From the meaning of embodiment to the embodiment of meaning

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From the meaning of embodiment to the embodiment of meaning: A study in phenomenological semiotics

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Abstract*:* Unlike in much of the contemporary discussion of embodiment, phenomenology is really involved with the body as a kind of meaning appearing to consciousness; and it does not only attend to the body of the biological organism, but also to the kind of organism-independent artefacts which are required by some sign systems. Because it is concerned with meaning, phenomenology is akin to semiotics. From the point of view of the latter discipline, however, signs must be distinguished from other meanings, and clear criteria are needed for doing so. At least one such criterion can by found in the work of Piaget: *differentiation*. Meaning in the more general sense of organisation and selection is at the basis of the common sense world, and thus accounts for what is known in Cognitive Linguistics as "image schemas". Cognitive Linguistics, just as biosemiotics, ignores this important distinction. Moreover, some cognitive linguists seem to deny the distinction between organism and environment, which must prevail if "image schemas" are to be acquired, along the lines of earlier conceptions of schematisation. On the basis of these considerations, a developmental sequence can be suggested going from schemas to signs and organism-independent artefacts.

Keywords: embodiment, body, sign, semiotic function, evolution, semiotics, ecology, phenomenology, memory, picture, Lifeworld

> A *Qualisign* /---/ cannot actually act as a sign until it is embodied; but its embodiment has nothing to do with its character as a sign. A *Sinsign* /---/ involves a qualisign, or rather, several qualisigns. But these qualisigns are of a peculiar kind and only form a sign through being actually embodied.
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> Charles S. Peirce, *Nomenclature and Divisions of Triadic Relations*

1. Introduction

In our time, in which the term "embodiment" is put to quite new (and, to my mind, either fuzzy or redundant) uses, authors such as Johnson (1987) and Varela, Thompson and Rosch (1991) have not failed to suggest a continuity with an earlier discussion of

embodiment, taking place about a century ago, notably within phenomenological philosophy (e.g., Husserl 1973b; 1976). Yet these references to phenomenology seem to me to be fairly superficial, and the grasp of the phenomenological notion of embodiment shown often appears to be incomplete, if not inadequate. This is why I will start out by explaining the emergence of the problem of embodiment within phenomenological philosophy. Taking a cue from the phenomenologists themselves, I will also suggest that phenomenology may be interpreted as a branch of psychology, and thus serve as an ingredient of cognitive science as well as a basis for semiotic theory. From there on, my search for the multiple "bodies of the mind" will follow a somewhat spiralling movement: first, I will argue that the concept of *sign* or *representation*, which I take to be indispensable for our understanding of human consciousness, supposes something of a body of its own. Then we will see how meaning, which is not specifically embodied in signs, is a requisite, in both a systematic and an evolutionary sense, for the attainment of the *sign function* (Piaget 1945; Sonesson 1992b). I will go on to suggest that what is elsewhere known as "image schemas" (e.g. Johnson 1987; Lakoff & Johnson 1999, Johnson & Rohrer *this volume*) do indeed constitute a level of meaning prior to the sign but, for that very reason, are not directly involved in metaphors, which, in my view, and that of the tradition of classical rhetoric, must be construed as signs, and indeed signs standing for other signs (cf. Sonesson 1989, 1998b). Finally, we will look at embodiments of meaning in a rather different sense, of the kind which develops, phylogenetically and perhaps also ontogenetically, after the attainment of the (linguistic) sign, such as pictures, writing, and theories, that is, organism-independent sign-vehicles spanning time and/or space. My aim is not to exhaust the repertory of embodiments of meaning, but merely to expound some of their varieties, and to pinpoint their different evolutionary import.

2. The Cartesian divide: Where angels fear to tread

In the philosophical tradition, embodiment emerges as a problem within the philosophy of consciousness, which aims to reconstruct the world as given to a (generic) subject. In this sense, embodiment gives rise to two separate strands in the particular version of the philosophy of consciousness inaugurated by Husserl, known as phenomenology:

- in relation to the physical body of the subject itself and/or his or her counterpart in perceptual space, the generic other;
- in relation to signs and other overarching structures, which, like the physical body, appear *in* the mind, without being *of* the mind, and seem to require some kind of physical substratum in order to exist.

2.1 Phenomenology from the phenomenological point of view

The justification for a philosophy of consciousness is of course that in the common sense world, which Husserl later was to baptise the *Lifeworld,* everything there is is accessible to us through consciousness. The paradox is that, at the same time, the body, our own, as well as that of the other, cannot be a mere figment of consciousness. To paraphrase the classical dictum of 19th century psychology reemerging in the modern discussion of consciousness (cf. Dennett 1991), *the body is not a mere epiphenomenon of consciousness*. Indeed, this transcendence of our physical being to consciousness is itself part of the Lifeworld. As Max Scheler (quoted by Gurwitsch 1985) nicely put it, "we know that we are no angels", that is, no free-floating sprits without bodies.

The second strand is quite different: genuine semiotic structures such as mathematical concepts, logic, and even language appear to transcend consciousness much in the mode of a Hegelian "absolute spirit". They are, in Husserlean terms, "idealised" in order to be detached from their dependence on individual subjects – which is why they may harbour what Deacon (2003) has recently called "semiotic constraints", whose origin is independent of both nature

and nurture. And yet, as Husserl (1962a: 365–386) recognised in his study of the origin of geometry, for the idealisation to be complete, its products have to be "embodied" in some kind of notational system, because only in that way can they gain a stable, public existence in a domain completely separate from their instantiations in the practical situations of the Lifeworld. More recently thinkers from separate traditions such as Ivins (1953), Innis (1950), and Donald (1991), have regained this insight in some form or other.

The task of phenomenology, as Husserl saw it, was to explain the possibility of human beings having knowledge of the world; as a philosophical endeavour, phenomenology is about the way the world of our experience is "constituted". As a contrast, psychology is not about the world, but about the subject experiencing the world. However, every finding in phenomenological philosophy, Husserl claims, has a parallel in phenomenological psychology, which thus could be considered a tradition within psychological science (cf. Husserl 1962b; Gurwitsch 1974). If consciousness is a relation connecting the subject and the world, then phenomenology is concerned with the objective pole and psychology is about the subjective one. It is often forgotten that Husserl not only inspired but himself was inspired by the Gestalt psychologists. Close followers of Husserl such as, most notably, Gurwitsch (1957, 1966), were as much involved with phenomenological psychology as with philosophy and discussed the findings not only of the psychology of perception but of contemporary contributors to neurobiology such as Gelb and Goldstein. Also the early Merleau–Ponty (1942, 1945),[1] was, in this respect, an exponent of phenomenological psychology.

Many of those who are concerned with embodiment today appear to come from the diametrically opposite camp. Edelman (1992), for instance, clearly does not discover the body from the horizon of consciousness, but quite the opposite, he implies that the mind cannot be divorced from the body. In a sense, this is hardly

[1] Who may not quite deserve the hero status given to him by Varela, Thompson and Rosch (1991); See also Gallagher, *this volume*.

controversial: unlike those hypothetical angels, human beings can only boast a mind as long as they have a body. But, if this is true in the order of existence, it is not necessarily so from the point of view of investigation. After all, Brentano (1885) did not use a scalpel, much less fMRI, to discover the property of intentionality (in the sense of directedness), which Edelman recognises as an irreducible characteristic of consciousness; nor did James (1890) find any of those "Jamesian properties" of consciousness repeatedly mentioned by Edelman in such a way.

Indeed, far from being "a deliberately non-scientific set of reflections on consciousness and existence" (Edelman 1992: 159), phenomenology started out from the fact of intentionality and attempted to probe ever deeper into its ramifications, in order to rediscover and amplify those very Jamesian properties of consciousness mentioned by Edelman. Husserl and Gurwitsch may have been wrong to think of phenomenology as a discipline completely separate from biology and psychology, but the relative disconnection of phenomenological reflections, like those of Brentano and James, from biological knowledge has no doubt borne rich intellectual fruit. If "a biologically based theory of mind" can in some respects "invigorate" phenomenology, the opposite is certainly just as true.

Interestingly, Edelman (1992; Edelman & Tonini 2000) claims that consciousness as such cannot be a spurious occurrence, because that would not have made evolutionary sense. That is, consciousness is not an epiphenomenon. But we have seen that, to classical embodiment philosophy, the problem is to show that the *body* is not an epiphenomenon.

2.2 The science of common sense and its operations

The apparent paradox arises because, in the two cases, the point of view is entirely different. Phenomenology, like the science of semiotics, takes as its point of departure *the way* things make sense to us, that is, *how* they mean. In this very broad sense

phenomenology accomplishes a semiotical reduction: things are considered only from the point of view of their having meaning to us (where "we" might be people of a particular culture or subgroup, or humankind in general).[2] From a phenomenological point of view, there is, in a sense, no way of overcoming the divide formulated by Descartes, for Descartes did not invent it: it is intrinsic to that phenomenon which, in Descartes' own words, is the most widely distributed one in the world, *common sense*. Common sense is not notorious for being right, but if we ask ourselves *how* the body (and the rest of the world) makes sense to us, then common sense is our very subject matter. Even so, common sense gives rise to an apparent contradiction: my body is necessarily experienced *through* my consciousness, but in my consciousness it is experienced *as* being outside of it.[3] All post-Cartesian meditations, including those of Husserl (1973a) and those of Merleau–Ponty (1945), have been concerned to account for this paradox. To do so, it is necessary to accomplish a painstaking analysis (of which there can be no better example than the posthumous papers of Husserl himself, together with the – also largely posthumous – works of Peirce) of all those structures of the mind that are normally at the margin of consciousness (cf. below 5.2).

In this sense, all human and social sciences which aspire to discover regularities, such as linguistics and other semiotic sciences, necessarily start out from phenomenology – and we should be happy if those phenomenological investigations sometime manage to be as meticulous as those of Husserl and Gurwitsch.

Saussure famously observed that "linguistics and the other

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[2] Elsewhere (Sonesson 1989 26ff), I have opposed, in this sense, the qualitative reduction to the more familiar quantitative one, characteristic of the traditional natural sciences. There are similarities, but also differences, to the series of "reductions" distinguished by Husserl: the phenomenological and eidetic reductions, notably.

[3] Strictly speaking, this is not the problem of our own body, nor of the other, but the more general one of the external world, as pointed out by Gurwitsch (1979: 26f). Still, it is quite sufficient for us to note that it *also* applies to the body.

semiological sciences" are so difficult, because they are not concerned with anything material: indeed, he continued, their subject matter is the point of view we take on material things. Starting from this principle, Prieto (1975a: 140ff, 1975b: 215ff) has claimed, that, contrary to what is ordinarily taken for granted, it is natural science which is subjective, since it has to take a stand on physical reality, which as such is indifferent, whereas semiotics is capable of objectivity, in so far as it *describes* the subjective point of view of individuals and communities. According to another formulation, the object of linguistics is *the knowledge* common to the speaker and hearer (1975a: 110), i.e. it produces knowledge about knowledge, not, as the natural sciences, about the material world (1975a: 140ff). Prieto thus postulates a simple coincidence between the object and the discourse of semiotics. It is, however, less the phoneme, than the features defining it, which are relevant to linguistics, and these are not ordinarily identified by the speaker. In more recent linguistics, it is the "deep structure" or the "image schemas" which are claimed to be relevant for linguistic knowledge, not the particular syntactic form or stylistic turn, of which the speaker is usually aware. We therefore conclude that the linguist, and the semiotician generally, may have to descend at least *one level of analysis below the ultimate level of which the user is aware.*

Put into traditional epistemological terms, we may say that after coinciding with the user in his *understanding* of the phoneme, the semiotician goes on to *explain* the conditions of possibility of this understanding on the level of distinctive features. In this case, semiotics contains the knowledge of the user and *something more,* and, quite apart from the problem of obtaining the correct understanding, this explicative part introduces an element of subjectivity. We shall say that what is of primary importance to semiotics is *operative knowledge,* i.e. knowledge that must exist at some, probably low, level of awareness, in order to render behaviour *understandable* (and thus explainable); thus, it is not *discursive knowledge,* the spontaneous theories of the user, which might be what we first tend to identify with common sense. The operation of

ideation, familiar to the phenomenologist, the commutation text of structuralist linguistics, the grammaticality or acceptability judgement of the grammarian, and some varieties of psychological experimentation are all techniques for attaining these layers, bringing that which is at the margin of consciousness into its centre (cf. Sonesson 1989: 27ff; and see Zlatev, *this volume*, for a similar argument).

In phenomenological semiotics, then, we are concerned, in the first place, with the figure of the body as it appears on the horizon of consciousness. Once we have described this figure – better than James, Husserl, and so on – we may try to explain it, delving ever deeper into the margins of consciousness. We can of course try to search for explanations outside of consciousness, but we must be aware that this is a complete change of direction.

Most contemporary theories of embodiment do not appear to pose the question of meaning. Varela, Thompson and Rosch (1991) start out from the phenomenology of Merleau–Ponty, but, after the first few pages, it is not really clear how the issues they discuss relate to the phenomenological problem of the body, i.e. the body as it appears to consciousness. Lakoff and Johnson (1999: 102) distinguish three different levels of embodiment, which they refer to as "the neural level, phenomenological conscious experience and the cognitive unconscious", none of which, in the end, seems to have anything to do with meaning, as opposed to neurobiology.[4]

Both senses of embodiment characterised from a phenomenological perspective at the beginning of this section involve a process by which something not recognized as a body presents itself as a being one: in the first case, a mind is being situated in the world; in the second case an idea is being reified into an object publicly accessible to all. By denying the distinctions both

[4] See Zlatev *this volume* for a discussion of whether these levels can reasonably be separated, and, in particular, of the problematic character of the "cognitive unconscious".

between body and mind and expression and content, scholars such as Lakoff and Johnson deprive themselves of the very foundations needed by their own notion of "image schemas". To see this, however, we have to start by specifying the concepts of sign and schema.

3. Meaning embodied in signs

It is true of both main traditions of semiotics, the Saussurean and the Peircean, that they have never really offered any *specific* definition of the *sign* – by which I mean a set of criteria permitting us to separate meanings which are signs from other meanings. The same thing appears to apply to the notion of *representation* in cognitive science (cf. Sonesson 1992b, 2003a, 2003b, forthcoming). This goes a long way to explaining why many semioticians (such as Greimas, Eco, etc.) have rejected the sign, without much of an argument, and why the second generation of adepts to cognitive science (e.g. Lakoff & Johnson 1999; Johnson & Rohrer *this volume*) now seem to be doing the same thing with reference to the notion of representation. So before we can pose any questions about the psychological and evolutionary role of the sign concept, we have to be clear about what it is. This involves not only deciding the criteria for analysing a phenomenon of meaning into two separate parts, but also those allowing us to posit an asymmetrical relation between these parts: not only does the expression have to be separate from the content, but the former should stand for the latter, not the reverse.

3.1 From pebbles to feathers: The notion of differentiation

When Peirceans and Saussureans quarrel over the presence of two or three entities in the sign, they seldom pause to ask themselves what kind of objects, defined by what type of features, are involved. The whole question becomes moot if there is no reason to analyse meaning into two parts, as suggested by both contemporary

cognitive scientists and old-time existentialists and *Lebensphilosophen*. What, then, is it that permits us to determine that an object endowed with meaning is made up of an *expression,* or "representamen", and a *content,* or "object" (where further instances of the Peircean version are not relevant)? Peirceans and Saussureans alike would no doubt agree that signs have something to do with the classical formula, often quoted by Jakobson (1975), *aliquid stat pro aliquo* ("something in the place of something else"), or, as, Jakobson also puts it, more simply, with *renvoi*, or reference. But this formula itself is vague or ambiguous.

Before we can separate signs from other meanings, we have to spell out those criteria for something being a sign that are simply taken for granted, both in the Peircean and in the Saussurean tradition. This can be done by combining what Husserl says about appresentation (something which is *directly present* but not *thematic* refers to something which is *indirectly present* but *thematic*) and what Piaget says about the semiotic function (there is a *differentiation* between expression and content in the double sense, I take it, that they *do not go over into each other in time and/or space,* and that they are perceived to be *of different nature*).

Phenomenology, which is not afraid of spelling out the self-evident, may offer some help here. Saint Augustine, who has often (as so many others) been hailed as the first semiotician, defined the sign as "a thing which, over and above the impression it makes on the senses, causes something else to come into thought as a consequence" (as translated by Deely 1982: 17ff). Husserl's (1913, 1939) own definition of the sign, which describes the expression as something which is directly perceived but not in focus, and the content as being indirectly perceived while at the same time being the focus of the relation, could be taken as a way of specifying the Augustinean suggestion.[5]

[5] These observations could be taken to imply that the content is "embodied" in the expression. Expression would stand to content as body to soul. This was explicitly suggested by Cassirer (1957: 100), but it is also hinted at in some passages by

Piaget certainly abides by Saussure opposing the sign to the symbol (where the latter is the motivated sign). What Piaget added to Saussure was most obviously a developmental perspective, in particular on the level of ontogeny. But, just as importantly, though it has seldom been observed (cf. Sonesson 1992b, etc.), he realised that not all meanings are signs or symbols, and he even began groping for a definition of that which accounts for the specificity of the sign. According to Piaget the *sign function* (which Piaget himself called first the *symbolic*, and then the *semiotic* function) is a capacity acquired by the child at an age of around 18 to 24 months, which enables him or her to imitate something or somebody outside the direct presence of the model, to use language, make drawings, play "symbolically", and have access to mental imagery and memory. The common factor underlying all these phenomena, according to Piaget, is the ability to represent reality by means of a signifier, which is distinct from the signified. Indeed, Piaget argues that the child's experience of meaning predates the sign function, but that such meaning does not suppose a differentiation of signifier and signified (see Piaget 1945, 1967, 1970). In several of the passages in which he refers to the sign function, Piaget goes on to point out that "indices" and "signals" are possible long before the age of 18 months, but only because they do not suppose any differentiation between expression and content. The signifier of the index, Piaget (1967: 134ff) says, is "an objective aspect of the signified"; thus, for instance, the visible extremity of an object which is almost entirely hidden from view is the signifier of the entire object for the baby, just as the tracks in the snow stand for the prey to the hunter. But when the child uses a pebble to signify candy, he is well aware of the difference between them, which implies, as Piaget tells us, "a differentiation, from the subject's own point of view, between the signifier and the signified" (ibid.)

Piaget is quite right in distinguishing the manifestation of the sign

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Peirce. The parallel is nonetheless, in my view, seriously flawed (as will be discussed in Section 3).

function from other ways of "connecting significations", to employ his own terms. Nevertheless, it is important to note that, while the signifier of the index is said to be an *objective* aspect of the signified, we are told that in the sign and the "symbol" (i.e. in Piaget's terminology, the conventional and the motivated variant of the sign function, respectively) expression and content are differentiated *from the point of view of the subject.* Curiously, this distinction between the subjective and objective points of view is something Piaget seems to lose track of in his further discussion.

We can, however, imagine this same child that in Piaget's example uses a pebble to stand for a piece of candy having recourse instead to a feather in order to represent a bird, or employ a pebble to stand for a rock, without therefore confusing the part and the whole: then the child would be employing a feature, which is *objectively* a part of the bird, or the rock, while differentiating the former form the latter *from his point of view.* Only then would he be using an index, in the sense in which this term is employed in semiotics, that is, in (what this semiotician takes to be) the Peircean sense of the term. Contrary to what Piaget implies, the hunter, who identifies the animal by means of the tracks, and then employs them to find out which direction the animal has taken, and who does this in order to catch the animal, does not, in his construal of the sign, confuse the tracks with the animal itself, in which case he would be satisfied with the former. Both the child in our example and the hunter are using indices, or indexical signs, where the "real" connection is transformed into a differentiation.

On the other hand, the child *and the adult* will fail to differentiate the perceptual adumbration in which they have access to the object from the object itself; indeed, they will identify them, at least until they change their perspective on the object by approaching it from another vantage point. And at least the adult will consider a branch jutting out behind a wall as something that is non-differentiated from the tree, to use Piaget's example, in the rather different sense of

being a proper part of it.[6] In the Peircean sense an *index* is a sign, the relata of which are connected, independently of the sign function, by *contiguity* or by that kind of relation that obtains between a part and the whole (henceforth termed *factorality*). But of course contiguity and factorality are present everywhere in the perceptual world without as yet forming signs: we will say, in that case, that they are mere *indexicalities.* Perception is perfused with indexicality.[7]

An index, then, must be understood as indexicality (an *indexical* relation or *ground*, to use an old Peircean term) plus the sign function. Analogously, the perception of similarities (which is an *iconic ground*) will only give rise to an icon when it is combined with the sign function. Deacon (1997: 76ff) must therefore be wrong when he claims that camouflage in the animal world such as the moth's wings being seen by the bird as "just more tree" are essentially of the same kind as those "typical cases" of iconicity we are accustomed to call pictures. As always, there are passages in Peirce's work which may be taken in different ways, but it makes more systematic and evolutionary sense to look upon iconicity and indexicality as being only potentials for something being a sign which still have to be "embodied" (cf. Section 4).

While the introduction of the notion of differentiation is a substantial accomplishment on the part of Piaget, he unfortunately never spells out its import. He defines differentiation in terms of the subject's point of view, but then uses examples in which the disconnection already exists objectively, as pointed out above. Objectivity can here, I take it, be identified with the common sense world, which the child, in Piagetean terms, is in the process of "constructing".

Differentiation should not be identified with displacement as

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[6] About proper parts, perceptual perspectives, and attributes as different ways of dividing an object and thus different indexicalities, cf. Sonesson 1989: I.2.).

[7] I am using "indexicality" here (just as "iconicity") in the sense of something which is necessary for a sign being an index (or an icon), but which cannot function "as a sign until it is embodied". See, in particular, Sonesson (1993a, 1998a, forthcoming)

defined by Hockett (1977), which (rightly, no doubt) appears as one of the "design features" of language in most introductory textbooks. As in the case of the tracks left by the hunted animal, displacement may be a consequence of differentiation. But differentiation only comes on its own when the sign is in *presence* of its referent, for then it allows us to construe reality in different ways ("subjectively", as Piaget would have said), picking out that which is relevant, and ignoring, or downplaying other features.

We must be careful not to confuse different relationships involving the sign. Differentiation, in Piaget's sense, must pertain to the signifier and the signified, which are always equally present in the here and now of the sign user, since they are *mental* (or, in some cases, *intersubjective*) entities. To the hunter, both the signifier and the signified of the tracks are present here on the ground (or, to be precise, in the ground as he perceives it). But the signified contains the information that is itself only part of a larger whole (or rather something once contiguous to a larger whole) which was present here at an earlier time, but which is now elsewhere, more precisely in the direction indicated by the tracks. And the displacement, in Hockett's sense, has taken place between that signified whole and the real animal, which is now present somewhere else.

When the sign, whether it is a stretch of discourse, a picture, or an animal track, is present along with the referent, however, the signified allows us to refocus the referent, in other words, to present it in a particular perspective. For this the sign requires independence: that is so say, a "body" of its own.

3.2 Some other ways of "connecting significations"

As presented here, the concept of sign (or representation) does not include ordinary perception: our way of being in the world is not to be likened to the presence at some kind of private theatre. Second generation cognitive scientists (cf. Johnson & Rohrer *this volume*) are therefore quite right in rejecting the notion of representation of

their forbears. They are wrong, however, to reject all kinds of representation (to the extent that it corresponds to the sign function). More fundamentally, they commit a serious error by not attending to the definition of representation before rejecting it altogether. A few notions of history may help us to disengage ourselves from the present-day conceptual muddle.

As was noted above, Augustine seems to have been responsible for making explicit the common sense notion of sign on which later thinkers such as Saussure and Husserl (and, at least in his definitions, Peirce) are tacitly building: it is, he tells us (in the convenient paraphrase of Deely 1994: 58) "something which, on being perceived, brings into awareness another besides itself". Thomas Aquinas already had some misgivings about this definition, without ever daring to reject it outright. The followers of Aquinas in Paris may have been somewhat bolder. In a written form which has come down to us, however, we first know this criticism from the works of Pedro da Fonseca, who was active in Coimbra, Portugal, in the 16th century. To Fonseca and his followers, the definition of the sign must be considerably broader: a sign is anything which serves to bring into awareness something different from itself, whether the sign (in the sense of the signifier) itself becomes subject to awareness in the process or not. If the sign itself does not have to be perceived in order for us to come to an awareness of that which is signified, Fonseca described it as being *formal*; but if the sign cannot lead to the awareness of anything at all unless it is itself perceived, he called it *instrumental* (cf. Deely 1982: 52ff, 1994: 58ff). Thus, Fonseca pointed to a distinction, which seems to have been lost by latter-day semioticians and cognitive scientists.

What is here called an instrumental sign clearly is that which we, following Husserl and Brentano, but also Edelman, have described as the fundamental trait of consciousness, *intentionality*, that is, the property of being directed to that which is outside of consciousness. In fact, when closely considered, Fonseca's observations really go against the grain of the identification of our awareness of the world with the sign. It echoes Husserl's as well as Gibson's description of

the perceptual act as something which points beyond itself without itself being present to consciousness (cf. Sonesson 1989: III.3.2).

Indeed, when Gibson (1978: 228) observes that, when we are confronted with the cat from different points of view, etc., what we really *see* is all the time the same invariant cat, he actually recovers the central theme of Husserlian phenomenology, according to which the object is entirely, and directly, given in each of its perspectives or *noemata* (see Husserl 1939, 1962a, 1962b, 1973b; Sonesson 1989: I.2.2). In a similar fashion, Husserl's favourite example is a cube which can be observed from different sides. In Gibsonean terms, these are "the surfaces of the world that can be seen now from here" (Gibson 1978: 233). Husserl's cube and Gibson's cat instantiate the same phenomenal fact.

Just as Husserl called into question the conception of his contemporary Helmholtz, according to which consciousness is like a box within which the world is represented by signs and images, from whose fragmentary pieces we must construct our perceptions (cf. Küng 1973), so Gibson's strawmen are the followers of Helmholtz, the so-called "constructionists" (who have recently re-emerged within cognitive science; cf. Hoffman 1998), who claim that hypotheses are needed to build up perceptions from the scattered pieces offered us by sensation (cf. Sonesson 1989: III.3.3).[8] Husserl rejected the picture metaphor of consciousness, showing Brentano and Helmholtz to be in error in their very conception of pictures and other signs, because they ignored the transparency of the expression to the content. Gibson (1978) instead emphasises the dissimilarity of the picture from a real-world scene, thus showing numerous experiments using pictorial stimuli to study normal perception to be seriously misguided. To both Husserl and Gibson, normal perception gives *direct access* to reality; pictures, however, constitutes a kind of *indirect perception* to Gibson, while to Husserl (1980) they are

[8] Reed (1996) notes some parallels between Gibson and the American pragmatists (without, however, referring to Peirce). On Gibson's sources, also see Costall *this volume*.

"perceptually imagined" (cf. Sonesson 1989: III.3.6, forthcoming).

To perceive surfaces is a very different thing from perceiving marks on surfaces, Gibson (1980) maintains. Depth is not added to shape, but is immediately experienced. In fact, the perception of surfaces, of their layout, and of the transformations to which the latter are subjected, is essential to the life of all animal species, but the markings on these surfaces have only gained importance to man, notably in the form of pictures (Gibson 1980: xii, 1978: 229). Surfaces have the kind of meaning which Gibson elsewhere calls "affordances"; the markings on surfaces, however, have "referential meaning". Without discussing the exact import that should be given to the term "affordance" (cf. Costall *this volume*), we may safely conclude that "referential meaning" is a property of what we have called the sign function. That is, surfaces do not *stand for* other surfaces, but the markings on surfaces may possibly do so. The pattern of a surface and the pattern *on* a surface are different, and can usually be distinguished by an adult. The surface on which a "graph" has been executed can be seen underneath the "graph".

To Gibson, then, the picture is a surface among other surfaces before becoming a sign. Gibson (1978: 231) observes that, besides conveying the invariants for the layout of the pictured surfaces, the picture must also contain the invariants of the surface that is doing the picturing: those of the sheet of paper, the canvas, etc., as well as those of the frame, the glass, and so on. Although Gibson does not use the term, he clearly describes the picture as a sign, in the strict, Augustinean sense of the word: as a surface which, on being perceived, brings into awareness something besides itself. Gibson never specifies what he means when he claims that surfaces are only seen to stand for something else by (adult) human beings, in contradistinction to animals and infants. If he meant to suggest that surfaces can never be taken to be something else than surfaces by animals and children he was clearly wrong: we know that even doves may react the same way to a picture as to that which is depicted (cf. Sonesson 1989: III.3.1). The difficulty, clearly, consists in seeing, *at the same time*, both the surface and the thing depicted.

We should grant Fonseca the insight that there is some kind of analogy between signs and intentional acts. However, to use the term *sign* in both cases dangerously suggests that there is no important distinction to be made. In his late life, Peirce realised that all his notions were too narrow: instead of "sign", he reflected, he really ought to talk about "medium" or "mediation" (manuscript quotations given in Parmentier 1985). In the following, we will use the term *mediation* for this general sense of meaning which Fonseca called sign and to which Peirce sometimes also may be hinting. In some respects, at least, it seems to correspond to Gibson's "affordances", and to Piaget's notion of "connecting significations".

4. On the way to the human Lifeworld

If there is meaning before signs, then even the immediate experience of perception is in some very general sense "mediated". The semiotician A. J. Greimas (1970: 49) once suggested that there could be a cultural science of nature, a *semiotics of the natural world* – which was concerned, then, with the world that is natural to us, just as a particular language is our "natural language". But Greimas was not the first to conceive of a cultural science of nature. His semiotics of the natural world, together with Husserl's science of the Lifeworld, and "ecological physics" as invented by Gibson are all sciences of *normality*, of that which is so much taken for granted that it is ordinarily not considered worthy of study (cf. Sonesson 1989, 1994, 1996,).

It may seem strange to put together ideas and observations made by a philosopher, a psychologist, and a semiotician; yet these proposals are largely the same; indeed, there are indications that both Greimas and Gibson took their cue from Husserl. Greimas, Gibson, and Husserl all felt the need for such a science because they realised that the "natural world", as we experience it, is not identical to the one known to physics but is conceived from the standpoint of human consciousness. Husserl's Lifeworld as well as Gibson's ecological

physics, but not Greimas' natural world, take this level to be a privileged version of the world, "the world taken for granted", in Schütz's (1967) phrase, from the standpoint of which other worlds, such as those of the natural sciences, may be invented and observed (cf. Sonesson 1989: 26–29, 30–34, and passim).

4.1 The ecology taken for granted: the Lifeworld

Every particular thing encountered in the Lifeworld is referred to a general *type*. According to Schütz ([1974] 1932, 1967), other people, apart from family members and close friends, are almost exclusively defined by the type to which they are ascribed, and we expect them to behave accordingly. Closely related to the typifications are the *regularities* that obtain in the Lifeworld, or, as Husserl's says, "the typical way in which things tend to behave". This is the kind of principles tentatively set up which are at the foundation of Peircean abductions. Many of the "laws of ecological physics", formulated by Gibson (1982: 217ff), and which are defied by magic, are also such "regularities [that] are implicitly known": that substantial objects tend to persist, that major surfaces are nearly permanent with respect to layout, but that animate objects change as they grow or move; that some objects, like the bud and the pupa transform, but that no object is converted into an object that we would call entirely different, as a frog into a prince; etc. Some of the presuppositions of these "laws", such as the distinction between "objects that we would call entirely different", are also at the basis of the definition of the sign function (cf. Sonesson 1992a, 2000, 2001).

It has been suggested (notably by Smith & Varzi 1999) that the Lifeworld, in this sense, is simply the niche, in the sense of (non-Gibsonean) ecology, in which the animal known as the human being stakes out his life (cf. Sonesson 2001: 99). The niche, then, in this sense, is the environment as defined *by* and *for* the specific animal inhabiting it. In Husserlean language, the niche is subjective-relative – relative to the particular species. The precursor of the niche, understood in this way, is the notion of *Umwelt* introduced by von

Uexküll (1956, 1973), which is one of the key concepts of the field known as biosemiotics (see Emmeche *this volume*).

Uexküll's notion of meaning centres on the environment, the *Umwelt,* which is differently determined for each organism. As opposed to an objectively described ambient world, the *Umwelt* is characterised for a given subject, it terms of the features of the world which the subject perceives (*Merkwelt*) and the features which it impresses on the world (*Wirkwelt*), which together form a functional circle (*Funktionskreis*). According to a by now classical example, the tick hangs motionless on a branch until it perceives the smell of butyric acid emitted by the skin glands of a mammal (*Merkzeichen*), the effect of which is to send a message to its legs to let go of the support (*Wirkzeichen*). When the tick drops onto the body of the mammal, a new cycle is started, because the tactile cue of hitting the mammal's hair incites the tick to move around in order to find the skin of its host. Finally, a third circle is initiated when the heat of the mammal's skin triggers the boring response, which permits the tick to drink the blood of its host. Together, these different circles consisting of perceptual and operational cue bearers make up the interdependent wholes of the subject, corresponding to the organism, and the *Umwelt,* which is the world as it is determined for the subject in question.

Scholars involved with biosemiotics tend to take this model, immensely enlightening as it is in itself, and simply project onto it the sign conception suggested by Peirce. The first difficulty with this approach, of course, resides in finding out the real import of the Peircean sign conception. Since this is in itself an infinite task, any scrutiny of the parallel risks getting bogged down very early on. If we confront the sign conception defined in this chapter with the world of the tick, however, it will be easy to see that the two are entirely distinct. Not only is there no distinction between expression and content to the tick; there is no separation of sign and reality. At least in part, this is also an opposition between the *Umwelt* and the Peircean sign.

4.2 From Umwelt to Lebenswelt: the thematic field

Pending the invention of biosemiotics, Cassirer (1942: 29ff, 1945: 23ff) was no doubt the first thinker outside of biology to take von Uexküll's ideas seriously. After pointing out that, to human beings, all experience is mediated (a case of *Vermittlung*), he observed that this is also true of animals, as described by von Uexküll. But he makes no mention of the fact that, to von Uexküll (1956, 1973), the *Funktionskreis* is a "theory of meaning" (*Bedeutungslehre*). In fact, he opposes "animal reactions" to "human responses". Cassirer may be wrong in not seeing the similarity between signs and other meanings (though he suggests it in passing using the term 'Vermittlung'), but he is quite right, I submit, in insisting on the difference.

Very tentatively, let us suppose that, in the biosemiotic conception, the features of the world observed by the animal correspond to the sign-vehicle or expression (Peirce's "representamen"); the object or referent would then be that which causes theses features to be present to the animal; and the Peircean interpretant or content would in turn correspond to the pieces of behaviour which tend to make up the reaction of the animal to the features in question. There is no point getting lost here in Peircean exegesis: if anything, we are faced with a "formal sign", as conceived in the Fonseca tradition. As we are using the terms, we would have some kind of *mediation* (Cassirer's *Vermittlung*), but not a sign.

As Ziemke and Sharkey (2001: 709) point out, it is hard to find the object of the sign, in the ordinary sense of its referent in the "outside world". Indeed, that which is for us, as observers, three cues to the presence of a mammal, the smell of butyric acid, the feel of skin, and the warmth of the blood, do not have to be conceived, in the case of the tick, as one single entity having an existence of its own (a "substance", in Gibson's terms), but may more probably constitute three separate episodes producing each its own sequence of behaviour. In fact, Ziemke and Sharkey go on to quote an early

text by von Uexküll, in which he says that "in the nervous system *the stimulus itself does not really appear* but its place is taken by an entirely different process" (von Uexküll 1909, quoted here from Ziemke and Sharkey 2001, my italics). Uexküll calls this a "sign", but it should be clear that it does not in any way fulfil the requirements of the sign function. Indeed, expression and content are not differentiated, already because they do not appear to the same consciousness. The butyric acid is there to the tick; the mammal is present only to us.

What is lacking here – to the tick – is real Thirdness: the reaction to the primary reaction, that is, the reaction which does not respond to a simple fact (Firstness), but to something which is already a reaction, and thus a relation (Secondness; see Table 1). Without having to enter into the earlier discussion of differentiation, we see that, even from a strictly Peircean point of view, there is no Thirdness for the tick: it does not respond to any relationship, since it is not aware (even in the most liberal sense of the term) of any second term (the mammal) to which the first term (the butyric acid) stands in a relation.

Table 1. The relationship between principles, grounds, and signs, from the point of view of Peirce.

	Firstness	Secondness	Thirdness
Principle	Iconicity	—	—
Ground	Iconic ground	Indexicality = indexical ground	—
Sign	Iconic sign (icon)	Indexical sign (index)	Symbolicity = symbolic ground = symbolic sign (symbol)

In fact, things are even more complicated. In a true sign relation, the mammal is not really the object, in the Peircean sense, for which the butyric acid is the representamen (the expression). Or, to be more precise, it is not the *dynamical object*. At the very most, it is the *immediate object*. In Peirce's conception, while the immediate object is that which directly induces the sign process, the dynamical object is something much more comprehensive, which includes all those things which may be known about the same object, although they are not present in the act of inducing. Indeed, the dynamical object is that which corresponds to the potentially infinite series of different interpretants resulting from the same original immediate object. It should be clear that, for the tick and similar beings, there could be no distinction between direct and dynamical object, because there is no room for any further development of the chain of interpretants. In this sense, Deacon's (1997: 63) idiosyncratic reading of Peirce, according to which only signs such as those found in human language (his "symbols") give rise to chains of interpretants seem to have some justification – in reality, if not in Peircean theory (cf. Sonesson 2003a).[9]

To account for the distinction between the "immediate object" and the "dynamical object", we need the concept of *ground*.[10] In one of his well-known definitions of the sign, a term which he here, as so often, uses to mean the sign-vehicle, Peirce (1931–58, 2: 228) describes it as something which "stands for that object not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground of the representation*" (my italics; see Table 1). Some commentators have claimed that Peirce is here talking about some properties of the expression, whereas others favour the content. In fact, however, the ground must concern the relation between them. Such an interpretation seems to be born out by Peirce's claim that the concept of ground is indispensable, "because we cannot

[9] The problem, however, is that true indices and icons, as experienced as least by human beings, have as many interpretants as symbols.

[10] This was independently noted by Søren Brier (2001).

comprehend an agreement of two things, except as an agreement in some respect". (1.551). In another passage, Peirce himself identifies ground with an *abstraction* exemplifying it with the blackness of two black things (1.293). It therefore seems that the term "ground" must stand for those properties of the two things entering into the sign function by means of which they get connected, i.e. both some properties of the thing serving as expression and some properties of the thing serving as content. In case of the weathercock, for instance, which serves to indicate the direction of the wind, the content-ground merely consists in this direction, to the exclusion of all other properties of the wind, and its expression-ground is only those properties which makes it turn in the direction of the wind, not, for instance, the fact of its being made of iron and resembling a cock (the latter is a property by means of which it enters an iconic ground, different from the indexical ground making it signify the wind). If so, the ground is really a principle of relevance, or, as a Saussurean would say, the "form" connecting expression and content: that which must necessarily be present in the expression for it to be related to a particular content rather than another, and vice-versa (cf. Sonesson 1989: III.1, 1995, forthcoming).

The butyric acid, the hairiness, and the warmth form the immediate objects of the tick, while the mammal as such is the dynamical object. The difference, however, is that there is no way that the tick, unlike human beings, may learn more about the "dynamical object" than that which is given in the immediate one. Meaning here appears as a kind of "filter": it lets through certain aspects of the "real world" which, in is entirety, is unknowable, though less so for human beings than for the tick. The Kantian inspiration of von Uexküll is of course unmistakable. Indeed, in the terms of another thinker with a Kantian inspiration, Bühler (1934), the filter model is based on "abstractive relevance", the neglect of such physical properties which are not endowed with meaning, similar to those properties of the physical sound which vary a lot without the units of meaning (the phoneme, the word, etc.) being changed, which Saussure and Hjelmslev characterised as

"substance" in opposition to "form".

Returning to modern day biosemiotics, it can be easily shown that what these authors are involved with has little to do with meaning as sign function, but very much concerns meaning as relevance, organisation, configuration and/or filtering. In their early joint paper, Emmeche and Hoffmeyer (1991: 4), criticising the concept of information in information theory, point out (paraphrasing Bateson), that they are interested in "a *difference that makes a difference* to somebody". They go on to say that living beings "respond to *selected* differences in their surroundings" (their italics in both cases). The formulation clearly invokes relevance, and even some kind of filtering device. Later on in the paper, however, when the Peircean sign concept is introduced, the DNA-sequence of the gene is said to be the representamen, the protein its object, and the interpretant the cellular-biochemical network. It is, however, difficult to detect any sign function here. According to Emmeche and Hoffmeyer, the contribution of Peircean semiotics is to show us that "the field of genetic structures, or a single gene, cannot be seen in isolation from the larger system interpreted" (1991: 34). This certainly suggests meaning in the sense of a whole or a configuration.

In a later paper, Emmeche (2002) sets out to show that in the living being function and meaning are the same. This can also be demonstrated, because Emmeche understands meaning in the sense of function: the relation of the part to the whole. But even in this article, there are traces of the filtering concept of meaning: we learn that "the whole operates as a constraint".

> Saying that *cytochorme c* means something to the cell is the same as saying that is has a function. It is not just any molecule. We could well synthesise small proteins and artificially introduce them into the cell. They would be without importance or they would be dysfunctional or, with certain fortuitous strokes of luck, they would actually fulfil some function in the cell. (Emmeche 2002: 19)

This implies that the meaning of the enzyme "is structural" in the sense that "the cell's molecules form a system of dissimilarities (like

the elements of language in Saussure)" (Emmeche 2002: 20). This parallel is correct to the extent that there are relevancies in cells, in particular if these relevancies result from a system of oppositions, like those of Saussurean language. From this point of view, everything that is in the cells is also in language. But the opposite cannot be true. There is, of course, no sign function as we have defined it.

It is useful to distinguish relevance from filtering, although they have something in common: picking up a limited set of features from the totality of the environment. However, *relevance*, strictly speaking, does not exclude anything: it merely places some portions of the environment in the background, ready to serve for other purposes. Thus, in the case of language, properties that are not relevant for determining the meaning of words and sentences, still may serve to inform about the dialect, or even identify the person speaking (Hjelmslev's "connotational language"; cf. Sonesson 1989). Indeed, relevance lets the difference between "immediate object" and "dynamical object" subsist, in the vague sense which they retain in the "scholastic" interpretation of Peirce (see above): that which is directly given, in contrast with that which is potentially given for further exploration. Thus, Bühler (1934), added to the principle of "abstractive relevance" that of "apperceptive supplementation", which explains the projection of properties not physically present in perception to the meaningful experience. In contrast, *filtering* simply crosses out that which is not let through the filtering device.[11]

The difference between relevance and filtering no doubt has something to do with the capacity to be aware of the borders of one's *Umwelt*. It requires some kind of "metacognition": to the tick, to paraphrase Wittgenstein, the limits of its language are the limits of

[11] It can now be seen that Bühler's principles of abstractive relevance and apperceptive supplementation go much further than the sign. They have been found in the studies of the systems of cooking and clothing realised by Lévi-Strauss, Barthes, and others (as demonstrated by Sonesson 1989.

its world, but not so (in spite of Wittgenstein) to human beings. Or rather, the limits of any particular *Umwelt* are not the limits of our *Lebenswelt*. Schütz (1967) suggested there are really "multiple provinces of meaning", such as dreaming, religious experience, the art world, the play world of the child, and that esoteric practise we know as science. The peculiarity of the Lifeworld, in this context, is that is offers access to the other worlds, and is accessible to all of them. In this sense, the human *Lebenswelt* is different from the *Umwelt* of other animals. Or at least is has the capacity for being different. In Peircean terms, human beings may reach for the dynamical objects beyond the immediate ones. They may try to transform Nature into Culture. However, as Wittgenstein (1971) observed, even if we had a common language game, we would perhaps not have so much to discuss with a lion. The lion, presumably, does not try to go beyond his own *Umwelt* to grasp the properties of the objects that lie behind it. There is, so to speak, no "dynamical object" beyond the immediate one to him.

If the *Umwelt* is *an organised network of filters and/or relevancies,* as I suggested above, it seems that maturing in the child consists in breaking out of one *Umwelt* and going on to another, broader one, until reaching the human *Lifeworld*. Between each *Umwelt* and the next, which encompasses it, there is, to borrow a famous expression from Vygotsky (1978) a "zone of proximal development". In this sense, ontogenesis itself forces us to go through a series of "finite provinces of meaning", in the sense of Schütz. A temporal dimension is thus added.

It might therefore be said that what most perspicuously differentiates the tick from the human being (without prejudging for the moment on the question where the exact border is to be placed) is the structure of the field of consciousness: in Gurwitsch's (1957, 1964, 1985) terms, human consciousness is made up of a *theme* which is the centre of attention, a *thematic field* around it consisting of items which are connected to the present theme by means of intrinsic links permitting it to be transformed into a theme in its own right, as well as other items present "at the *margin*" at the same time,

without having any other than temporal relations to the theme and its field.[12] The tick of course has access neither to the thematic field nor to the margin. In a way, this is simply another way of saying that the tick cannot reach beyond the immediate object. But Gurwitsch's analysis breaks up that of Peirce: it implies that, not only is there no way for the tick to "go on from here" (the Husserlean "etcetera principle"), its experience of the here and now is also very limited. In other words, there is no real "immediate object" to the tick, not only because it is not opposed to a future more extensive dynamical object, but also because even in the here and know, what is immediately experienced does not appear as a thematic structuring, or perspective, on such a dynamical object.

I have suggested, then, that an important difference between human beings and (some) other animals consists in the thematic structure of consciousness, or, in other words, the function of attention. Some similar difference in the structure of attention have been discussed in very different quarters lately, separating human beings and apes, as well as children of different ages (cf. Tomasello 1999; Tomasello et al., *in press*; Zlatev 2002, 2003, *this volume*). A discussion of such a progression in the development of attention presupposes an analysis of our awareness of the other's body and mind, which would take us out of the limits of this chapter. Something will be said, nevertheless, on the attention to one's own body in the next section.

Before that, however, it will be necessary to take stock. I suggested above that there were really two differences between the way in which ticks and other lower animals have access to meaning and the human way. The first of these is the *thematic structure*: there is no immediate object, because there is no dynamical object in relation to which it may be seen as an adumbration. But there is

[12] Gurwitsch is right, I believe, in suggesting that this thematic structure translates to language (and no doubt also to other semiotic resources), as most clearly illustrated in the transposition of the functioning of pronouns from the perceptual world to discourse (cf. Gurwitsch 1985); it is unfortunate, however, that he fails to attend to the difference in structuring occasioned by the sign function.

more to it: there is no representamen (expression), either, because no distinction can be made between such a representamen and the object, either immediate or dynamic.

Taking into account the Fonseca tradition, we earlier noted that one kind of mediation (for which I reserve the term *sign*) consists of a signifier (expression) which has to be perceived as such in order to usher into the perception of the corresponding signified (content); and another one (which following the Brentano–Husserl tradition, can be called *intentionality*) which may consist in a signifier which is not ordinarily perceived as such but still somehow serves to mediate the perception of a signified. It will be remembered that, according to von Uexküll, "in the nervous system *the stimulus itself does not really appear* but its place is taken by an entirely different process" (my italics). If so, this is not even mediation in the broad sense of the term. As Husserl and Gibson have insisted, we are alternatively confronted with different view of the cube or the cat, etc., but what we really *see* is all the time the same invariant cube or cat. The tick smells the same invariant butyric acid, period. In the world of the tick, there are no signs, as distinct from the world itself. Differentiation has not even started. In other words, signification has not acquired a "body" of its own.

5. The body in the Lifeworld

In the previous section I suggested that in identifying the functional cycle with the Peircean concept of sign, biosemiotics conflates meaning in the most general sense of organisation and relevance with the more specific sign function. Inversely, contemporary embodiment theorists such as Lakoff and Johnson reduce the sign to the more general model of the pick-up of features from the environment. If Lakoff and Johnson engage in one form of reductionism, biosemiotics seems to accomplish its inversion. The result, however, is the same: distinctions, which are important, both theoretically, and from the point of view of phylogeny and ontogeny,

can no longer be maintained.

The hybrid term "image schema" has many antecedents, at least as to its latter part. Before the advent of Lakoff's and Johnsons's work, the most familiar usage was no doubt that of Piaget (1970: 41): as a kind of "abstraction from action" taking place at different stages through child development. Schütz ([1974] 1932), however, used the term to refer to all kinds of fossilized (or, in his words, "sedimented") sequences of action, which could be used to make sense of new actions within the common sense world. The idea of a spatial, if not specifically bodily, projection, is important to the notions of schema in the psychology and sociology of Janet (1928), Halbwachs (1925, 1950) and Bartlett (1932; cf. Sonesson 1988). In all these conceptions, schemas are the result of earlier actions. This seems to accord with the definition by Johnson (1987, 2005) of image schemas as being abstractions from the interaction of organism and environment. If so, as I will suggest below, image schemas should require some kind of separation of the human *Umwelt* into body and world.

5.1 The body as the axis of the world

It is not surprising that the figure of the body looms large at the horizon of consciousness. After all, the body is our *condition of access* to all possible experience of the world. It is at the origin of one fundamental characteristic of the Hussserlean Lifeworld: that everything in it is given in a *subjective-relative* manner. This means that the access in question is not a merely physical fact: it amounts to the insertion of the mind in the meaningful whole, which is the common sense world. That is, the body appears (also) as meaning.

The same observations apply to language. The body (though often presented as a faceless Ego) is at the centre of language, in the *I-here-now*. Many pronouns and adverbs serve as marks of what Benveniste (1966) has called the "taking into charge" of the language system by the subject: these marks can only be understood with reference to the position in space and time of the person doing

the speaking. Just as the perceptual world, language is adumbrated from the position of the subject, whose insertion in the world can only be accomplished by the body.

Proxemics is concerned with the subject as a body occupying the central position of space. According to Hall (1966) all cultures define their public, social, personal and intimate, spheres, but the distances that characterise each one of these spaces are different in different cultures. When subjects coming from different cultures meet, their respective spaces tend to clash. According to one of Hall's classical examples, a person from an Arab culture, who posits himself within what is from his point of view the personal sphere, the distance from which it is comfortable to have a chat, inadvertently enters the intimate sphere of a Westerner, the sphere in which it is proper to "fight or make love".

From a proxemic point of view, the subject could thus be seen as a topological construction: a series of concentric circles demarcating the public, social, personal and intimate, spaces (in relation to another subject), within which is found the bodily envelope, all of which are defined by the fact that they may be penetrated and thus produce an effect of meaning (see Figure 1 and Sonesson 1993b; 2001). This is to say that these "protective shells", as Hall calls them, are more or less *permeable*. In topological terms, they possess the property of being open or closed. More exactly, in *merotopological* terms, some parts of them have the property of being open and others that of being closed. They produce a meaning when their borders are overstepped. This is of course the case with the Arab conversationalist stepping into the sphere of fighting and love of the Westerner. The case of the bodily envelope is however more easily illustrated: it possesses a series of openings (mouth, nostrils, etc.), but it may also be penetrated elsewhere, with more serious consequences, such as injury.

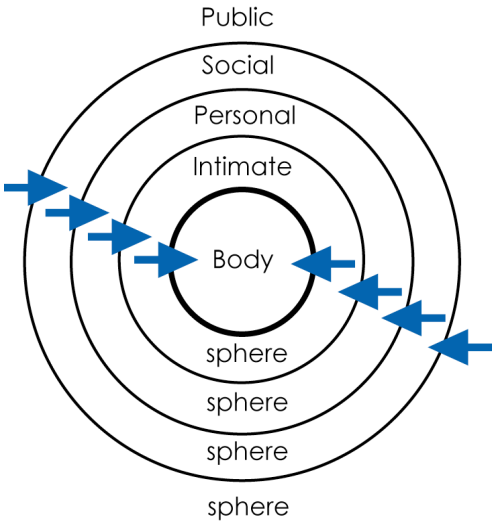

Figure 1. The body envelope and its surrounding proxemic spheres (cf. Hall 1966, Spiegel & Machotka 1974). The arrows illustrate entries through designated openings and through the closed borders, respectively.

The final protective shell of the body, the skin, did not form part of Hall's original model. It was added later, by Spiegel and Machotka (1974), who also pointed out the difference between orifices permitting penetration, and other places where entry can only be forced. In this respect, their contribution connected to another tradition, the Freudian one, whose model of the body is reminiscent of some of the image schemas suggested by Lakoff and Johnson, if we generalise the sexual interpretation to a more general bodily practice (cf. Sonesson 1989).

5.2 The bucket theory of the body

The function of the image schemas, as conceived by some cognitive linguists (cf. Hampe 2005), seems to be to project our experience of the body (even if experience *per se* sometimes seems to be dispensed with) to the interpretation of the world, thus accounting for pervasive

linguistic phenomena such as metaphor, metonymy and polysemy. In the same vein, Gardner (1970: 360ff), elaborating on an idea of the psychoanalyst Erik Erikson, claims that certain holistic properties are given a particular import from being first experienced in the relationship between one's own body and the field of objects outside the body, sometimes in relation to the keeping of portions of the environment inside the body, and sometimes in relation to the release of what was once part of the body. Since each bodily zone has a characteristic mode, and since each mode possesses several vectorial properties, the modal/vectorial properties can be seen to form a system: to the oral-sensory zone (mouth and tongue), there corresponds passive and active incorporation; in relation to the anal-secretory zone, retention is experienced; in respect to the sphincter, there is expulsion; and, finally, to the genital zone (penis/vagina), there corresponds intrusion and inclusion. The result of this Freudian *parti pris* is not only an insistence on the primacy of sexual interpretations, but the neglect of some essential bodily relationships.

Just as, according to Piaget, conceptual schemas are abstracted from actions through the many stages of intellectual development, the modal/vectorial properties, as Gardner presents them, may also be conceived to take their origin in the actions of one's own body, but rather than being abstracted, they are immediately seen as global characteristics, and while they may be transposed to other objects than the body, and other relationships than that of the body to the world, as is the case in "symbols", they somehow remain bound up with the body in all their further applications as being the deeper source of their sense (cf. Sonesson 1989). However, Arnheim (1966: 215ff) is right in arguing against Freudian pansexualism that a piece of pottery and a womb have the common class meaning of being containers, rather than the first signifying the second, and that the predominance of the sexual interpretation is due to cultural factors. It seems more probable that bodily experience of a more general kind, including that of enclosing an apple in one's hand and sticking the hand into a hollow in the ground, is the primary basis of modal/vectorial properties. When Arnheim suggests that, going up

the tree of Porphyry, both the womb and the piece of pottery will be found to be containers, he is certainly not making the kind of analysis that Porphyry or his followers (as for instance Eco 1984: 46ff) would accept, since the womb does not meet the necessary and sufficient conditions for being a container ordinarily conceived; nor is it referable to the container prototype in a strict sense. Rather it is a member of the extended class of containers acceptable in "symbolism". On this interpretation, of course, the womb would be a deviant piece of pottery, rather than the reverse.

In making this kind of argument (cf. Sonesson 1989: I.4.5), I found myself in a terrain very close to Cognitive Linguistics without knowing it. The first step was to identify the modal-vectorial properties as being topological. In the Piagetean conception, the geometry of the child's first space is *topological*, that is, it contains the kind of relations that would be preserved in a figure drawn on a piece of rubber (cf. Vuipillot 1967: 104ff). Properties of this kind are neighbourhoodness or proximity, separation, succession, inclusion or interiority/exteriority, and continuity.

If we now merely introduce a distinction between two instances, the *ego* and the world, or the *other,* it will be possible to derive all of Gardner's "modes" from the topological property of inclusion, to which another topological property, that of succession, is applied. Clearly, intrusion and inclusion are opposites, as are incorporation and expulsion, but rentention seems to call for some corresponding term: this must be *resistance* (postulated in Sonesson 1989, in complete ignorance of force-dynamical theories, for which cf. Talmy 1988; Gärdenfors *this volume*), of which there are two variants, the resistance of the world to us, and of us to the world. Actually, there is nothing very new about resistance as a fundamental concept: it has been the basis of the definition of reality in philosophical epistemology, from Berkeley over the ideologues Destutt de Tracy and Maine de Biran to Sartre. Indeed, "this sense of being acted upon, which is our sense of the reality of things" is the definition of Secondness in the conception of Peirce (1998: 4):

> A door is slightly ajar. You try to open it. Something prevents. You put your shoulder against it, and experience a sense of effort and a sense of resistance. These are not two forms of consciousness; they are two aspects of one two-sided consciousness. It is inconceivable that there should be any effort without resistance, or any without a contrary effort. This double-sided consciousness is Secondness. (Peirce 1998: 268)

Since Peirce goes on immediately to note that "all consciousness, all being awake, consists in a sense of reactions between ego and non-ego", it is curious that he should not recognise the difference between the case in which the ego takes the active part, and the case in which the non-ego has the initiative and the ego is reduced to resistance. However, it is clear that from a Peircean point of view, the Freudian interpretations of incorporation, retention, expulsion, and so on, are only special cases of more general bodily processes. For they no doubt continue to be bodily based: it is the body of the ego which first enters into a clash with the non-ego.

These operations obviously serve more humble purposes than proving the existence of the outside world. Just as such image schemas as PATH and CONTAINER, they are generalizations of "*a recurrent pattern, shape, and regularity in, or of, […] ongoing ordering activities*" as actions, perceptions, and conceptions (Johnson 1987: 29, original italics). In spite of what is suggested by this definition, Lakoff and Johnson often do not seem to have any use for the body as an experienced meaning, as opposed to the way it appears to the biological sciences.

What is at issue is the exact role played by the body. Whether the actions which sediment to form "images schemas" are accomplished in relation to the inside of the body, or to something outside of it, a minimum requirement for their schematisation must be the existence of the bodily envelope as a relevant level of analysis. It is difficult to understand how such schemas may even come into existence if human beings are as tightly embedded in their *Umwelt* as the tick, entirely merged with their environment. Yet, in introducing the theory of image schemas, this is precisely the view propounded by Johnson (2005).

In defining image schemas, Johnson (1987, 2005, Johnson &

Rohrer *this volume*) uses expressions that are clearly reminiscent of Piaget, although the latter is never quoted. However, in order to acquire sensory-motor schemas, let alone "symbols" (Piaget 1945) or "mimetic schemas" (Zlatev 2005), some sense of a *distinction* between the acting subject and the world resisting him or her is clearly required. In order to arrive at schemas of a higher order (including the sign function), the subject must somehow take cognizance of the more basic schemas themselves. Johnson and Rohrer (*this volume*) who do not believe in "the supposedly unique ability of humans to engage in symbolic representation", consider it only an illusion resulting from our seeing the interaction of organism and environment "from our standpoint as observers and theorists". But this leaves unexplained the fact that we are ever able to reach such a standpoint. No doubt there must be a number of progressive stages leading from sensory-motor experience to our capacity for engaging in theory.

6. The body as portable memory

Is has been suggested by Donald (1991, 2001) that there are several discontinuities in hominid evolution, all involving the acquirement of a distinct kind of memory, considered as a strategy for representing knowledge. Although Donald's model concerns phylogeny, parallels in ontogeny are readily suggested (cf. Zlatev 2002, 2003, 2005, *this volume*; Ikegami & Zlatev *this volume*). Without necessarily taking Donald's model at face value, I am going to make use of it here since it permits a productive integration with semiotic theory. Indeed, the Tartu school characterizes signs as memory devices and defines culture as collective memory. According to Lotman et al. (1975), material objects and information are similar to each other, and at the same time differ from other phenomena, in two ways: they can be accumulated, whereas for example, sleep and breathing cannot be accumulated, and they are not absorbed completely into the organism, unlike food, but remain

separate objects after the reception. The interesting thing, however, not discussed by the Tartu school, is how material artefacts and signs come to work together.

According to Donald's conception, many mammals are already capable of *episodic memory*, which amounts to the representation of events in terms of their time and place of occurrence. The first transition, which antedates language and remains intact at its loss (and which Donald identifies with *Homo erectus*) brings about *mimetic memory*, which is required for such abilities as the construction of tools, miming, imitation, coordinated hunting, a more complex social structure and simple rituals. This stage thus in part seems to correspond to what we have called the attainment of the sign function (though Donald only notes this obliquely, in talking about the use of intentional systems of communication and the distinction of the referent). Yet, it should be noted already at this point that while all abilities subsumed in this stage seem to depend on iconic relations (perceptions of similarity), only some of them are signs because they do not involve any asymmetric relation between an expression and the content for which it stands.

Only the second transition, occurring with *Homo sapiens*, brings about language with its *semantic memory*, that is, a repertory of units that can be combined. This kind of memory permits the creation of narratives, that is, mythologies, and thus a completely new way of representing reality. Interestingly, however, Donald does not think semiotic development stops there, although further stages are no longer based on any biological changes. However, the third transition obviously would not have been possible without the attainment of the three earlier stages. What Donald calls theoretical culture presupposes the existence of *external memory*, that is, devices permitting the conservation and communication of knowledge independently of face-to-face interaction between human beings. The first apparition of theoretical culture coincides with the invention of drawing. For the first time, knowledge may be stored externally to the organism. The bias having been shifted to the visual modality, language is next transferred to writing. It is this possibility

of conserving information externally to the organism that later gives rise to science (cf. Figure 2).

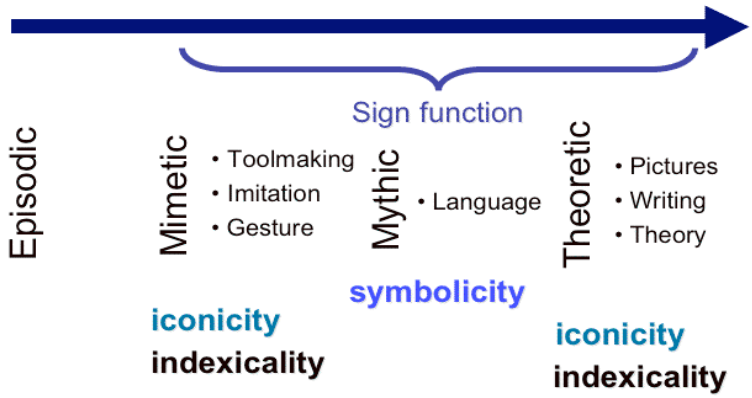

Figure 2. Donald's model of evolution related to the notion of sign function.

There are two remarkable features in Donald's analysis. The stage preceding the attainment of the language capacity requires memory to be located in the subject's own body. But, clearly, it can only function as memory to the extent that it is somehow separable from the body as such. The movement of the other must be seen as distinct from the body of the other in its specificity, so that it can be repeated by the self. This supposes a distinction between *token* and *type* (that is, relevance) preceding that of the sign function.

The stage following upon language supposes the sign to acquire a "body" of its own, that is, the ability to persist independently of human beings. Language only seems to require the presence of at least two human beings to exist: they somehow maintain it between themselves. But it is not enough for two persons to know about a picture for it to exist: there must be some kind of organism-

independent artefact on which it is inscribed. The picture must be divorced from the bodies (and minds) of those making use of it.[13] Writing is of course, by definition, the transposition of language to independent artefacts. The case of "theory" may be less obvious: why should not two persons be able to entertain a theory between them? As Husserl (1962a) noted well before Donald, complex sign systems, such as mathematics and logic, only seem to function as such when given an existence independent of human organisms. In the case of pictures, Ivins (1953) has observed that it is their reproducibility (as in Floras, for instance) that makes them into scientific instruments. In their capacity of being permanent records, pictures are not, as art historians are wont to say, unavoidably unique, but, on the contrary, are destined for reproduction. Indeed, they permit repeated acts of perception, as do no earlier memory records.

Students of prehistoric pictures such as White (2000) often suggest that creators of such works must have been capable of language. In fact, not much can be concluded on the basis of the depictions having come down to us: even though pictures, by their nature, must have been made on material which conserves the markings on the surface, they might at first have been created on surfaces (such as sand) which only preserve them for a short time. And it is not easy to establish any clear-cut relation between linguistic capacity and the sophistication of the depictions (whatever that is). There are, however, more fundamental reasons for supposing pictures to be later in phylogeny than language: they suppose a record which is independent of the human body; and they require us to see a similarity within an over-arching dissimilarity.

Posner (1989) distinguishes two types of artefacts: the transitory ones (as the sound of a woman's high heeled shoes against the pavement) and enduring ones (as the prints that the woman's shoes

[13] This is of course what is known, mainly in Marxist literature, as the process of *reification*. As shown by Cassirer (1942: 113ff), this process, far from being only a "tragedy of culture", is the prerequisite for (huma)n culture.

may leave in clay, in particular if the latter is later dried). The transitory artefacts, in this sense, also have a material aspect, just as the lasting ones; they only have the particularity of developing in time, which is why they cannot be accumulated without first being converted. Strictly speaking, the sound sequence produced by high heels against the pavement, and other transitory artefacts, can of course be accumulated (as opposed to being converted into an enduring artefact, which is the case of the sound tape), in the form of the (typical) leg movements producing this sound, that is, as a mimetic record, accumulated in the body, but still distinct from it, since the movements can be learnt and imitated, and even intentionally produced as signs of (traditional) femininity. Posner's example of an enduring artefact is interesting in another way: the cast of prints left by the woman's high heels is of course an organism-independent record, just as the marks of a Roman soldier's sandals found in prehistoric caves, and the hand-prints on cave walls. Another case in point may very well be the so-called Berekhat Ram figure (250000–280000 BP), which, if it is not the likeness of a woman, as has been claimed with very little justification, could be the result of abrasion produced by regular movements indicating the intervention of a human agent (that is, "anthropogenic" movements). This suggests that the first organism-independent records may be *indexical*, rather than iconic, in character. However, even if objects like these were independent objects already in prehistory, there is nothing to prove they were perceived as signs, that is, as expressions differentiated form contents, before pictures were so perceived.

Episodic memory, in Donald's sense (which should not be confused with earlier uses of the term) is most clearly "disembodied" memory: it only goes as far as the attention span does. It may refer to a bodily act, such as going in or out of a container-type object, but it is unable to generalise this movement beyond a particular moment and place, and thus it does not give rise to any kind of independent embodiment (cf. Table 2). Mimetic memory still accumulates in the subject's own body, but it only becomes such, to the extent that what is recorded in the body also exists elsewhere, in at least one other

body (or perhaps, in same cases, in other moving artefacts), which supposes generalisation or, more exactly, *typification*: the creation of a type referring to different tokens instantiated in different bodies. As tokens, then, they are in the body; as types they are shared by different uses. Typification, in this sense, does not require the sign function, but is no doubt a prerequisite for it: indeed, it is during this stage, most likely, that the sign function emerges.

Table 2. Donald's memory types analysed in relation to the nature of accumulation (in the sense of Lotman et al. 1975)

Type of memory	Type of accumulation	Type of embodiment
Episodic	Attention span (event in time/space)	—
Mimetic	Action sequence co-owned by *Ego* and *Alter*	Own body
Mythic	Transient artefact co-produced by *Ego* and *Alter*	In the interaction between *Ego* and *Alter*
Theoretic	Enduring artefact co-externalised by *Ego* and *Alter*	External in relation to *Ego* and *Alter*

Mythic memory (which I would prefer to call linguistic memory or perhaps, as Donald sometimes does: semantic memory) is different again: it has a separate existence, but, like some kind of real-world ectoplasm, is requires the collaborative effort of a least two

consciousnesses (which no doubt have to be embodied) for this existence to be sustained. Transitory artefacts, as spoken language or (as Posner would have it) the sound of high-heeled shoes on the pavement, acquire a body only to the extent that a sender and a receiver agree roughly on what they are. Only theoretic memory has a distinct "body" of its own: it subsists independently of the presence of any embodied consciousness, because it is itself embodied. Of course, without anybody able to perceive it, organism-independent records are not of any use. Without any human beings present, they are really worse off than the famous acorn falling from a tree without anybody around to hear its sound.

7. Conclusions

In this chapter I have tried to relate different notions of embodiment stemming from the phenomenological tradition, and contemporary conceptions of embodiment, taking their origin in Cognitive Linguistics, biology, and cognitive science. My aim has been to show that the various forms of embodiment in both traditions are very different, but that once they are properly analysed, they may be connected with each other, and placed on something like an evolutionary scale similar to the one proposed by Donald (1991). Indeed, the whole point of making these distinctions has been to show the complexity of the "ladder" from (non-human) animals to human beings, a ladder that requires a series of very different steps, only one of which is the capacity for language.

Another goal of the essay has been to suggest the way in which the sign function, the general faculty for conceiving signs, emerges out of one kind of embodiment and constitutes a requirement for attaining another one. In the process, I have suggested that we must distinguish meaning in a very general sense, akin to organisation and/or selection, from the sign function, which requires the peculiar property of differentiation. I have claimed that this distinction is not observed in either biosemiotics nor in some parts of Cognitive Linguistics. Moreover, I have argued that what is called "image

schemas" by cognitive linguists is basically a kind of bodily meaning, resulting from the position of the human body at the centre of the common sense world, known in phenomenology as the Lifeworld.

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