human semiosis is endowed with a capacity for responsibility. Indeed, human animals alone are responsible for the well-being of semiosis over the entire planet. And given that in Sebeok’s view semiosis and life converge, the human animal is responsible for life in its globality over the planet. We have already dealt with this issue in a series of earlier writings, in particular in a book of 2003 entitled

Semioetica. In the present context of discourse we intend to focus on the problem of the interconnection among modeling, communication and dialogism.

After Sebeok semiotics has emerged as 'global semiotics'. According to the global semiotic perspective signs and life coincide and semiosis means behavior among living beings.

A lire les ouvrages de Sebeok, on est confondu par sa familiarité avec les langues et les cultures du monde, par l'aisance avec laquelle il se meut à travers les travaux des psychologues, des spécialistes de neuro-physiologie cérébrale, de biologie cellulaire, ou ceux des éthologues portant sur des centaines d'espèces zoologiques allant des organismes unicellulaires aux mammifères supérieurs, en passant par les insectes, les poissons et les oiseaux. Ce savoir plus qu'encyclopédique se mesure aussi aux milliers de noms d'auteurs, de langues, de peuples et d'espèces composant les index des ouvrages écrits ou dirigés par lui, et à leurs énormes bibliographies. (Lévi-Strauss, 'Avant-Propos', in Bouissac, Herzfeld, Posner 1986: 3)

'Modeling' is a pivotal notion used in global semiotics to explain life and behavior among living entities conceived in terms of semiosis. Therefore, global semiotics also involves modeling systems theory.

Modeling is the foundation of communication. Communication necessarily occurs within the limits and according to the characteristics of a world as it is modeled by a given species, a world that is species-specific. Jakob von Uexküll speaks of invisible worlds to indicate the domain which englobes all animals according to the species they belong to. What an animal perceives, craves, fears and predated is relative to its own world. Human communication is the most complex and varied form of communication in the sphere of biosemiosis, given that the human is the animal that is capable of modeling multiple possible worlds. Sebeok adapts the concept of modeling from the so-called Moscow-Tartu school, though he enriches it by relating it to the concept of Umwelt as formulated by Jakob von Uexküll (see Sebeok 1991: 49-58, 68-82, and 1994: 117-127; also Sebeok and Danesi 2000: 1-43).

Semiotics and semiosis

Sebeok's global semiotics is more than just a study of semiosis. Global semiotics also carries out a precise function in relation to semiosis. The globality of semiotics does not only indicate the capacity for an overall view, but also the disposition for an overall response.

Three aspects of the unifying function of semiotics

As emerges from Sebeok's research, the unifying function of semiotics may be considered in terms of three strictly interrelated aspects all belonging to the same interpretive practice characterized by high degrees of abductive creativity:

1) The descriptive-explanatory aspect

Semiotics singles out, describes and explains signs, that is to say, interpreted-interpretant relationships, forming events which

a) are connected by a relation of contiguity and causality (indexical relation), and therefore are given immediately and necessarily;

b) or, on the contrary, are associated on the basis of a hypothesized, iconic relation of similarity, despite any distance among these events in terms of indexicality:

(b1) in some cases, the iconic relation mainly results from obeying certain conventions (the iconic-symbolic relation);

(b2) in other cases, the iconic relation mainly results from a tendency toward innovation (the iconic-abductive relation), and not from obeying preestablished convention.

Such interpreted-interpretant relationships are identified not only in thematized objects, but also in the interpretive practices of different sciences.

Consequently, the descriptive-explanatory function of semiotics is also practiced in relation to cognitive processes themselves, in terms of critique in a Kantian sense, therefore of the search for a priori possibilities or conditions.

2) The methodological aspect

Semiotics is also the search for appropriate methods of inquiry and acquisition of knowledge, both ordinary and scientific knowledge. From this point of view, and differently from the first aspect, semiotics does not limit itself simply to describing and explaining, but also makes proposals in relation to cognitive behavior. Therefore, under this aspect as well semiotics overcomes the tendency to parochial specialisms when this leads to separation among the sciences.

3) The ethical aspect

For this aspect we propose such terms as 'ethosemiotics', 'teleosemiotics' or 'telosemiotics' (from 'telos' = end) or perhaps better, 'semioethics'.

From this point of view, the unifying function of semiotics concerns proposals and practical orientations for human life in its globality (human life considered in all its biological and socio-cultural aspects). The focus is on what may be called the ‘problem of happiness’. This problem is held in high account by Herodotus who, early in the first book of the Histories, narrates the downfall of the last of the Lydian kings, Croesus, who imagined himself to be the happiest of men.

In turn, the story of Croesus as described by Herodotus is interpreted by Sebeok. Croesus who is blessed with two sons is unable to maintain a condition of happiness because of his inability to hold them both in due account: one is endowed with the word, the other is deaf and dumb, and consequently unnamed.

Sebeok’s study, ‘The Two Sons of Croesus: A Myth about Communication in Herodotus’ (in Sebeok 1979), reflects on this third aspect of semiotics, which refers to the problem of wisdom as entrusted to myths, popular tradition and special literary genres (those described by Mikhail Bakhtin as belonging to ‘carnivalized literature’, which derives from popular culture). By analogy with the deaf and dumb son of Croesus, we may remember King Lear’s reticent Cordelia, or in The Merchant of Venice, the ‘muteness’ and simplicity of the leaden casket — contrary to common expectation a sign that it holds Portia’s image.

Concerning this third aspect of the unifying function of semiotics, particular attention is paid to recovering the connection with that which is considered and experienced as being separate.

In today’s world, the logic of production and the rules that govern the market allowing all to be exchanged and commodified, threaten to render humanity ever more insensible to signs that are nonfunctional, dysfunctional and ambivalent. Such signs may range from the vital signs forming the body as an organism to the seemingly futile signs of phatic communication with others.

In the present age, reconsideration of these signs and their relative interrelations would seem absolutely necessary if we are to improve the quality of life. In fact, the economics of capitalist globalization imposes ecological conditions which render communication between ourselves and our bodies as well as the environment, ever more difficult and distorted (cf. Sebeok ‘The Semiotic Self, Appendix I, in The Sign and Its Masters, 1979; see also Sebeok, Ponzio, Petrilli 2001).

Moreover, this third aspect of semiotics operates in a way that unites rational worldviews to myth, legend, fable and all other forms of popular tradition that focus on the relationship of humans to the world around them. This function of semiotics is

rich with implications for human behavior: those signs of life that today we cannot or do not wish to read, or those signs that we no longer know how to read, one day may well recover their importance and relevance for humanity.

It has often been maintained that the nature of signs cannot be fully understood simply by studying sign function. On his part, Sebeok draws attention to the functioning of signs as an end in itself, which represents a sort of excess with respect to the functionality of signs. This excess is visible, for example, in ritual behavior among human beings and nonhuman animals, but also in language. In fact, beyond its communicative function, language may be considered as a sort of game without which such things as imagination, fantasy, or highly abductive reasoning would never be possible (for these aspects, cf. Sebeok's The Play of Musement, 1981).

Semiosis and semiotics. 'Semiotics', another meaning

In addition to the general science of signs, the term 'semiotics' is used by Sebeok most significantly to indicate the specificity of human semiosis. This concept is proposed in a paper of 1989, 'Semiosis and semiotics: what lies in their future?', now chapter 9 in A Sign Is Just a Sign (1991: 97-99), and is of vital importance for a transcendental founding of semiotics given that it explains how semiotics as a science and metascience is possible. Sebeok writes:

Semiotics is an exclusively human style of inquiry, consisting of the contemplation — whether informally or in formalized fashion — of semiosis. This search will, it is safe to predict, continue at least as long as our genus survives, much as it has existed, for about three million years, in the successive expressions of Homo, variously labeled — reflecting, among other attributes, a growth in brain capacity with concomitant cognitive abilities — habilis, erectus, sapiens, neanderthalensis, and now s. sapiens. Semiotics, in other words, simply points to the universal propensity of the human mind for reverie focused specularly inward upon its own long-term cognitive strategy and daily maneuverings. Locke designated this quest as a search for 'humane understanding'; Peirce, as 'the play of musement'. (Ibidem: 97)

In his article 'The evolution of semiosis' (in Posner, Robering, and Sebeok, I), Sebeok explains the correspondences connecting the branches of semiotics with the different types of semiosis, from the world of micro-organisms to the superkingdoms and the human world. Specifically human semiosis, anthroposemiosis, is represented as semiotics thanks to a species-specific 'modeling device' called 'language'. This observation is based on the fact that it is virtually certain that Homo habilis was originally endowed with language, but not speech. Sebeok's distinction between

language and speech corresponds, even if roughly, to the distinction between Kognition and Sprake drawn by Müller 1987 in Evolution, Kognition and Sprake (see Sebeok in Posner, Robering, and Sebeok 1997-1998, I: 443).

Dialogism, modeling and communication in semiosis

Model and modeling

As anticipated, a fundamental concept in Sebeok's global semiotics is that of model which he develops from the so-called Moscow-Tartu school (see Lucid 1977 and Rudy 1986). The latter limits the concept of modeling to the human sphere (Lotman's semiosphere) and distinguishes between the 'primary modeling system', an expression used to denote natural language, and the 'secondary modeling system', used for all other human cultural systems. Instead, Sebeok extends the concept of model beyond the domain of anthroposemiosis, and connects it to the concept of Umwelt as elaborated by the biologist Jakob von Uexküll, which, in Sebeok's interpretation, may be translated as 'outside world model'.

On the basis of research in biosemiotics, we now know that the modeling capacity would seem to be operative in all life forms. Semiosis may be interpreted as the capacity with which all life forms are endowed to produce and comprehend the species-specific models of their worlds (see Sebeok and Danesi 2000: 5). Primary modeling is the innate capacity of organisms for simulative modeling in species-specific ways. The primary modeling system of the species Homo is language, which should not be confused with verbal language, as in the Moscow-Tartu school. A distinction must be made between language understood as 'verbal language', that is, as indicating a communication system, and 'language' understood as a species-specific modeling device.

Secondary and tertiary modeling systems presuppose language understood as a modeling device, therefore, these too indicate uniquely human capacities. In Sebeok's terminology, the secondary modeling system is verbal language or, speech, while tertiary modeling systems indicate all human cultural systems, symbol-based modeling processes grounded in language and speech. Sebeok's tripartite distinction is fundamental in order to distinguish between modeling and communication, as well as to demonstrate the foundational character of modeling with respect to communication.

On this point, an important contribution is also made by Thure von Uexküll with his own tripartite analysis of semiosis. However, as we shall see in what follows, Uexküll formulates his tripartition in the terminology of code semiotics (a mixture of

Saussurean semiology and Shannon and Weaver's information theory) with his use of such terms as 'emitter' and 'receiver'. Instead, on our part, we take Thure von Uexküll's terminology and 'translate' it into the language of Peircean interpretation semiotics. This translative operation is pivotal in our own interpretation of the connection between modeling and dialogism.

For our interpretation of the relation between modeling and dialogism it will also be necessary to deal with the 'Semiotic Matrix', as proposed by Martin Krampen.

Proceeding with Sebeok and beyond him, another indispensable argument for the relation between modeling and dialogism, viewed as the foundation of communication, is provided by the 'Functional Cycle', as described by Jakob von Uexküll.

All these aspects will now be treated in the sections to follow, and used to lead into our interpretation of dialogism as conceived by Bakhtin, and the possible relation to Sebeok's biosemiotics.

Reformulating Th. v. Uexküll's typology of semiosis

In the article 'Biosemiosis' (in Posner, Robering, and Sebeok 1997-98, I, Chapter III: 447-456; see also 'Varieties of Semiosis' by Uexküll in Sebeok and Umiker-Sebeok, eds., 1992: 455-470), Th. v. Uexküll identifies three different kinds of semiosis, characterized by the different roles carried out by emitter and receiver. He calls these three different types of semiosis: 1) semiosis of information or signification; 2) semiosis of symptomatization; and 3) semiosis of communication.

In semiosis of information or signification we have an inanimate environment which acts as a 'quasi-emitter' without a semiotic function. The receiver, a living system or living entity, makes whatever it receives meaningful via its receptors and must perform all semiotic functions.

In semiosis of symptomatization the emitter is a living being that sends out signals through its behavior or attitude. These signals are not directed toward a receiver and attend an answer. The signals received by the receiver are signs of the type called 'symptoms'.

In semiosis of communication signs are emitted for the receiver and must find the meaning intended by the emitter (cf. Ibidem: 449-450).

In our terminology, and in accordance with Peirce (but also with Th. von Uexküll's terminology), the three types of semiosis specified in terms of emitter and receiver and the different roles they carry out, may instead be reformulated in terms of the different roles carried out by the interpretant sign and the interpreted sign. According to this approach we may state that

1) the interpreted becomes a sign only because it receives an interpretation from the interpretant which is a response (semiosis of information); or

2) before it is interpreted as a sign by the interpretant, the interpreted is already itself an interpretant response (symptom) which, however, is not intended to be interpreted as a sign (semiosis of symptomatisation);

3) before being interpreted as a sign by the interpretant, the interpreted is already an interpretant response intended to be interpreted as a sign, in other words, the interpreted requires an interpretant response (semiosis of communication).

We believe that reformulation of Th. von Uexküll's typology of semiosis in terms of the interpreted sign and the interpretant sign and the way they participate in interpretation, presents the following advantages over the conception of semiotic differences established on the basis of 'emitter' and 'receiver' participation:

a) the role of the interpretant in semiosis is emphasized;

b) the meaning of the expression 'inanimate quasi-interpreter' in semiosis of information or signification is explained as the 'interpreted-non-interpretant' (while in semiosis of symptomatisation the interpreted is an interpretant-interpreted which is not intended to be interpreted as a sign; and in semiosis of communication the interpreted is an interpretant-interpreted which is intended to be interpreted as a sign);

c) semiosis is identified with the capacity for interpretation, that is to say, for response;

d) importance of the pragmatic dimension in semiosis is confirmed;

e) Th. v. Uexküll's definition of biosemiotics as 'interpretation of interpretation' or in a word, 'metainterpretation' is also confirmed and developed.

In our reformulation we employ the same terminology used by Th. v. Uexküll to describe his model of biosemiotics (cf. Ibidem: 456).

. Semiosis of information or signification, semiosis of symptomization and semiosis of communication are grounded in specific types of modeling characteristic of specific life forms. The species's capacity for modeling is the necessary a priori for processing and interpreting perceptual input species-specifically.

From 'substitution' to 'interpretation'

According to Sebeok (1994: 10-14), both the Object (O) and the Interpretant (I) are Signs. Consequently, we may rewrite O as Son and I as SIn, so that both the first distinction and the second are resolved in two sorts of signs (see Ibidem: 12-13).

In our opinion and in accordance with Peirce who reformulated the classic notion of substitution in the medieval expression aliquid stat pro aliquo in terms of interpretation, the sign is firstly an interpretant (cf. Petrilli 1998: I.1).

In fact, the Peircean terms of the sign include what may be called the interpreted sign on the side of the object, and the interpretant sign in a relationship where it is the interpretant that makes the interpreted possible. The interpreted becomes a sign component because it receives an interpretation, but the interpretant in turn is also a sign component endowed with potential for engendering a new sign. Therefore, where there is a sign, there are immediately two, and given that the interpretant can engender a new sign, there are immediately three, and so forth ad infinitum as conceived by Peirce with his notion of infinite semiosis or chain of deferrals from one interpretant to another.

To analyze the sign beginning from the object of interpretation, that is, the interpreted, means to begin from a secondary level. In other words, to begin from the object-interpreted means to begin from a point in the chain of deferrals, or semiotic chain, which cannot be considered as the point of departure. Nor can the interpreted be privileged by way of abstraction at a theoretical level to explain the workings of sign processes. An example: a spot on the skin is a sign insofar as it may be interpreted as a symptom of sickness of the liver: this is already a secondary level in the interpretive process. At a primary level, retrospectively, the skin disorder is an interpretation enacted by the organism itself in relation to an anomaly which is disturbing it and to which it responds. The skin disorder is already in itself an interpretant response.

To say that the sign is firstly an interpretant means to say that the sign is firstly a response. We could also say that the sign is a reaction: but only on the condition that by 'reaction' we mean 'interpretation' (similarly to Morris's behaviorism, but differently from the mechanistic approach). The expression 'solicitation-response' is

preferable to ‘stimulus-reaction’ in order to avoid superficial associations with the approaches they respectively recall. Even a ‘direct’ response to a stimulus, or better solicitation, is never direct but ‘mediated’ by an interpretation. Unless it is a ‘reflex action’, the formulation of a response means to identify the solicitation, situate it in a context, and relate it to given behavioral parameters (whether a question of simple types of behavior, e.g., the prey-predator model, or more complex behaviors connected with cultural values, as in the human world).

The sign is firstly an interpretant, a response through which something else is considered as a sign and becomes its interpreted, on the one hand, and which is potentially able to engender an infinite chain of signs, on the other.

Consequently, the ‘ambiguity’ of the concept of semiosis discussed in the entry ‘Semiosis’ in Encyclopedia of Semiotics, edited by Paul Bouissac (1998), does not concern the term but the phenomenon of semiosis itself. In fact, semiosis is at once a process and relation, activity and passivity, action of sign or action on sign, including sign solicitations and responses, interpreteds and interpretants.

In Peirce’s view, semiosis is a triadic process and relation whose components include sign (or representamen), object and interpretant. ‘A Sign, or Representamen, is a First which stands in such a genuine triadic relation to a Second, called its Object, as to be capable of determining a Third, called its Interpretant, to assume the same triadic relation to its Object in which it stands itself to the same Object’ (CP 2.274). Therefore, the sign stands for something, its object, ‘not in all respects, but in reference to a sort of idea’ (CP 2.228). However, a sign can only do this if it determines the interpretant which is ‘mediately determined by that object’ (CP 8.343): as stated, semiosis is action of sign and action on sign, activity and passivity. ‘A sign mediates between the interpretant sign and its object’ insofar as it refers to its object under a certain respect or idea, the ground, and determines the interpretant ‘in such a way as to bring the interpretant into a relation to the object, corresponding to its own relation to the object’ (CP 8.332).

Centrality of the interpretant in the ‘semiotic matrix’

Th. v. Uexküll’s model is so broad as to include sign processes from microsemiosis and endosemiosis to semiosis of higher organisms through to human biosemiotic meta-interpretation. It covers most of the complete catalogue of elements postulated for semiosis in the article entitled ‘Model of semiosis’ by Martin Krampen (in Posner, Robering, and Sebeok 1997-98, I: 248). This list includes the following 14

elements deemed necessary for a complete description of semiosis. Elements designated by a letter in parenthesis are located within the organism of the interpreter:

- 1) the semiosis as a whole: Z;
- 2) the organism of the interpreter: (O);
- 3) the interpretandum ('signal'): S;
- 4) the channel: Ch;
- 5) the signifier (the signal represented in the organism): (Rs);
- 6) the interpretant: (I);
- 7) the signified (the object represented in the organism): (Rg);
- 8) the interpretatum ('objet'): G;
- 9) the disposition for instrumental behavior: (Rbg);
- 10) the disposition for signaling behavior: (Rsg);
- 11) instrumental behavior: (BG);
- 12) signaling behavior: (SG);
- 13) external context: (C);
- 14) internal context: (c).

On the basis of this list, a semiosis can be described in the following way:

A semiosis Z is a process involving a channel Ch with an interpretandum S, which is related to an interpretatum G by being perceived and represented as a signifier (Rs) within the Organism (O) of its interpreter; the signifier (Rs) then being mediated by an interpretant (I) to connect with the signified (Rg), which represents the interpretatum G within (O). Via the interpretant (I), this process of symbolizing and referring triggers dispositions for instrumental behavior (rbg) and/or signaling behavior (Rsg); these are both related to the interpretatum G and terminate, via appropriate effectors, in overt instrumental behavior BG or signaling behavior SG, the latter supplying interpretanda for a further process of interpretation. Each

semiosis Z is surrounded by other semioses and takes place in a context C external to (O) as well as a context (c) internal to (O). (*Ibidem*: 251)

This complex definition of semiosis is centered around the notion of interpretant. In fact, as already stated, the interpretant mediates between solicitation (interpretandum) and response (signaling behavior or instrumental behavior). In Peirce's view such mediation distinguishes a semiosis from a mere dynamical action — 'or action of brute force' — which takes place between the terms forming a pair. On the contrary, semiosis results from a triadic relation: it 'is an action, or influence, which is, or involves, a cooperation of three subjects, such as a sign, its object, and its interpretant' and it is not 'in any way resolvable into action between pairs' (*CP* 5.484). The interpretant does not occur in physical phenomena nor in non-biological interactions. In short, it does not occur in the inorganic world.

The definition of semiosis proposed by Krampen (quoted above) is illustrated graphically as a 'semiotic matrix' (cf. Posner, Robering, and Sebeok 1997-98, I: 252, Fig. 5.1). A rhombus at the center of the semiotic matrix represents the interpretant I.

Most interesting is the pivotal role carried out by the interpretant in the semiotic matrix, indicated by placing the rhombus that represents the interpretant in the center.

The dialogic nature of sign and semiosis

The semiotic matrix which displays the various partial semiotic processes is used in the same article to illustrate graphically some other types of semioses such as Pavlovian conditioning, the inference 'if ... then', hypothesis formation, and a 'chain of thought'. In all these types of semioses the semiotic matrix graph emphasizes the central role of the interpretant (cf. *Ibidem*: 253-257).

Dialogue too is illustrated graphically through the semiotic matrix (cf. *Ibidem*: 260). The author of the article in question maintains that dialogue commences with signaling behavior from a sender intending to communicate something about an object. What is not taken into account by Krampen is that the 'if ... then' inference, hypothesis formation, and 'chain of thought' are dialogic forms in themselves.

In inference, in the hypothetical argument, and in the chain of interpreted and interpretant thought signs generally, dialogue is implied in the relationship itself between the interpreted sign and the interpretant sign (cf. Ponzio 1990, 1995, 1994).

The dialogic nature of sign in inference and the hypothetical argument has already been evidenced in previous writings (cf. Ponzio 1990: 197-214).

The degree of dialogism is minimal in deduction where the relationship between the premises and the conclusion is indexical: here, once the premises are accepted the conclusion is obligatory.

In induction, it too is characterized by a unilinear inferential process, the conclusion is determined by habit and is of the symbolic order: identity and repetition dominate, though the relationship between the premises and the conclusion is no longer obligatory.

By contrast, in abduction the relationship between premises and conclusion is iconic and dialogic in a substantial sense. In other words, it is characterized by high degrees of dialogism and inventiveness as well as by a high-risk margin for error. To claim that abductive argumentative procedures are risky is to say that they are mostly tentative and hypothetical with only a minimal margin for convention (symbolicity) and mechanical necessity (indexicality). Therefore, abductive inferential processes engender sign processes at the highest levels of otherness and dialogism.

The relation between sign (interpreted) and interpretant, as understood by Peirce, is a dialogic relation. We have already evidenced the dialogic nature of the sign and semiosis.

In semiosis of information or signification (Th. von Uexküll), where an inanimate environment acts as a 'quasi-emitter' — or, in our terminology, where the interpreted becomes a sign only because it receives an interpretation by the interpretant which is a response — receiver interpretation is dialogic. Also, dialogue subsists in semiosis of communication (Th. von Uexküll) where the interpreted itself, before being interpreted as a sign by the interpretant is already an interpretant response calling for interpretation as a sign. However, dialogue also subsists in semiosis of symptomization (Th. von Uexküll), where too the interpreted is an interpretant response (symptom) that similarly to the case of semiosis of information or signification does not arise for the sake of being interpreted as a sign.

Dialogue does not commence with signaling behavior from a sender intending to communicate something about an object. The whole semiotic process is dialogic, where the term 'dialogic' should be understood as dia-logic. The logic of semiosis as a whole and consequently the logic of Krampen's semiotic matrix is a dia-logic. The interpretant as such is 'a disposition to respond', an expression used by Krampen to describe the dialogic interaction between a sender and a receiver (cf. Posner, Robering, and Sebeok 1997-98, I: 259).

Krampen's semiotic matrix in fact confirms the connection we have established between dialogue and semiosis. It shows that the two terms coincide, not only in the sense that dialogue is semiosis, but also in the sense that semiosis is dialogue — the latter being an aspect which would seem to escape Krampen. The dialogue process presented in the semiotic matrix is similar to the 'if ... then' semiotic process, to hypothesis formation, chain of thought, and functional cycle after Jakob von Uexküll. In Krampen's article the semiotic matrix illustrates dialogue with two squares which represent the two partners, that is to say the sender and the receiver, where each has its own rhombus representing the interpretant. Despite this division, the graphic representation of dialogue is not different from the author's diagrams representing other types of semiosis. It could be the model, for example, of an 'if...then' semiosis in which the two distinct interpretants are the premises and the conclusion of an argument in a single chain of thought.

Dialogue and the 'functional cycle'

Jakob von Uexküll's 'functional cycle' is a model for semiotic processes. As such it too has a dialogic structure and involves inferences of the 'if...then' type which may even occur on a primitive level, as in Pavlovian semiosis or as prefigurements of the type of semiosis (where we have a 'quasi-mind' interpreter) taking place during cognitive inference.

In the 'functional cycle' the interpretandum produced by the 'objective connecting structure' becomes an interpretatum and (represented in the organism by a signaling disposition) is translated by the interpretant into a behavioral disposition which triggers a behavior into the 'connecting structure'. Uexküll does not use a dialogic model. All the same, the point we wish to make is that in the 'functional cycle' thus described, a dialogic relation is established between an interpreted (interpretandum) and an interpretant (interpreted by another interpretant, and so forth). Nor does the interpretant limit itself to identifying the interpreted, but rather establishes an interactive relationship with it.

Vice versa, not only does the 'functional cycle' have a dialogic structure, but dialogue in communication understood in a strict sense may also be analyzed in the light of the 'functional cycle'. In other words, the dialogic communicative relationship between a sender who intends to communicate something about an object and a receiver may be considered, in turn, on the basis of the 'functional cycle' model. The type of dialogue in question here corresponds to the processes described by the 'functional cycle' as presented, in Th. von Uexküll's terminology, neither in semiosis of information or signification, nor in semiosis of symptomization, but rather in semiosis of communication. In this case, even before it is interpreted as a sign by the interpretant, the interpreted itself is already an interpretant response

addressed to somebody both to be identified and to receive the required interpretant of answering comprehension.

The entry 'Dialogue' is lacking in the Handbook of Semiotics by Winfried Nöth (1990). However, this term is listed in the 'Index of subjects and terms', which informs us that the subject is treated in a chapter entitled 'Communication and semiosis' (Part 3). Here the 'functional cycle' is also mentioned (cf. Ibidem: 176-180). This indicates the implications of Uexküll's biosemiotic 'functional cycle' for the problem of the relation between dialogue and communication. Different communication models are discussed showing how biological models, which describe communication as a self-referential autopoietic and semiotically closed system (such as the models proposed by Maturana, Varela, and Th. von Uexküll), are radically opposed to both the linear (Shannon and Weaver) and the circular (Saussure) paradigms. As reported by Nöth (1990: 180), Th. von Uexküll (1981: 14) demonstrates that J. von Uexküll's biosemiotic functional cycle (1982: 8) has this feature of autonomous closure and therefore reacts to its environment only according to its internal needs.

The theory of autopoietic systems is incompatible with dialogism only if one subscribes to a trivial conception of dialogue based on a communication model that describes communication as a linear causal process. This is a process moving from source to destination. Similarly, there is incompatibility between autopoietic systems and dialogism, if dialogue is conceived as based on the conversation model governed by the turning around together rule. Also, the autopoietic system calls for a new notion of creativity. Furthermore, there remains the question of how the principle of autonomous closure is compatible with dialogue conceived as the inner structure of the individual, therefore with creativity and learning.

As Maturana (1978: 54-55) would seem to suggest, it is possible to conceive dialogic exchange differently to communication understood as a linear process from source to destination or as a circular process in which participants take turns in playing the part of sender and receiver: This dialogue, says Maturana, should be conceived as 'pre- or anticomunicative interaction'.

Dialogism and biosemiosis

Concerning the Bakhtinian notion of 'dialogism' we have observed (see Petrilli and Ponzio, Semiotics Unbounded, 2002, Part One, III. 1.4) how in Bakhtin's view dialogue does not consist in the communication of messages, nor is it an initiative taken by self. On the contrary, the self is always in dialogue with the other, that is to

say, with the world and with others, whether it knows it or not; the self is always in dialogue with the word of the other. Identity is dialogic. Dialogism is at the very heart of the self. The self, ‘the semiotic self’ (see Sebeok, Petrilli, Ponzio 2001), is dialogic in the sense of a species-specifically modeled involvement with the world and with others. Self is implied dialogically in otherness, just as the ‘grotesque body’ (Bakhtin 1965) is implied in the body of other living beings. In fact, in a Bakhtinian perspective dialogue and intercorporeity are closely interconnected: there cannot be dialogue among disembodied minds, nor can dialogism be understood separately from the biosemiotic conception of sign.

As we have already observed, we believe that Bakhtin’s main interpreters such as Holquist, Todorov, Krysinisky and Wellek have all fundamentally misunderstood Bakhtin and his concept of dialogue. This is confirmed by their interpretation of Bakhtinian dialogue as being similar to dialogue in the terms theorized by such authors as Plato Buber, Mukarovsky.

For Bakhtin dialogue is the embodied, intercorporeal, expression of the involvement of one’s body (which is only illusorily an individual, separate and autonomous body) with the body of the other. The image that most adequately expresses this idea is that of the ‘grotesque body’ (cf. Bakhtin 1965) in popular culture, in vulgar language of the public place, and above all in the masks of carnival. This is the body in its vital and indissoluble interconnectedness with the world and the body of others. With the shift in focus from identity (whether individual, as in the case of consciousness or self, or collective, that is to say, a community, historical language, or a cultural system at large) to alterity, a sort of Copernican revolution is accomplished. Bakhtinian critique conducted in terms of dialogic reason not only interrogates the general orientation of Western philosophy, but also the dominant cultural tendencies that engender it.

The ‘Copernican revolution’ operated by Bakhtin in relation to the conception of self, identity, and consciousness involves all living beings and not just the human. Consciousness implies a dialogic relation that includes a witness and a judge. This dialogic relation is not only present in the strictly human world but also in the biological. Says Bakhtin:

When consciousness appeared in the world (in existence) and, perhaps, when biological life appeared (perhaps not only animals, but trees and grass also witness and judge), the world (existence) changed radically. A stone is still stony and the sun still sunny, but the event of existence as a whole (unfinalized) becomes completely different because a new and major character in this event appears for the first time on the scene of earthly existence — the witness and the judge. And the sun, while remaining physically the same, has changed because it has begun to be cognized by

the witness and the judge. It has stopped simply being and has started being in itself and for itself ... as Well as for the other, because it has been reflected in the consciousness of the other ('From notes made in 1970-71', in Bakhtin 1986: 137)

The biological basis of Bakhtinian dialogue and the 'great experience'

At this point a possible connection may be evidenced between Sebeok's biosemiotic conception and Bakhtin's dialogic conception. It would seem that these two authors are very distant from each other. In reality this is not true. Apart from anything else, Bakhtin himself was seriously interested in research in the field of biology. And, in fact, he developed his own conception of dialogue in close relation to biological studies of his time, and particularly in line with the totalizing perspective as delineated by Vernadsky and his conception of the biosphere. For both Sebeok and Bakhtin all living beings on the planet Earth are closely interrelated and interdependent, whether directly or indirectly, in spite of their apparent autonomy and separation.

Bakhtinian dialogue is not the result of an attitude that the subject decides to take toward the other. On the contrary, dialogue is the expression of the living being's condition of biosemiotic impossibility of closure and indifference toward its environment, with which it constitutes a whole system which Bakhtin calls architectonics. In human beings architectonics becomes an 'architectonics of answerability', semiotic consciousness of 'being-in-the-world-without-alibis'. Architectonics thus described may be limited to a small sphere — that is to say, the restricted life environment of a single individual, one's family, professional, work, ethnic, religious group, culture, contemporaneity. Or, on the contrary, as consciousness of the 'global semiotic' order (the term is Sebeok's), it may be extended to the whole world in a planetary or solar or even cosmic dimension (as auspicated by Victoria Welby). Bakhtin distinguishes between 'small experience' and 'great experience'. The former is narrow-minded experience. Instead

... in the great experience, the world does not coincide with itself (it is not what it is), it is not closed and finalized. In it there is memory which flows and fades away into the human depths of matter and of boundless life, experience of worlds and atoms. And for such memory the history of the single individual begins long before its cognitive acts (its cognizable 'Self'). (Bakhtin's 'Notes of 1950', in Bakhtin 1996: 99)

It must not be forgotten that Bakhtin authored an article in 1926 entitled 'Contemporary vitalism', in which he discusses problems of the biological and

philosophical orders. This article was signed by the biologist Ivan Ivanovich Kanaev (see Kanaev 1926), and is an important tessera for the reconstruction of Bakhtin's thought from the time of his early studies. Similarly to the biologist Jakob von Uexküll, in Bakhtin too we find an early interest in biology specifically in relation to the study of signs.

This article by Bakhtin on vitalism was written during a period of frenzied activity, the years 1924-29, in Petersburg, then Leningrad. In this productive period of his life Bakhtin actually published four books on different subjects (Freud, Russian Formalism, philosophy of language, Dostoevsky's novel), only the last of which under his name, while the others (together with several articles) were signed by Voloshinov or Medvedev.

In Petersburg Bakhtin lived in Kanaev's apartment for several years, and Kanaev contributed to Bakhtin's interest in biology as well as to the influence exerted by the physiologist Ukhtomsky on his conception of the 'chronotope' in the novel. J. von Uexküll is also named in Bakhtin's text on vitalism.

In 'Contemporary Vitalism' Bakhtin criticizes vitalism, that is to say, the conception that theorizes a special extramaterial force in living beings as the basis of life processes. In particular, his critique is directed against the biologist Hans Driesch who interpreted homeostasis in the organism in terms of total autonomy from its surrounding environment. On the contrary, in his own description of the interaction between organism and environment, Bakhtin opposes the dualism of life force and physical-chemical processes and maintains that the organism forms a monistic unit with the surrounding world. The relation of body and world is a dialogic relation in which the body responds to its environment modeling its world.

Rabelais's world as the world's biosemiotic consciousness

The category of the 'carnavalesque' as formulated by Bakhtin and the role he assigns to it in his study on Rabelais can only be adequately understood in the light of his global (his 'great experience') and biosemiotic view of the complex and intricate life of signs.

The original title of Bakhtin's book on Rabelais, literally The Work of François Rabelais and Popular Culture of the Middle Ages and Renaissance, stresses the intricate connection between Rabelais's work, on the one hand, and the view of the world as elaborated by popular culture (its ideology, its Weltanschauung) as it evolves from Ancient Greek and Roman civilization into the Middle Ages and

Renaissance, on the other, which in Western Europe is followed by the significant transition into bourgeois society and its ideology.

Bourgeois ideology conceives bodies as separate and reciprocally indifferent entities. Thus understood, bodies only have two things in common: firstly, they are all evaluated according to the same criterion, that is to say, their capacity for work; secondly, they are all interested in the circulation of goods, including work, to the end of satisfying the needs of the individual. Such ideology continued into Stalinist Russia, which coincides with the time of Bakhtin's writing, and into the whole period of real socialism where work and the capacity for production were the sole factors taken into serious consideration as community factors. In other words, work and productivity were the only elements considered as linking individuals to each other. Therefore, beyond this minimal common denominator, individual bodies were considered as being reciprocally indifferent to each other and separate.

The carnivalesque participates in the 'great experience' which offers a global view of the complex and intricate life of bodies and signs. The Bakhtinian conception emphasizes the inevitability of vital bodily contact, showing how the life of each one of us is implicated in the life of every other. Therefore, in what may be described as a 'religious' (from Latin *religo*) perspective of the existent, this conception underlines the bond interconnecting all living beings with each other.

Furthermore, the condition of excess is emphasized, of bodily excess with respect to a specific function, and of sign excess with respect to a specific meaning: signs and bodies — bodies as signs of life — are ends in themselves. On the contrary, the minor and more recent ideological tradition is vitiated by reductive binarism, which sets the individual against the social, the biological against the cultural, the spirit against the body, physical-chemical forces against life forces, the comic against the serious, death against life, high against low, the official against the non-official, public against private, work against art, work against non official festivity. Through Rabelais Bakhtin recovered the major tradition and criticized the minor and more recent conception of the individual body and life inherent in capitalism as well as in real socialism and its metamorphoses. Dostoevsky's polyphonic novel was in line with the major tradition in *Weltanschauung*, as demonstrated by Bakhtin in the second edition (1963) of his book of 1929.

The self cannot exist without memory; and structural to both the individual memory and social memory is otherness. In fact, the kind of memory we are alluding to is the memory of the immediate biosemiotic 'great experience' (in space and time) of indissoluble relations to others lived by the human body. These relations are

represented in ancient forms of culture as well as in carnivalized arts: however, the sense of the ‘great experience’ is anaesthetized in the ‘small’, narrow-minded, reductive experience of our time.

To conclude: modeling and dialogism are pivotal concepts in the study of semiosis. Communication is only one kind of semiosis that — together with the semiosis of information or signification and the semiosis of symptomization — presupposes the semiosis of modeling and dialogism. This emerges clearly if in accordance with Peirce and his reformulation of the classic notion of substitution in terms of interpretation, we consider the sign first of all as an interpretant, that is to say, as a dialogic response foreseen by a specific type of modeling.

Translation from Italian by Susan Petrilli

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