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The semiotic universe of abduction

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Logic and cosmology: Typology of inferential modalities and evolutionary forces

In the philosophical system of Charles Sanders Peirce (as emerges it, for example, from his writings collected in the volume Chance, Love and Logic, edited by M. R. Cohen [Peirce 1923]), ‘chance’, ‘love’ and ‘necessity’ indicate the three modes of development regulating evolution in the cosmos. Below we shall focus on the question of love, or Peirce’s *agapasm*, which is connected to the problem of abductive inference.

Of particular interest in relation to this area of research is a series of five articles published in the journal The Monist beginning from 1891, where Peirce introduces his doctrines of tychism, anancism, agapism and synechism, and develops his evolutionary cosmology. We shall also refer to two of his later writings (1905) on pragmatism which unite the developments of his cosmology and his theory of semiotics. The articles from The Monist are:

- ‘The Architecture of Theories’ (1891, see CP 6.7-34)
- ‘The Doctrine of Necessity Examined’ (January 1892, see CP 6.35-65)
- ‘The Law of Mind’ (July 1892, see CP 6.102-163)
- ‘Man’s Glassy Essence’ (October 1892, see CP 6.238-268)
- ‘Evolutionary Love’ (January 1893, see CP 6.287-317)
- ‘Reply to the Necessitarians. Rejoinder to Dr. Carus’ (July 1893, see CP 6.588-6.615). This is the published reply to Paul Carus’s criticisms of Peirce’s paper of 1892, ‘The Doctrine of Necessity Examined.’
- ‘What Pragmatism is?’ (1905, see CP 5.411-437)
- ‘Issues of Pragmatism’ (1905, see CP 5.438-463)

In his renowned paper ‘On a New List of Categories’ (CP 1.545-559), Peirce elaborates his doctrine of categories (firstness, secondness, and thirdness), which in his description are always copresent, interdependent and irreducible. His doctrine of categories constitutes the foundation of his ontology and cosmology. Therefore, in addition to the triad of his sign typology (in particular, the classification into icon, index, and symbol), this doctrine is also connected to the triad of his ontological-cosmological typology (agapasm, anancasm, tychasm), as well as the triad of his typology of inferential logic (abduction, induction, and deduction).

The concept of agapasm also offers a platform to discuss Victoria Welby's work in relation to Peirce. Indeed, for reconstructing the history of semiotics, Welby is a name to remember along with such others as Mikhail M. Bakhtin and Emmanuel Levinas, not only for historico-chronological reasons but also for a better understanding of the sign in theoretical terms.

In his paper of 1893, ‘Evolutionary Love’ (the last of the series of five published in the The Monist), Peirce identifies three main and strictly interrelated modes of evolutionary development operative in the cosmos: what he calls tychastic evolution or tychasm, which indicates development regulated by the action of chance – ‘evolution by fortuitous variation’; anancastic evolution or anancasm, which is dominated by the effect of necessity – ‘evolution by mechanical necessity’; and finally agapastic evolution or agapasm, which is orientated by the law of love – ‘evolution by creative love’. The names of the doctrines that elect these three evolutionary modes as their object of analysis are, respectively, tychasticism, anancasticism and agapasticism. Whereas, the terms tychism, anancism and agapism name ‘the mere propositions that absolute chance, mechanical necessity, and the law of love are severally operative in the cosmos...’ (CP 6.302).

Each of these evolutionary modes contains traces of the other two; therefore they are not pure, but contaminate each other reciprocally. In other words, they act together in different combinations and to varying degrees, reaching different states of equilibrium in evolutionary processes that are dominated now by chance, now by necessity, now by love. Consequently, far from excluding each other, tychasm, anancasm, and agapasm share in the same general elements that do, however, most clearly emerge in agapastic evolution. Evoking the language of mathematics, Peirce describes tychasm and anancasm as ‘degenerate forms of agapasm’; in other words, agapasm englobes the former as its degenerate cases (cf. CP, 6.303).

Tychasm shares a disposition for reproductive creation with agapasm, ‘the forms preserved being those that use the spontaneity conferred upon them in such wise as to be drawn into harmony with their original.’ This, as Peirce continues, ‘only shows that just as love cannot have a contrary,

but must embrace what is most opposed to it, as a degenerate case of it, so tychasm is a kind of agapasm.’ However, different from tychastic evolution which proceeds by exclusion, in genuine agapasm, advance takes place by virtue of a ‘positive sympathy’; that is, by virtue of attraction or affinity among the ‘created’ — read ‘interpretants’ — ‘springing from continuity of mind’ (or synechism) (cf. CP 6.304). In other words, agapasm advances from open-ended interpretive processes that constitute what we may call the semiotic material of the universe.

According to Peirce, the overall orientation of anancasm is regulated by ‘an intrinsic affinity for the good,’ and from this point of view, it too is similar to the agapastic type of advance. However, as close to agapasm as it may be, anancasm lacks in a determinant for evolution; namely, the factor of ‘freedom,’ which instead characterizes creative love and subtends tychism (cf. CP 6.305).

We could say that agapasm, understood as development by virtue of the forces of affinity and sympathy and referring to one of Peirce's most important tripartitions of the sign, is strongly iconic (the other two terms correlated with the icon being, notoriously, the index and the symbol). Here the allusion is above all to the force of attraction, that is, to the relation of similarity or affinity among interpretants. Though foreseeing the action of chance and necessity, in the case of agapastic evolution, the forces of attraction, affinity, freedom, and fortuitousness dominate. And where, in the continuous (synechetic) flow of infinite semiosis, agapastic forces prevail, iconicity dominates over indexicality and symbolicality in the relationship among interpretants.

The concept of continuity or synechism involves that of regularity. As emerges from her own philosophy of the signifying processes permeating the entire universe, Welby too believes that development is beaten out and articulated in a structure, and that continuity presupposes relational logic grounded in otherness. The logic of otherness may be considered as a sort of dia-logic – that is, logic in which is recovered the dimension of dialogicality, as understood in the Bakhtinian sense. In other words, following both Peirce and Bakhtin, dialogicality is considered here as a modality of semiosis, which may or may not involve verbal signs and may or may not take the form of dialogue. Thus understood, dialogicality is determined by the degree of opening towards otherness. Agapastic evolution is achieved through the law of love; creative and altruistic love, as Welby would say, love founded on the logic of otherness, as Levinas would say.

For her part, Welby too identifies three principal modes in the development of the universe – three types of experience, knowledge and consciousness: the ‘planetary,’ the ‘solar,’ and the ‘cosmic’ (cf. Welby 1983[1903]: 30, 94-96). These types are associated with her meaning triad,

respectively 'sense,' 'meaning,' and 'significance,' which refer to three levels of increasing complexity and signifying power (cf. Welby 1983[1903]: 2, 28, 46, 128). The signifying universe develops and is amplified through the generation/interpretation of signs, forming networks in continuous expansion as signs and senses multiply through the progressively inclusive spheres of what we propose to call geosemiosis, heliosemiosis and cosmosemiosis (cf. Petrilli 1998b: 8-9).

Consequently, as the semiotic perspective broadens with its corresponding progression from geosemiotics, heliosemiotics and cosmosemiotics, the semiotic science may at last free itself of its anthropocentric and geocentric limitations. If semiotics is part of anthroposemiotics, given that it is a prerogative of anthroposemiosis, then it is for exactly this reason that semiotics is capable of moving beyond the anthroposemiotic perspective in a direction that is neither anthropocentric nor geocentric, nor even heliocentric, to the broadest scope possible; that is, a cosmosemiotic perspective. The 'heliocentric' standpoint refers to the present era, the 'modern,' which may be taken as our point of departure. In truth, it did not take the 'Copernican revolution' to reach a cosmosemiotic perspective. Limiting our reference to Western thought, a significant example may already be signaled with De rerum natura by Lucretius. Furthermore, beyond the 'cosmosemiotic' (comprehensive of 'geosemiotic' and 'heliosemiotic') perspective as inferred from Peirce and Welby, we may also add (with Thomas A. Sebeok), that for an adequate understanding of anthroposemiosis, semiotics must extend its boundaries in the direction of 'zoosemiotics' and, even more extensively, the various branches of 'biosemiotics' (cf. Sebeok 2001; Petrilli 1998b; Ponzio and Petrilli 2001, 2002).

In the sphere of anthroposemiosis, evolutionary development is not only the result of the dynamic interrelationship among objective facts, the effectual, what effectively happens in the external world, among the created. Evolutionary development is also the result of the propensity to hypothesize future developments, possible or simply imaginative worlds, of accepting the challenge of the 'play of musement' (a concept adapted from Peirce and developed particularly by Sebeok [cf. 1981, 1986]) as the various planes of existence, sign production processes, and discourse interweave and interrelate dialogically. In metadiscursive and metasemiotic terms, signifying processes in the human world are empowered as objectifying signs interrelate with objectified signs and thought processes, linguistic systems, and sign systems generally interact, reciprocally enrich each other and develop, together with the human subject that is modeled and engendered in such semiotic and semiotic material. Both Peirce and Welby propose a global approach to the science of signs and meaning in an effort to account for signifying processes in all their complexity, articulation, variation, and dialogical multiplicity.

Cognitive semiotics, logic, and ethics

According to Peirce (CP 5.435), had a purposed article concerning the principle of continuity been written that synthesized the ideas of the other articles of the series from the early volumes of The Monist, 'it would consistently recognize continuity as an indispensable element of reality.' Peirce states that continuity is simply what generality becomes in the logic of relatives, and thus, like generality, and more than generality, is both an affair of thought and its essence. Yet,

even in its truncated condition, an extra-intelligent reader might discern that the theory of those cosmological articles made reality to consist in something more than feeling and action could supply, inasmuch as the primeval chaos, where those two elements were present, was explicitly shown to be pure nothing. (CP 5.435)

Now, Peirce continues, the motive for alluding to that theory at this point is to put in a strong light a position which the pragmatist holds and must hold, whether that cosmological theory be ultimately sustained or exploded; namely,

that the third category – the category of thought, representation, triadic relation, mediation, genuine thirdness, thirdness as such – is an essential ingredient of reality, yet does not by itself constitute reality ... The truth is that pragmatism is closely allied to the Hegelian absolute idealism, from which, however, it is sundered by its vigorous denial that the third category (which Hegel degrades to a mere stage of thinking) suffices to make the world, or is even so much as self-sufficient. (CP 5.436)

With 'pragmatism,' Peirce coherently developed his cognitive semiotics in close connection with the study of the social behavior of man and the totality of his interests. To work in such a direction means to view the problem of knowledge in its necessary implication with problems of the pragmatic and axiological orders. Beyond 'reason', Peirce theorizes 'reasonableness' understood as open-ended dialectical-dialogic semiotic activity, unfinished and unfinalizable, unbiased by prejudice and regulated by the logic of love, otherness and continuity or 'synechism'. Peirce supercedes the limits of cognitivism orienting his semiotic research in a pragmatic-ethic or evaluative-operative direction.

It may be inferred from Peirce's semiotic perspective that the dialogic conception of signs — therefore of human consciousness — and the logic of otherness that subtends it, are a necessary condition for his doctrine of continuity, or synechism: the doctrine that 'all that exists is continuous'

in the development of the universe and of the human subject that inhabits it. Dialogism and otherness account for the logic of synechism, continuity, but also for the driving forces exerted in evolutionary processes by discontinuity, chaos, inexactitude, uncertainty, unascertainability and fallibilism (cf. CP 1.172). And while the dialogic relation between self and other — both the other from self and the other of self, as Levinas so clearly explains — emerges as one of the most important conditions for evolution in the creative process, a major force considered as most firing creativity is identified in love; that is, the forces of agape.

In the present context, some of the most significant descriptions of love come from Levinas (the orientation toward the absolute other), Welby and Bakhtin (in the language of signifying processes, the potential for generating significance, this too according to the logic of otherness), and from Peirce ('the impulse projecting creations into independency and drawing them into harmony' [CP 6.288]). Therefore, the most advanced developments in reason and knowledge are achieved through the creative power of reasonableness and are moved by the forces of agapasm. Thus conceived, reasonableness is endowed with the power of transforming one's horror of the stranger, the alien, one's fear of the other (understood as the fear one experiences of the other foreign to myself) into sympathy for the other become lovely.

Developing Peirce's discourse in the direction of Levinas' philosophy of subjectivity, we might add that love transforms fear of the other, fear that the other provokes in me, into fear for the other, for his/her safety, to the point of becoming wholly responsible for the other, of taking the blame for all the wrongs s/he is subjected to. Love, reasonableness, creativity and responsibility are all grounded in the logic of otherness and dialogism and together, as we may infer from the authors thus far cited, must move the evolutionary dynamics of semiosis which are human not only because they are engendered by humans, but because they concern the uniquely human capacity for responsibility toward semiosis – therefore life – over the planet in its wholeness.

Such implications, as may be drawn from the general horizon of Peircean theory, may be associated with Welby's signifiical perspective where logic, reason and knowledge are also subtended by the value of otherness. Welby considers signifying processes not only in terms of 'meaning' and 'signification,' but also, and above all, with reference to 'significance' and 'sense.'

To study the life of signs in merely descriptive terms with a claim to neutrality, as Bakhtin would say, is reductive and insufficient for an adequate understanding of the human subject and its signifying and behavioral activities.

From the point of view of human social semiotics, our gaze must also be oriented ‘semioethically’ to embrace questions traditionally pertaining to ethics, esthetics, and ideology. Thus equipped, what we propose to call semioethics (cf. Ponzio and Petrilli 2003) must extend beyond the logico-cognitive boundaries of semiotics to focus on problems of an axiological order and, therefore, on problems concerning the human disposition for evaluation, criticism, creativity and responsibility.

Welby prefigures this orientation with her significs — the term she chose for her particular approach to the theory of signs and meaning, its special focus on the problem of ‘significance’ and therefore, on the relation between signs and values. The term significs indicates the disposition for evaluation, the value conferred upon something, its pertinence, scope, signifying potential, significance as manifested in human behavior and involvement in the life of signs not only on the cognitive and logical level, but also interconnectedly on the sensual, emotional, pragmatic and ethical levels.

Thus endowed, knowledge opens to the ethic-pragmatic dimension of existence, and transcends the limits of the gnoseological sphere, as they are traced by the tendency to stick obstinately and uncritically to theoretical positions and practices or habits. The Peircean concept of reason fired by love calls to mind the association Welby herself established between logic and love when, for example, in a letter to Peirce of December 22nd, 1903, she wrote:

May I say in conclusion that I see strongly how much we have lost and are losing by the barrier which we set up between emotion and intellect, between feeling and reasoning. Distinction must of course remain. I am the last person to wish this blurred. But I should like to put it thus: The difference e.g. between our highest standards of love and the animal's is that they imply knowledge in logical order. We know that, what, how and above all, why we love. Thus the logic is bound up in that very feeling which we contrast with it. But while in our eyes logic is merely ‘formal’, merely structural, merely question of argument, ‘cold and hard’, we need a word which shall express the combination of ‘logic and love’. And this I have tried to supply in ‘Significs’. (Hardwick 1977: 15)

Abduction and agape

We now shift our attention from the question of chance, love and necessity as modalities regulating the development of the universe and the dialogic structure constitutive of the self and of thought, to the level of logic to consider inferential procedures. Not only do we find that these planes closely

correspond and imply each other, but that from this point of view there are also correspondences, as anticipated, between Welby and Peirce.

On the level of inference, abduction is the name of a given type of argumentation, of development or transition from one interpretant to another. Abduction is foreseen by logic but — especially in its more risky expressions — supercedes the logic of identity insofar as it develops through argumentative procedures that may be described as eccentric, creative, or inventive. In abduction, in contrast to induction and deduction, the relationship between the interpreted sign and the interpretant sign is regulated by similarity, attraction and reciprocal autonomy. Being grounded in the logic of otherness, it is dialogic in a substantial sense.

Therefore, abduction belongs to the side of otherness, of substantial dialogism, creativity: It proceeds through a relationship of fortuitous attraction among signs and is dominated by iconicity. The abductive argumentative procedure is risky; in other words, it advances mainly through arguments that are tentative and hypothetical, leaving a minimal margin to convention and to mechanical necessity. To the extent that it overcomes the logic of identity and of equal exchange between parts, abduction belongs to the side of excess, exile, dépense, of giving without a profit, of the gift beyond exchange, of desire. It always proceeds more or less of the ‘interesting,’ and is articulated in the dialogic and disinterested relationship among signs — a relationship regulated by the law of creative love — and is therefore an argumentative procedure of the agapastic type.

In development oriented by tychasm — to which symbolicity is associated in semiotic terms and induction in argumentative terms, chance determines new interpretive routes with unpredictable outcomes, some of which are fixed in ‘habits’. In anancastic development — connected with indexicality and deduction, new interpretive routes are determined by necessity, by causes that are both internal (the logical development of ideas, of interpretants that have already been accepted) and external (circumstances) with respect to consciousness, without the least possibility of prediction concerning eventual results. Instead, in agapastic development, deferral from one interpretant to the next is of the iconic and abductive type. Therefore it is neither regulated by chance, nor by blind necessity, but, as Peirce says, ‘by an immediate attraction for the idea itself, whose nature is divined before the mind possesses it, by the power of sympathy, that is, by virtue of the continuity of mind’ (CP 6.307). As an example of agapasm, of the evolution of thought according to the law of creative love, Peirce cites the divination of genius, the mind affected by the idea before it is comprehended or possessed, by virtue of the force of attraction the idea exercises

upon him in the context of relational continuity among signs in the great semiotic network of the universe or semiosphere.

Paradoxically, in tychastic development chance generates order. In other words, the fortuitous result engenders the law, and the law in turn finds an apparently contradictory explanation in terms of the action of chance. This is the principle that informs the work of Charles Darwin on the origin of the species and natural selection. In Peirce's opinion, one of the reasons why Darwin won so much favor was that the values informing his research — represented by the principle of the survival of the fittest — measured up to the values dominating at the time, which, in the final analysis, were founded on the assertion of identity and could be summed up in the word 'greed'. Logic understood in the strict sense as necessary cause is connected with anacastic development. The limitation to this kind of development lies in anyone who maintains that only one kind of logical development is possible. By maintaining that on the level of inferential procedure the conclusion derived from the premises could not be anything different, all other argumentative modes, and consequently the possibility of free choice, are thereby excluded (cf. CP 6.313).

In reality, the mechanisms of constriction, contingency, and mechanical necessity effectively dominate over the relationship between the interpreted sign and the interpretant sign in anacastic development, but this does not exclude the effect of other interpretive modes. These, indeed, are active even when the anacastic procedure prevails. In semiotic terms, the relationship between the interpreted sign and the interpretant sign in anacasm is of the indexical type; in argumentative terms, it is of the deductive type. Here the relationship between the conclusion and its premises is regulated by reciprocal constriction and, as such, operates at low degrees of otherness and dialogism.

The end of agapastic development is development itself (of the cosmos, of language, of thought, of the subject), is continuity in signifying processes, the development of an idea. According to Peirce, in a universe regulated by the principle of continuity and relational logic, and where no single fact, datum, idea or individual exists in isolation, creative evolution (beaten out at the rhythm of hypotheses, discoveries, and qualitative leaps) is achieved through the combined effect of agapasm and synechism. Therefore, far from being solitary in essence, self as a communicating being has its roots in agape. By virtue of the continuity of thought, and therefore of relational logic, the main force ruling over the deferral among signs in an evolutionary perspective is that of agapic or sympathetic comprehension and recognition. And the simultaneous and independent occurrence of a genial idea to a number of individuals not endowed with any particular powers — a

consequence of belonging to the same great semiosphere — might be considered as a demonstration of this (cf. CP 6.315-316). As a sign, in Peirce's view, the self too develops according to the laws of inference (cf. CP 5.313).

Logic and mother-sense

Evolution, progress, linguistic and non linguistic learning, the generation of sense, value, significance in their highest expressions (that is, at their most creative, playful, open, dialogic, critical, and generative possibilities), are articulated in sign processes of the abductive, iconic and agapastic type. This also emerges from Welby's theory of sign, meaning, and subject, which, given its conceptualization of continuity in surpassing limits and constrictions as imposed (in the final analysis) by the logic of identity, could be described as a theory of the transcendent.

In a series of unpublished manuscripts written at the beginning of the twentieth century (cf. Bowsfield 1990; see also Petrilli 1998a), Welby proposes the original concept of mother-sense, subsequently replaced by the term primal sense and its variant primary sense (cf. VW 28.24). The concept of mother-sense plays a central role in her analysis of the production/interpretation of signifying processes, and of the construction/interpretation of worlds and worldviews. Welby distinguishes between 'sense' and therefore 'mother-sense', on the one hand, and 'intellect' and therefore 'father-reason', on the other. And with this distinction, it is her intention to generally identify main modes that cut across sexual differences in the generation/interpretation of sense. There are always hypothetically isolatable at the level of theory, but strictly interrelated in praxis; that is, in sense producing practices ('sense' being understood here as broadly inclusive of 'meaning' and 'significance').

Mother-sense, according to Welby, is the generating source of sense and the capacity for criticism. It is subtended by the logic of otherness and, as such, corresponds to the capacity for knowing in a broad and creative sense through sentiment, perception, intuition, and cognitive leaps. Thinking of Peirce, we could say that it is the idea intuited before it is possessed or before it possesses us. As the capacity for knowledge, which we may also intend in the Peircean sense of agapic or sympathetic comprehension and recognition, or in the Bakhtinian sense of answering comprehension, mother-sense belongs to the human race in its totality, 'an inheritance common to humanity', says Welby (VW 28.24). It is not limited to the female gender, even though on a socio-historical level womankind most often emerges as its main guardian and disseminator. On the other hand, as understood by Welby, the intellect is associated with the capacity for knowledge largely

oriented by the logic of identity or, more specifically, identity where, in the balance with alterity, the former dominates.

The intellect understood as rational knowledge involves the processes of asserting, generalizing and reasoning about data as they are observed and experimented with in science and the various fields of experience. Its limitation lies in its tendency to allow for the tyranny of the data that we wish to possess but that, on the contrary, possess us. The sphere of knowledge covered by the intellect is fundamentally entrusted to the jurisdiction of the male, says Welby, mainly because of socio-cultural reasons and certainly not because of a special natural propensity for rational thought exclusive to the male. However, the intellect derives from and must remain connected to mother-sense in order to avoid homologation and leveling by the logic of identity, thereby the restricting the intellect's capacity for sense or significance. Mother-sense may be understood in the double sense of the Italian verb sapere, which means to know, and to taste or smack of (in Latin scio and sapio). That which the intellect must exert itself to reach, mother-sense — with its own peculiar capacity for knowing and, therefore, for transcending the limits of knowledge itself as regulated by the logic of identity — already 'knows' and 'smacks of' in the double sense, that is, of sapere.

With the term 'intellect' as understood by Welby, we are on the side of inferential processes of the inductive and deductive type; that is, where the logic of identity dominates over alterity. With mother-sense we are on the side of signifying processes dominated by alterity or, in semiotic terms, by the iconic dimension of signs. Mother-sense, or 'racial sense', as Welby also calls it, alludes to the creative and generative forces of sense resulting from the capacity to associate things which would seem distant from each other but which, in reality, are attracted to one another. From the point of view of argumentation, mother-sense rests on the side of logical procedures of the abductive type, insofar as they are regulated by the values of otherness, creativity, dialogism, freedom and desire. Peirce associated the concept of desire with meaning: in the light of the fact that meaning belongs to the semiotic sphere and the axiological spheres alike, he was able to associate value and, therefore, meaning as value, with desirability. Furthermore, in their correspondence, Welby and Mary Everest Boole — author of such books as Logic Taught by Love (1931[1905]), Symbolic Methods of Study (1931[1909]), The Forging of Passion into Power (1931[1910]), and wife of the famous logician and mathematician George Boole (discussed by Peirce) — also describe the laws ruling over thought and, therefore, the intimate connection between logic and love, passion and power (cf. Welby 1929: 86-92).

Consequently, for the full development of its cognitive and expressive potential intellectual knowledge, including the sphere of scientific research, must inevitably be grounded in mother-sense. Mother-sense includes 'father-sense' (even if latently), while the contrary is not true. For this reason both mother-sense and intellect need to be recovered in their original condition of dialectic and dialogic interrelation — both on the phylogenetic and ontogenetic levels.

A recurrent theme in significs (cf. Welby 1983[1903], 1985a [1911]) concerns the methodological necessity of grasping the dialectical relationship between distinction (which is never separation or division), and unity. From this point of view, Welby's considerations in a letter to Peirce are of some interest:

But in my logic (if you will allow me any!) I see no great gulf, but only a useful distinction between methods proper to practical and theoretical questions. So then 'Never confound, and never divide' is in these matters my motto. And I had gathered, I hope not quite mistakenly, that you also saw the disastrous result of digging gulfs to separate when it was really a question of distinction, — as sharp and clear as you like. (Hardwick 1977: 21)

As understood by Welby, logic alludes to the broader and generative dimension of sense, the original level, the primal level, mother-sense, racial sense, the 'matrix' which interweaves with rational, intellectual life in a relationship of dialectic interdependency and reciprocal enrichment. According to Welby, logic to classify, as such, must always be associated with primal sense. Indeed, a major goal for significs is to recover the relationship of 'answering comprehension' as Bakhtin would say, or of 'agapic or sympathetic comprehension' as Peirce would say, and, therefore, of reciprocal empowering between primal sense and rational logical procedure. This relationship is necessary to a full development of critical sense, and therefore, to achieving the maximum value, meaning, and purport of experience in its totality. Therefore, a task for significs is to recover the relationship of reciprocal interpretation between the constant données of mother-sense, on the one hand, and the continual constructions of the intellect, on the other. Again, primal sense, says Welby, is the material of 'immediate, unconscious and interpretive intuition'; from an evolutionary point of view it constitutes the 'subsequent phase, on the level of value, to animal instinct.' Therefore, primal sense or mother-sense is together 'primordial and universal' and as such is present at all stages in the development of humanity, even if to varying degrees (Welby1985a [1911]: ccxxxviii). As such, recalling Levinas, mother-sense tells of significance before and after signification (cf. Levinas 1961, 1974). Mother-sense concerns the real, insofar as it is part of human practices, and the ideal, insofar as it is the condition by virtue of which humanity may aspire to

continuity and perfection in the generation of actual and possible words and of signifying processes at large.

Abduction, agapasm and otherness

Welby's concept of logic may also be associated with Peirce's when he describes the great principle of logic in terms of 'self-surrender', while clarifying that this does not mean that self is to lay low for the sake of an ultimate triumph, and even though it may turn out so, this must not be the governing purpose (cf. CP 5.402, note 2).

Mother-sense is both analytical and synthetic. It determines a disposition for knowledge with a capacity for growth at both the quantitative and qualitative level; the latter also being intended in the sense of the capacity for changing orientation and perspective, of proceeding by cognitive leaps and entering varying and differentiated cognitive paradigms. 'Calculation gives useful results', says Welby, 'but without the sense and judgment of quality it can give no more than a description of fact'. (VW 28.24)

Furthermore, mother-sense is defined by Welby as knowledge that is 'instinctively religious', intending by 'religious', in an etymological sense too (religare in the sense of to unite, to relate, to link), our 'feeling consciousness of the solar relationship'; a universal sense of dependency particularly developed in women upon something greater than the mundane, than the 'small experience', than the already determined world (therefore feminine creativity goes beyond what is engendered by woman, which is man); therefore, a universal tendency towards religion where by 'religion' is intended a world that is other, vaster, more elevated, a world made of other origins and other relationships beyond the merely planetary, a world at the highest degrees of otherness and creativity. According to Welby, therefore, mother-sense is a transcendent sense, that is, it determines our capacity to transcend the limits of sense itself, and, as such, is the true sense and value of the properly human. And, as she further specifies, mother-sense does not imply 'anthropomorphism' but, far more broadly than this, it implies 'organomorphism' on the one hand, and 'cosmophormism', on the other.

The implications of the concept of mother-sense, primal sense or primary sense as the generating source of signs and sense clearly emerge on establishing an association with the concept of 'language' as a 'modeling device' (as elaborated by Thomas A. Sebeok [cf. 1986, 1991]), or as a 'modeling procedure' or 'writing' proposed (as proposed by Augusto Ponzio [cf. Ponzio, Calefato, Petrilli 1994]). Similarly to 'language' understood as a modeling device (that is, as writing ante

litteram, writing before the letter), mother-sense also precedes knowledge and communication. It emerges as a necessary condition for the acquisition of knowledge itself as it is gradually articulated and generated throughout the various sign systems that constitute verbal and nonverbal human behavior, and that are grafted onto language thus intended. What we could call secondary or derived forms of signifying behavior (including intellectual work), are therefore generated by a primary sense source — mother-sense, or language, or writing ante litteram — as their expressive possibilities, as possible constructions of the world. As a modeling procedure, mother-sense is the original or primary generating material of significance before and after the production of signification and meaning. It is the condition of possibility, of abductive logic, of creativity, and of the production of sense in its continual translations into potentially infinite new worlds.

Another term Welby proposes for mother-sense is ‘racial motherhood’, which, as anticipated, cuts across sexual differences or gender. This particular capacity for sense is commonly referred to with a series of stereotyped terms such as ‘intuition,’ ‘judgment,’ ‘wisdom.’ ‘Primary sense’ or, if we prefer, ‘racial sense,’ is common to men and women even though, as mentioned above, it may be particularly alive in women. This is owing to the daily practices she is called to carry out as a woman in her role as main caregiver (for example, in her role as mother or wife): devotion to practices oriented by the logic of self-donation, giving and responsibility for the other, and care of the other. And Welby also underlines the woman’s responsibility as the main repository of mother-sense in the development of verbal and nonverbal language and, therefore, in the construction of the symbolic order.

According to Welby, the history of the evolution of the human race is also the history of the continual deviations operated by humanity in the social and signifying network and, therefore, it is also the history of the loss of the sense of discernment and criticism, this being among the most serious of deviations. Such a loss causes us to be satisfied with existence as it is, when, on the contrary, to the end of improving and developing the human race, of increasing our expressive capacity, what is needed, says Welby, is a condition of eternal dissatisfaction: ‘We all tend now, men and women, to be satisfied ... with things as they are. But we have all entered the world precisely to be dissatisfied with it’ (VW 28.24). Therefore, with the concept of ‘mother-sense’ Welby signals the need to recover the critical instance of the intellectual capacity of the human race, and therefore the capacity — thanks also to the mechanisms of abductive logic, otherness, and dialogism — for unprejudiced thinking, for shifts in the orientation of sense production, for prevision and anticipation, and for translation in the broadest possible sense of this term; that is

across space and time, across the order of signs and the axiological universe with which the latter are interconnected.

Mother-sense underlines the need to develop a social consciousness that is radically critical, and capable of going beyond the constraints of convention in an effort to better what we might call a concrete abstraction — that is to say, future generations. Peirce, the ideator of the concept of creative love, agapism, maintains that the evolutionary results generated by the logic of love derive from love oriented towards something concrete. Welby, though independently from Peirce, also orients the logic of mother-sense toward something concrete — one's neighbor (that is, one's neighbor in terms of affinity or similarity, even though s/he may be distant in space and time), while criticizing the threat of 'vague and void abstractions', as might be represented, for example, by the bad use of the concept itself of 'future'. On the level of inference, we have seen that the practices of creative love are abductive practices regulated by the logic of otherness, structured by the relationship with the other, the other in close 'proximity' (as intended by Levinas), the other considered as a 'concrete abstraction' (to recall Marx), and therefore in its concrete sign materiality which, among other things, alludes to the subject's incarnation in a physical body for it to subsist as a sign without being reduced to a relationship of identification with the body because of this.

By rediscovering and reaffirming the connection between primal sense and rational behavior, we may recover the sense of symbolic pertinence already present in the child. Critical work is inevitably mediated by language understood in the strict sense of verbal language, spoken and written, so that another fundamental aim of signification concerns language thus understood. Welby insistently works at a 'critique of language' (cf. Petrilli 1988, 1998a), theorizing an interrelation between language in the strict sense, consciousness, thought, and the subject all of which are grafted, as mentioned, onto primal sense or mother-sense. She underlines the importance of developing a 'critical linguistic consciousness' and therefore, critical linguistic practices which, being plagued by prejudice, ignorance, and the lack of signifying sensibility, would otherwise obstacle to the development of an exquisitely human propensity; that is, for 'answering comprehension', comprehension at the sign of dialogicality and criticism.

In a letter to Peirce of January 21, 1909, Welby significantly agrees with his observation that logic is the 'ethics of the intellect', which indirectly supports our delineation of her own position concerning what we might call the ethics of criticism. Scientific rigor in reasoning, to be worthy of such a description, must arise from agapastic logical procedures, from 'primal sense', and,

therefore, from the courage of admitting to the structural necessity — for the evolution of the sign, the subject and consciousness — of inexactitude, instability and crisis:

Of course I am fully aware that Semeiotic may be considered the scientific and philosophic form of that study which I hope may become generally known as Significs. ... Of course I assent to your definition of a logical inference, and agree that Logic is in fact an application of morality in the largest and highest sense of the word. That is entirely consonant with the witness of Primal Sense. (Hardwick 1977: 91)

We might add that primal sense opens to the ethic dimension beyond the strictly cognitive, where signs and values are perceived and understood in their interconnectedness. According to the project proposed by significs, logic must fully recover its connection with primal sense, the matrix of sense, in a relationship of reciprocal interdependency and enrichment, and therefore it must recover common sense in all its signifying value, from instinctive-biological sense to the sense of significance. By recovering the connection between logic and sense and between sense and values, that is, by working in a 'significal' perspective, significs theorizes the possibility of extending logic beyond strictly cognitive boundaries evidencing the inexorable interrelationship with ethics and aesthetics.

In the light of Peircean and Welbyian theory of the interconnection between logic, semiotics, ethics, and cosmology, we believe that to return to Peirce today means to proceed beyond him in the direction of what we propose to call semioethics (cf. Ponzio and Petrilli 2003).

Focusing on definitional aspects of abduction

We have situated logic, and consequently abductive processes, in the context in which we believe they may be adequately understood in all their implications. These concern semiotics not only at the cognitive level but also at the ethical level, and in terms of a global perspective on the entire signifying universe. In the light of such an approach to abductive processes and inference in general, as well as to logic in its correspondences with semiotics, we may now focus on the definitional and technical aspects of abduction, remembering always the relation of implication among logic, dia-logic and alterity.

Abduction is the inferential process that frames hypotheses. Abductive inferential processes hypothesize a rule to explain a given fact on the basis of a relation of similarity (iconic relation) to that fact. This rule is the general premise, and may be taken from a field of discourse that is

relatively close or distant with respect to the fact, just as it may be invented ex novo. If the conclusion is confirmed, it retroacts on the rule and convalidates it (ab- or retro-duction). Such retroactive procedure makes abductive inference risky, exposing it to the possibility of error. However, if the hypothesis is correct, the abduction is innovative, inventive and sometimes even surprising (cf. Bonfantini 1987).

‘An icon’, says Peirce, ‘is a sign which would possess the character which renders it significant, even though its object had no existence; such as a lead-pencil streak as representing a geometrical line’ (CP 2.304). This is why, in terms of inference, abduction, being based on the icon, can take its distance from the world that is already given, from the world that is already constituted, from conventions and consolidated habits, and thus evolve as ‘the process of forming an explanatory hypothesis’ (CP 5.172). In relation to abduction, Peirce goes on to observe that it

...is the only logical operation which introduces any new idea; for induction does nothing but determine a value, and deduction merely evolves the necessary consequences of a pure hypothesis. Deduction proves that something must be; Induction shows that something actually is operative; Abduction merely suggests that something may be. (CP 5.172)

The relation between the premises and the conclusion may be considered in terms of the relation between what we may call, respectively, interpreted signs and interpretant signs. In induction, the relation between premises and conclusion is determined by habit and is of the symbolic type. In deduction it is indexical, the conclusion being a necessary derivation from the premises. In abduction, the relation between premises and conclusion is iconic; that is, it is a relation of reciprocal autonomy. This makes for a high degree of inventiveness together with a high risk margin for error. Abductive processes are highly dialogic and generate responses of the most risky, inventive and creative order. To claim that abductive argumentative procedure is risky is to say that it is mainly tentative and hypothetical, leaving only a minimal margin to convention (symbolicity) and mechanical necessity (indexicality). Abductive inferential processes engender sign processes at the highest levels of otherness and dialogicality.

The degree of dialogicality (cf. Ponzio 2005) in the relation between interpreted and interpretant is minimal in deduction: here, once the premises are accepted, the conclusion is obligatory. Induction is also characterized by unilinear inferential processes: identity and repetition dominate, though the relation between the premises and the conclusion is no longer obligatory. By contrast, the relationship in abduction between the argumentative parts is dialogic in a substantial

sense. In fact, very high degrees of dialogicality are attained and the higher the degree, the more inventive reasoning becomes.

Abductions are empowered by metaphors in simulation processes used to produce models, inferences, inventions, and projects. The close relationship between abductive inference and verisimilitude is determined by the fact that, as demonstrated by Welby, ‘one of the most splendid of all our intellectual instruments’ is the ‘image or the figure’ (Welby 1985a [1911]: 13; cf. also Petrilli 1985; 1995, 1998a). Given the close relationship among abduction, icon and simulation, the problem is not to eliminate figurative or metaphorical discourse to the advantage of so-called literal discourse, but to identify and eliminate inadequate images that mystify relations among things and distort our reasoning. As Welby says, ‘We need a linguistic oculist to restore lost focussing power, to bring our images back to reality by some normalizing kind of lens’ (Welby 1985a [1911]: 16).

Omnipresence of abduction and dialogism

Considering together, Peirce’s semiotics and Bakhtin’s philosophy of language not only enables us to place abduction in the dynamic context of inference, interpretation and the dialogic processes of semiosis, but also help evidence still other aspects of the abductive relation among signs in different signifying fields and at different levels. For example, reference to Peirce and Bakhtin together leads to considering the problem of meaning in verbal and nonverbal signs in terms of interpretive routes (cf. Ponzio 1990, 1997). The conception of meaning as an interpretive route implies a connection between meaning and inference, semantics and logic. Abduction is involved in semantic (and in syntactic and pragmatic) processes. In fact, to understand meaning as an ‘interpretive route’ means to place it in the context of inferential and dialogic relations, responding to both the Peircean and Bakhtinian conceptions of sign. Meaning is described as a possible interpretive route in a sign network, interweaving with other interpretive and inferential routes, which may branch out from the same sign. Departing from a sign where multiple meaning trajectories intersect, it is possible to choose and shift among alternative routes. Meaning emerges as a signifying route, a conclusion of an inferential process in a sign network, an interpretive route that is at once well defined and yet (thanks to continual inferential and dialogic contact with other interpretive routes), subject to continual amplification and variation. The indeterminacy, openness and semantic availability of the sign is explained in terms of its contextualization in dialogic relations. Dialogism is present:

(1) in the relation between the sign and its interpretant; which is also a

(2) relation between the premises and the conclusion, with a minor or major degree of dialogism depending on whether we are dealing with deduction, induction or abduction;

(3) in the relation among the multiple verbal and nonverbal interpretants forming an open-ended inferential route; and

(4) in the inferential and dialogic relation among the interpretants of different interpretive routes.

Connected with such a description, the process of abduction contributes to our understanding of the distinguishing features of human communication and dialogism; that is to say ambiguity, polysemy, plurivocality, abductive innovation and invention, creativity. Vice versa we may explain the risks, limits and failures of abductive process with reference to 'semiotic materiality', that is, signifying otherness, therefore semiotic autonomy and capacity for resistance of signs and meanings with respect to other interpretant signs as well as to the subject who produced them in the first place. From the perspective of dialogic inferential relations between the interpreted or premise and the interpretant or conclusion, we believe that what Eco (1990) identifies as the limits of interpretation are, in reality, due to alterity, to the resistance of alterity, which is greater in interpretive routes in which abduction plays an important part.

The relationship between interpretation, inference and dialogism also sheds light upon the question of translation. In Experiences in Translation (2001) Umberto Eco argues that translation is not about comparing two languages but about the interpretation of a text in two different languages, which, as such, involves a shift among cultures. If this is true, then translation as well involves a dialogic relationship of alterity, in which it is necessary to have recourse to abductive processes which aim to express otherness (which is verbal, nonverbal, cultural). Translation is the result of dialogic inferential discourse between two texts in a relation of reciprocal otherness (cf. Petrilli 2003). From such a perspective, the concept of abductive inference as dialogism may be used to reformulate the problem of the limits of interpretation, and contributes to our understanding of the problem of the relationship between translation and interpretation as conceived by Peirce.

The translated text (interpreted) and the translating text (interpretant) are interconnected by a relation of otherness, which Peirce signals as being present in all signs when he says that their interpretants are somehow always other from themselves. Abduction is paradigmatic in the otherness relation. Rather than just 'saying almost the same thing' (to evoke the title of a book by Eco of 2003), to translate is to commit to a relationship which, more than a relationship among

things that are ‘almost’ the same, is a dialogical relationship based on difference understood in terms of otherness. From this ensues our proposal of the expression ‘the same other’ (Lo stesso/altro) as the title of the third volume in a trilogy dedicated to translation theory and practice (see Petrilli 2001). This expression characterizes the translantant text as being at once the same and other, rather than simply describing it as that which almost says the same thing.

Abduction and genesis of the signified world

Another field to which we may extend the question of abduction is represented by reflection in semiotics or philosophy of language (from this point of view it is difficult to distinguish between them) upon the conditions of possibility of what, following Edmund Husserl, may be identified as the already given, the already done, the already constituted, the already determined world. Such reflection is necessary for a critical analysis of the world’s current configuration with a view to alternative planning. In other words, we are referring to what Husserl calls constitutive phenomenology, which consists in clarifying the whole complex of operations that lead to ‘the constitution of a possible world’ (Husserl 1990 [1948]: 50). This means investigating the modeling structures and processes of the human world not simply in terms of factuality, reality and history but also in terms of potential and possibility. Such an investigation is also specific in the sense that it deals with a species-specific modality of constructing the world. In fact, unlike other animals, the human animal is characterized by its capacity for constructing infinite possible worlds. If, following Sebeok, we agree to call the human modeling device of the world ‘language’, we may also add that this particular type of modeling device exists uniquely in the human species, so that unlike all other species, only humans can construct an infinite number of real or imaginary worlds, concrete or fantastic worlds, and not remain imprisoned in a single world (cf. Sebeok 1991).

As Husserl would say (Husserl 1990 [1948]: 11), our considerations are turned to the sphere of the Ursprungsproblem (the problem of origins). Moreover, logic and theory of knowledge or gnoseology are inevitably related to ontology, the doctrine of something in general, of being in general. This is because predication, or judgment, is not possible without predicative judgment, which consists of predicating the being of something. On the other hand, as soon as semiotics defines the sign as something that is interpreted by an interpreter, ‘it must reflect on this something’ as Eco says, which, as being, is part of that sphere of philosophical meditation known as ontology (cf. Eco 1997: 6). However, the problem of the origin of the categorial world is also relevant to ontology. Nor can this problem be reduced to the question of how being comes to existence and

reveals itself through verbal language and signs in general, which would simply imply assuming an acritical stance with respect to ontology itself.

We may sum all this up by saying that semiotics, philosophy of language, theory of knowledge, logic, and ontology are all closely interrelated. And one of the authors to have related these aspects most explicitly is Peirce. Indeed, our considerations are guided by Peirce's work, but also by Husserl and his phenomenology, particularly the most recent Husserl author of Erfahrung und Urteil (Experience and judgment). It goes without saying that many other authors could also contribute to this discussion. In particular, for what concerns the formulation our own position, we have also taken into consideration (in addition to Peirce and Husserl) the stances of Welby, Bakhtin, Levinas, Merleau-Ponty, Eco and Rossi-Landi, author (among many other writings) of a book on meaning, communication and common speech (Rossi-Landi 1998 [1961]). In the latter Rossi-Landi makes explicit reference to the problem of the foundations or the conditions of possibility of meaning and communication.

What we wish underline in the present context is that semiotics may also present itself as transcendental logic, as understood by Husserl, given that the phenomenology of semiosis can explain the problems involved in forming possible worlds. As philosophy of language, semiotics cannot avoid the questions, as articulated by Eco (1997: 4), 'what is that something that induces us to produce signs?', or 'what makes us speak?'. As in Eco's case, this problem may lead us to the concept of Peirce's 'dynamical object', inducing us to reply that it is the dynamical object 'that pushes us to produce semiosis': 'we produce signs because there is something that demands to be said. Using an expression which is hardly philosophical, but effective, the Dynamical Object is Something-that-gives-us-a-kick and says "speak" – or "speak about me!", or again, "take me into consideration"' (1997: 5).

As philosophy of language, cognitive semiotics must not only address, following Eco, the question of the terminus ad quem, that is, the term to which we refer when talking or producing signs in general. More than this, it must also address the terminus ad quo, that is, what it is that makes us speak or produce signs in general. Fundamentally, this is the problem of what pushes us to produce semiosis and to come into being as a subject, as an I. If we search for an answer in the object alone, that is, the dynamical object, claiming, as does Eco, that it is the object that 'demands to be said', not only is our response to the whole issue partial, but it fails to account for the overall context in which the need to say makes itself felt. In other words, this answer does not account for the fact that the relation with the object is always mediated by the relation with the other, not the

other understood as a thing, but as an other. We could in fact make the claim that it is our relation with others that makes us speak, that demands that the subject should say. Indeed, it is not surprising that, in his discussion of the dynamical object, Eco should use metaphors alluding to the interpersonal relationship: the verb ‘demand’, the expression ‘take me into consideration’, ‘speak about me’, or that other expression which he playfully says he hopes will be translated into German so that ‘it may be taken seriously in Italy philosophically’ (1997: 389), that is, ‘something-that-gives-us-a-kick’ (1997: 5).

As Levinas says in ‘Nonintentional Consciousness’ (Levinas 1998 [1991]: 123-132), the first case in which I is declined is not the nominative but the accusative. The other interrogates the I. The I speaks so as to answer to the other. And the question of the something, of being, is inseparable from the question of the I itself, which must first answer for itself, for the place it occupies in the world, and for the way it relates to others. This means that first philosophy, as both Bakhtin (cf. 1990 [1919] and 1993 [1922]) and Levinas maintain independently of each other, is ethics. As Levinas says, the main question is not why is there being instead of nothingness?, but rather, why am I here in this place, in this dwelling, in this situation, while another is excluded? The origin of human semiosis is not intentional consciousness but, as Levinas says, consciousness that is nonintentional, consciousness understood in an ethical sense and not in a cognitive sense; more precisely, a ‘bad conscience’ which attempts to justify itself, to appease itself, to make itself comfortable regarding questions raised by the other by its mere presence, and in so doing, is reconciled as a ‘good conscience’.

The ground, and as we shall see in greater detail below, is firstness and belongs to the sphere of iconicity in terms of Peirce’s typology of signs. The next phase is that of secondness and indexicality. The problem is whether the ground is a question of intuitive immediacy antecedent to inferential activity, or whether it involves inferential processes, at least in an immediately subsequent phase. Therefore, on reconstructing the rise of predicative judgment and studying the formation processes of logic, Husserl was concerned with operations carried out by subjectivity, which he distinguished from psychological subjectivity considered as part of a preconstituted world. The operations that interested Husserl, and that lead to the formation of predicative judgment, are those carried out by transcendental subjectivity. In Husserl’s view, however immediate, evidence always involves operations by transcendental subjectivity. All the same, however, in relation to ‘maximally founded experience’, he speaks of ‘maximally plain experience’ or ‘immediate evidence’. Not unlike Peirce (consider above all the latter’s essays of 1868, ‘Questions Concerning Certain Faculties Claimed for Man’ [CP 5.213-5.262] and ‘Some Consequences of Four

Incapacities' [CP 5.264-5.316]), Husserl does not believe in the possibility of ideas that are absolutely undetermined by other ideas. With both Peirce and Husserl we are outside the empiricism-innatism antinomy (which, on the contrary, is naively reposed by Noam Chomsky in 1966 when, in terms of language theory, he returns to Descartes as though Peirce and Husserl had never existed). Both Peirce and Husserl (again contrary to Chomsky) proceed from Kant.

An analysis of the formation of predicative judgment may begin from the level we may call primary iconism, or protosemiosis: we shall follow indications from Husserl, and Husserl's work will be considered in the light of Peirce's approach to semiotics. Indeed, it should now be obvious that Peirce's semiotics is not at all distant from Husserl's phenomenology, while Husserl's thought system is semiotically oriented, though independently from Peirce.

In Erfahrung und Urteil, Husserl analyzes 'passive predata' as they originally present themselves by abstracting from all qualifications of the known, from all qualifications of familiarity with what affects us (thanks to such qualifications, passive predata subsist at the level of sensation and are already known and interpreted somehow). We find that at this level similarity also plays an important role. In fact, if, by way of abstraction we prescind from reference to the already known object that produces the sensation (secondness, indexicality), and from familiarity through habit and convention where what affects us subsists as already given (thirdness, conventionality, symbolicity), and, as much as it is unknown, already known in some way (the rhinoceros or Eco's platypus), we do not end up in pure chaos, in a mere confusion of data, says Husserl (1990 [1948]). When color is not perceived as the color of a thing, of a surface, as a spot on an object, etc., but as a mere quality — that is, presenting itself, as Peirce would say, at the level of firstness, at the level where something refers to nothing but itself and is significant in itself — this something presents itself, all the same, as a unit on the basis of homogeneity and against the background of something else, that is, against the background of the heterogeneity of other data (for example, red on white). Similarity at the level of primary iconism is homogeneity that stands out against heterogeneity: 'homogeneity or similarity', says Husserl, varies in degree to the very limit of complete homogeneity, that is, to equality without differences. In a relation of contrast with similarity, there most often subsists a certain degree of dissimilarity. Homogeneity and heterogeneity are the result of two different fundamental modes of associative union. Husserl discusses 'immediate association' in terms of 'primary synthesis', which enables a datum, a quality to present itself, specifying that an 'immediate association' is an association through similarity. We might claim that similarity is what allows synthetic unification in primary iconism.

Another particularly interesting aspect in the phenomenology of semiosis constituting predicative judgments is connected with the abductive process in the form of ‘proto-abduction’. It is a question of the fact that, in the explicative process, the subject assumes given determinations ‘as-if’, as hypotheses, on the basis of which it may continue its explicative operations (cf. Husserl 1990 [1948]: 167-171). This is the ‘as-if’ position of imagination. Obviously, perception ‘as-if’ implicates similarity and therefore iconism. It is an embryonic metaphor. Insofar as it is founded on the modeling capacity called language by Sebeok (thanks to which human beings, unlike other animal species, are capable of producing infinite possible worlds), predicative judgment may escape the limits of the real world and wander in the world of the imagination. Nonetheless, the ‘as-if’ relation does not only concern the possibility of constructing imaginary objects and worlds. Predicative judgment cannot avoid availing itself of metaphorical procedure to the point that it is difficult, if not impossible, to distinguish between the literal and the metaphorical. As Welby says (1983[1903]), even literal expression is metaphorical and enables us to speak of the verbal as if it were writing. The ‘as-if’ relation enables something to be determined on the basis of something else that may act as its interpretant precisely in the ‘as-if’ form. Therefore, ‘as-if’ is a constitutive part of predication.

Let us now return to the concept of ground as the point of departure for that interest which gives rise to semiosis turned toward a dynamical object. In the light of what has been said so far, we can now make the claim that the ground is, in fact, the point of departure of the perception and explication of an undetermined substratum through the explicative coincidence of this substratum with one or several of its determinations. Once it has transited from the substratum to its determination and eventually to further determinations, interest turns toward the substratum once again, but enriched in sense as a result of the comprehension of its determinations. We then reach the phase where the substratum is explicitly considered as the substratum of a determination; consequently, the object-substratum assumes the form of a predicative subject. What has happened is that the terminus ad quo (according to [Eco 1997: 4], although this same expression was also used by Husserl to describe the process we are considering) has been transformed from a ground into a theme-subject; from this point predicative activity proceeds toward determination, the predicate, as the correlative terminus ad quem. The dynamical object is the object which, departing from the ground, manifests itself in its different determinations or in the different predicative judgments that concern it.

In iconicity may be found the basis of abduction in a double sense: abduction is founded on the icon and, in terms of inferential processes, it begins from the icon. Perception in its passive form

is an implicit or unconscious abductive process. Abduction is the nucleus, the cell from which the inferential network is formed. In other words, in the phenomenology of the genesis of predicative judgment as well as of the predicative world from ante-predicative life (the pre-categorical level, the lowest level of perceptual activity, that of affection, of passive predata), we find that abduction is connected to the problem of the genesis of the utterance, of predicative judgment: abduction is the generative cell in the text of inferential argumentation.

Abduction and linguistic experience

Before concluding we also wish to refer to another sphere of the semiotic universe in which the role played by abduction is of central importance. We are referring to the question of the relation of experience to competence in language learning. Chomsky (cf., in particular, 1986) alludes to this issue as Plato's problem, given the focus on the relation of asymmetry between linguistic experience, from which the learning process of a given language begins, on the one hand, and competence concerning this language, on the other: experiential data are very limited with respect to the capacity of the competent native speaker. As we know, Chomsky solves the problem with his proposal of innate and universal grammar. Chomsky justifies his choice of biological innatism as the solution to the problem of the gap between linguistic competence and linguistic experience through his criticism of behaviorism: he shows that recourse to the stimulus-response theory does not offer an explanation for this gap. However, Chomsky refers to a particular trend in behaviorism, a trend that is especially vulnerable because it is mechanistic. In fact, his main reference is the behaviorism of B.F. Skinner. But, as observed by others (cf. Ponzio 1991: 87-104), it would be interesting to verify the validity of Chomsky's criticism and measure its tenability in relation to another trend in American behaviorism. Here our reference is to behaviorism as developed by Charles Morris, which mainly derives from George Herbert Mead and is connected with Peirce's pragmatism.

Comparison with the positions of Peirce and Morris would ensue in a revision of the concept of experience as formulated by Chomsky. In fact, Chomsky's concept of experience appears excessively naïve because it would seem to ignore the whole course of philosophical thought from Kant to Husserl through to Peirce. By 'linguistic experience', Chomsky understands a passive exposition to linguistic data, which cannot explain the formation of linguistic competence. This leads to the need to resort to innate universal grammar, to be clearly distinguished from Sebeok's concept of language understood as a primary modeling device: Chomsky's innate language is conceived as universal verbal language, a grammar; instead, Sebeok's language (with which human

beings are at last endowed with the appearance of the early hominids) is clearly distinct from speech (which arises very late in human evolution).

In effect, similar to all other experiences, linguistic experience is also formed through interpretive and inferential processes where induction, deduction and abduction occur together. In any experiential process and, therefore, in linguistic experience, from the lowest levels of perception, and where interpretation simply consists in identifying data, it is abduction that provides for the fragmentary nature and limitations of the objects experienced. In the relation to the limited data of linguistic experience, nothing different occurs from that which happens when we only see one side of an object in front of us and, on the basis of an abduction, we interpret it as a table on the assumption that the other three sides exist; or we interpret it as a desk considering the context, the presence of drawers, and the type of objects placed on top. Both linguistic learning and the creative aspect of language may be validly explained through the study of abductive interpretations.

The Chomskyian theory of generative grammar would offer an adequate understanding of the workings of speaker interpretation of the utterance, if this theory were connected with the concept of sign based on the Peircean notions of interpretant and abduction. It is not possible to understand language without abduction, nor without the interpretant, especially the pragmatic interpretant, which is dependent upon abduction. The pragmatic interpretant is also strictly connected with the other problem introduced by Chomsky (1975): Orwell's problem, which is the problem of ideology. Therefore, the pragmatic interpretant implies that the study of signs should be open to the problem of values, that the problem of meaning should be open to the problem of significance, and that semiotics should open to semioethics.

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