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# Lecture 2: The Psychology and Archaeology of Semiosis.

## *Pictorality as a Semiotic Function*

*In this lecture, we will discuss the emergence of the semiotic function, both ontogenetically and phylogenetically, and we will consider the part played by the picture sign in this development. In order to demonstrate that pictures are indeed signs, we will explore the basic elements of the sign presupposed but never put into focus neither by Saussure nor by Peirce. Indeed, explorations in the psychology and phenomenology of perception will turn out to be necessary, in order to characterise the sign in opposition to more elementary meanings, such as those given to us in the common sense world, variously characterized as the “lifeworld”, the “natural world”, or the world of “ecological physics”.*

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Semiotics of pictures, it might be argued, can only exist if the picture is indeed a sign. There have been those who have denied this; others, instead of demonstrating the proposition, have simply taken it for granted. Even if somebody would take upon himself the task of showing that the picture *is* a sign, it would naturally be suspected that the assignment must be different for those who follow the Peircean and the Saussurean tradition. In fact, in both conceptions, the notion of sign is really basically taken for granted instead of being defined, and thus there

is no non-arbitrary way in which the task may be accomplished.

A more explicit concept of sign is needed in order to begin answering the question. Some elements of such a definition may be gathered from the notion of semiotic function characterised by Jean Piaget; others, as we shall see, can be borrowed from the phenomenology of Edmund Husserl. This is a concept of sign which supposes there to be *other* meanings than signs – more elementary meanings, such as those given in ordinary perception.

In this sense, the domain of semiotics is wider than the sign: it is some more general property which might be described as “meaning”. There could thus be a semiotics of pictures even if pictures were no signs. However, the present lecture is designed to show that the picture must indeed be a sign, in the precise sense which we are going to introduce. In order to do so, we will have to attend to the place of the picture in the development of the semiotic function. There is of course no real evidence in phylogeny, except for the indirect way of comparing human beings with other animals; and thus the facts have to be searched out in child development as well as in the comparison between cultures.

## 2.1. The emergence of the picture sign – individual and generic histories

There can be no doubt that the ability to interpret pictures is as unique a property of human beings as is language. However, it is normally taken for granted that the picture sign is more simple, at least in the sense of being evolutionary older, than language. Thus, for instance, those who have tried to teach language to apes have had recourse, at a preparatory stage, to the mediation of pictures. However, there are now reasons to think that, at least in some respects, the picture sign is *more* complex than language – it appears, it seems, later in ontogeny, if not also in phylogeny.

James Gibson (1971, 1980) has claimed that, while all animals perceive surfaces, only humans are able to see surfaces as having reference. In other words, pictures have “referential meaning”; they contain invariants for surfaces but also for the objects referred to. Gibson thus appears to have a somewhat implicit concept of the picture as being a sign. Julian Hochberg showed that a child 19 months old who had never seen a picture could readily interpret it if he/she were familiar with the objects depicted (Hochberg & Brooks 1962).<sup>1</sup> But Hochberg did not investigate whether the child saw the picture *as a picture* or as an instance of the category of the depicted object — a picture of a bird as a bird, etc. For the picture to be a sign, both similarity and difference have to be involved.

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<sup>1</sup> Sonesson 1989a used this as an argument (together with logical ones) against the conventionalist critique of iconicity formulated by Eco, Goodman, and others. Cf. Lecture 3.

***The original picture  
interpretation situation:  
epitomic aspects***

According to a famous anecdote known to us from the historian Herodotus (1954: 102f), the pharaoh Psammeticus designed an ingenious experiment to find out which language were the original tongue of humankind: he took two newly born infants from an ordinary family and had them brought up under strict orders that no-one should utter a word in their presence. As a result, Herodotus (himself originally from Phrygia) reports, Phrygian was found to be the original language.

Two and a half centuries after the time of Herodotus, the same type of experiment was at last carried out in the study of pictures. But Hochberg & Brooks, who performed this experiment, were not intent on finding out in which style the child would execute its first drawing if left alone (if indeed there would ever be any; cf. Gardner 1980); instead, their experiment bore on the interpretative capacities of the child. Thus, they raised a child to the age of 19 months, impeding it from having other than incidental experience of pictures, and then exposed it to outline drawings and later to photographs of objects with which it was already acquainted, finding that the child had no trouble to recognize the objects. Commenting on this experiment in a later text, Hochberg

(1972:70f) himself observes that there either must be an innate capacity for interpreting pictures, or that such an ability must develop at an early stage, and then not from pictorial experience itself, but from the ordinary experience of the world.

This result, and Hochberg's conclusions, are remarkable. To begin with the former, it is obviously incompatible with any theory, such as that of Goodman or Eco, according to which a picture acquires its meaning simply by being "appointed" to be the sign of an object (as noted in Hochberg 1978b:235ff). What is interesting about Hochberg's conclusions is that the most "obvious" alternative is not even considered, i.e. that no interpretative capacity at all would be needed, because the object and its picture are simply "similar". But of course this is no serious alternative since there is no similarity between the picture and its object, except from the point of view of a very superficial phenomenology. If lines on paper are taken as equivalent to the edges of the object, Hochberg (1978b:236) notes elsewhere, this is a fact about the viewer, not about the light at the eye.

Apart from the observations on children, research into origins has always employed a second kind of investigation, that of peoples reputedly less civilized than ourselves. This method was also first used in the study of verbal language. However, at least from the last century

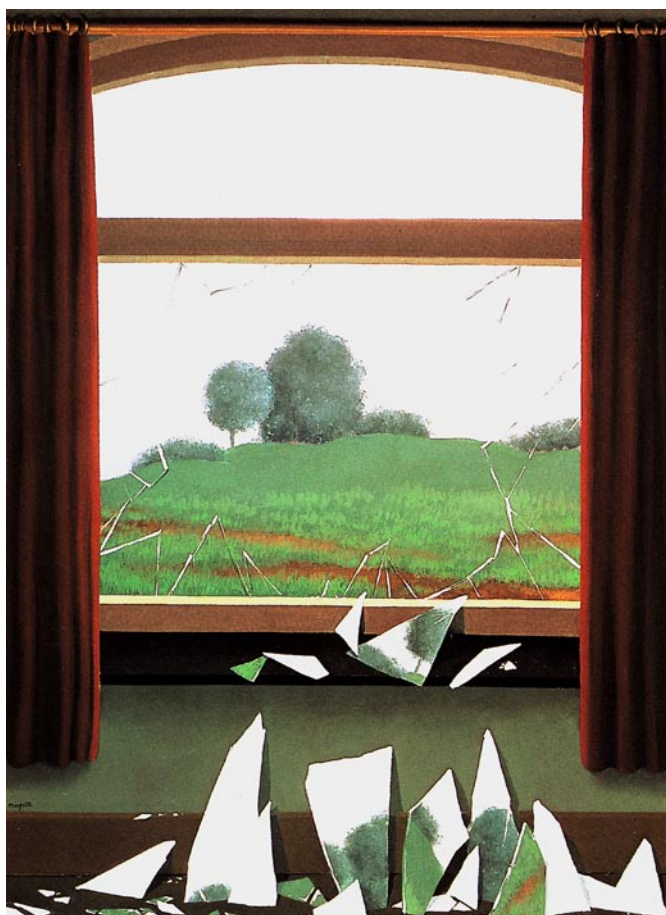


Fig. 1. *"La clef des champs", by René Magritte – an illustration of the problem of separating sign and reality.*

onwards, explorers and travellers, and later anthropologists and social psychologists, have reported on the difficulties experienced by members of "savage tribes", principally in Africa, when they were confronted with pictures for the first time and asked to explain their content.<sup>2</sup> Essentially, these reports would seem to testify to two very different, and apparently contradictory, obstacles to an adequate pictorial understanding: for either the hero of the story is unable to make out what kind of object the picture is, and what function it serves, or he fails to distinguish the picture from what it represents. Typical instances of the first kind of anecdotes

are Herskovits's story about the puzzled woman who turns the photograph of her own son over again and again, without being able to understand what it is, and Muldrow's description of the Me' tribe, whose members smell and taste the pictures, but do not think of looking at them. The second series of anecdotes may be illustrated by the tale of the tribe panic-stricken to the point of running away at the sight of a slide projection showing an elephant; and by the report of another tribe treating photographs of white women as if they were real people.

Here, then, we encounter in their practical form the very same theoretical issues that have been central to the discussion of iconicity (to which

<sup>2</sup> Cf. Deregowski 1972; 1973; 1976; also for the following anecdotal material.

we turn in the next lecture): the problems of relating the picture to its object, and of distinguishing the former from the latter (cf. Fig. 1.). Differently put, iconicity theories must expect all human beings to discover the relatedness of the picture and its object immediately, but some tribes fail to do that; and, rather more implicitly, these same theories must suppose that we are all able to tell the picture and its object apart, but this too, it seems, is something some tribes fail to do.

But the experimental literature is really concerned with a third problem: our ability to discover, not *that* something is a picture, but what it is a picture of.<sup>3</sup> Moreover, most of the experiments have been devoted to an investigation of the extent to which Non-western people are able to decode the depth cues inherent in Western linear perspective, whereas the logically primary task, the study of their willingness to take pigment patterns on paper to represent three-dimensional objects of the world, has been seriously neglected. This state of the art has repeatedly been regretted by Deregowski (1973:165; 1976:19), who went on to distinguish the problem a identifying the percept corresponding to a objects in a picture, the *epitomic* ability, and the problem of recognizing depth, the *eidolic* abili-

ty (Deregowski 1984: 20). Epitomic aspects of depiction may be present in outline drawings and silhouettes; and eidolic aspects may appear in depictions the object of which cannot be identified because it cannot exist, that is, in “impossible pictures” such as the devil’s turning fork.<sup>4</sup>

With the exception of such singular instances, the failure to see depth normally testified to be ability to see pictures as pictures. Hudson performed a number of tests using perspectival pictures, which were repeated by Deregowski with some modifications, and both of them found a lesser ability on the part of native Africans, particularly unschooled ones, to interpret correctly the depth cues of otherwise ambiguous pictures. But Kennedy (1974:65 ff) gives a number of reasons for questioning these results: for instance, the drawings were often so unclear that the answers given by the Africans seem as plausible as the expected ones; and the social consequences of having, in South Africa, a white experimenter posing questions to black people were ignored, although these are evident from the fact that some persons waited an hour before making their reply. Jones & Hagen (1980:203 ff) observe that white people never get 100 % right at the Hudson test either, and that New York children have been classified as two-dimensional perceivers according to the criteria of this test.

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3 Cf. the reviews of this literature in Deregowski 1972; 1973; 1976; Kennedy 1974a; Pick & Pick 1978; Jones & Hagen 1980.

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4 Cf. Lecture 3.



However, from our point of view it is important to note that, even if Hudson is right, the fact that the Africans were able to go through with the test, seems to suppose that they recognized the picture as such, and as distinct from what it was a picture of, and that they identified the pigment patterns as standing for the antelope, the elephant, and the tree. Thus, they were certainly superior to the Africans of the anecdotes.

In fact, Hudson's subjects were probably familiar with pictures, though not with perspectival ones. However, Kennedy & Ross found that the Songe of Papua, who have no pictures, could identify well-known objects on outline drawings in 90 % of the cases, while less well-known objects were identified by 10-20 years olds 97 % of the time, and by those over 40 years of age 68 % of the time. Also Deregowski found that Ethiopians over 40 years old were slower at identifying depicted objects (cf. Jones & Hagen 1980:198). In general, the identification of objects on colour photographs occasions no problems, according to Jones & Hagen (1980:196); but black-and white photographs may cause trouble, particularly so if, as in one of Deregowski's tests, pictures of unknown animals have to be matched with the corresponding models. In the case of somewhat more complex drawings, Deregowski (1973:165) has noted the importance of cultural expectations: what to a Westerner seems a win-

dow behind a woman's head looks to the East African like a four-gallon tin carried on the head in question (which supposes a Necker cube type of perspectival reversal). But considering the great amount of different picture types, and their different levels of complexity, almost nothing is really known about the limits of object recognition in pictures.

We can now return to the issues raised at the beginning of this section: the difficulties of relating the picture to its object and distinguishing the two. Referring to Herskovits's puzzled woman, Kennedy (1974:68) points out that being puzzled over something is very different from seeing it as "mere daubs on a surface. Indeed, mere daubs on a surface would hardly puzzle anyone." It is conceivable that the woman does recognize her son, but that it seems unbelievable to her that a mere piece of paper is capable of suggesting the appearance of her son. But now what about Muldrow's story? Members of the Me' tribe, we are told, smell the pictures, taste them, bend them, and so on, in short behave like a Piagetian child exploring his world. According to Deregowski (1973:167; 1976:20) not only pictures, but materials like paper are unknown to the Me'; therefore, when Deregowski had pictures printed on coarse cloth, animals well-known to the tribe could be identified, although the recognition was still not immediate. In the case recounted by Muldrow, it seems

the Me' were so busy trying to discover the fundamental properties of the paper as an object in itself, that the iconic properties, those making it a pictorial sign of something else, were not noted; other attributes became *dominant* in their experience of it. It therefore seems (as I suggested in Sonesson 1989a) that for something to be a pictorial sign of something else, it must occupy some relatively low position in the particular Lifeworld hierarchy of "things". Before returning to this question, however, it will be convenient to consider the second of the issues mentioned above: the distinctiveness of picture and object.

### ***Further views from the playground: pigeons, apes and men***

The Ancient Greek painter Zeuxis is famous for having depicted a bunch of grapes in so illusory a manner, that even the birds were fooled. Commenting on Pliny's well-known story, Gombrich (1963:5f) claims this was no great feat of Zeuxis's since, as ethology has shown, animals react to very gross similarities. However, it seems that Cabe's pigeons would not follow suit as the other birds launch their attack on Zeuxis's grapes. Most experiments purporting to demonstrate the ability of some animal species to interpret pictures have neglected to investigate whether the animals are also able to tell the difference between the picture and its object; but

Cabe (1980:335), who makes this observation, tells us he has taken pains to ascertain that the pigeons of his experiments possess the later capacity (p 313f). So far, then, it seems that even pigeons are superior to our anecdotal Africans in the art of reading pictures.

According to Howard Gardner (1982:105), American children aged 4 to 7 tend to confuse the motive and the picture; however, when attention is called to the medium, they are able to understand the point. Perhaps, then, the distinction just seems to them to be too obvious or too unimportant to be mentioned. The moment after having taken to flight at the sight of the pictured elephant, the members of the tribe visited by the explorer Lloyd discovered their mistake and returned laughingly to the front of the screen. Of course, the difference between the elephant and its picture was neither unimportant nor obvious to them; but in a moment of potential threat, they were certainly wise to react on insufficient evidence. Since perception seems to start relatively high up on the ladder of abstraction, it is indeed probable that, in a moment of stress, only very gross similarities will be noted, even those which are not ordinarily category-defining. The other story, where photographs of white women are treated as real people, is rather implausible; if not some magical equivalence is meant, then perhaps this behaviour must be under-

stood as a kind of social deference to the white men who showed the pictures. Again, more research would be needed to go beyond these anecdotes.

More recent experiments have shown that even children 5 months of age look longer at a doll than at its picture (DeLoache & Burns 1994). However, it does not follow that the children see the picture as a picture. Indeed, 9th months olds, but not 18th month olds, try to grasp the object depicted as if it were a real object (DeLoache 2004); whatever the difference they perceive, then, it does not seem to involve signs as opposed to objects. It seems to me that, just as in the case of the doves, this may simply show that the picture and its object are seen as being different, but not necessarily as being a sign-vehicle and its referent. The real doll is perhaps seen as a more prototypical instance of the category; or, alternatively, the real object may be more interesting because of having more perceptual predicates.

Sonesson (1989a) argued that once we know that something is a sign, and, specifically, a pictorial sign, the particular “similarities” will take care of themselves. If we are not told that some particular thing is a sign, and iconic at that, then we may perhaps be aware of it because of general facts derived from our experience of the common sense world. That paper is the kind of stuff of which signs, and in particular pic-

torial signs, are made, was not obvious to Herskovits’s puzzled woman; and to the Me’, this material was so interesting in itself that it absorbed all interest; coarse cloth, however, was easier to conceive in this humble part, though even now, time was needed to discover what was depicted, perhaps because the sign function itself had to be discovered. If we suppose the Hochbergian child to understand, not only that given pigment patterns on paper have something to do with the shoe, the doll, and the Volkswagen of the real world, but also that the former are signs for the latter, and not the reverse, then it will not be enough for the child to have learnt from his experience with objects of the world that the edges of objects have properties which are shared by contours drawn on paper, or to be innately predisposed to react to these common properties (cf. Hochberg 1978a:136). He must also have acquired, probably from experience in his particular Occidental Lifeworld, some notion of the relative low ranking on the scale of prototypical Lifeworld things of a material like paper, which directs his attention, not to what the pigment patterns on the paper are as “selves”, but to what they stand for. And perhaps he must also possess some idea of a meaningful organization, which relieves him from the task of finding a meaning in ink blots, in the dirt on the road, in the stains he makes with his dinner on the tablecloth and in

the clouds.

Familiarity with paper or cloth are facts of particular cultures. Paper, which is too prominent to the Me' to serve as a sign-vehicle, traditionally carries this function in Western culture. But Sonesson (1989a) suggested that there probably also would be *universals* of prominence: thus, for instance, two-dimensional objects are felt to be less prominent than three-dimensional ones and may thus more readily serve as expressions. In this sense, it is not true that the object is its own best icon, as is ordinarily claimed – at least if iconic means iconic sign. Indeed, iconicity stands in the way of the sign function. The objects of the common sense world are three-dimensional: much less is required for a two-dimensional object to be able to represent one of these objects than for another three-dimensional object to do so. This is precisely what is suggested by DeLoache's more recent experiments with children: not only is the picture understood later than language in these experiments, around 2 1/2 years (DeLoache & Burns 1994, etc.), but scale models are understood even later, at 3 years of age, half a year after pictures (DeLoache 2000). As noted also by DeLoache, this contradicts what is expected by common sense. But it is reasonable, if the issue is separating the sign and its referent.

DeLoache (2004) employs the term "double representation" to de-

scribe the necessity for the child to attend both to the picture and the object depicted.<sup>5</sup> This is a misleading term, for there is only one representation, that is, one sign function. Rather, in Gibson's more enlightening terms, there are invariants for both the surface and the referent in the object, and the task is to tell them apart, and decide which is most prominent. In fact, the problem only arises because there is at the same time a sign function and iconicity. This means that the term "double representation" is not only misleading: it fails to explain why pictures are easier to interpret than scale models.

In all DeLoache's experiments, the task is, in one way or other, to find a hidden object by using information contained in a picture or a scale model. According to the standard procedure, the experimenter and the child are at first outside the room in which the child is to search for the toy. The child cannot see the picture or scale model and the room at the same time. The experimenter tells the child that she will hide the toy in the room and then come back and ask the child to search for it. She returns to the child and points out the appropriate location in the picture/scale model telling it "This is where Snoopy is hiding in his room, can

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5 Perhaps DeLoache talks about "representation" in the sense in which the term is often used in cognitive science, but then this is precisely the problem, as we shall see later in this lecture.

you find him?”. If the subject fails in the first search it is once more shown the picture and given more explicit prompts. 24 month old do not pass the retrieval test, but 30 month old do; there is no difference in performance using photographs or line drawings. However, when the whole procedure is conducted verbally, children pass the test already before 24 months old; and when a scale model is used, only 36 months old pass it.

This way of investigating the picture function may be criticised from two diametrically opposed points of view. First, it could be argued that the task involves much more than the recognition of the picture as picture - it requires an action, which is no doubt difficult in itself, namely, to search for the hidden object.<sup>6</sup> It remains, however, that even this task is differently accomplished if the instructions are given entirely in verbal form, or if they involve pictures or scale models. On the other hand, even when the instruction for the task features pictures or scale models, a lot of verbal and indexical scaffolding also takes place, without this being taken into account in the interpretation. It has been argued by Callaghan & Rankin (2002) that pictures would be interpreted even later if such verbal scaffolding had not taken place. More fundamental, however, may very well be the indexical

scaffolding: not only are the objects *pointed out* by the experimenter in the picture or the scale model, but the latter are even placed *on* the real objects, creating an artificial neighbourhood relation.

Another one of DeLoache's experiments seems to indicate that the sign function is at least part of the problem. When the experimenter, instead of talking about a model and a real room, tells the children that the search has to take place in the same room, which has shrunk since it was last seen, the task is accomplished much more easily (DeLoache & al. 1997). The difference, clearly, is that the two instances are here connected by a narrative chain rather than by a sign relationship. In another experiment, DeLoache (2000) places the scale model behind a window-pane, in order to make it more similar to a picture, with the expected results. In fact, however, two things happen here which would have to be separated: the object becomes less prominent, because it has less the appearance of three-dimensionality; and it is put into a frame, which creates a centre of attention.

DeLoache's work experimentally investigates the central issues broached in Sonesson (1989a).<sup>7</sup> As always, the investigation engenders new problems. However, if understanding pictures is as difficult for children as DeLoache and, even

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6 I owe this suggestion to my student Sara Lenninger, who is preparing a dissertation on this subject.

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7 Clearly without knowing Sonesson 1989a.

more, Callaghan, suggest, then we should not expect animals to be able to do so. We have already proposed some alternative explanations for the behaviour of Cave's pigeons. On the other hand, primatologists, as mentioned at the beginning of this section, tend to take for granted that the apes to which they are trying to teach language already understand pictures. There are only a few regular investigations of apes looking at pictures and scale models. Itakura (1994) reports that enculturated chimpanzees can interpret line-drawings; Kuhlmeier & al (1999: 2001; 2002) have even shown their chimpanzees to understand scale models. It is difficult to know what to make of these results, already because these apes are all enculturated, which is to say that they are trained in many of the semi-otic resources which in ordinary circumstances are peculiar to the human lifeworld. Moreover, it should be noted that, while the children were introduced to a model of a room which they had never seen before the training-phase, the apes were confronted with a model of their own familiar environment. In addition, a lot of facts about the subjects and the experimental procedure are not clear from the articles. At present, it would therefore be premature to draw any conclusions about the abilities of the great apes in this domain.<sup>8</sup>

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8 More about picture perception in pigeons, and a little in apes, can be gathered from Fagot, ed. 2000. However,

It is clear, however, that, in order to understand the peculiarity of the picture, we need a concept of sign which can account for the difference and similarity between perception and pictures, on the one hand, and of pictures and scale models on the other.

### ***Pictures in the sand: Anati's "prayer" and the native eye***

Archaeology should ideally be able to tell us something about the origin of pictures in the prehistory of human beings. However, those artefacts which clearly *are* pictures, such as the well-known Ice Age rock carvings, are products of a very recent prehistory indeed, and this even holds true, in view of the length of prehistory, of those artefacts which, perhaps less convincingly, are claimed by some archaeologists to be pictures or other kinds of man-made artefacts, such as, notably, sculptures and calendars (such as the Berekhat Ram figure and Marshack's putative calendar; cf. Bahn 1998; White 2000; Elkins 1996; 1997).<sup>9</sup> No matter how early such artefacts are in the end shown to be, however, there is no way of establishing that no pictures existed before them. The first drawings may not have been made not on rocks, but perhaps on sand, on clothing, or on

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none of these articles taken into account to different between the picture and the depicted object.

9 See the next subsection for a discussion of these artefacts.

human skin, and on other highly perishable materials.

The figures appearing in many prehistoric rock carvings curiously resemble our present-day traffic signs, or the tadpole men of contemporary children's drawings, or the logograms found on the doors of men's and women's washing rooms, Blissymbolics used to communicate with those suffering from different kinds of speech-impairment, the Alchemic symbols of the Middle Ages, the Hobo signs still employed by tramps and vagabonds until the Second World War, or signs stemming from many other, mutually divergent, repertoires. Thus, different varieties of the anthropomorphic figure, which Anati (1976) describes as a "prayer" (see Figure 2), may be compared to a sign denoting the golden number 18 in the clog almanacs of the Middle Ages, or one of the letters of an Rumanian alphabet used around the year 1000, the alchemical signs for test, for essence, or for mix, or the astrology signs for Pisces or the fixed star Spica, Neptune's or Jupiter's staff, and so on (cf. Liungman 1991: 117; 118, 155, 156, 434). In none of these cases the figure represents a person: indeed, in most of them, it is not even a pictorial sign. Yet it is easy to imagine that the same figure may stand for a human being also in the drawing made by a contemporary child.

The very same material lines, i.e. what is, on the face of it, the

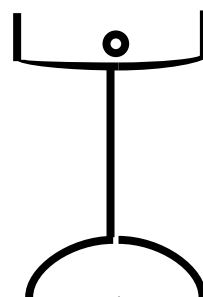


Fig. 2. One variety of Anati's 'prayer'  
(from Anati 1976:46, *passim*)

same configuration, may thus serve as the expression of quite different contents, that is, may form part of very different signs. What is materially identical, is not semiotically so. To describe a sign, or a sign system, we have to recover the point of view of its user. This is what was meant when it was said in Lecture 1 that semiotics should describe meaning as it appears to those who employ the signification system. In verbal language, this is illustrated most clearly by the case of the "same" sound which forms more or fewer different phonemes, or only a variant of a phoneme, according to the language; thus, for instance, the same physical sound which is English forms the phoneme /r/, and is opposed, among other things, to the phoneme /l/, is only a variant of the latter in Japanese; while, on the other hand, free variants of the English phoneme /r/, with one or more slaps of the tongue, form two different phonemes in Spanish.

Renfrew (1982:11) implicitly re-

curs to the same analogy, when he quotes the linguist Kenneth Pike observing that the archaeologist's observations relate to the "etic" (as in "phonetics") rather than the "emic" (as in "phonemics"). Phonetics is concerned with the sounds as such, but phonemics (or "phonology") describes the sounds as they are conceived by the speaker of a particular language (that is, in relation to other sounds appearing in that language). In the terms of other linguistic theories better known to semioticians, Saussure and Hjelmslev, phonetics is concerned with *substance*, whereas phonology investigates *form*. A single substance underlies the Japanese /l/, the English /l/ and /r/, and the Spanish /l/, /r/, and /rr/. Anati's "prayer" would share its substance with, but have a differing form from, those other signs culled from Liungman's book.

Interestingly, even Tilley (1991), who often rhetorically insists on the materiality of material culture (which, to him, includes rock carvings and rock paintings), is enough of a structuralist to realise that meaning (that of the rock pictures, for instance) is only there to be seen for those who have the capacity, that is, the members of some particular culture (which may, of course, be as wide as humankind itself). As Renfrew (1982:11) notes, there can be no direct access for us to the meanings which were once projected by prehistoric man onto the artefacts which

for us make up the remains of his society and of his world of thinking, and for this reason, the creation of a social archaeology, let alone a cognitive one, constitutes a difficult, if not an impossible, task. On the face of it, it also heavily constrains the prospects for prehistoric semiotics.

In the most common, or most commonly reproduced, variety, Anati's "prayer" could probably be described, in Liungman's (1991) terms, as a sign which is single-axis symmetric, both soft and straight-lined, open and with crossing lines (with allowance made for the little, scooped circle, that appears on the top, which should make the figure into a sign which is both open and closed). Anati certainly does not think in these terms: even the groups in which he puts the different figures (1976:46) show that he conceives of them immediately in terms of what they "represent", not as spatial configurations. In semiotic terms, it would appear that Anati passes too rapidly from the plane of expression to the possible corresponding plane of content. Indeed, Bednarik (1991:1) seems to accuse archaeologists in general of doing just that. As we shall see later on, this charge will be particularly serious, if Bierman, Eco, Goodman, Lindekens, and others, are justified in their critique of iconicity. Even if they are mistaken, however, we are still, as Jarl Nordbladh (1973; 1977) observes, faced with the task of recovering the vanished context of pre-



historic pictures, not only their decayed tactile, auditory and olfactory structures, but the particular socio-cultural Lifeworld in which they occurred generally.

It is, however, not only the variety of the contexts in which what is, in a way, the “same” drawing, may appear, which should surprise us here. What is perhaps more remarkable is that, in spite of all the diverging contexts, there appears to be a common background, a human environment which we unavoidably take for granted, which may in part account for the fact that Anati can hope to perceive the same thing as prehistoric man. This world of background experience is known in Husserlean phenomenology as the *Lifeworld*, in James Gibson’s ecological psychology as the world of *ecological physics*, and in Greimas’ semiotic theory as the *natural world* (in the sense in which we talk about “natural language”, the language which seems natural to its users). Indeed, if there can be such a thing as a semiotics of Culture (as propounded by the Tartu school, by Koch, Posner, etc.), it must be elevated on the foundations laid by a semiotics of Nature — which is of course, in a very general sense, a culturized Nature. But, before we go in to discuss the eventuality of Anati’s “prayer” being interpretable on the basis of common, anthropological universals, let us ponder the possibility of it being simply perceived, that is, of its being, on one, probably

too simplistic an interpretation of the term, an iconical sign.

Before we can even begin to ask ourselves whether Anati’s “prayer”, or rock carvings generally, are iconical signs, we have to take care to avoid two, fairly trivial, but commonly made, confusions pertaining to the import of iconicity. To begin with, iconic signs are often erroneously taken to be the same thing as visual signs (for instance in cognitive psychology, when discussing “iconic codes”). And, in the second place, iconicity mostly tends to be identified with picturehood (which may happen, in a more surreptitious way, as we shall see, even inside semiotics), when in actual fact, if we rely on Peirce’s definition, pictures only constitute one variety of iconicity. When considering the first appearance of “iconic structures (engravings, sculptures and ultimately cave art)”, Foley (1991:114) appears to be guilty of at least one, or perhaps some compound form, of these confusions. As for Bednarik (1991:1), he clearly associates “iconic intent” with the belief, which he censures, that the researcher has the ability to identify the objects depicted in prehistoric pictures. And even Chesney (1991), when claiming that much more early production than is commonly believed is non-representational and non-iconic, appears to take the latter term to mean simply non-pictorial.<sup>10</sup>

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10 Similar confusions are found in

Since the discussion of pictoriality as a specific variant of iconicity will have to wait until Lecture 4, I will here simply substitute the term “pictorial” for “iconic”. Even so, there remain many problems with putative prehistoric pictures. In the case of a proper picture, we are immediately able to “see into” the expression plane, and project as its content, some part of the perceptual world, without receiving any further indication on how it should be taken. In this sense, pictures are different from “doodles” (in the terms of Arnheim 1969), which require a “key”. That which defines a doodle is not the presence of multiple interpretations, but the fact that the appresentation is sparked off, and meanings distributed to the parts, only once a verbal label has been attributed to the figure. Clearly, in this sense, Anati’s “prayer” is a picture, not a doodle, as are many other rock paintings and engravings, discussed in books by Anati, Burenhult, Tilley, and others; yet it may be suggested that, while being indeed a picture of a man, Anati’s “prayer” is only a doodle of a person making his prayers!<sup>11</sup>

Consider some limiting-cases of pictures and doodles reproduced

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the psychological literature concerned with Blissymbolics and other alternative communication system for the speech-impaired, e.g. Muter 1986.

11 Or, put into Panofsky’s terms, which we will discuss in Lecture 3 and 4, it is a pre-iconographic picture, but an iconographic doodle.

here as Figure 3. As we have suggested (relying on Scruton 1974:204), although its expression plane is quadrangular, and no actual faces are, Fig. 3a is naturally seen as a face; yet Fig. 3c should be even more inevitably be identified as representing a face, although Hermerén (1983:101) claims that this is so, only because of “the limitations of human imagination”, since the same pattern may equally well be perceived as “a jar from above, with some pebbles and broken matches on the bottom, and a stick placed across the opening”. Even such an elementary stick figure as Fig. 3b, was immediately declared to be a chair by a child one year and eleven months of age (Stern 1914:159); and we could easily agree with von Däniken (1973) that Fig. 3d represents a wrist-watch, until we learn that it is found on prehistoric rock paintings.

There is nothing accidental, I submit, to those “limitations of human imagination” invoked by Hermerén: they are imposed by the Lifeworld hierarchy of prototypical things. Indeed, there must be an infinity of objects whose light pattern, in a static view, fit much better to the square pattern on Fig. 3a. than a face, and yet we cannot help seeing it. And although it is possible to impose the jar reading suggested by Hermerén on Fig. 3c, it is only there in the doodle fashion, once a key has been given, and it is all the time being disturbed, and in fact overrid-

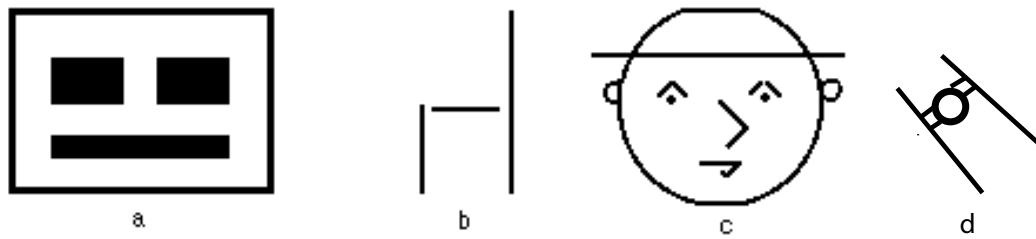


Fig.3. Pictures and doodles: a) *Quadrangular face* (from Scruton 1974: 204); b) *chair* (from Stern 1914:159); c) *face or jar* (from Hermerén 1983:101); d) *wrist-watch or something else* (suggested by von Däniken 1973).

den, by the more “natural” face interpretation. It seems, then, that we come the task of picture interpretation equipped with certain expectancies to encounter those objects which are normally close at hand in our everyday Lifeworld, such as faces and human bodies and, in our culture, chairs and wrist-watches. No doubt most or all objects and scenes may be depicted, but if they rank below the apex of the hierarchy built of our Lifeworld expectancies, many more details are necessary, for the object or scene to be recognisable. At some point in human history, chairs became such familiar objects in the ordinary Lifeworld that just three lines were required to make them recognisable; very much later, the same destiny befell wrist-watches, astronaut’s helmets, space-crafts, etc. — which is why von Däniken’s observations are off the mark.

Many of the figures identified by Anati (1976:223ff) are really doodles: indeed, the difference between von Däniken recognising wrist-watches, and Anati identifying

daggers and other arms, is that the latter, but not the former, may derive some justification in his labelling of the figures from an indexical abduction, i.e. the presence, in the same or similar archaeological sites, of objects having a form which may be fitted to the pattern. Garrick Mallery, who may have been the first to conduct what he already termed a semiotic study of iconical signs, notably of American Indian rock paintings and manual gestures, observed, in the case of the latter that many of the manual gestures were “reasonable”, because the similarity between the sign relata could be observed by a person acquainted with the culture, or once the sign had been explained to him (Cf. Mallery 1881:94f and Kroeber’s introduction, p xxiv). Thus, Mallery’s manual gestures, like Anati’s dagger, are iconical in a way, but only secondarily, once a key has been furnished. Then the shape, or the outline, may even be resemantised.

The case of the “prayer”, however, is different. No key is needed

to see the man. And, the evidence for the man on the rock being so scant, I think we must conclude that the willingness of human beings to perceive other human beings, wherever possible, is great indeed. It is not clear, from reading Anati's (1976) book, however, why we should take the man to be in a position of praying. Perhaps Anati has some evidence for this, comparable to that for the dagger, though remains of decayed action sequences are certainly more difficult to come by; or perhaps there is really a kind of anthropological universal of praying which may be profitably invoked here (which would indeed be universal, then, for figures of the same general kind are found also in China, cf. the illustrations to Li Fushun 1992). It seems to me, however, that a much less risky hypothesis, with more general validity, may be proposed to explain the position of the arms of the "prayer" figure: it may be suggested, that in the context of a fairly limited set of other motifs, including many animals, the outstretched arms are there to signify "humanity" in an emphatic sense, that is to say, prototypically: to single out the peculiar feature which marks off human beings from other animals, and the discovery of which was a decisive step in the process of hominisation: *the erect posture*; and thus to indicate the horizontal directiveness which remains a determining characteristic of the human Lifeworld, the terrestrial environment of

ecological physics.

This kind of argumentation can be taken much further: indeed, it might be argued that even iconic details are picked out, not because they depict so well, but for conventional reasons and/or because they serve a metaphorical level of meaning, for instance so as to separate men and a women, for which a weapon or a plough may be as good, given contemporary circumstances, as an erect penis, and a cup mark as eloquent anywhere as between the stick-figures legs.<sup>12</sup>

First, however, it will be convenient to discuss the difficulty of interpreting pictures from prehistoric cultures in analogy with the problems raised by the interpretation of pictures from other culture, notably those which are maximally foreign, stemming from other planets or solar systems. Since we are aware of no pictures from other solar systems, however, it might be better to reverse the formulation of our conun-

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12 Since we need to introduce some more semiotical terminology before being able to discuss these issues, they will be taken up in Lecture 3 and 7, respectively. The present criticism involving Anati's "prayer" may with as much reason be directed to the presently fashionable reinterpretation of later Scandinavian rock carvings as showing a type of vessel which was used in the Mediterranean, and thus reflecting, not Scandinavian culture, but that of a higher foreign culture. Just as in case of Anati's "prayer" the interpretation may well be correct, but the justifications for it seems completely arbitrary.

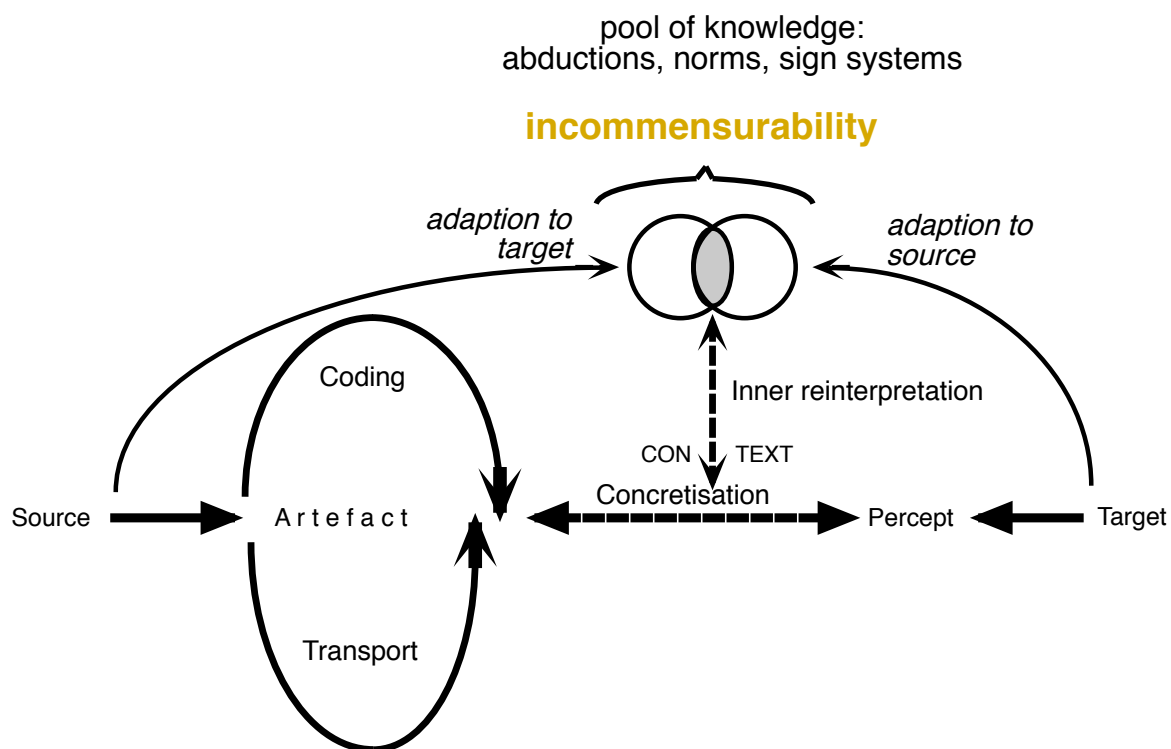


Fig. 4. The place of "incommensurability" in the ordinary communicational model

drum, taking up the problem, set to Martian and other green little men, of interpreting human pictures.

### ***Terrestrial and Interstellar Archaeology***

As we have seen, there traditionally are two or three ways of investigating the constraints on the *specificity* of the (human) semiotic function: studying child development, scrutinizing the capacities of apes, monkeys and other animals; and analysing cultures which are not familiar with some kinds of semiotic resources ("primitive" cultures), such as, most classically, pictures. In this sense, different planets or, more reasonably, solar systems, would be maximally foreign cultures.<sup>13</sup>

<sup>13</sup> Unlike people at the SETI institute, I am not basically interested in com-

At the heart of semiotics, as well as the problem of communicating with extraterrestrials, is what Douglas Vakoch (1999) has called "the incommensurability problem": the models constructed by scientists on earth vary considerably, in part because of their different social and historical backgrounds, so it would be surprising if such a variability were not augmented by the fact of the scientists coming from different planets, in which case biology may also be different. This issue is not only relevant to scientific models, but applies to the transmission of

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munication with extraterrestrial intelligence (which the researchers at the SETI call CETI) in itself. Rather, for me, thinking about communication with extraterrestrials is a testing case (imaginary so far) for the constraints imposed on semiosis.

any kind of messages. Indeed, in my own version of the communication model (Fig. 4), which - deriving its inspiration from the Prague school of semiotics - takes into account the active construal of the message on the part of the receiver, the pool of knowledge, including norms, abductions, and sign systems, held in common by the protagonists of the communication process, is - following the parallel suggestions of Lotman and Moles - supposed to overlap only in part at the beginning of the process (Sonesson 1999b).

If the act of communication may still succeed, this must either be because the sender takes pains to adapt his pool of knowledge to that of the receiver, or because the receiver does so with respect to the knowledge of the sender, or owing to some combination of both approaches. In the first case, we have what the Tartu school calls a *receiver-culture*; it is, as I have formulated it elsewhere (Sonesson 1999b), a culture in which it is felt to be the task of the sender to recover the norms and interpretations characteristic of the receiver. The classical case is the pedagogical situation. In the case of a *sender-culture*, on the other hand, the receiver is assigned the task of recuperating the part of the pool of knowledge peculiar to the sender that does not overlap with his own. High art, as well as mystery cults, are of this kind. Hermeneutics, as a science with practical goals, was developed

for the latter situation. Philosophical hermeneutics, on the other hand, often envisions some kind of combination of the two processes: a “fusion of horizons”, in Gadamer’s famous phrase. The incommensurability problem, in its extreme forms, suggests the opposite case: when the overlap between the two initial pools of knowledge approaches to zero.

It is important to recognize that, in a situation of communication, the first problem is not to find out *what* the messages means: it is to realise that there *is* a message. That is, it involves the recognition of the message *as such* – *as* a message, rather than a message about something in particular. Even those theories of communication which insist on the act by means of which meaning is produced and conveyed, on the enunciation rather than the utterance, are not very clear about this issue. “Speech act theory” (Austin, Grice, Searle, etc.) separates the content of the message (“locution”) from how it is to be taken (“illocution”) and even the effect it may have or not have depending on circumstances (“perlocution”), but it is very vague about “uptake”, the necessity for the message to be attended to as such. In Jakobson’s model of communication, one of the functions, called the “phatic function”, is supposed to assure that the message gets through, but Jakobson has very little to say about the way this is brought about, apart from giving the commonplace example of



*Fig. 5a. Stretches of forest cleared in the shape of geometrical figures in order to send messages to other planets (from Vakoch)*

checking whether the telephone line is open by saying “Hello”. Luis Prieto has been much more insistent on the difference between the message (“indice”) and the information that somebody is sending a message (“indication notificative”). But somehow the essential question gets lost in the discussion of intentions. After all, even an unintended message has to

be recognized as such.

The first incommensurability problem thus concerns the recognition of the message *as* a message. Such recognition requires us to share some common presumptions about the shape of possible messages. This is nicely illustrated by the examples quoted by Vakoch (1999: 2003) of messages which a mathematician in



*Fig. 5b. Kerosene-filled channels created with the purpose of sending messages to other planets (from Vakoch).*

the 1820s suggested could be formed by clearing massive stretches of forest in Siberia producing geometrical figures; and which others hoped to obtain by digging geometrically arranged channels in the Sahara which could be filled with kerosene and set aflame during the night (Fig, 5a-b). Even if the Martians or the inhabitants of the Moon could see these shapes, and recognize them for what we think they are, they would only learn anything about us, to the extent that they understood that these are messages send by us – and, even more fundamentally, messages, period.

Searle (1969) claims we can only see patterns in the desert sand as writing *if* we suppose somebody intended that we should understand somebody had the intention... etc. But the opposite is of course true: it is only *because* we see something as being (typically) writing that we sup-

pose somebody had the intention... etc. If it is impossible that somebody was around, then, miraculously, God, some ghost or ET must have been doing the writing.<sup>14</sup> The astronomer Richard Hoagland says he has discovered, on pictures from the planet Mars, a sculpture of a monkey's head, together with some other strange constructions, which must be traces of an ancient Martian civilization. For obvious reasons, other astronomers think this is as absurd as affirming that the man in the moon has been painted by intelligent beings.

14 This was my criticism of Searle in Sonesson (1978). Interestingly, in more recent publications, Searle (1995) clearly goes along with this criticism, both in postulating a “we intentionality” and in positing a “background” which seems to be another name for the world taken for granted. Unfortunately, I cannot even have the illusion of having influenced Searle here, since my criticism was only published in Swedish. For my new quarrels with Searle, see further sections of this lecture!

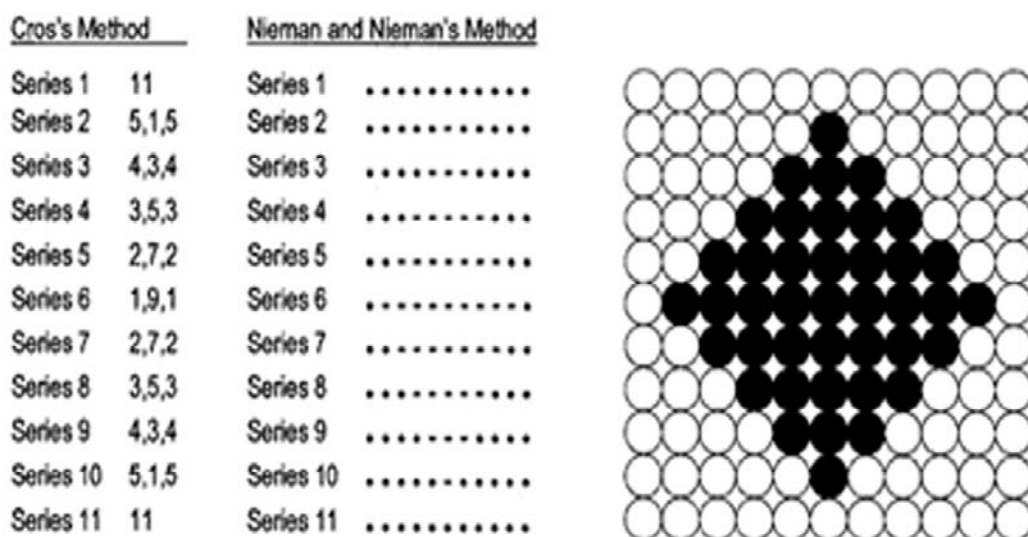


Fig. 6. Cros' and the Nieman's codings and the resulting figure



However, what Hoagland presents us with is actually an iconic sign of another putatively iconic sign, i.e. a photograph of the monkey's head. If his claim were borne out by direct observations, then we would have to admit that von Däniken's space gods, with their superior technological resources, have landed on Mars and edified the monkey's head, just so as to bewilder us.<sup>15</sup> This is parallel to, but more complex than, a case considered by Arnheim (1966:93ff): a prototypical picture should possess configurational and other holistic properties not found in ink blots which, in their natural state, are all too irregular and, in their Rorschach version, too symmetrical.

In the end, then, what is needed, are criteria for some shape being a message. One such criterion is no doubt "ruleboundedness": regularity, repetition, etc. – that is symbolicity, in a Peircean sense. Interestingly, as we shall see, this is what is found in Gros' and the Niemans' schemes (Fig. 6.), as well as in Drake's later proposal: in the first case, the same number for each line, and in the second " $551 = 19 \times 29$ " – although the same clue has to do service a second time as a signifier of "mathematicalness". Another such criterion is similarity, that is, iconicity (But this may lead to projection, as in Hoagland's monkey face and van Däniken's wrist watches and helmets). Index-

<sup>15</sup> Quoted from a newspaper article in Sonesson (1989a: 254f).s



Fig. 7. The so-called *Berekhat Ram figure*

icality, on the other hand, as found in traces, for instance, could easily suggest no intention to communicate, that is, messages involuntarily produced. Thus, we recognize the same interplay of iconicity, indexicality, and symbolicity as in interstellar messages.<sup>16</sup>

Interstellar communication projects into space such issues that have long preoccupied archaeology in their temporal manifestations. Thus, archaeologists are wont to ask: Is the

<sup>16</sup> On these terms, see Lecture 3.

Berekhat Ram figure (Fig. 7), an object dated to between 233-800 000 BP (according to Bahn 1998:86), the likeness of a woman? But before this question can be formulated another question must be posed: do the traces of abrasion left on it show regularity sufficient and, at the same time, not too extensive as to suggest “anthropogenic” movements (that is, intentional manipulation by human beings)? Although it has never been claimed to be a picture, Marshack’s “calendar”, if it were indeed a calendar, i.e., another kind of artefact with a cultural imprint, would have to evince some kind of regularity in the very way its traces are disposed.

Indeed, Marshack uses a microscope to detail the sequences of differently disposed strokes which are found on the Bâton from Le Placard, Charente, arguing (as quoted by Elkins 1996: 189; 1997: 60ff) that the strokes must have been purposefully made, since the sequence of figures appears odd, deviating from a near-regularity, and thus, he supposes, they cannot be purely ornamental, but must be some kind of notation representing a lunar calendar. If there is some justification for this claim, it can never come from the scrupulous observation by means of a microscope realised by Marshack, contrary to what the latter claims, but must stem from the comparison of the configuration of the strokes on the bone with another system of organization, independently known to

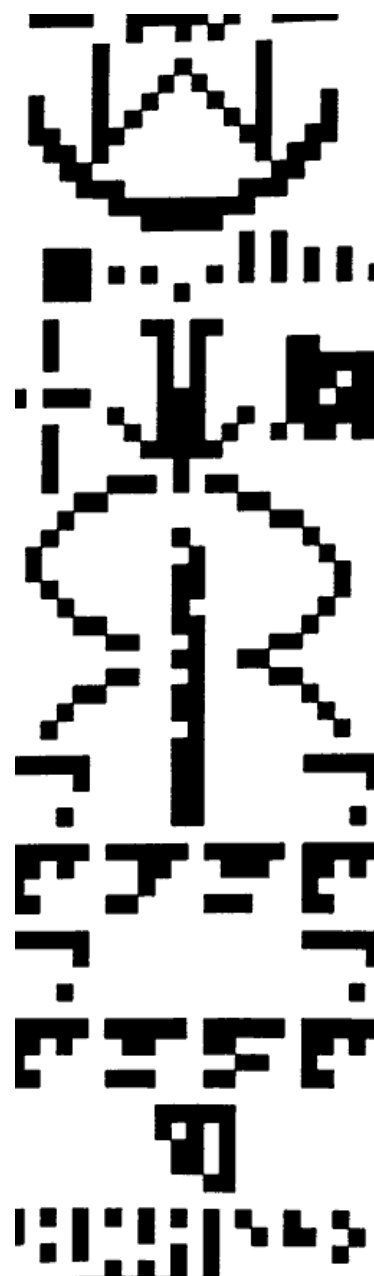


*Fig. 8a. The result which should be obtained when construction Drake's figure*

us, the sequences of lunar phases. If such as correlation between the inscription on the bone and the lunar system is successfully made, there is every reason to suppose the inscription to be purposefully created (cf. Sonesson 1996b). The problem, however, is that the only reason for tak-

ing the scheme of interpretation corresponding to the lunar phases to be known to man during the Upper Palaeolithic is the very success of this correlation. Two, otherwise unjustified suppositions thus rely on each other for their substantiation. There are actually two problems here: one is that Marshack claims to observe something without the aid of any scheme of interpretation; the other is that the scheme he eventually introduces does not account for his putative observations. In fact, in spite of his microscope, as Elkins (1996) has shown, Marshack has failed to observe numerous details of the configuration appearing on the bone, which makes it less probable that a correlation may be made to the lunar calendar, and thus that the inscriptions are intentional. It is of course possible that Marshack's lunar calendar is identical to the principle of pertinence used by prehistoric man, however implausible that may seem from his observations.<sup>17</sup> From the point of view of pictorial semiotics, von Däniken's claim that certain pre-technological images show wristwatches seems at least as well substantiated as Marshack's lunar

17 Unfortunately, Elkins (1996) uses this case study to argue that the post-structuralist point that "close readings" are impossible, which is trivially true, if this is taken to mean that all details can be observed, using no system of relevances at all, but is disproved, on a more reasonable interpretation, by Elkins own work, producing a "closer reading" than that of Marshack (Cf. Sonesson 1996b).



*Fig. 8b. Drake's figure inverted*

scheme or Anati's "prayer" (Sonesson 1994a).

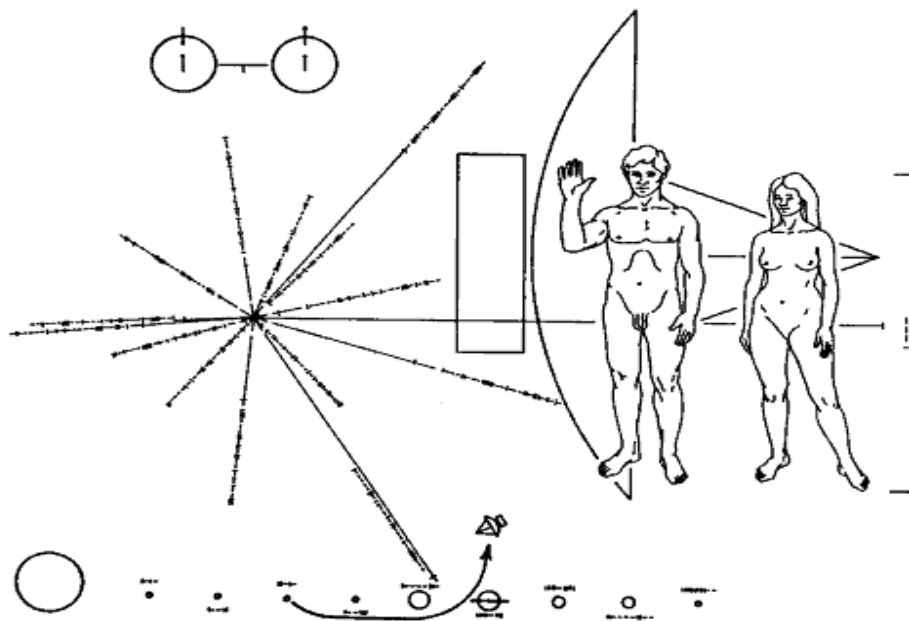
In his history of interstellar messages, Vakoch also tells us about some ingenious ways of constructing messages invented by Charles Cros in 1869, by the Niemans in 1920, and by Drake in the 1960s (Fig. 6. and Vakoch 1999; 2001; 2003). Cros suggested that several series of numbers should be sent, each one of

them having the same final sum. When the numbers were translated into strings of beads of two different colours, and these strings were aligned one over the other, a figure would appear. According to the proposal made by the Niemans, dots and dashes would be used instead, again corresponding to beads of different colours, and the dots and dashes of each string making up the same sum. Drake's proposal is of the same general tenor, but more complex: the message sent consists of 551 bits of information, which is a number the only primes of which are 19 and 29. When these numbers are taken to be the length and the side of the message, respectively, the result will be a pixelated pattern, which could be interpreted to be a "stocky biped", placed beside the star and the nine planets of our solar system, as well as an oxygen atom and a carbon atom

with their electrons (Fig.8). The result of the reconstruction, then, may be said to be more of the same general kind as the better-known Pioneer plaque (Fig. 9).

The idea is of course that, if these extraterrestrial beings are intelligent, they will be familiar with the same kind of mathematics as we are, and they will know the same chemistry (and also, as I will insist on below, that they would represent them in the same way). Even granted that, however, these proposals beg the question: why would these hypothetical extraterrestrials scientists believe, in the first place, that these are messages – which is the primary requisite for them setting out to reconstruct them.

Although these codings are much more complicated, they remind me of a parable constructed by Arthur Bierman, with the purpose of



*Fig. 9. The famous Pioneer plaque, messages to other planets*



Fig. 10a. A classic comic strip, "The Upside-Downs" by G. Verbeck.

proving the impossibility of iconicity. This story, I submit, is instructive in a different way from what Bierman intended. A man receives by mail a parcel, which turns out to contain something the man, takes to be a blueprint. Using metal pieces, he sets about constructing a machine according to the blueprint, but when he switches it on, he is electrocuted. The next morning, his widow receives a letter, explaining that the figures marked on the paper have to be cut out and put together, to obtain a paper machine. But is the moral of this story really that there are no iconic signs?

I think not. Like all activities taking place in the Lifeworld, the interpretation of pictures depend on certain things being taken for granted, but not necessarily on any particular conventions: "normal" conditions are thought to obtain. When a sign differs from what might be

expected, it is indeed necessary to have it "anchored", to use the classical Barthesian term. When opening the parcel, the man will note a number of things: it contains iconic signs, rather than writing or scribbles, etc.; the particular style of the pictures connotes "blueprint"; and the shapes given to the figures suggest they depict machine parts. These observations determine the use to which the man puts the gift: since it appears to be a blueprint, he sets about constructing something; since the shapes of the pictures suggest machine parts, and since machine parts are usually made of some sort of metal, he makes his construction out of metal pieces. Apparently, there must also be some kind of sign, probably iconic or indexical, which tell the man how to relate the different pieces to each other. But Bierman has been pulling the man on. What seems to be a blueprint is re-



Fig. 10b. The story continued when the strip is turned upside down



ally a cutout sheet; instead of being pictures, the figures are self-presentations; and what seem to be their borders are really indexical signs for where one has to cut.

Interestingly, while instructions would be needed to discover that the sheet of paper could be seen as a self-presentation (a secondary iconical sign, as we shall say below), none was necessary for the man to take it for a picture. If the sheet, considered as an expression, were ambiguous between two readings, then one of them, which happens to be incorrect here, would seem to suggest itself more readily. It should also be noted, that there is no hint in the story that the man put the pieces together incorrectly: thus, something was apparently read off from the picture iconically (and indexically). In this sense, Bierman's parable presupposes the truth of the very thesis it is supposed to disproof, that similarity,

as such, can explain depiction. Not depiction, but the function of depiction, is at issue.<sup>18</sup>

In the present case, however, incommensurability is much greater. We have no reason to suppose the sender and the receiver of an interstellar message to share such understandings that permit the man in Bierman's story to make an interpretation, even if it happens to be the wrong one. Here it is true, in a much more acute sense, that normal conditions do not obtain. In fact, if depiction, on the face of it, stands at the beginning of Bierman's story, it only emerges as a result at the end of the coded messages aimed at extraterrestrials. This is, I think, a decisive difference.

Both Vakoch (1999) and Arbib

<sup>18</sup> For the parable, see Bierman (1963:249), for the argument above, cf. Sonesson (1989a:220ff and 1998; 2000; 2001).

(1999) locate the problem of the Drake kind of message on the depiction end: the extraterrestrials would not be able to interpret it, they contend, if they tried to read it upside down, with the legs of the biped pointing skywards. Indeed, Arbib even proposes a possible, but obviously erroneous, interpretation of the inverted image. Interestingly, the philosopher Edmund Husserl long ago encountered the same problem, without having to take the perceptual habits of extraterrestrials into account: he suggested that pictures were essentially non-arbitrary, but that a convention was needed for telling us what was up and down. In as rejoinder to Husserl (1980), I long ago refuted the last part of this affirmation (Sonesson 1989a: 276ff): it is sufficient to turn a picture slowly around, and at some point the configuration giving rise to a depiction will emerge of itself. This is nicely illustrated by the comic strip “The Upside Downs” (Fig. 10ab), created by G. Verbeck in 1903: at the end of each strip, you have to turn the whole strip on its head in order to follow the rest of the story. Thus, each drawing has a double interpretation, in which what was a hat may, after inversion, appear as a skirt, and so on. When you turn the figure around, not only a new configuration (*Gestalt*) appears at some given point - but also a new representation. At least, so it is for human beings.

If extraterrestrials are like hu-

man beings, then they will certainly not have any more problems finding what is upside down in the picture, than perceiving the picture as such. Nothing permits us to conclude, however, that extraterrestrials share the ecological world characteristic of human beings. But all this ignores the primary problems, which is anterior to the depiction: why would the extraterrestrials think there is a message at all?

As we have seen, the pictures making up the blueprint are really the givens of Bierman’s story: it is the machine which is constructed in their image or, as it happens, out of them. Bierman’s formal arguments, however, rather go to prove that pictures as such are constructs of our perception. As is well known, Nelson Goodman later on gave more famous formulations to those same arguments. The messages conceived by Cros, the Niemans, and Drake are really better illustrations than that of Bierman’s story of this constructionist theory of picture perception. Indeed, if human beings really have to construct each picture before perceiving it, then it is perhaps not so strange to think extraterrestrials would be able to do the same thing.

Three schools of perceptual psychology are commonly distinguished. The most venerable one is known as constructivism and goes back to Helmholtz, but has in recent times most famously been represented by Gregory, who claims that

impoverished stimuli only can give rise to percepts thanks to social constructs. Neisser, who was an important representative of this school, later on embraced ecological psychology.<sup>19</sup> According to the second school, *Gestalt* psychology, represented by Köhler, Koffka, Arnheim, etc., innate mechanisms organise perception, again based on impoverished data, into configurations. Ecological psychology originates with the work of James Gibson, which has been pursued by Reed, Neisser, Kennedy, Hochberg, etc.: according to this conception, the principles of “ecological physics” explain how percepts emerge from stimuli. Thus, it supposes human perception to be a function of the human ecological niche or *Umwelt*, that is, in phenomenological terms, of our lifeworld.

Only ecological psychology, however, seems to have anything relevant to say about pictures. The paradox of perceptual psychology is that ecological psychology is alone in attending to the difference between perceiving the real world and those signs of it called pictures. Gestalt psychology and constructivism often use pictorial examples (configurations and illusions, respectively) to illustrate real world perception.<sup>20</sup> As

19 As for the brand-new version of constructivism proposed by Hoffman (1998; 2004), it seems to abandon all tenets of the classical tradition and is hard to distinguish from ecological psychology.

20 Indeed, Hoffman (1998) derives all his laws for transforming a two-di-

against this, Gibson has claimed that no conclusion about the real world can be derived from pictorial examples. Although he never says so in so many words, Gibson clearly supposes the picture to be a sign. All animals can understand the meaning of surfaces. But, according to Gibson, only human beings can interpret *markings* on a *surface*, that is, have indirect perceptions.

To see the picture as a picture clearly requires the capacity to perceive wholes (Gestalts) as such; to take contours to be equivalent to the sides of objects; and to accept the 2D surface as a surrogate for a 3D world. The picture supposes a *similarity* on the background of a fundamental *difference*. But the problem may very well be to see the difference rather than the similarity. 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, which 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. The difficulty, clearly, consists in seeing, at the same time, both the surface

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mensional surface into a three-dimensional experience from the observation of pictures, without pausing to consider the fact that what he then observes would be a two-dimensional surface representing a two-dimensional surface, or that pictures are precisely not experienced, but only interpreted, as three-dimensional, differently from the world of our experience.



and the thing depicted.

The relative part played by iconicity and conventionality in a sign may be used to distinguish *primary* and *secondary iconicity*. A primary iconic sign is a sign in the case of which the perception of a similarity between an expression E and a content C is at least a partial reason for E being taken to be the expression of a sign the content of which is C. That is, iconicity is really the motivation (the ground), or rather, one of the motivations, for positing the sign function. A secondary iconic sign, on the other hand, is a sign in the case of which our knowledge that E is the expression of a sign the content of which is C, in some particular system of interpretation, is at least a partial reason for perceiving the similarity of E and C. Here, then, it is the sign relation that partially motivates the relationship of iconicity.

That pictures are instances of primary iconicity is shown by the child's capacity for interpreting pictures when first confronted with them at 19 months of age (as demonstrated in Hochberg's famous experiment); as well as by the ease with which pictures are employed by populations whose own culture ignores them – at least, as long as the culture in question is within the bounds of our own earth. On the other hand, we *do* have to learn that, in certain situations, and according to particular conventions, objects which are normally used for what they are be-

come signs of themselves, of some of their properties, or of the class of which they form part: a car at a car exhibition, a stone axe in the museum showcase or a tin can in a shop window, an emperor's impersonator when the emperor is away, and a urinal (if it happens to be Duchamp's "Fountain") at an art exhibition. When Man Ray makes a picture of a billiard table, we need no convention to recognise what it depicts. However, if Sherrie Levine's (real, three-dimensional) billiard table is to represent Man Ray's picture, there must be a label inverting the hierarchy of prominence of the Lifeworld. This shows that among the properties determining the probability of an object functioning as the expression of an iconic sign is to be found three-dimensionality rather than the opposite.

If our capacity to experience pictures directly, as opposed to secondary iconic signs, depend on the particular lifeworld we are inhabiting, that is, on the ecology typical of human beings as it has evolved on the planet Earth, then there is every reason to suspect that extraterrestrial beings, however intelligent, would not share this capacity with us: what are for us primary iconic signs would be secondary to them. While we function according to ecological psychology, they would have to follow the precepts of constructivism. No doubt there are other phenomena which are primary iconic-

ities to them, but which we would could only hope to interpret, if ever, according to the regime of secondary iconicity.

In the case of the biped of Drake's picture, once it is reconstructed as a picture, or the more explicit man and woman of the Pioneer plaque, the problem is not so much that the characteristic body shape of human beings must be recognized. Even in a normal picture, we can only recognize objects of the world with which we are already familiar, at least as to their general type. Thus, if the extraterrestrials have different body shapes from ours, and have never seen human beings, they obviously cannot recognize the human shape. But the more general issue involves the possible embodiments of signs themselves. As I noted above, the faculty to interpret pictures at least presupposes the ability to perceive wholes as such, to take contours to be equivalent to the sides of objects, and to accept 2D forms as stand-ins for 3D objects. There is no particular reason for supposing that this forms part of the ecology of extraterrestrial beings.

In a more general sense, these observations are also valid for markings on a surface that are *not* pictures. If our ability to interpret pictures is part of our competence as inhabitants of the human lifeworld, then all other sign system may well be dependant on the same particular ecological niche. Suppose that those

are right who think that our conception of mathematics, as well as our contemporary theories of physics, astronomy, and chemistry, must be known to extraterrestrial beings, either because they accept the same theories, or they have entertained them at some earlier stage of their development (as we would recognize Newtonian physics in other intelligent beings). This fact would only be relevant to the content side of the sign. Even in the case of natural sciences, the expression side of the signs are wholly within the limits of our human lifeworld. Suppose that the extraterrestrials are very well aware of hydrogen transitions, pulsars and the layout of our solar system. It is still very improbable for them to use the same markings of the surface to convey them to others as we would. Their lifeworld would most certainly predispose them differently.

It is still possible that iconicity, in a wider sense than pictorality, may be of some help. Peirce pointed out that iconic signs convey more information than is contained in them, thus, "with two photographs you can make a map". This property, which Greenlee called "exhibitive import" (Greenlee) depends on our knowledge of the lifeworld: because of our familiarity with the layout of the lifeworld, we are able to fill in the blanks in the representation. We can "see in" what we know should be there. Therefore, if the extraterrestrials live in a different lifeworld, which they

most certainly do, they would be unable to derive any help from exhibitive import.<sup>21</sup>

But perhaps there is another type of iconic surplus: something which we might call “introversive semiosis”, echoing a term used by Jakobson for signs referring to other signs rather than to the world. Peirce’s favoured example of iconicity was mathematical expressions. Jakobson discovered an iconicity in grammar. Such projections of the selection axis onto the axes of combinations, in Jakobson’s phrase, is reminiscent of those messages with a regular structure which Arbib (1999) suggests should be used in communicating with extraterrestrials. More importantly, perhaps, what would be needed are expressions that mirror the system character of the system. This might be feasible if there is what Deacon (2003) has called “semiotic constraints”: generalities of all “conceivable” semiotic systems. Of course, like earlier philosophers such as Husserl, Deacon is generalizing from the case of logic and mathematics to less tightly organized system of the kind of verbal language (cf. Sonesson 2003a; forthcoming a, b).

In conclusion, we have seen that pictorial iconicity is dependant on the peculiar human lifeworld, but that more abstract kinds of iconicity may stand a greater chance of giving rise to messages going beyond the

peculiar human lifeworld.

## Summary

The picture must be understood as a sign, which implies that it is both similar to what it represents, and different from it. This is where it becomes problematic: even though pictures are not conventional (to any large extent), contrary to what has been argued by many semioticians, some experience is needed to be able to interpret them as such. We know that children need some time to gain this knowledge, and other animals, with the possible exception of some of the great apes, never acquire it. Archaeology gives of very little help in understanding the origin of pictures, because some artefacts which have come to our knowledge cannot be reliably shown to be pictures or other kinds of meaningful displays, and some artefacts which are clearly pictures cannot be interpreted to show all what they are usually taken to show, because of the lack of an appropriate knowledge of context. The latter observation also goes for the interpretation of objects stemming from other cultures, notably where we cannot suppose the presence of any anthropological *universalia*, which would be the case with beings from other planetary systems. Moreover, if some picture could be shown to be the earlier one of those which we are aware of, this does not mean that it is the earliest of the pictures made by humankind, not only

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21 Cf. Lecture 3.

because there may be earlier pictures to be found, but also because the first pictures may have been made on sand, or some other highly precarious surface. All this poses, in addition, the question of how something is recognised as being a sign. If the sign is a stage in the development of semiotic resources, then the characterizations of the sign by Peirce as well as Saussure are insufficient. We need to understand how the sign is different from more elementary kinds of meaning given in the perceptual world. This is the task of the following sections.

## 2.2. Signs in the Human Lifeworld

It is true of both the main traditions of semiotics, the Saussurean and the Peircean one, that they have never really offered any definition of the sign; and the same thing no doubt applies to the notion of representation in cognitive science.<sup>22</sup> 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 (such as Lakoff, Johnson, etc.) now seems to be doing the very same thing with respect to the notion of representation. There might however be

good reasons for retaining the notion of sign (or representation) for some kinds of meanings, while denying its application to other instances. So before we even ask ourselves whether there truly is such a thing as the sign, 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.

It should be clear by now why we need such a concept of sign: the picture has been shown to be something difficult to grasp, both to small children and to non-human animals, because it supposes the consciousness of a difference as well as of a similarity. Perception and other direct acts of consciousness are not difficult in this way: they appear to be fairly straightforward to children and animals alike, rather early on in the development of the former. This also applies to some unconscious or semi-conscious conclusions drawn from perceptual premises, as we shall see. In the concept of representation of classical artificial intelligence, as well as of a lot of contemporary cognitive science, simple acts of perception and sign consciousness are inextricably confused. Although Saussure's concept of sign was no doubt unambiguously restricted to mean-

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22 A more interesting interpretation of Peirce, however, may be that he was not really interested in the sign in our sense. We will turn to that view in section 3 below.

ingful entities comprising two *relata* which were clearly differentiated from each other and related by an asymmetrical relation, French structuralists such as Barthes and Greimas later on applies semiotical terms to objects of meaning which could hardly be conceived to fulfil these requirements, such as food, clothing, and the world of perception. As John Deely (2001) has shown, philosophy written in Latin during the Middle Ages and in the following centuries long hesitated between a restricted definition of the sign, derived from the works of the church father Augustine, and a much broader one, according to which the contents of consciousness should be considered signifiers for which the things of the perceptual world were the signifieds, finally opting for the latter solution in the work of Jean Poinsot in the early 17<sup>th</sup> century. Deely thinks the dissolution of this all-embracing concept of sign was a serious failing of early Modern philosophy.<sup>23</sup> My view, how-

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23 It might sound here as if classical cognitive science has brought to fruition the “post-modern” view re-establishing the broad sign definition of the Latin Age, as anticipated by Deely (2001). However, representation, which is a term with a long history in philosophy and psychology taking on many different senses, is largely an undefined term in cognitive science. Deely would probably criticize cognitive science making the same reproach as he makes to Locke and the British empiricists generally, that they treat the whole domain as being that of “ideas”. In so doing, I take it, they fail to see the relational character of this domain (on which more will be

ever, is that this conceptual tightening of the sign concept is a clear gain coming out of latter-day philosophy, although it must be regretted that the reasons for narrowing down the sign concept were never clearly brought out. This should in no way be construed as a nominalist stance, as it might have appeared during the Latin Age, as Deely shows: as a *vieux combattant* of the critique of nominalism, I would certainly not opt for such a solution.<sup>24</sup> On the contrary, it is precisely because signs and percepts are so different, although they also have something in common, that they must be terminologically separated.

This is why it will be necessary to immerse ourselves not only into what I will call the semiotics of the Saussure-Piaget tradition but also in that of the Augustine-Husserl tradition. Saussure merely posited two units making up the sign, but Piaget introduced the criterion of differentiation in order to separate signifier and signified. 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: 17f).<sup>25</sup> Husserl’s definition (said below).

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24 Cf. Sonesson 1989a, 1995, and Lecture 4 below.

25 Deely (2001: 221) renders

tion 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 Augustinian suggestion. It implies that the sign is asymmetrical in a double sense: one part of it is more in focus than the other, and the other of its parts is more directly accessible than the first one.

### ***Two classical views of the sign – and beyond***

I have argued that a well-defined concept of sign is needed, in order to understand the specificity of the picture, both in child development and in human phylogeny. In semiotics, it often seems as the only game in town consists in showing that the concept of sign needed is provided by Peirce but not Saussure, or perhaps sometimes the reverse. For those who want to go on playing this game, what follows will be doubly disappointing: not only will I claim that the conceptions of Saussure and Peirce are not

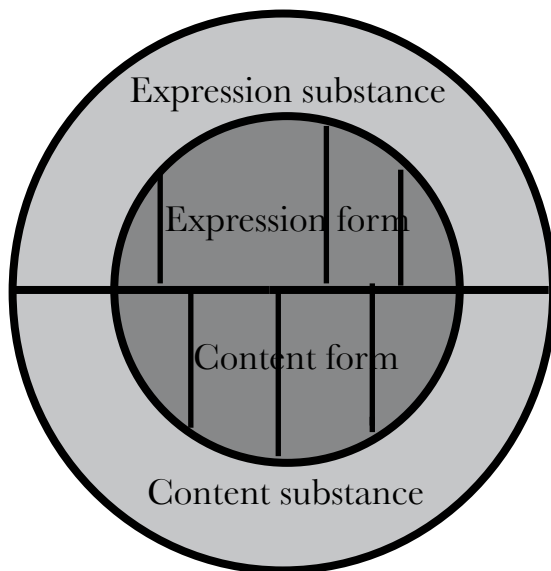
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Augustine's definition somewhat differently: "a sign is anything perceived which makes something besides itself come into awareness" (but he also quotes another definition more similar to the one referred to above). Perhaps "perceived" is the same thing as "impression made on the senses". As we will see, it is not the sense character that we will retain here, but the division into two items clearly separated from each other, one of which is more directly accessible.

as different as they may seem; but I will also submit that none of them, on their own, is able to resolve our problem.

There are several ways to read Peirce and, conceivably, Saussure: one, very common one, consists in looking upon these writings as a devout Christian approaches the Bible, as the source of all truth, even that discovered since the time of writing, using some often very subtle operations of interpretations to extract it. A procedure similar to this one may actually be justified, if the aim is not to develop an adequate semiotic theory, but simply to establish what the teachings of the founding-fathers really were. Another approach, which is not the one I am going to preconize either, is, of course, to read Peirce and Saussure as that rival potentate, the Devil, is supposed to read the Bible, by inverting the meaning of every line: this may at first appear to be a purely fictional possibility, but I do think a procedure very much like it was applied by the French structuralists as well as Eco in the sixties and the seventies of the last century, less perhaps to Saussure and Peirce, but more to one of the most eminent followers of the first, Hjelmslev (cf. Sonesson 1989a).

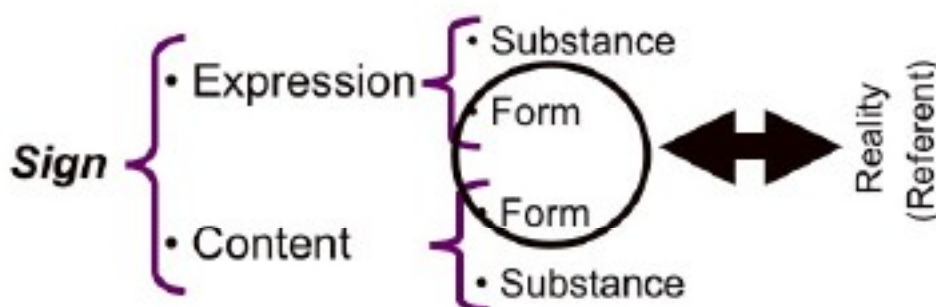
If we cannot read our classics like true converts, nor like the Devil, there remains, of course, the possibility of reading them like God (or the Pope): and while this may seem a much too presumptuous alternative



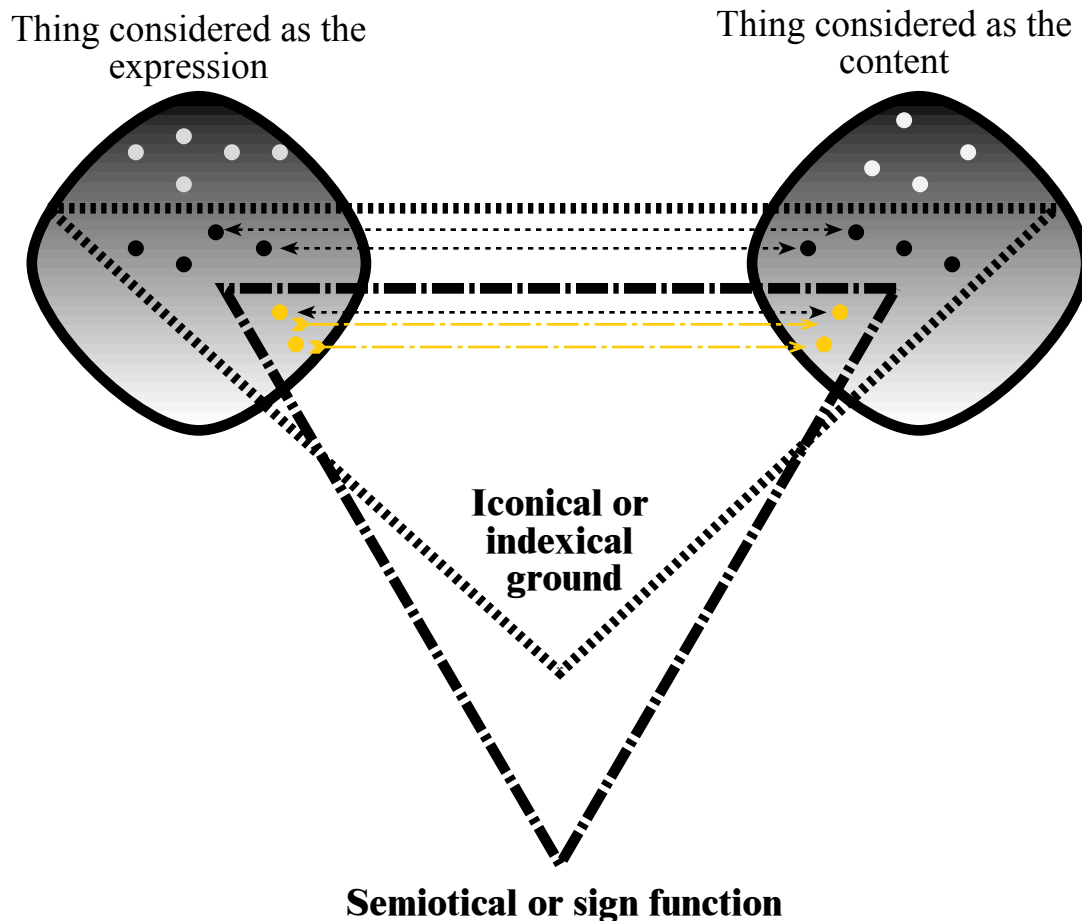
*Fig.11. The Saussurean sign: a) the double division of the sign into expression and content and form and substance, resulting in double articulation;*

to be seriously entertained, it comes close to what I think we should actually do, if we are able to conceive of a eminently Peircean God, not, of course, the one in which Peirce happened to believe, but one which functions according to the Peircean model of the mind; a very much fallible God who is always still trying to approach the truth, without ever getting there, yet always approaching it a little more, seeing a little further, because he is standing on the shoulders of giants. Our giants are, of course, Saussure and Peirce, Hjelmslev, Prieto, and many others. And so, in order to start entangling our chain of

metaphors, we will say that Peirce, Saussure and the others were wise men, great scholars, whose thinking today still is worth-while taking seriously; but they were also very much fallible, and so, in our own extremely fallible way, we may sometimes be able to do a little better than they did, often because we have access to the work of others scholars they did not know about. It should be added that the intrinsic fallibility of all work, even that of giants, is compounded, in the case of Peirce and Saussure, by the fact that almost none of their works were ever published in their lifetime or even made ready for pub-



*Fig.11. The Saussurean sign: b) how the sign is related to reality by means of the two forms.*



*Fig.12. The Peircean sign: a) the sign as a mapping between two things taken to be the expression and the content, respectively, and related by a “ground” singling out properties in those both objects, which are either similar (iconicity) or connected (indexicality), independantly of the mapping operated by the sign function;*

lication, and, especially in Peirce’s case, by the fact that his thinking evolved during the long spate of time he was working on semiotic issues, and that he appears to have made a lot less close reading of his own earlier work than his latter-day commentators do.

It should be clear, then, that we cannot be interested here in discovering “what Peirce really said”; rather we will be making use of his concepts to the extent that they fit in with what has since then been established by semiotical reasoning and psychological findings, and we will criti-

cise and revise them accordingly. On the other hand, there can be no doubt about Peirce being a very profound thinker (though perhaps not in every paragraph he wrote), so I really think we should try to do him full justice. When there are several possible interpretations of his works, and when different passages contradict each other, we should choose the one most favourable to him — from the point of view of present-day semiotics. Although I love Peirce very much, I love truth even more: so while some things I say in the following may be false as interpretations of Peirce, I



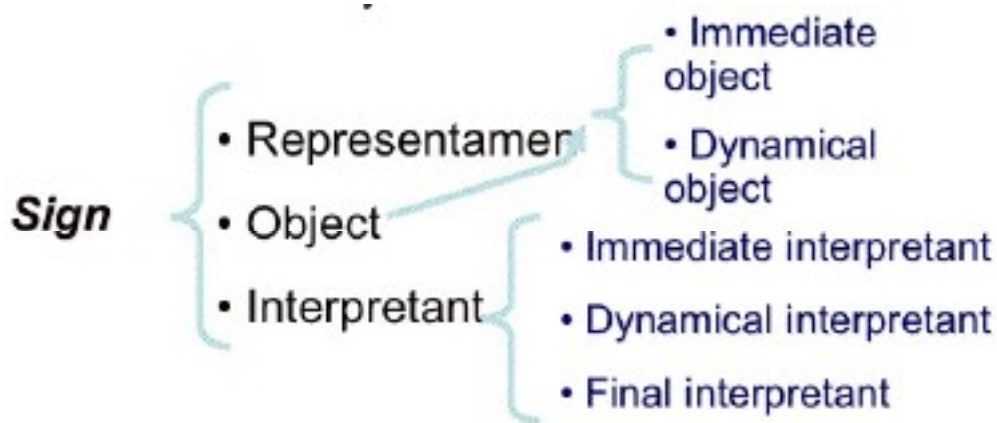


Fig.12. The Peircean sign: b) the sign as consisting of different phases of interpretation, making up six phases, from the representamen to the final interpretant

still think they are valid as components of contemporary semiotic theory.

This brings us to the notorious issue of Saussurean binarity as opposed to Peircean triadity, which is a point of contention which will be completely absent in the following. In spite of Peirce's explicit denial, I do think he was something of a triadomaniac. But that is not the real issue. It may often be convenient to order things in rows of threes. But the whole question whether there are two or three of something has no sense whatsoever, *before we know what kind of entities we are talking about*. The question whether something has two or three parts has no meaning before determining the domain for which the model is valid, as well as the criteria (the relevant properties) according to which the division is made.

If the domain is the sign, made up of signifier and signified, plus reality, the Saussurean sign definition

is also triadic. But it may reasonably be maintained that reality is simply that which is excluded from the Saussurean sign as being irrelevant (although Saussure never was as explicit about this as the early Eco). However, it might be argued that the referent is important in the Saussure conception, as being that which is divided differently by different languages and other semiotic resources. From another point of view, the domain may be said to be the signifier, the signified, and the relation between them, which would definitely make the sign triadic. And this is a more valid point, since the sign as a unit of signifier and signified is very important to Saussure. Then again, the Saussurean sign might really be claimed to be polyadic: to Saussure, as is well-known, even the sign is a superficial manifestation of the multifarious interrelationships making up the sign system, in which everything determines everything else.

On the other hand, there is cer-

tainly no denying that the Peircean sign is triadic, but these triads are then subdivided, where that which is of the nature of Secondness has two parts, and that which is of the nature of Thirdness has three parts. If all these distinctions are criterial, Peirce's definition actually has six levels. If the triadity of the Peircean sign really had involved something like the expression, the content, and the real world (as many have been fooled by Ogden & Richards to think), then it would have been present also in the Saussurean conception, the third item appearing as that which is explicitly excluded from consideration (and which is then reintroduced by most post-Saussureans). It rather seems as if the distinction between the content and the referent were mimicked in Peirce's work by that between the immediate and the dynamical objects, so when we add the interpretant, we end up with four objects. However, just as there are two objects, there are three interpretants (but only one representamen), so there are really six instances of the sign altogether. Using another kind of reasoning, one may instead add the utterer and the interpreter, and then end up with a pentagram (cf. Dines Johansen 1993). Indeed, some unpublished passages in Peirce's manuscripts (for instance, MS 318, quoted in Jappy 2000) seem to suggest that the object is simply the content as conceived by the addresser, and the interpretant is the same

content at it appears to the addressee (cf. discussion in Sonesson 2003a). If object and interpretant correspond to something akin to speaker's meaning versus listener's meaning, then the communication models (notably that of the Prague school) also account for it. If the interpretant has something to do with the notion of "ground" appearing in Peirce's early texts, then it figures prominently in the Saussurean tradition in the form of the distinction between form and substance, mentioned below. This last interpretation is favoured, in my view, by Peirce's (1998: 269) contention that "Thirdness [e.g. interpretants] is found whenever one thing brings about a Secondness between two things [e.g. the relation between representamen and object]."

For our purpose then, we will say that the Saussurean sign is made up of expression and content (signifiant/signifié) which both can be separated into form and substance - and it is separated from reality (the referent). "Form" here is that part of the expression which cannot be changed without giving rise to another content, and vice-versa; "substance" is all the rest (cf. Fig 11.). The Peircean sign consists of expression (representamen), content for the initiator of the sign (object) and content for the target of the sign (interpretant). The signs "tends" towards reality. This is why the "dynamical object" is closer to reality (and further from the original sign situation) than the "immedi-

ate object”; similarly, the “dynamical interpretant” is closer to reality (and further from the original sign situation) than the “immediate interpretant”; but even further from the sign situation is the “final interpretant” which is only virtually present. Perhaps it would be more correct to say that the object is that which influences the creator of the sign so as to create it, while the interpretant is that which influences the receiver so as to interpret it. Then the different kinds of objects and interpretants would be phases of this process (cf. Fig 12.).

There are no doubt some real differences between Saussure and Peirce, however. Saussure is really only interested in the linguistic sign whereas Peirce wants to characterize all possible signs. Peirce sometimes seems to extend the sign so far that it covers everything. Peirce’s concepts can only with difficulty be separated from a specific philosophical conception of reality. Peirce’s model seems to be more involved with the contact between the sign and reality, while Saussure is concerned with their difference.

But they have one thing in common: none of them really tells us what a sign is. It often seems as if anything which has three (or two) parts would thereby be a sign. It is true that this is a problem less with the Saussurean than with the Peircean conception, since Saussure is adamant about posing verbal signs as the best instance of the category. But everything ob-

viously hinges on what kind of relationship there is between these two or three parts. This is no doubt implicit in terms such as “expression” and “content”. But if the concept of sign should be of any use, that which is implicit has to be spelled out.

### ***From pebbles to feathers. The notion of differentiation***

Let us start out from what might be called the Saussure-Piaget tradition. I am not sure whether anybody has ever stood in that tradition, except, of course, Piaget, who took all his semiotic vocabulary (opposing the sign to the symbol) from Saussure.<sup>26</sup> What Piaget added to Saussure was most obviously a developmental perspective, in particular on the level of ontogeny. But, just as importantly, though it is less commonly observed (in fact never, except for Soneson 1992b, etc.), he realised that all meanings are not signs, and he even began groping for a definition of that which accounts for the specificity of the sign. More decisively, applying the developmental perspective to the sign, he made it into a particular stage of development (although, unlike Vygotsky, he never allowed semiosis to define that stage).

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26 Soneson (1989a; 1992a) certainly stands in that tradition, and, as I discovered very recently, so does Krampen (1991), who appears to be the only semioticians, apart from the present author (and to some extent, from Bentele 1984), who has taken an interest in Piaget’s notion of semiotic function.

When Peirceans and Saussureans quarrel over the presence of two or three entities in the sign, they never pause to ask themselves what kind of objects, defined by what type of features, are involved: but, clearly, before we know what we are counting, it makes no sense to start counting at all. 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 an *expression*, or “representamen”, and a *content*, or “object” (analysable into “immediate” and “dynamic”)? Peirceans and Saussureans alike would no doubt agree that signs has something to do with the classical formula, often quoted by Roman Jakobson (1975), *aliquid stat pro aliquo*, or, as, Jakobson also puts it, more simply, with “renvoi”, or reference. What this means, however, is not at all clear.

Before we can separate signs from other meanings, we have to spell out those criteria for something being a sign which 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 the latter two instance, 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*).

According to Piaget the *semiotic function* (which, in the early writings, was less adequately termed the symbolic 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 antedates the semiotic function, but that is does not then suppose a differentiation of signifier and signified in the sign (see Piaget 1945; 1967a; 1970).<sup>27</sup> The notion of differentiation, which

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27 Not all of Piaget’s examples of the semiotic function may really be of that kind, even applying his own criteria. Cf. Sonesson 1992b. It should be kept in mind that Piaget is here talking about the capacity for producing language, pictures, and so on, not the ability to interpret them. As in the case of language, the capacity to understand pictures must precede any ability to produce them. However, if understanding really arrives as late as Deloache claims, as we saw in the last section, there is still a conflict with Piaget’s view.

is normally overlooked, is fundamental in my view.<sup>28</sup> In several of the passages in which he makes use of this notion of semiotic 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.<sup>29</sup> In this way, Piaget really anticipates the critique formulated by Colwyn Trevarthen (see Trevarthen & Logotheti 1989), according to which the child is attuned to meaning, not only from birth, but in fact already at the end of the fetal stage: co-operation, and the capacity to pick-up others meanings, is somehow built into the organism. Clearly, meaning is here used in a more general sense than that characteristic of the semiotic function, that is, the sign, as I have tried to develop this notion taking my hints from Piaget and Husserl: it includes perception, particularly of an inter-personal kind.<sup>30</sup>

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28 Vygotsky (1999) also observes the difference between differentiated signs and other meanings, but he has no terminology for capturing the distinction...

29 Krampen (1991: 14ff) fails to see the problem here, perhaps because he quotes Piaget in an English translation, which renders the French term “indices” (that is, “index”) by the locution “signs or pointers”.

30 This also brings Trevarthen to challenge the inclusion of imitation among the aspects of the semiotic function. As we now know, mainly due to the work of Meltzoff, there is a very early stage of

The signifier of the index, Piaget 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”. Between “indices and signals”, on the one hand, and full signs, on the other, moreover, Piaget places “symbols”, understood more or less along the lines of Saussure. These “symbols” are already differentiated, Piaget claims, but their parts are still somewhat “adherent”. In addition, this adherence seems to apply as least as much to the relation between the subject and the semiotic resources he or she makes use of as to the relation between the signifier and the signified.<sup>31</sup>

Piaget is quite right in distinguishing the manifestation of the semiotic function from other ways of

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more or less automatic imitation in the infant, different from the explicit capacity for imitation, which matures much later. Cf. Gallagher (2005) and Mandler (2004).

31 Piaget also insists a lot on the individual character of the symbol and the social one of the sign. Therefore, Krampen (1991: 18f) is clearly wrong in identifying Piaget’s “symbol” with Peirce’s icon and Piaget’s “sign” with Peirce’s symbol.

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

Fig. 13. The relationship between principles, grounds, and signs, from the point of view of Peirce.

“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 semiotic 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 forget about in the following. 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 from 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, as true sign. In terms of socially more well-established signs, a similar example would be the bull’s head used to indicate, above a market stand, that beef is sold there. Although in France, for example, sculpted heads of bulls or horses are employed outside the relevant shops, it is still possible to find real heads used in traditional markets in some countries.

The hunter, on the other hand, 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. Indeed, if the tracks are not differentiated from the animals having produced them, they can not be read as signs, but only as a part of the complex situation of which the animal is a part. Both the child in our example and the hunter are using indices, or indexical signs, where the “real” connection is transformed into a differentiation in the sign.<sup>32</sup>

On the other hand, the child *and the adult* will fail to differentiate the perceptual adumbration in which he has access to the object from the object itself; indeed, they will iden-

tify 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 which is non-differentiated from the tree, to use Piaget’s example, in the rather different sense of being a proper part of it.<sup>33</sup> 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 which 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.<sup>34</sup>

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*)

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32 According to some current conceptions, this would not necessarily be true in prehistory: chimpanzees and early humans appear to be unable to make use of tracks in their hunting behaviour, if cognitive archaeology is to be trusted (Mithen 1996: 73ff). Actually, Mithen’s examples suggest that apes are able to interpret auditory signs of the hunted animals, but will not even recognise the animal itself if presented with it visually, which suggests indexicality is not involved at all in this distinction. Indeed, many animals “lower” on the evolutionary scale are obviously able to interpret traces. According to this conception, the development of “art”, i.e. picture signs, is an even later accomplishment of human prehistory (Mithen 1996: 150ff).

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33 About proper parts, perceptual perspectives, and attributes as different ways of dividing an object and thus different indexicalities, cf. Sonesson 1989a, I.2; as well as Lecture 4 and 7.

34 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, analogously to the quotation from Peirce below, cannot function “as a sign until it is embodied”. See, in particular, Sonesson 1992a, 1993a, c, 1994a, b, 1998a, 2000, 2001a, b, 2003a – and the next lecture!

will only give rise to an icon when it is combined with the sign function. I therefore cannot agree with Deacon (1997: 76ff) 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", as Peirce (1998: 291) suggests regarding another division of signs:

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.

An indexicality, then, is not a sign; it is simply the perception of two things being connected. It will be a sign only once these items are experienced as being detached from each other. The foot touching the earth is an indexicality; the traces left on the soil is an indexical sign. The branch of the tree which is still part of the tree is an indexicality; in the theatre, however, where it is cut off from the tree, it may well be an indexical sign for it. Strictly speaking, iconicity, in Peirce's understand-

ing of the term, is not even a relationship; but once two iconicities are experienced together, they form an iconic ground, which is an relation, but still not a sign. It is the experience of bark on one place being similar to bark higher up or lower down; or of the tree being similar to another tree. A picture of a tree, however (or even a tree on a theatre scene) is an iconical sign (cf. Sonesson 2003a and Fig. 13).

While the introduction of the notion of differentiation is a substantial accomplishment on the part of Piaget, he unfortunately never spells out its import. As I have mentioned above, he defines it in terms of the subject's point of view, but then uses examples in which the disconnection already exists objectively. The sense of objectivity and subjectivity employed here should of course be related to the common sense world (that is, the *Lifeworld*) in which human beings stake out their life. Indeed, what Piaget is concerned with is precisely the "construction", in his terms, by the child of the common sense world. Once this edifice is finished, the common sense world disjoins that which is subjective (which does not mean particular to one individual, but may very well be the "world view" of a particular language, the way of segmenting reality opposing pictures to language generally, etc.) from that which is objective (which is, strictly speaking, the subjectivity common to human beings).



But, in his later reasoning and examples, Piaget seems to identify differentiation from the subject's point of view with conventional, or arbitrary, signs, in the Saussurean sense. This will not do, for already "symbols", in the Saussurean (and indeed Piagetean) sense, are differentiated in this way. Indeed, Piaget claims that "symbols", in his sense, are differentiated, but still "adherent", but it is not clear what this means, and he never uses examples of this type to illustrate differentiation. More importantly, perhaps, he fails to see that some indexical functions are not mere "pointers", but real, differentiated signs, such as is the case with the pointing finger and the tracks as interpreted by the hunter.<sup>35</sup>

Indeed, the basic problem may well be that, in Piaget's work, differentiation is never defined. I have suggested above that differentiation may be a result of the object which serves as signifier not being continuous in space and/or time with the object serving as signified, as well as of taking the signifier to be of a dif-

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35 Other pieces of valid criticism may be levelled against Piaget, as discussed in Sonesson 1992b: the point that meaning emerges ontogenetically well before the attainment of the semiotic function (as expressed notably by Trevarthen) is essential to the following argument. The observation, made experimentally by Gardner & al., that the semiotic function is not attained in different media, and in different respects, at the same age, is important, but has nothing to do with the functional definition of this stage of development.

ferent general category of the world than the signified. But these are perhaps less criterial attributes than features helping us to pick our examples out. The basic idea, again, is no doubt in the opposition between the two items being subjectively, rather than objectively, separate from each other. It is here that, probably without knowing it, Piaget is the most Saussurean. I am thinking about the passage in which Saussure said that semiotic resources were points of view taken on material things (and, we could add, on the world generally). It is in becoming a standpoint on the world than the sign separates out from the world.<sup>36</sup>

Nor should differentiation be identified with displacement as defined by Hockett (1977), which (rightly, no doubt) appears as one of the "design features" of language in most introductory textbooks.<sup>37</sup> As in the case of the tracks left by the

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36 This is the origin of what Deely (2001), following the Latins, calls "mind-dependent" (*ens rationis*) versus "mind-independent being" (*ens reale*). Interestingly, Searle (1995), who talks about "language-dependant" and "language-independent facts" in what appears to be a similar sense, sometimes slips into the alternative terms referring to the mind, although he would certainly deny having read any philosophy earlier than Austin. In the next section, I will suggest that this division is incomplete.

37 And it has nothing to do with Hjelmslev's criteria for something being a sign, the possibility of separating expression and content into smaller parts independently. See Sonesson 1992a.

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 most cases, intersubjective) entities. To the hunter, both the signifier and the signified of the tracks are present here on the soil (or, to be precise, in his perception of the soil). But the signified contains the information that it 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 further on 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 partic-

ular perspective. For this is requires independence: that is so say, a body of its own. Thus, the notion of differentiation itself needs to be clarified.

### ***Different ways of “connecting significations”***

The notion of differentiation has certainly not been satisfactorily defined in these pages: expression and content, I have suggested, do not go over into each other in time and/or space, and they are perceived to be of different nature. To get any further, both phenomenological and experimental investigations are in order. Some clarification of this issue when be given when we attend to the Augustinean-Husserlean tradition for the definition of the sign. All we can do at present is pointing out the contrast obtaining between signs and other kinds of meaning.

Each time two objects are perceived together in space, there is *contiguity*; and each time something is seen to be a part of something else, or to be a whole made up of many parts, there is *factorality* (as defined in Sonesson 1989a). According to Husserl, two or more items may enter into different kinds of “pairings”, from the “paired association” of two co-present items (which we will call *perceptual context*), over the “appresentative pairing” in which one item is present and the other indirectly given through the first, to the real sign relation, where again one item is directly present and the other only

indirectly so, but where the indirectly presented member of the pair is the theme, i.e. the centre of attention for consciousness (cf. Husserl 1939; Luckmann 1980).

Whereas the items forming the sign are conceived to be clearly differentiated entities, and indeed as pertaining to different “realms” of reality, the “mental” and the “physical” in terms of naive consciousness, the items of the *perceptual context* continuously flow into each other, and are not felt to be different in nature. In fact, both content and expression of the sign are actually “mental” or, perhaps better, “intersubjective”, as classical Saussurean linguists would insist; but we are interested in the respect in which the sign user *conceives* them to be different. Piaget’s notion of differentiation is vague, and in fact multiply ambiguous, but, on the basis of his examples, two interpretations can be introduced: first, the sign user’s idea of the items pertaining to different basic categories of the common sense Lifeworld; and, in the second place, the impossibility of one of them going over into the other, following the flow of time or an extension in space.

Suppose that, turning around a corner of the forest path, we suddenly catch a glimpse of the wood-cutter lifting his axe over his shoulder and head. This experience perfectly illustrates the flow of indexicalities which do not stop to become signs: it is sufficient to observe the wood-cutter in

one phase of his action to know what has gone before and what is to come: that he has just raised his tool from some lower level, and that at the next moment, he is going to hit the trunk of the tree. If we take a snap-shot of one of the phases of the wood-cutter’s work, we could use it, like the well-known traffic sign meaning “roadworks ahead”, as a part for the whole or, more oddly perhaps, as a phase signifying contiguous phases. There has been a radical change from the flow of indexicalities occurring in reality, for not only is there now a separation of expression and content “from the point of view of the subject”, but this separation has been objectified in the picture. The picture is a sign, in the sense of it having a signifier which is *doubly differentiated* from its signified, and which is *non-thematic* and *directly given*, while the signified is *thematic* and only *indirectly present*.

The perceptual continuum may be reconstituted in a film, but not in a series of pictures. However, when we ask the wood-cutter to stand still for a moment (like in a “tableau vivant”), his position as such, before it is transformed into the motif of a picture, is already a sign for the whole of the action, although the directly presented position does not seem to be non-thematic, continuity is only provisionally interrupted, and expression and content are felt to be of the same nature. If, at this very moment, Vesuvius erupts, and our wood-cutter

is buried in many meters of volcanic ash, he will have been transformed, when he is rediscovered many centuries later, into a sign of the person he was, and of the particular phase of his earlier action, as well as of many other things, and as such he will be doubly differentiated, non-thematic and directly given, while the person he was and the act he accomplished is now thematic and indirectly given. His packed lunch, however, bread become carbonised, is less clearly differentiated.

As Manetti (1993) has shown, divination, together with medical symptoms, were the first semiotic phenomena studied; and they all have the form, as later formalized by the Stoics, that if something is the case (p), then something else is also the case (q).<sup>38</sup> Indeed, this was that which to Antiquity, before Augustine, was known as a sign (*semeïon*), which what we would call linguistic signs were not (Cf. also Deely 2001). Indeed, a linguistic signifier (or a pictorial one) is not readily conceived as an effect permitting as to conclude to the cause, identified with the signified. Our wood-cutter, surprised by the ash falling down (p), may well conclude that Vesuvius is erupting (q); but at this very moment, this is a

continuous phase of a complex event sequence, in which one phase foreshadows another, not a sign, in the sense of a signifier being differentiated from a signified. More precisely, in Husserlean terms, it is a protention occurring in the here and now of the woodcutter, pointing forwards to the next immediately following moment, and through that the moments to follow. To the archaeologist, on the contrary, the carbonized body of the woodcutter is a true sign, not only a logical implication. It is to some extent outside of time and space.<sup>39</sup>

Something like Husserl's criteria are required, but perhaps not sufficient, in order to separate the sign function from other dyadic relations between (more or less) differentiated members. It is possible, no doubt, to conceive of the sign as some kind of mapping between "mental spaces", as suggested by Fauconnier (1994: & Sweetser 1996), but this is not of much use as long as we have no criteria for separating the sign from all other instances of such mappings listed by Fauconnier, such as counterfactuals, analogy, metaphors, metonymy, propositional attitudes, modalities, pragmatic terms, frames, models, and so on. This is of course not to deny that some valuable generalisations may be stated at this lev-

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38 It could be said, as I have pointed out elsewhere (Sonesson 2000b) at least about divination, that but these signs became interesting not as signs of Nature, but because they were conceived as messages from some kind of Super-Subject; but this is not the essential point at present.

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39 See the next section about the time characters of different kinds of signs, as well as Lecture 9 concerning the photographic sign.

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Another case in point is one of the arguments employed by Fodor to posit the existence of a “language of thought”: that in order for us to be able to redescribe common sense psychology in terms of brain functioning, there must be something material, parallel to the expression of language that in the brain corresponds to the neural pathways, which is related to something mental, parallel to the content of language. Indeed, Fodor’s argument relies on expression and content of the “language of thought” being isomorphic, that is, highly iconical, so that whatever is said to happen to the expression also can be said to happen to the content, but I am not concerned with this specific claim here. Whatever the merit of this argument, the comparison of the relationship between brain anatomy and consciousness in terms of expression and content is fallacious. The neural pathways are not that which is immediately given but not in focus, and consciousness is not indirectly given but in focus. Between neural pathways and thinking there is no doubt some kind of causal relationship, no matter how we choose to construe it; but there is no semantic relation. Indeed, the expression of a

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40 This is the confusion that has permitted numerous structuralists to claim the presence of “double” or even “triple articulation” in many kinds of semiotic resources. Cf. Lecture 3 and 4 below. Something more will be said about propositional attitude later on in this section.

sign is not even material, considered as a form (in Saussurean terms).<sup>41</sup>

Eco (1984:216f) has repeatedly denied that the mirror is a sign: instead of standing *for* something it stands *before* something: the mirror image is not present in the absence of its referent, is causally produced by its object, and is not independent of the medium or channel by which it is conveyed.<sup>42</sup> Indeed, in his most recent work, Eco (1998: 22ff; 1999: 371ff) extends this description to some phenomena, notably television, which most people would naturally consider to be pictorial signs. With reference to our more precise concept of sign, I see really no reason to deny the sign character of the mirror: something which is comparatively *more direct* and *less thematic*, the mirror image, stands for something which is *less direct* and *more thematic*, the object in front of the mirror; and the person or thing in front of the mirror is clearly *differentiated* from the image in the mirror.

The fact that the person represented by the mirror sign is present contiguously to the sign is in no way an embarrassment to this conception: in principle, this case is equiv-

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41 I have taken this description of Fodor’s aims from Bermúdez (2005) who gives other arguments, but of course not this one, against Fodor’s theory.

42 Eco (1984, 1998, 1999) gives several other arguments for this claim, which I have shown to be invalid in Sonesson 2003b and forthcoming. Cf. also Lecture 4.

alent to the label with the names and the pictures of the different species habitually appearing on the bird cage. Of course, animals and small children may have difficulty making the required differentiation, but that is exactly what happens in the case of signs, as Piaget has indicated. The kind of differentiation which does not obtain for animals and children is apparently not the one involving a discontinuity in time and/or space (i.e., they do not think the mirror image is part of themselves) but rather that concerned with the different nature of the two correlates (i.e. the cat takes its own image to be another cat).

The mirror and the picture, just like verbal language, have in common being founded on a differentiation between two units which are *asymmetrical in a double sense*, first because one of the units is more immediately accessible to consciousness than the other, and second because the second unit is more in focus than the first. This is not true of all kinds of conjunctions of “mental spaces”, nor does it apply to Fodor’s “language of thought”. The kind of asymmetry involved here is of course not at all opposed to the symmetry permitting the listener to recover the same signified from the signifier which prompted the speaker to choose it in the first place, or the possibility to look up the French equivalent of an English word in a dictionary, as well as going the in-

verse way.

The mirror clearly has a “body” of its own. The framed picture even more obviously has one. What is at stake, however, is much more than the distinction, often made in cognitive science, between internal and external representations. To see that, we must take a step back to the world before the emergence of the sign.

### ***Signs and mediations : The Fonseca-Peirce connection***

My concept of sign or representation (like that of Piaget) does not involve ordinary perception being an instance of it : our way of being in the world is not to be likened to the presence at some kind of private theatre. Latter-day cognitive scientists are therefore quite right in rejecting the notion of representation of their forebears. They are wrong, I submit, to reject all kinds of representation (to the extent that it corresponds to the semiotic function). More in particular, they commit a serious error by not defining representation before deciding that it has to be thrown out.

Curiously, John Locke, who is on some accounts the father of semiotics (or at least of the term), similarly seems to treat signs as being on a par with ideas, where an idea is to be understood as any kind of taking account of the facts of the outside world.<sup>43</sup> Thus, the experience of

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43 Deely (2001: 590ff) argues that Locke’s last chapter, in which Locke

redness, or of a red book, is in some ways parallel to the word "red" or the syntagm "red book". This is not only strangely reminiscent of what we find in "classical" cognitive science, but it also seems to correspond to at least some usages of the term "sign" found in the work of Peirce.<sup>44</sup>

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proposes to see all of philosophy, apart from physics and ethics, as a doctrine of sign, would require the reworking of the whole book, substituting "signs" for "ideas". It might be argued, however, that if you take the domain described by the words "signs" and "ideas" and put them together, it does not matter much whether you call all of it "signs" or "ideas" (just as it does not matter much, to reverse a classical Saussurean example, whether the French use "lamb" or "mutton" for both the domains covered by these terms in English – semantically, of course, because phonetically, this would be another matter). A reasonable retort would be that it is different to project the model of the sign to the domain of ideas, and the model of the idea to the domain of signs. It is not clear, however, what exactly is the difference between these models. However, the followers of Locke in France, who certainly took their name for the concept of ideas, the "ideological school" (Pincaut 1891; Gusdorf 1966), ended up talking very much about signs (Degérando 1800).

44 However, although Deely (1982, 1994) seems to have taken a different view of the matter, I believe most of Peirce's definitions of the sign are more appropriately construed as corresponding to (potentials for) the semiotic function, as suggested above. On the other hand, many of his examples do not seem to confirm to it. See examples in Peirce 1998. As any reader of Peirce must have noted, he quite often quotes scholastic writings, and, as Deely points out, particularly those of the followers of Pedro da Fonseca, on which more

Moreover, it accords with some notions of the scholastic philosophy current in the Middle Ages. While I do not think there is any direct link between cognitive science and scholasticism, this connection is quite apparent in the case of Peirce (and perhaps Locke). A few notions of history may help us to disengage ourselves from the present-day conceptual muddle.

As was noted above, the church-father Augustine seems to have been responsible, certainly not for inventing, but 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 on the Iberian peninsula in the 16<sup>th</sup> century. To Fonseca and his followers in Coimbra, the definition of the sign must be considerably broader: a sign is anything which serves to bring into awareness something different from itself, whether

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will be said below.

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; 2001: 414ff). Put in more convenient terms, a sign may either consist of a signifier (expression) which has to be perceived as such in order to usher into the perception of the corresponding signified (content); or it may consist in a signifier which is not ordinarily perceived as such but still somehow serves to mediate the perception of a signified. Thus, Fonseca pointed to an analogy, but also to a distinction, of which at least the latter seems to have been lost even on latter-day semioticians and cognitive scientists. If so, this would belie the origin of the distinction in the nominalist ambience (cf. Deely 2001: 390ff).

What is here called an instrumental sign clearly is that which Husserl, following Brentano, has described as the fundamental trait of consciousness, *intentionality*, that is the property of being directed to that which is outside of consciousness.<sup>45</sup>

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45 Brentano (1885), whose concept of intentionality was taken over by Husserl and more recently by Edelman (1992), himself tells us he took the idea from

In fact, when closely considered, Fonseca's observations really go against the grain of the by now familiar 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 1989a, III.3.2). Indeed, Deely (2001:411ff) argues that to Fonseca, formal signs are not properly speaking signs:

Hence may be gathered the most striking difference between instrumental and formal signs: since indeed formal signs do not have to be perceived by us in order for us to come to an awareness of the thing signified by the perception they structure; but unless instrumental signs are perceived, they lead no one to an awareness of anything (Fonseca quoted by Deely 2001: 413).

More exactly, in what in here called a formal sign, the "sign" cannot be perceived, if we are to gain a proper awareness of the thing signified; for such an awareness is only possible in what James Gibson calls the "pictorial", and Edmund Husserl calls the "phenomenological", atti-

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scholastic philosophy. Deely (2001: 404) tells us it was introduced into scholastic philosophy in the 12th century as shorthand for indicating the essential relationality of psychological phenomena. If intentionality has anything to do with "intensions" in the scholastic sense, however, it apparently pertains to "second intentions", i.e. the things as known, while the first intentions would rather correspond to what we nowadays consider to be the extension (but the actual distinctions are really more complex, as Deely 2001: 470ff points out).



tude, in which the content of consciousness, and not the thing cognized, becomes the theme of the mental act. This is exactly what does not happen in the familiar Lifeworld, as but Gibson and Husserl have pointed out. Indeed, the “pictorial attitude”, similar to a picture, is “indirect perception”, whereas ordinary perception is “direct”.

When Gibson (1978:228) observes that, when we are confronted with the-cat-from-one-side, the-cat-from-above, the-cat-from-the-front, 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; 1962 a, b; 1973; and Soneson 1989a,I.2.2). In a similar fashion, Husserl’s favourite example is the cube (or perhaps the die) 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 – for it is a phenomenal fact, and not an experimental one, also in Gibson’s work.

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 frag-

mentary pieces we must construct our perceptions (cf. K ng 1973), so Gibson’s strawmen are the followers of Helmholtz, the so-called “constructionists” (who have recently re-emerged within cognitive science, e.g. Hoffman 1998), who claim that hypotheses are needed to build up perceptions from the scattered pieces offered us by sensation (cf. Soneson 1989a,III.3.3).<sup>46</sup> At least superficially, however, there is an important difference; for whereas Husserl rejects the picture metaphor of consciousness, by showing Brentano and Helmholtz to be in error in their very conception of pictures and other signs because of ignoring the transparency of the expression to the content (cf. K ng 1973), Gibson (1978) instead emphasises the dissimilarity of the picture from a real-world scene, thus showing the numerous experiments using pictorial stimuli to study normal perception to be seriously misguided. And yet, to both Husserl and Gibson, normal perception gives *direct access* to reality, while Gibson thinks pictures represent a kind of *indirect perception*, and Husserl (1980) tells us (cf. Soneson 1989a,III.3.6) that they are

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46 Reed (1996) notes some parallels between Gibson and the American pragmatists (without, however, referring to Peirce!). “Constructionism” should be understood here as in perceptual psychology, in opposition to Gestalt psychology and ecological psychology, not in the sense of Piaget or Vygotsky.

“perceptually imagined”.<sup>47</sup>

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. The marks, produced by what Gibson calls the *graphic act*, can be deposits, traces, lines, or shadows projected on the surface. They may be produced by finger-tracing, drawing, painting, or engraving, with a tool such as a stylus, brush or pen; or otherwise a simple device, like the ruler or the compass, may be used, or a complex one, such as the printing press, the gadgets of photography, or the projector of lantern slides (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 which should be given to the term “affordance”, we may safely conclude that “referential meaning” is a property of what we have called the semiotic function. That is, surfaces do not *stand for* other surfac-

es, 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”. However, a surface may be decorated, regularised, textured, painted, or embellished in other ways without acquiring a referential meaning; and deposits of dirt or blots of pigment may be left on the surface without the surface being made to stand for something. The two cases, intuitively describable in terms of the opposition between order and disorder, are not distinguished by children.

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 which 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 human beings, in contradistinction to animals and children. If he meant to suggest that sur-

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47 The precise import of this latter term is part of what will be discussed in the third lecture.

faces 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 1989a, III.3.1). The difficulty, clearly, consists in seeing, *at the same time*, both the surface and the thing depicted. In other words, in consist in making a differentiation: in telling the “body” of the sign apart from the “body” of the object to which it alludes.

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. The difference as well as the similarity can be spelled out: intentionality (formerly known as formal sign) is the kind of relationship in which the first item is not thematic and not in focus, and where the second item is thematic and in focus.

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). Also Ernst Cassirer (1942; 1945) sometimes used the term “mediation” (that is, “Vermittlung”) in a more general sense of meaning than “sign” (which he called “symbol”), notably comprising the *Umwelt* ascribed to animals

by von Uexküll.<sup>48</sup> 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.<sup>49</sup> Mediation, in this sense, has at least a double aspect, even if we exclude signs: it corresponds to implicational relationships such as those called signs by the Stoics, and it also involves intentionality in the sense of Brentano and Husserl. In the former respect, it seems to have something to do with Gibson’s “affordances”, and with Piaget’s notion of “connecting significations”. Once we have offering a wider context for inserting these meanings of meaning in the next section, however, it will be easier to take a closer look at the notion of intentionality, as related as related to what is known, in other traditions, as the psychology of propositional attitudes.

## Summary

Neither Saussure nor Peirce offers any real definition of what the sign is. Nor is the notion of representation

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48 This concept, as well as contemporary biosemiotics, will be thoroughly discussed in the next section.

49 Whether it also has something to do with the Vygotskian concept of mediation is something that cannot be discussed here. May it just be noted in passing that the Vygotskian concept of mediation seems to be reduced to language-dependence and, perhaps in a few instances, dependence on other semiotic resources which are signs in our sense, such as pictures.

in cognitive psychology defined. The discussion whether the sign has two, three or more parts has no meaning before we have determined the domain that we are analysing and what criteria we will apply to its segmentation. Those who have rejected the notion of sign or representation, such as Greimas in semiotics, and contemporary cognitive scientists such as Lakoff and Johnson, have never defined that which they reject. Instead of rejection the notion of sign, we have to clarify it, so as to separate it from other notions of meaning, which we will call mediations. The sign, in our sense, supposes the concomitant awareness of at least two items, which are *subjectively differentiated* from each other, while one of them is *directly given* but *not thematic* and the other *indirectly given* and *thematic*. The sign is thus different from other mediations, such as intentionality, in which one item is both directly given and thematic, while the other is neither, and implicational relationships, which are not differentiated. In this sense, pictures are signs, but they refer to intentional relations, and they contain implications.

### **2.3. Meaning before the sign: the *commens* of perception**

The idea of a common sense world has reappeared numerous times in philosophy as well as in the social sci-

ences, sometimes perhaps suggested independently by different scholars. Husserl posits the Lifeworld so as to explain the foundation on which the models of the natural sciences are constructed, both serving as the primary objects studied and transformed by the model, and as the common sense world in which the scientists are accomplishing their work: indeed, you cannot treat the accelerator permitting you to study the electrons as being at the same time a bundle of electrons itself. Students of Husserl such as Aron Gurwitsch, Alfred Schütz, Maurice Merleau-Ponty and Herbert Marcuse considerably extended, not the meaning, but the function of the concept of Lifeworld, using it to explain social reality itself. We owe to Schütz, in particular, the description of the Lifeworld as “the world taken for granted”. The “commens” characterised by Peirce (1998: 478) would seem to be a similar domain of shared assumptions. When the psychologist James Gibson postulated the world of “ecological physics”, so as to explain the possibility of immediate perception, where the older school of constructionists had to suppose complex calculations, he does not refer to Husserl explicitly anywhere in his writings, but he often uses the same phrases and examples. Greimas certainly took the idea of a semiotics of the natural world from Husserl via Merleau-Ponty. Common sense has always been the basis of Anglo-Saxon philosophy, from the British

Empiricists to the Oxford school. At long last, however, even this tradition has come to appreciate the gap, diagnosed by Husserl, between the contemporary natural sciences and the world of our experience, postulating both a “naive physics”, and a “common sense psychology”, which together would seem to make up the Lifeworld. In a more general sense, what Searle (1995:127ff) calls the “background” would also seem to correspond to the Lifeworld, as does, if Searle is right about his parallel, a lot of things written by Wittgenstein and Bourdieu. Coming from a very different tradition, Jakob von Uexküll introduced the notion of *Umwelt* to serve as some kind of world taken for granted of the animals –although, of course, in a deeper sense, the tick and his kin do not have choice of taking anything for granted at all.

### ***The ecology taken for granted: the Lifeworld***

The celebrated semiotician A. J. Greimas (1970:49) suggested that there could be a cultural science of nature, a *semiotics of the natural world* – which was concerned, then, with the world which is natural to us, just as a particular language is our “natural language” (Swedish, English, Spanish, German, etc.). This amounts to an attempt to consider the traditional domain of the natural sciences from a human point of view. One of the cases Greimas mentions but does not dwell on is fire, which would nor-

mally be considered the subject matter of physics and chemistry. However, if it is reduced to the meaning it has for us, then, depending on the particular culture and context involved it may stand for the ancestral gesture thought to mark the beginnings of civilisation, for the operating force of steel furnaces, for one of the four elements, the universal converter of the alchemists, the conflagration of the neighbour’s house, the infernal flames, the cosy fire place in the country house, the log-fire of the barbecue party, the cowboy’s watch-fire, and so on (cf. Sonesson 1989a: 26-29). When fire appears in a particular culture, in a ritual, a film, or a picture, its presence is probably motivated rather by one of the aforementioned meanings or similar ones than by the chemical formula. In some of these cases, fire is a sign, in the others it is a functional object.

Historically, meanings of this kind have constituted “epistemological obstacles”, as Bachelard (1949) put it, for the quantitative reduction, which is a prerequisite of all research in the natural sciences. The result of Bachelard’s “psychoanalyse du feu”, which is really a social psychology of early attempts at explaining fire, strangely echoes Arnheim’s (1966:63) observation, that it takes a very peculiar attitude to see in fire a collection of shapes and colours rather than “the exciting violence of the flames”, though of course the chemists have to go beyond the shapes and

colours too. There seems to be room for a study of the meaning of fire, quite apart from what natural science tells us about it. In this sense, fire is a category, like the phoneme, which introduces discontinuities in the perceived world, and which subsumes many, somewhat differing instances. Quite independently of the presumed identity of the chemical formula, the fire of Hell and of the cosy fireplace may or may not have semantic features in common.

However central fire may be to hominisation, the human body no doubt precedes it. This is the body as seen from the horizon of human consciousness, and it is a formidable epistemological obstacle to the natural sciences in general, and biology in particular. But it is also found at the start of the construction of the human world.

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 the perceptual psychologist James 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 1989a, 1994b,c; 1996a; 1997a). It may seem strange to put together ideas and observations made by a philosopher, a psychologist, and a semioticians; yet these proposals are largely the same; indeed, there are indications that

both Greimas and Gibson took their cue from Husserl.<sup>50</sup>

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 relative to human beings. Husserl's Lifeworld as well as Gibson's ecological physics, but not Greimas' natural world, takes this level to be a privileged version of the world, "the world taken for granted", in Schütz's phrase, from the standpoint of which other worlds, such as those of the natural sciences, may be invented and observed (cf. Sonesson 1989a: 26-29, 30-34, and *passim*).<sup>51</sup> Moreover, while Greimas' semiotics of the natural world largely seems to be a kind of lexicon of the meaning of things, Husserl and Gibson tried to formulate a set of general principles, which underlay all our doings in the everyday world.

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50 Another "science of normality" is the time geography of Torsten Hägerstrand (1983), which is concerned with general invariants of space and time, which tend to be trivial, rather than exceptional in kind, and which impose restrictions on the actions of individuals. So is of course "naive physics" as conceived in cognitive science.

51 Indeed, since he tells us language and the natural world are the two main divisions of semiotic systems, Greimas probably thought of them as equally being representations, not in the wide sense of Fonseca or Peirce, but in that of French structuralism, constructivism in perceptual psychology and classical cognitive science.

It is a basic property of the Lifeworld that everything in it is given in a *subjective-relative* manner. This means, for example, that a thing of any kind will always be perceived *from a certain point of view*, in a perspective that lets a part of the object form the centre of attention. As we noted above, Gibson observes that when we are confronted with the-cat-from-one-side, the-cat-from-above, the-cat-from-the-front, etc., what we *see* is all the time the same invariant cat. To Husserl, this seeing of the whole in one of its parts is related to *the etc. principle*, our knowledge of being able, at any one point, to turn the dice over, or go round the house, to look at the other sides. This principle applies to the temporal and the spatial organisation of the world alike. In time, it accounts for our expectancy, at every moment, that life will go on, or that something will change, or something more definite, such as that the dice will turn out to have a certain number of eyes on the hidden sides (the *protensions*), as well as our knowledge that we existed in the moment immediately preceding the present one, that the dice did so to, and perhaps also our memory of the sides of the dice we have seen before, and the context in which they dice appeared (the *retentions*).<sup>52</sup>

Every particular thing encoun-

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52 This model of time consciousness was used in theatre semiotics, and in literary semiotics, by members of the Prague school, notably by Mukarovsky.

tered in the Lifeworld is referred to a general *type*. According to Schütz, 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.<sup>53</sup> Closely related to the typifications are the *regularities*, which obtain in the Lifeworld, or, as Husserl's says, "the typical ways 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 defined 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, such as a frog into a prince; that no substantial object can come into existence except from another substance; that a substantial detached object must come to rest on a horizontal surface of support; that a solid object cannot penetrate another solid surface without breaking it, etc. Clearly, many of these regularities

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53 A similar point is made by Gurwitsch (1979: 104ff) in terms of roles. More will be said about typification in Lecture 4.

do no longer obtain in present-day physics, but they are necessary for the human environment to hold together. 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 what we have called the Lifeworld hierarchy, and the definition of the sign function (cf. Soneson 1992a; 2000a; 2001a).<sup>54</sup>

More than Husserl, Gibson attends to the general background of the world taken for granted. The “terrestrial environment” of all animals has continued to possess certain simple invariants during the millions of years of evolutionary history, such as the earth being “below”, the air “above”, and the “waters under the earth” (Gibson 1966: 8ff). The ground is level and rigid, a surface of support, whereas the air is unresisting, a space for locomotion, and also a medium for breathing, an occasional bearer of odours and sounds, and transparent to the visual shapes of things by day. As a whole, the solid terrestrial environment is wrinkled, being structured, at different levels, by mounts and hills, trees and other vegetation, stones and sticks, as well as textured by such things as crystals

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54 When latter-day constructionists such as Hoffman (1998) start formulating general laws, they do not seem to be so far from Gibson as the imagine. On the whole, however, Hoffman’s laws seem to apply to pictures, rather than the perceptual world, more like those of Kennedy (1974a).

and plant cells. The observer himself underlies the consequences of the rigidity of the environment and of his own relationship to gravity.

The Husserlean description of regularities also fits in with the notion of *abduction*, which Peirce puts alongside the more familiar procedures of deduction and induction, and which reasons from one particular instance to another, not, however, exclusively on the level of individual facts, for the facts, Peirce tells us, are mediated by certain “regularities”, principles that are tentatively set up or taken for granted. Some of “typical ways in which things tend to behave”, of which most may be of more regional import than those formulated by Gibson, would seem to be at the origin of “signs”, in the Stoic sense of the term, that is, *inferences* or *implications*. In discussing the Mesopotamian art of divination, Manetti (1993: 6ff) distinguishes three kinds of relationships between the *protasis* (p, that is, the if-clause) and the *apodosis* (q, that is, the then-clause): divinatory empiricism, when p and q have occurred together in the past; chains of associations, when there is a similarity between the signifiers, or a rhetorical figure linking the signifieds; and coded relationship between a finite number of identifiable cases.<sup>55</sup>

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55 One may recognize, in the first two cases, Frazer’s (1922: 11) two principles of magic, according to the laws of contact and similarity. Even more ob-



The first type if of course closest to purely perceptual reasoning, and could be formulated in terms of protentions (what can be expected next) and retentions (what can be taken to have happened before). It could also be said to depend on an indexical relationship. That which is described in the protatis-clause may have appeared in the neighbourhood of that which is in the apodosis-clause, in space and/or in time. All experience taking place in time is of this kind, for instance our expectancy, when seeing the wood-cutter with the axe raised over his head, that in the following moment, he is going to strike the piece of wood (contiguity protention), as well as our knowledge that, in the moment just preceding, he lifted the axe to its present position (contiguity retention). Perhaps the regularity which is here taken for granted would be an abduction, as Peirce understands the term, if only in a very trivial sense: it does not take much perspicacity to posit the general rule which connects the two individual cases. There is certainly a difference between seeing the woodcutter lift his axe over his head, and wait for him to split the log, because one event has followed the other in earlier circumstances, and to predict that a rebellion will take place, because the liver of a certain animal which has been inspected has a particular ap-

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viously, the three cases are reminiscent of indexicality, iconicity, and symbolicity (in that order).

pearance which it also had last time a rebellion occurred. Both connections, however, at first may be based on the experience of how things tend to behave in the Lifeworld. Only at later stages will they be separated.<sup>56</sup>

More complex abductions may be necessary, not only in the case of “coded” relationships, but also those based on similarity, since some principle for picking out the relevant properties will always be needed. Still, as long as all this takes place as a matter of course, we are at the level of inferences (or Stoic signs), not that of real signs.

### ***The affordances of a game of chess***

But let us get back to “the things themselves”, and in particular to Husserl’s favourite example: the cube, or the dice — “Würfel” may mean the one or the other. But we will begin with the cube. Like any other ob-

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56 In formulating his laws of ecological physics, Gibson (1982:218) claimed that, contrary to what is often thought, children do not spontaneously believe in magic. At least some kinds of divination would clearly be contrary to these principles of ecological physics. According to Piaget, of course, children do go through a magic stage, and anthropologists apparently have found many adults believing in magic, too, even though the cases quoted in the first section of the lecture concerning magical interpretations of pictures do not seem to be authentic. Still, the Lifeworld of everyday praxis, in which instrumental and other goal-related actions take place, may have to be distinguished from the ideological Lifeworld.

ject, the cube is necessarily given in perception from *a particular point of view*. Husserl calls what is seen the object (“Gegenstand”), and the aspect through which it is seen is termed “*noema*”. In our normal life in the Lifeworld, we do not attend to the particular acts and the corresponding aspects through which the object is given. While the particular noema by means of which I presently see the cube only contains three of its sides in different perspectival deformations, I immediately see it as a cube, complete with its six sides, not as some strange object I hypothesize to be a cube. Through an act that Husserl calls *reflexion*, the phenomenologist, the psychologist, and the aesthetically-minded contemplator may choose to attend to the acts of consciousness and their corresponding *noemata* instead, thereby transforming them into new objects with their own noemata. In normal consciousness however, the act will only give a particular modification to the perception of the object, a tinge of meaning: some parts of the object appear more specified, others only roughly outlined. What is just sketched out in one noema may be filled in in a number of others, and the knowledge that we can always go further in the exploration of the object is part and parcel of our perception of the object, as expressed in the etc. principle. Whereas retentions of already seen sides are the basis for further exploration, protentions may

be specified or rejected when the earlier unseen sides come into view (Cf. Husserl 1939; 1962a, b).<sup>57</sup>

Gurwitsch (1957; 1974a), who compared this Husserlean conception to the “spontaneous phenomenologies” of the Gestalt school, has pointed to the “Gestalt-coherence” with which the mutually confirming noemata form the object of perception. Criticizing Husserl because he seems to consider the object itself as a separate instance, an “X” which is the bearer of the noemata, Gurwitsch (1974a; 254) tells us that the perceived thing is “*nothing else than the internoematic system itself, i.e. the system of multiple adumbrational presentations and of the properties and qualities exhibited in those presentations*”. Similarly, the predication (“X is red”, and so on) which Husserl conceived to be a “synthesis”, an adjunction of new properties, is really an “analysis”, an explicitation of what is already contained in the horizons of the perceptual thing.

While phenomenology does not have any historical connection to contemporary psychologies of perception, as it has to Gestalt psychology, Gibson (1971; 1978) tells us, just like Husserl, that the object is directly seen, complete with its hid-

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57 Thus, like Ames’s famous chair seen from a peephole, one possible noema of the cube may be simulated, without there being an object which gives rise to further, coherent noemata of the same object.

den sides, without any inferences being necessary: even the child will see “the invariant cat”. What assures the identity of the object through all the differing views we may take on it, is, according to Gibson, “the formless and timeless invariants”, reminiscent of the “common core” in Gurwitsch’s “noematic matrix”, which defines perceptual coherence.<sup>58</sup> Still closer to the noematic matrix suggested by Gurwitsch is Gibson’s disciple Hagen (1979; 1980), who maintains that the existence of pictorial perspective requires the mind to take account of “the entire family of possible perspective views of an object” (1980a: 29), quite apart from the Gibsonian invariants. According to Gurwitsch’s (1957:152) profound analysis of the notion of perceptual noema, each point of view is really “*l’appréhension d’un système d’apparences dans la perspective et du point de vue d’un de ses membres*”. This means that each noema contains the whole object, but in such a way that some parts will be at the centre of attention, given in all their details, while other parts are perceived marginally and vaguely, only in their general outlines. There are references (“renvois”; Gurwitsch 1957:191) from each noema to all the others, in which what is here mere-

58 To Gibson, however, these invariants are mathematical, though not expressible in present-day mathematical language. Pending the invention of this mathematical system, however, it is difficult to make sense of this claim.

ly sketched in may be fully known. Thus we meet indexicality in another sense, as the continuity of one view to another – and certainly not as a “sign”, though Gurwitsch, like Jakobson, uses the word “renvoi”.<sup>59</sup>

There is a problem with this description of the Lifeworld that should be as critical to Gibson as to Husserl: suppose that what I am looking at is not just a cube but more particularly a dice. Then the argument adduced by Husserl and Gibson continues to be valid: I will see the object as directly to be a dice as a cube. But this information is certainly not there simply to be picked up: Husserl’s (1962b; 1973) Bantu negro who is supposed to operate the reduction to the common Lifeworld would be at a loss to see the dice, at least if he is otherwise as naive as Husserl supposes. And yet, to a grown-up member of Western culture, the dice is at least as directly seen as the cube.

While both Gibson and Husserl exclude the cultural layer of interpretation from the Lifeworld, Gibson at least take care to single out what he calls “affordances” as a kind of meaning distinct from referential meaning, and thus from the kind of meaning conveyed by signs. There is no proper definition of the notion of

59 In this sense, the picture can never be a noema: whereas one noema will imperceptibly fade into another, the pictorial surface has clearly fixed limits. The frame, however, may interrupt lines that are easily continued in imagination.

affordance in Gibson's work, but he gives some suggestive examples: it is the graspability, or the edibility, of a thing. Graspability can be understood as the aptness to be grasped. Edibility must be interpreted as the susceptibility of being eaten. These are inferences which might be said using a phenomenological term, to be "sedimented" onto a object of the Lifeworld: accordingly, an apple, once it is seen to be an apple, is also perceived as something which may be grasped and then eaten, because these are events being known to have taken place (and "properly" so) with other apples at other times. Therefore, the apple is apt to be grasped and eaten, both in the sense of normality and normativity.<sup>60</sup> While it is possible for graspability to be a property of things in some respect independent of culture, this could hardly be the case with edibility. Anthropological studies are full of examples of things being eaten in some places and considered entirely inedible in other places. And it is easy to think of other meanings that are clearly of the same kind as those mentioned and which are yet culturally specific. We just have to think about the dice. Suppose there is some human culture where die have not been invented: it might yet seem as if the throwability of the dice may be perceived directly by those coming from the proper

culture. Similarly, for most people in contemporary Western culture, a computer keyboard has an immediate property of writability (not necessarily less immediately present than the depressibility of the keys).

Of course, the meaning of the dice is not exhausted by its throwability: it means different things, according as different faces with a different number of eyes turn up, and in account of which kind of game it is thrown. This is perhaps even truer of the different items used to play chess. Saussure, it will be remembered, used chess as a ready analogy to language, arguing that any odd set of buttons may be used to play chess, as long as the rules specifying the possible movements of each buttons were known, just as, in principle, any sound may stand for any meaning in a language. Anything is a king, as long as it is permitted to move in the ways a king moves, just as anything (with some exaggeration, no doubt) may be an /a/, as long as it functions as an /a/ in the vowel system. This may be true, but to someone knowing how to play chess, only a chessman looking like the king immediately *affords* the kinds of movement that are allowed to the king in the game of chess.

Deacon (1997: 41, 59ff) goes even further, comparing "rule-governed games", of which chess must be an instance, together with etiquette rules and music, to language, while excluding "portraits", claim-

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60 This is the double sense of the notion of norm, to which we will attend further in Lecture 7.

ing that the former, but not the latter, have “symbolic reference”.<sup>61</sup> In fact, if we suppose “symbolic reference” to convey the general idea of something being “about” something else, or, equivalently, to stand for something else, then it makes much more sense attributing it to at least some instances of animal communication, and certainly to pictures as used by human beings, than to such things as etiquette, games, and music. Etiquette rules and the rules defining games are not “about” anything at all: they impose restrictions on the behaviour allowed. As Deacon (1997: 61) claims about laughter, it is certainly odd to say that etiquette has a meaning, at least in the sense of reference. To shake hands (in a given context) means that you greet somebody; to move a particular chessman means that the queen takes up a new position causing perhaps a checkmate. As I understand the term “etiquette rules” (but Deacon gives us no clue) it does not involve something like shaking hands. I would describe this as an interactive gesture carrying a meaning just as any other sign. Etiquette rules, however, are those that tell us under which circumstances it is appropriate to shake hands, and when it is not. In this sense, they impose restrictions on the behaviour allowed. Indeed, they determine the *cultural affordances* of handshakes.

61 For the details of my critique, cf. Sonesson 2003a.

The case of chess, however, is more difficult to deal with. What makes some pieces of wood or other material and a board into a game of chess are the restrictions imposed on the permitted movements of the chessmen and the consequences of certain chessmen taking up particular positions. In fact, as Searle has observed, the rules of chess are not like traffic regulations, applying to movements on a board which were hitherto unregulated: the restrictions on movement create chess, but traffic regulations do not create traffic. In other terms, the rules of chess are *constitutive*, but the rules of traffic or only *regulatory*.<sup>62</sup> Clearly, it could be argued that the queen means “able to move in any straight direction as far desired”, in a sense in which /a/ does not mean “low, frontal, sonorous”. More to the point, perhaps, chess is really comparable to language at the level of syntax and hyletics (as we will say in Lecture 4), that is, as something which may occupy certain positions and not others, as well as something which has some invariant traits, and others which may be exchanged freely. The chessman does not carry a meaning differentiated from its expression, as is the case with language and pictures. Again, the chessman *affords* certain movements – but only in a given culture

62 In the Pufendorf lectures, given at Lund University, May 30 to June 2, 2006. The distinction between constitutive and regulative rules is made already in Searle (1969). Also cf. Searle 1995.

for which chess is a cultural fact.

Saussure's comparison involve the chessmen and the elements of languages, such as phonemes and words. It does not pertain to sentences, let alone utterances. But if the affordance carried by a chessman contains not only the sequences of acts having been accomplished with it beforehand, and sedimented onto it, but also the disposition to carry out those same acts in the future, then perhaps each single act, once realised, could be comparable in some sense to an utterance, or, more, exactly, the act of uttering, the enunciation. Indeed, Clark (1996: 40ff) suggests that each move in chess could be seen as an act of communication, modifying the state of the common knowledge of the two players. If so, each movement of the queen would be a kind of "chess act", comparable to a speech act, in case of which chess would be a highly repetitive type of discourse. Considered as a sign system, chess would therefore possess a very limited domain of validity, or, as we will say later on, very restricted content resources.<sup>63</sup>

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63 Cf. in Lecture 4, the discussion of Lessing's analysis of pictures as opposed to language. Clark's (1996:48f) observation that, in addition to the commonly accepted description of the series of moves made so far, there is also an "annotated record" in which one move may be characterized from the point of view of one player as "a blunder" or "a bold move", refers to what we, in Lecture 4 and 5, will term different intensional levels of description.

Searle (1995: 43ff) describes the constitutional rules giving rise to games (and to institutional reality generally) using the formula "X counts as Y in C". His examples are such things as paper money and chess. To my mind, we may very well say that a chessman (or a button having been substituted for it on the board) *counts as* an item apt to move in certain specified ways on the board. To say that an expression (of a word, a gesture, a picture, and so on) counts as its content, however, is fairly misleading. Signs may really be surrogates for things, in a way, but they fulfil different functions than the things themselves. They permit us to take a stand on things, so as to chess, for the purpose of the life-world, the meaning of these things. No chessman, nor even a move by a chessman, really counts as a statement modifying the meaning of the game of chess, let alone that which is outside of the world of chess.

### ***Von Uexküll on how it feels to be a tick***

It has been suggested (notably by Smith & Varzi 1999) that the Life-world, understood as above, is simply the niche, in the sense of (non-Gibsonian) ecology, in which the animal known as the human being stakes out his life (cf. Sonesson 2001a: 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 *sub-*

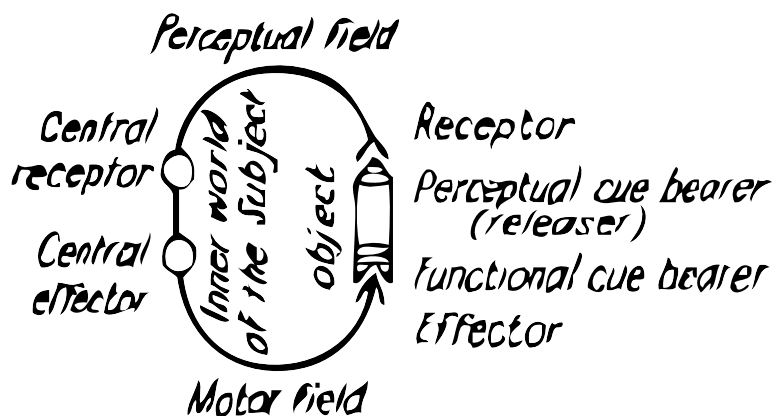


Fig. 14. The model of the Umwelt according to Jakob von Uexküll

*jective-relative* – relative to the particular species. The precursor of the niche, understood in this way, is the notion of *Umwelt* introduced by von Uexküll, which is today the defining concept of the speciality known as biosemiotics.<sup>64</sup>

Uexküll's notion of meaning centres on the environment, the *Umwelt*, which is differently defined for each organism (cf. Fig. 14.). As opposed to an objectively described ambient world, the *Umwelt* is characterised for a given subject, in terms of the features which it perceives (*Merkwelt*) and the features which it impresses on it (*Wirkwelt*), which together form a functional circle (*Funktionskreis*). According to a by now classical example, the tick hangs motionless on a bush branch until it perceives the smell of butyric acid emitted by the skin glands of a mammal (*Merkzeichen*), which

sends a message to its legs to let go (*Wirkzeichen*), so that it drops onto the mammal's body. This starts a new cycle, because the tactile cue of hitting the mammal's hair incites the tick to move around in order to find its host's skin. Finally, a third circle is initiated when the heat of the mammal's skin triggers the boring response allowing 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 defined 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 risk getting bogged down very early on.

<sup>64</sup> I have presented the *Lebenswelt* as a particular kind of *Umwelt* in earlier papers of mine, before realising that Deely (2001) had also made this comparison, without however entering a discussion of the import of the Husserlean notion.

If we confront the sign conception defined here with the world of the tick, however, it will be easy to see that there is no room for it there. 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.

Before the invention of biosemiotics, Ernst 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 goes on to observe that this is also true of animals, as described by von Uexküll. But he makes no mention of the fact that, to von Uexküll, 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 these 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.<sup>65</sup> However, there are, as I will explain in the following, two differences between what is happening in the *Funktionskreis* and what we have here defined as a sign.

As Ziemke & 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". What 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 & 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

65 It will be observed that we are here simply equating the triadic, or Peircean, conception of the sign with the so-called dyadic, or Saussurean, one, in accordance with the interpretation suggested in the second section of this lecture.



its place is taken by an entirely different process” (my italics). Uexküll calls this a “sign”, but it should be clear that it does not in any way fulfil the requirements of the semiotic 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. In addition, it does not make sense to say that either the butyric acid or the mammal is in focus or not. Nor is there any sense in determining whether the butyric acid or the mammal is directly given.

What is lacking is real Thirdness: the reaction to the primary reaction, that is, the reaction that does not respond to a simple fact (Firstness), but to something which is already a reaction, and thus a relation (Secondness). 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.

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. Or, to be more precise, it

is not the “dynamical object”. At the very most, it is the “immediate object”. It will be remembered that, 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). This is true, however, only if one does not separate indexicality and indexical signs, or iconicity and iconic signs.

### ***From Umwelt to Lebenswelt : the thematic field***

As I have often pointed out, to account for the distinction between the “immediate object” and the dynamical object, we need the concept of

*ground*.<sup>66</sup> 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 (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). Some commentators have claimed that Peirce is here talking about some properties of the expression, whereas others favour the content.<sup>67</sup> 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 comprehend an agreement of two things, except as an agreement in some respect” (I.551). In another passage, Peirce himself identifies “ground” with “abstraction” exemplifying it with the blackness

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66 This was independently noted by Søren Brier 2001.

67 Indeed, Peirce talks about “the ground of the representamen”, and even claims that the representamen is connected to three things, “the ground, the object, and the interpretant”. This corresponds to the interpretation given by Savan (1976), but is opposed to that of Greenlee (1975). Indeed, a quotation from Peirce (I.551-3) given by Deely (2001:642f), but not commented upon in this sense, seems to suggest that Peirce would reserve the term “ground” for the portion of the expression singled out and use the term “correlate” for the corresponding part of the content. This would however seem to do away with the relational character of the notion involved.

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 1989a:III.1).<sup>68</sup>

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68 Some passages in the work of Peirce (quoted and discussed in Eco 1999) suggest that the ground should be an instance of Firstness. Deely (2001:343, 641) clearly condones this interpretation. It would be true of the respective lists of properties of the thing serving as expression and the thing serving as content, but not about the principle establishing the relation between them. However, as I noted in the preceding footnote, Peirce would

It has been suggested by Deely (2001: 343ff; 641ff) that the notion of ground is equivalent to what is known in scholastic philosophy as the “formal object”. It may at first seem that this would support my interpretation. In fact, however, the formal object turns out to be that which describes the domain to which particular sense organs are receptive: the eyes to differentiated lights, the ears to sound, smell to odours, touch to textures, etc. This is of course a kind of principle of relevance, but a very broad one indeed. Such a notion could perhaps account for “the blackness of two black things” as an instance of differentiated lights (where the abstraction would separate blackness out from other properties of the hue and of the things to which they apply). But it seems that the “respect” in which there is “agreement between two things” would often have to be much more precise to characterise a sign relationship. However, apart from the five external senses, medieval philosophy distinguished a synthetic sense (called “common sense”), memory, imagination, and estimation. This would seem to open up the application of the concept of

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apparently call this first list “ground” and the second list “correlate”, but I would prefer to use the term “ground” for the whole phenomenon, distinguishing, when appropriate, the expression ground from the content ground. – For the discussion of biosemiotics which follows, see, in particular, Sonesson 2003a.

formal objects considerably. If formal objects are indeed “ten formally distinct cognitive channels” and may be defined as “whatever is directly and essentially attained by a power and by reason of what whatever else is attained is attained” (Deely 2001; 344), then it may perhaps have something to do with what I have suggested here, but it remains considerably less specific.

The butyric acid, the hairiness, and the warmth form the immediate objects of the tick, 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 its entirety, is unknowable, though less so for human beings than for ticks. The Kantian inspiration of von Uexküll is of course unmistakable. Indeed, the filter model can best be expressed in terms of another Kantian philosopher, Karl Bühler, who talked about the principles of “abstractive relevance” and “apperceptive supplementation”, where the first accounts for the neglect of such physical properties which are not endowed with meaning, while the second explains the projection of properties not physically present in perception to the meaningful experience. In fact, Bühler tried to explain such

linguistic phenomena as Saussure and Hjelmslev described in terms of “form” as opposed to “substance”: that certain properties of the physical sound may vary a lot without the units of meaning (the phoneme, the word, etc.) being changed; and that other properties which are not physically present may yet be perceived, because they are expected in the context. 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 1989a).

The same general idea is found in the work of the cognitive psychologist Fredrick Bartlett (1932: 32, 44), who introduced the concept of scheme to account for our “*effort after meaning*”. Bartlett used the notion of scheme in his studies of memory, in order to explain the successive modifications which a story stemming from an alien culture was subjected to, as the experimental subjects were asked to recount it from increasing temporal distances; but also in order to explain how one and the same drawing was transformed in later reproductions from memory, in different ways according as it had been labelled the first time as a pair of glasses or as a dumbbell. The scheme is to Bartlett “the setting which makes perceiving possible”, and, more pre-

cisely, it is “an active organisation of past reactions, or of past experiences, which must always be supposed to be operating in any well-adapted organism’s response”, with the result that responses do not occur in isolation, but “as a unitary mass” (p.201). The last definition (in spite of introducing a socio-historical dimension) is reminiscent of Uexküll’s notion of *Umwelt*.

This notion of schemes was used before Bartlett by Janet and Halbwachs, and it has been taken up later by Piaget, as well as by the phenomenologist Alfred Schütz. It has of course also become a fundamental concept in cognitive psychology, linguistics, and artificial intelligence, but perhaps sometimes with a lower intentional depth. Elsewhere, I have summarised the results of these studies in the following way (Sonesson 1988): a scheme is *an overarching structure endowed with meaning, which, with the aid of a relation of order, in the form of syntagms and/or paradigms, joins together a set of in other respects independent units of meaning*. Among its further properties, two, in particular, are to be noted here: a) schemes contain principles of relevance which extricate from each ineffable object such features as are of importance relative to a particular point of view (this is Piaget’s assimilation, and the principle of abstractive relevancy, according to Bühler 1934); b) schemes also supply properties missing from the

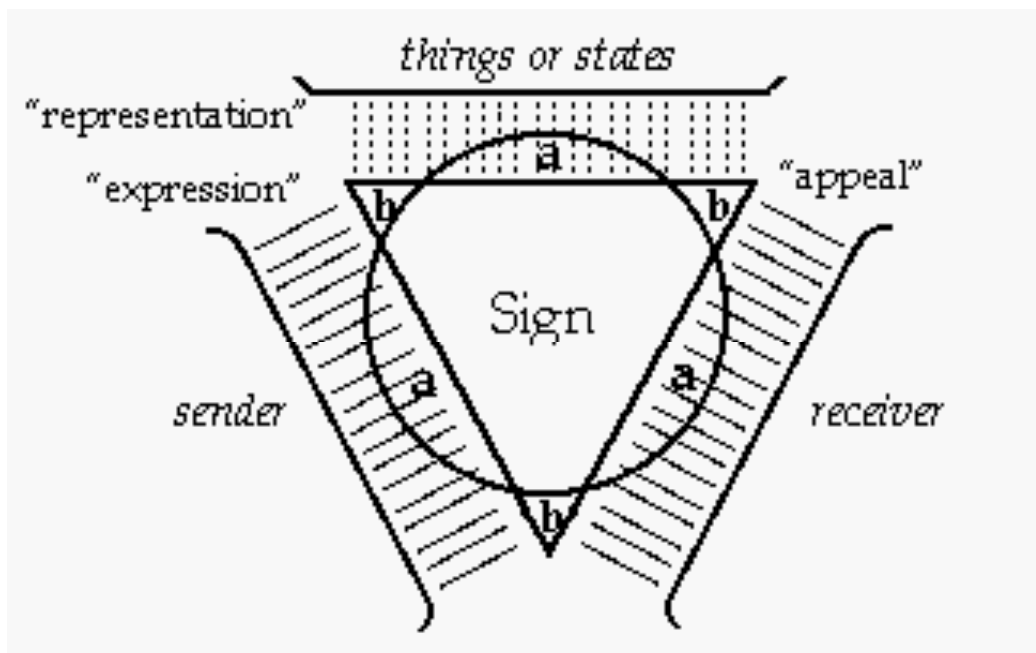


Fig. 15. The Organon model according to Karl Bühler, with abstractive relevance and apperceptive supplementation

ineffable objects, or modify the objects so as to adapt them to the expectancies embodied in the schemes (this is another aspect of Piaget's notion of assimilation, and what Bühler terms apperceptive supplementation; also, it is involved in what Halbwachs and Bartlett call reconstruction).<sup>69</sup>

Returning to modern day biosemiotics, it can be easily shown that what these authors are involved with has nothing 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 & Hoffmeyer (1991: 4), point out, in

<sup>69</sup> Some schemes incorporate (some of) the results of their own use on ineffable objects, and are themselves changed in the process, which is what Piaget calls accommodation, and perhaps what Lotman calls "internal recoding". Cf. Sonesson 1988:II.1.3.3.

criticising the concept of information in information theory, 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 difficult to detect any sign function here, in the sense in which we have defined it. According to our authors, 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).

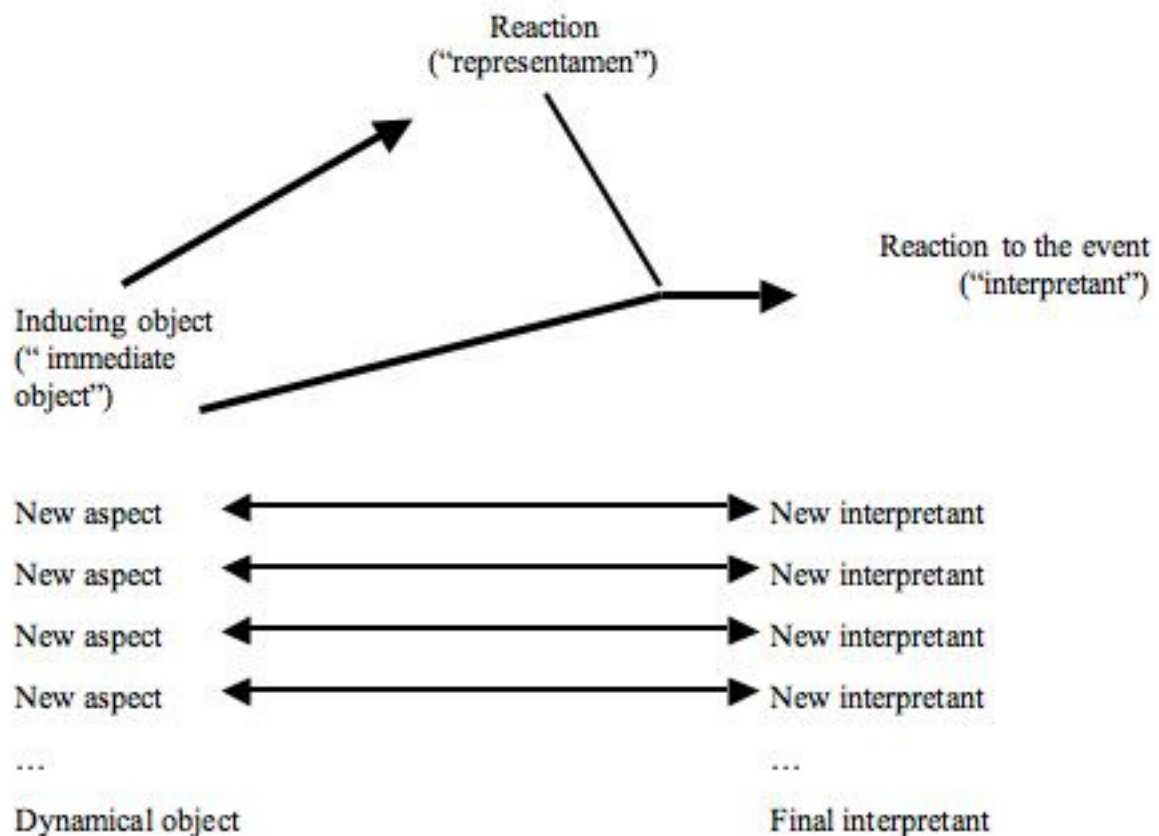


Fig. 16. Peirce's notion of sign as a kind of "formal sign" – that is, meaning in the sense of relevance

This certainly suggests meaning as 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". Indeed,

Saying that *cytochrome c* means something to the cell is the same as saying that it 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 is of course true 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 semiotic function as we have defined it.

It may be useful to distinguish two elements which always go together, both in Uexküll's notion of *Umwelt* and in the concept of scheme

(as discussed in Sonesson 1988; 2003a): *organisation*, which may derive from structure or configuration, and *relevance*, which may or may not be a result of organisation. It is clear that in language, as Saussure understands it, relevance is a result of organisation, and more exactly of structure. In Uexküll's notion of *Umwelt*, it rather seems to be a product of the configuration.<sup>70</sup> Lacking the competence, I prefer not to pronounce myself on the case of genes.

It is useful also to distinguish relevance from filtering, although they have something in common: the 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 the words and the sentence, still may serve to inform about the dialect, or even identify the person speaking (Hjelmslev's "connotational language"; cf. Sonesson 1989a;

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70 My reason for saying so is that Uexküll insists that the three properties to which the tick reacts form a whole, or an experiential world, to the animal. This is the sense in which the *Umwelt* is a subjective concept. Cf. Brier 2001. In denying the robot an *Umwelt*, Emmeche 2001 also puts his emphasis on the experiential whole. Not being a biologist, I have some difficulty seeing why we have to suppose any connectedness between the features to which the tick reacts.

and Lecture 5). 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, the principles of "abstractive relevance" and "apperceptive supplementation" still apply. In contrast, *filtering* simply crosses out that which is not let through the filtering device.

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", or, as cognitive scientists are wont to say, "a theory of mind". To the tick, to paraphrase Wittgenstein, the limits of its language are the limits of its world, but not so (in spite of Wittgenstein) to human beings. Or rather, the limits of our *Umwelt* are not the limits of your *Lebenswelt*.

According to the phenomenologist Aron Gurwitsch (1974), we may talk about different sociocultural lifeworlds, apart from the common structures of the Lifeworld, which we all share as human beings. Such a socio-cultural lifeworld would then correspond to a culture, in the sense of cultural semiotics. However, the phenomenologist Alfred 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 it 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 it 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 observed, even if we had a common language game, we would perhaps not have so much to talk about 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 the lion. And this is why there may not be much hope for us ever being able to discuss semiotics with a chimpanzee.

If the *Umwelt* is a *organised network of filters and/or relevancies*, as I suggested in the last section, 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 always a “zone of proximal development”. In this sense, ontogenesis it-

self 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.<sup>71</sup> 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

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71 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 semiotic function.



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 now, 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.<sup>72</sup> As noted above, there really are 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 more to it: there is no representamen, either, if we identify this term with expression, because no distinction can be made between such a representamen and the object, either immediate or dynamic.

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72 Differences in the structure of attention have been discussed in very different quarters already, although at a much higher level separating human beings and apes, as well as children of different ages (cf. Tomasello 1999; & Carpenter, Call, Behne, & Moll 2005; Zlatev 2002, 2003).

## ***Common sense psychology and intentionality***

Taking into account the Fonseca tradition, we earlier noted that one kind of mediation (for which I prefer to 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, I prefer to call 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” (where it may be better to avoid terms as these, ordinarily associated with the sign function, and simply talk about an item ushering into another item). 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). As human beings, as Husserl and Gibson have insisted, we are alternatively confronted with the-cat-from-one-side, the-cat-from-above, the-cat-from-the-front, etc., but what we really *see* is all the time the same invariant 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. But there is no noematic matrix either, properly speaking. The noematic matrix involves seeing the whole of the thing,

but from a particular point of view. To the tick, the thing and the point of view cannot be separated. In this respect, even intentionality is beyond the ability of the tick.

Intentionality as it is understood in the Brentano-Husserl tradition simply involves the directedness of consciousness. Every act of consciousness is about something “in the world”, in a more immediate sense than which this is true about signs. The relation between consciousness and the thing that is the object of consciousness may be called an *intention*. An intention in this sense is not a purpose, although a purpose is a kind of (very complex) intention. Nor should an intention, in this particular sense, be confused with an *intension*, in the sense in which this term is opposed to extension.<sup>73</sup> And yet, as a linguistic phenomenon (but we will see in Lecture 4 that they are more than that), intensional contexts, also known as propositional attitudes, seem to have something to do with intentions.

In Anglo-Saxon philosophy and contemporary cognitive science, the notion of common sense psychol-

ogy, together with naive physics, correspond to the Lifeworld, or the *commens*, which we have presented in this section. However, it figures there mainly as a problem, concerning how (if at all) it might be mapped onto scientific psychology. For this purpose, common sense psychology is often formulated in terms of propositional attitudes. In linguistic terms, propositional attitudes are expressions beginning with “I think, believe, imagine, etc. that p”.<sup>74</sup> More generally, if someone is said to have a belief that p, then he may be said to have a propositional attitude with reference to the content p (cf. Bermúdez 2005: 244ff). Since the verbs used in the formulation of propositional attitudes are by definition mental descriptions, it would seem that they should correspond to intentions. However, if an intention is the fact of consciousness being directed to something in the world, it seems that the object of an intention is a thing (a “substance” or something comparable to a substance such as a nominalised property), but the object of a propositional attitude is a state of affairs (corresponding to a clause).

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73 Searle (1995) makes a distinction, which appears to be similar, between “intension-with-an-s” and “intention-with-a-t”. The very same distinction was made in Sonesson 1978. In Lecture 4, I will talk more about intensions and extensions, in the guise of intensional and extensional hierarchies, and in Lecture 5, I will discuss their relation to different uses of the terms connotation and denotation.

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74 In this sense, propositional attitudes are intensional. If I think about, or even perceive, the Evening Star, this is not the same thing as thinking about, or perceiving, the Morning Star, although the Evening Star and the Morning Star happen to be the same celestial body, Venus. Although there is thus referential (extensional) identity, the two terms cannot be exchanged with meaning being preserved.

It might be argued, however, that although that which is the object of the intention is a thing, that by means of which it is intended, the noema, is a state of affairs. Thus, to intend the dice, one has to entertain the proposition that there is a dice seen from above right, the central face of which shows four eyes, against the background of the tabletop, etc. Yet one must not forget that, while this may well be the thematic noema within the complete noematic matrix, in comparison to states of affairs such as the dice seen from below left, the central face of which shows three eyes, against the background of the floor, and so on, it is only relatively thematic, when compared with the entire noematic matrix which is identical to the dice itself, according to the phenomenology favoured by Gibson and Husserl alike. Indeed, in the intentional relationship, the dice is that which is thematic and directly given, the intention going right through the noema.

We are here at such a subtle level of phenomenology that it is all too easy to go wrong. If the sign consists of two objects, the expression and the content, then it seems that the intentionality of the sign will be directed most immediately to the expression, not as a noema, but as the X that is at the centre of the noematic matrix. But the intention does not come to a close there. It goes on to the indirectly given object, which is the theme of the sign, the content. Within the con-

tent, however, it may stop at the noema of content (also known as the intension), or go on to the centre of the noematic matrix (the extension).<sup>75</sup>

There is something curious, however, in identifying common sense psychology, if it comes in the guise of a set of propositional attitudes, with what, following Husserl, Gibson, Peirce, and others, I have characterised as the Lifeworld, the world taken for granted. If anything, the Lifeworld is implicit, sedimented knowledge. In Husserlean terms, a propositional attitude is a “judgment”, which stands in direct opposition to the so-called ante-predicative experience, which is at the origin of the structures of the Lifeworld (cf. Husserl 1939). In contemporary cognitive science, it has been argued that the domain claimed by common sense psychology is really made up of such things as frames and routines (cf. Bermúdez 2005: 172ff). This does not seem to be very different from my old argument against Searle (Sonesson 1978): you do not see the marks on the desert sand as writing because you think someone has had the purpose of you to see it as writing, but, on the contrary, because you see it as being a typical instance of writing, you take for granted that there must be somebody (if it

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75 It may also in some ways return to the expression, or to the form of the content, which is what Jakobson calls the poetic function and Mukarovsky terms the aesthetic function. Cf. Lecture 6.

can only by God, a ghost, and some other spirit, so be it) that has had the purpose for you to see it as writing (or more, simply, who has brought about that these marks have the semblance of writing, an act which is normally made on purpose).<sup>76</sup> This is a scheme of interpretation, sedimented from earlier instances of experience. In this sense, it goes back to earlier judgmental acts, but it normally operates as a matter of course.

In his more recent work, Searle (1995: 24) similarly rejects the idea of mutual knowledge (of the type “I believe that you believe that I believe...”), instead arguing for what he calls “we intentionality” or “collective intentionality” being a biological primitive, not reducible to a combination of individual intentions. This is an excellent point, but Searle only applies his insight to what he calls “institutional facts”, identified with social reality. Clearly, the Lifeworld in its entirety reposes on collective intentionality in this sense. Yet, this is apparently not what Searle wanted us to understand: according to his idea of “our contemporary world view”, the physical world is not to be understood in terms of “naïve” or “ecological physics”, but as “natural concepts” which are “language-independent” and even “mind-independent”

<sup>76</sup> Formulations like these are normally made using the expression “having the intention”, but I will avoid this expression and similar ones here, in order not to confuse intention in the sense of purpose with intentionality.

ent” (Searle 1995: 33, 61, etc.). This is certainly very different from both Husserl and Gibson, both of whom tend to reduce the Lifeworld to that of everyday physics, although none of them would probably describe the latter as independent of mind.<sup>77</sup>

There is however something different in Searle’s new conception, which in some ways is more similar to the Lifeworld, that is, the “background”, defined as “the set of non-intentional or preintentional capacities that enable intentional states of function” (Searle 1995: 129). It is important to note that, in this definition, Searle takes “enable” to describe a causal, not a logical relationship, as would be the case in propositional attitudes, which Searle seems to identify with intentions. Searle also claims that intentional states are at least potentially conscious, which is not true of the background. The “functions” of the background, however, are reminiscent of those of the Lifeworld: the background enables linguistic and perceptual interpretation, such as adapting a word with a single meaning to different circumstances, or finding the duck or the rabbit in the Wittgensteinian

<sup>77</sup> I am certainly not out to deny the existence of a real world, which is a thesis Searle (1995) rebukes in the second part of his book. I am simply not convinced that the descriptions stemming from physics, considered as a natural science, are closer to this real world than are those of ecological physics.

figure;<sup>78</sup> it structures consciousness, so that even in the Mexican jungle, we can find the sky and the earth; it organizes sequences of experience into dramatic categories; it structures our preparedness in relation to the activity to which we devote ourselves, as for instance the readiness for other skiers becoming potential dangers when we are skiing; etc. These are obviously things taken for granted, which we have met before, in the form of the typifications of the Lifeworld, its temporal horizons, the laws of ecological physics, the affordances, the structure of the field of consciousness, and so on. It is not clear, however, why these phenomena are said not to be intentional. Clearly, in the sense in which intentionality means directedness to an object of the world, they remain intentional, whether we are actively entertaining them or not. This is why Husserl would count them as instances of passive intentionality. As all sedimented acts, they must be capable of attaining consciousness, at least in a phenomenological analysis. And while they may be, in some sense, causal (which to Searle means “neurophysiological”), it is not at that level that they form the background of consciousness, that is to say, the Lifeworld.

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78 As so often, we find picture interpretation to be taken as the prototypical case of perception.

## Summary

In this section, I have taken pains to distinguish two kinds of mediation, one, for which I prefer to reserve the term “sign” consisting of a mediator (signifier/expression) which has to be perceived as such in order to usher into the perception of the corresponding mediated item (signified/content); and another one (which following the Brentano-Husserl tradition, I prefer to call intentionality) which consists in a mediator which is not ordinarily perceived as such but still somehow serves to bring along the perception of some kind of mediated item. Meaning is much broader than sign: it is given already in perception, notably in the form of indexicalities or neighbourhood relations, or in the form of iconic grounds, or identity relations. In this general sense, meaning may be understood as a way of picking up selected information from the real world, either by means of filtering out everything else, or by organising the environment into a thematic hierarchy. The first case is well known from the work of Uexküll and his followers in biosemiotics. The second case is more typical of the human Lifeworld. The sign, however, is a peculiar creature of the Lifeworld: it supposes the concomitant awareness of at least two items, which are *subjectively differentiated* from each other, while one of them is *directly given* but *not thematic* and the other *indirectly given* and *thematic*. It typically also

supposes an (potential) awareness of the difference between the sign and the world, between (to paraphrase, partially, Peirce) the immediate and the distal content. Among meanings other than signs, we may distinguish those that are, in a manner of speaking, horizontal to the Lifeworld, such as inferences or abductions, and those which are vertical to this same world, that is, the intentional relationships connecting subject to their experiences. Intentionality is much like propositional attitudes, but while the former description the direction of a consciousness to an object, the latter is a description of the state of affairs arising from this connection. Signs are, from this point of view, double intentional relationships. While the noema in which an object is given is thematic in relation to other noemata, it is non-thematic when compared with the noematic centre; moreover, in a sign, the noematic centre of the expression is non-thematic in relation to the content. However, propositional attitudes or collective intentionality do not seem to be able to account for the passive nature of Lifeworld meaning. Nor can this meaning, as meaning, be properly explained in terms of neurophysiological causality.

## 2.4. Steps to the cultural world

So far we have been talking about the picture sign as an almost natural

phenomenon — in the sense, at least, of ecological physics. But there are reasons to think that the picture sign constitutes a decisive step in the creation of the cultural world — the world that is independent of any particular human subject but is only accessible through human subjectivity. Signs are often thought of as being objects the business of which it is to circulate through the world from a sender to a receiver, but it is important to realize that signs also have the function to conserve meaning, in time as well as in space. In this sense, signs are memory devices. It even seems that those who talked about signs during the early “Modern Age” (contemporary with Deely’s late “Latin Age), such as Hobbes and Leibniz, conceived of signs mainly as markers (“notae”) for permitting us to remember earlier thoughts, that is, mainly as messages to ourselves (cf. Dascal 1978; 1983; 1998). But even a culture may be said to take notes for its own use, in which case we are confronted with what Lotman (1979) called “culture as collective intelligence”, or, perhaps better, in an earlier terminology, as “collective memory” (in these sense of Halbwachs and Batlett).

If indeed mental images and (personal) memories are signs, as Piaget suggests, then they are certainly less useful for both the purpose of circulation and accumulation than language, pictures, and even gesture. Indeed, it may seem that it is because meaning may be conserved,

in space and in time, that human culture, with all its variety of socio-cultural lifeworlds, becomes possible. In some ways, signs may be persistent enough once they are known by more than one individual, and may be accessed both by the one creating them and one other person, as happens with gesture and spoken language. But the sign character, in the sense of the capacity for circulation and accumulation, becomes even more pronounced, once the sign has acquired a more enduring material embodiment, as is the case with drawing and written language. It has been suggested by Merlin Donald (1991; 2001) that there are several phylogenetical discontinuities (which can be extended ontogenetically, as suggested by Zlatev 2002, 2003, in press a, b; with Persson & Gärdenfors 2005) in the development which leads from non-human animals to human beings, all involving the acquirement of a distinct kind of memory, considered as a strategy for representing facts. In this story, the picture represents a decisive, final step.

### ***Signs as portable memory***

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 of material which conserves the mark-

ings 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 language capacity and the sophistication of the depictions (whatever that is). There are, however, more fundamental reasons for supposing pictures to be later in development than language: they suppose a record which is independent of the human body; and they require us to see a similarity within an overarching dissimilarity. Here we will be concerned with the first property.

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Semiotics is often styled as a science of communication. However, if, unlike rhetoric and hermeneutics, it is concerned with the resources by means of which meaning is conveyed from the sender to the receiver (as argued in Lecture 1), the properties of these resources become as important as the way they may be transferred. Within semiotics proper, the Tartu school has observed that the accumulation of information as well as of merchandise precede their interchange and is a more elementary and more fundamental characteristic of a culture. According to Lotman (1976), material objects and information are similar to each other, and differ from other phenomena, in two ways: they can be accumulated, whereas for example, sleep and breathing cannot

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79 It is the task of Lecture 3 to investigate the second property.

be accumulated, and they are not absorbed completely into the organism, unlike food, instead remaining separate objects after the reception. It is interesting to note, that in this respect, Lotman would not seem to agree with von Uexküll and his followers in biosemiotics, because the kind of “information” which is taken in by the animals within their *Umwelt* (and certainly by the cells) appears to be entirely absorbed at the end of each cycle.

In another way, however, Lotman’s claim is problematic, for it does not take into account the material resources necessary for making up (most) signs. Although Lotman pinpoints the parallels between merchandise (and therefore, by extension, at least as Lotman seems to understand the term, material objects), he treats the sign as pure information (perhaps because he thinks mainly about verbal texts, notably in their oral form, where the material base is extremely mutable), without which the parallel would have been pointless. Clearly, however, signs are *also* material objects, and therefore subject to the kind of circulation and accumulation attributed by Lotman to merchandise. More obviously than language, a picture is as much a material object as a piece of information, as much an artefact as an object of perception. This is why we can accumulate pictures in a double sense: as material things, in the safe-deposit box of a bank, or like experienc-

es in the mind. In both senses they maintain a certain distance with respect to the body. Thus far the parallel holds. Yet Lotman’s parallel is arguable in the opposite sense, too: food which he opposes to merchandise and information may be a kind of merchandise, too, and it is just as accumulable *qua* merchandise as all other kinds; and breathing is an activity or perhaps rather a process, and processes can never be accumulated, not even the processes of transferring or accumulating (although they can obviously be converted into tapes and records), if not as processes themselves (which may, contrary to what Lotman maintains, suppose an incorporation of sorts into the organism, such as in the case of gesture). In saying that both merchandise (and by implication material objects in general) and information may be circulated and accumulated, it seems that Lotman does not say very much. The real question is perhaps in *which way* and *to what degree* information and material objects may be accumulated (and circulated).

Some of the characteristics that Lotman attributes to information are reminiscent of those which are mentioned by Masuda (1980), one of the first propagandists of information society, but in some respects Masuda appears to say something very different : in his view, information is not consumable, no matter how much it is used, and it can be transferred to a new place without disappearing from



the point of origin; it is not accumulated if it is not used as is the case of material goods but, on the contrary, by being used increasingly and being integrated with other information. Where Lotman pinpoints parallels between merchandise and information, Masuda insists on their differences, observing that information, contrary to material objects, may be transferred to new places without disappearing from their point of departure, as well as being used without being dissipated and spent; and where Lotman argues that information stays separate from the organism, Masuda claims it is integrated with other information, which could be taken to refer to a process taking place in brain structures, but also, more reasonably, could be expressed in terms of semantic, or more broadly, semiotic, structures.

Against Masuda as much as against Lotman it is possible to object that even the most elusive kind of information must be incarnated in some type of material substance, quite apart from the fact that all access to the information in question depends on some material apparatuses called computers, hard discs and compact disc player. In the world of ideas the content of a book exists indefinitely; but in reality, it evaporates with the last paper copy which moulders away or the last person that dies or forgets the content. It could be argued, however, that while the first case is feasible in the case of books

(and of language systems which disappear when the last speaker dies – or, rather, when the last two speakers do), only the second case applies to pictures. Pictures must really be conserved in a material form independent of the human body.<sup>80</sup> Today, that material form may very well be a computer record. But also computerised information is dependant on the wear and tear of the units of storage such as compact discs and hard discs.

In this sense all information goods are temporarily limited – even though some limitations can be of relatively long duration. Roland 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 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. Normally, it is Posner's transitory artefacts whose development in time causes them to seem somehow "less" material (which is of course nonsense but must be taken seriously in the

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80 They can, however, be preserved as the capacity for reproducing them, that is, as the sequences of repeatable actions, which is an instance of Donald's mimetic memory (for which see below).

Lifeworld). It is easy to understand that thinkers of the Enlightenment like Diderot and Lessing could conceive of language (which they tended to imagine in its spoken form) as a “more subtle material” than the picture that endures in time (at least until air is let into the prehistoric caverns or car exhaust is allowed to devastate the frescoes of a later time).

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 Berekhath Ram figure (Fig. 7), 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 hu-

man agent (that is, “anthropogenic” movements). This suggests that the first organism-independent records are indexical, rather than iconic, in character. However, even if objects like these were independent objects already in prehistory, there is nothing to prove that they were perceived as signs, that is, as expressions differentiated from contents, before pictures were so perceived.

Harold Innes (1950) differentiates all cultures according as they favour more lasting storage media which are difficult to transport, such as stone tablets, or media which are less enduring, but easier to transport like the papyrus. In other words, it could be said that some media are better for conserving information in time, while other do a better job of sustaining it in space – which could also be expressed in Lotman’s terms by pointing out that some media provide mainly for accumulation and others for circulation.<sup>81</sup> But, again, it may be better to ask *what degree and kind* of accumulation and circulation pertain to different storage media.

An even more fundamental

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81 In a similar way, Metz (1990) has claimed that a photograph, but not a film, could become a fetishist object, in the Freudian sense, precisely because the former has more of a material character. All cases considered by Innes are of course enduring artefacts, as is the photograph (while the case of the film is more complex); it is only that their capacities for accumulation and communication respectively are more or less emphasised.

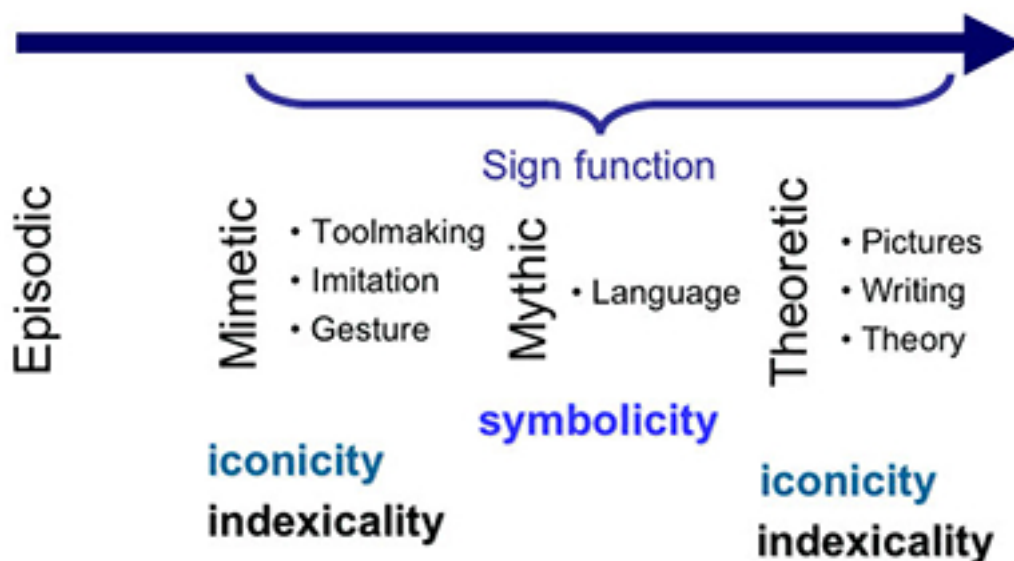


Fig. 17. Semiotic stages of development, according to Donald, in relation to the semiotic function and the different principles

question, however, may be what this phenomenon called information is. We have supposed so far (as Lotman certainly did) that it can be identified with what we have called meaning, and perhaps even more specifically with signs. Unlike Masuda, most propagandists of the society of information, also called the knowledge economy, have not tried to explicate their terms. Clearly, however, the term “accumulation”, used by both Masuda and Lotman, as well as the term “storage media”, employed by Innes, suggests that we are somehow concerned here with what can be preserved, not, as material objects, in a storehouse, but in memory. Individual memories, however, may well be accumulated (and integrated), but not transferred. In order to be both accumulated and transferable, it seems, memory must be social: we know it as tradition (in the sense of herme-

neutics), as rumor, but also as collective memory. Another name for tradition (and rumor) is history – which may also comprise prehistory.

According to Donald’s (1991: 2001) conception of evolution, many mammals, who for the rest live in the immediate present, are already capable of *episodic memory*, which amounts to the representation of events in terms of their moment and place of occurrence (cf. Fig. 17). The first transition, which antedates language and remains intact at its loss (and which Donald identifies with *homo erectus* and wants to reserve for human beings alone) brings about *mimetic memory*, which corresponds to such abilities as the construction of tools, miming, imitation, co-ordinated hunting, a complex social structure and simple rituals. This stage thus in parts seems to correspond to what we have called

the attainment of the semiotic 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 brings about language (which, Donald muses, may at first have been gestural) with its *semantic memory*, that is, a repertory of units which 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 development stops there, although there are no more biological differences between human beings and other animals to take account of. However, the third transition obviously would not have been possible without the attainment of the three earlier stages. What Donald calls theoretical culture supposes the existence of *external memory*, that is, devices permitting the conservation and communication of knowledge independently of human beings. The first apparition of theoretical culture coincides with the invention of drawing. For the first

time, knowledge may be stored eternally to the organism. The bias having been shifted to visual perception, language is next transferred to writing. It is this possibility of conserving information externally to the organism that later gives rise to science.

### ***The schemes of perception and memory***

In recent time, the notion of scheme has met with a rare popularity among writers associated within artificial intelligence, cognitive science, and linguistics, but the history of the term, and, to some extent, the notion goes much further back in the scholarly literature. The notion of scheme has been applied to memory, perception, and action, as well as to the ways in which perception is anticipated in memory and built up from action.

According to Rumelhart & Norman (1978:41), schemes are “active, interrelated knowledge structures, actively engaged in the comprehension of arriving information, guiding the execution of processing operations”. Examples given by these authors, as well as by others within AI, are stories, typical behaviour sequences such as visits to restaurants, menus, etc. Also the cognitive psychologist Neisser (1976:51ff) employs the term, with reference to the work of Minsky and Goffman, who, however, in the discipline of artificial intelligence and sociology, respectively, use the term “frame” to designate

the same or similar phenomena; but it seems clear from the context, that the term “scheme”, as employed by Neisser, is also akin to “hypothesis-testing” as discussed in earlier perceptual psychology, and to the notion of “set” in social psychology:

A scheme is that portion of the entire perceptual cycle which is internal to the perceiver, modifiable by experience, and somehow specific to what is being perceived. The scheme accepts information as it becomes available at sensory surfaces and is changed by that information; it directs movements and exploratory activities that makes more information available, by which it is further modified (p.54).

Here, then, is first of all preparatory to perception. This definition should remind us of the double facet of the scheme, as it is conceived by Piaget (1967b: 20ff, 25): that is, assimilation and accommodation. At first, the organism perforce assimilates stimuli to a pre-given scheme, but at the same time the scheme is modified, as it accommodates to the outer environment. In Piaget’s view, to grasp an object with both hands constitutes, to the 5-6 months old child, essentially a scheme of assimilation, an incorporation of the outer world into the self, but in this same scheme, there are also factors, such as the distance of operation, which must be accommodated to the size of the object, which means adapting the inner representation to the world.<sup>82</sup>

Both Neisser and the expo-

nents of the AI approach also refer to the work of the social psychologist Bartlett (1932), who used the notion of scheme in his studies of memory, notably in order to explain the successive modifications which a story stemming from an alien culture were subjected to, as the experimental subjects were asked to recount it within increasing temporal distances. The scheme is to Bartlett “the setting which makes perceiving possible”, but also, more dynamically, an “effort after meaning” (p.32, 44); more precisely, it is “an active organization of past reactions, or of past experiences, which must always be supposed to be operating in any well-adapted organism’s response”, with the result that responses do not occur in isolation, but “as a unitary mass” (p.201).

Bartlett himself claims his employment of the term was inspired by the usage of the physiologist Head, who applied it to body consciousness (cf. Bartlett 1958:146), but in the original work, he also alludes to the psychologist Janet, as well as to the sociologist Halbwachs, and these references seem more directly to the point, both because the latter authors evoke the notion of scheme in the context of a discussion of memory, and because they do so, like Bartlett (in particular in Bartlett 1923), to emphasize the part of social construction in memory. Janet’s (1928:284ff) indications on this matter are, to be sure, very brief: he notes that many

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82 Piaget sometimes makes a distinction between the scheme and the schema, which we will ignore here.

people are in the habit of using imaginary spatial arrangements, i.e., a “schéma tiré de l’espace”, where they place information they would like to remember, in the same manner as we enter an important date in the calendar grid furnished by our diary<sup>83</sup>. The example he gives is an ancient Nahua map (i.e. the exodus of Totomihuaca, Puebla, Mexico), which he shows to be a history book, where the imaginary paths form a scheme on which to append the events worthy of notice. Here, then, we are already concerned with an organism independent artifact, which however also serves as a series of interrelated hints for reconstructing the memory in the mind (going, notably, from deployment in space to action in time).

As a loyal follower of Durkheim, Halbwachs (1925;1951) also insists on the projection of memory onto tangible space but he is even more emphatic when it comes to the social character of the act of recollection:

En réalité, c’est parce que d’autres souvenirs en rapport avec celui-ci subsistent autour de nous, dans les objets, dans les êtres au milieu desquels nous vivons, ou en nous-mêmes: points de repère dans l’espace et le temps, notions historiques, géographiques, biographiques, politiques, donnés d’expérience courant et façon de voir familières, que nous sommes en mesure de déterminer avec une précision croissante ce qui n’était d’abord que le schéma vide d’un

83 However, he seems unaware of the fact that a long tradition concerned with such an “art of memory” was prominent all through the Middle Ages and the Renaissance; cf. Yates 1966; Gomez de Liano 1982.

événement d’autrefois” (1925:38f).

This is already the scheme as conceived by Bartlett; and it already serves as a lattice of pegs on which individual facts may be affixed.

The tradition from Bartlett has been taken up again recently, not only inside AI, but in cognitive psychology and linguistics. Kintsch (1974;1977) has resumed the memory experiments along the same lines, and has, together with van Dijk (1978), demonstrated, with the aid of summarizing tasks, that “story grammars” are particular cases of schemes. Also taking his point of departure from Bartlett, Chafe (1977) shows how, for instance, the chunk of experience labeled “my childhood” is verbalized through a number of steps, after being broken down into “subchunks”. In a less precise way, the term “scheme” is also employed by the art historian Gombrich (1960), when considering the historical development of styles, and by the philosopher Goodman (1968), in a discussion of the origin of metaphors.

A quite different tradition is, as it appears, represented by the phenomenologist Schütz (1932), whose only indication of sources is a negative one, insisting that he is not concerned with the schema concept familiar from the writings of Kant. A scheme of our experience (“ein Schema unser Erfahrung”), as Schütz’s wording more precisely goes, is

ein Sinnzusammenhang unserer erfahrenden

Erlebnisse, welcher zwar die in den erfahrenden Erlebnissen fertig konstituierten Erfahrungsgegenständlichkeiten erfaßt, nicht aber das Wie des Konstitutionsvorganges, in welchem sich die erfahrenden Erlebnisse zu Erfahrungsgegenständlichkeiten konstituierten” (p.109).

In other words, a series of earlier “polythetic acts” are now reconceived “monothetically”. Once constituted in this way, these schemes are, as it is later explained (p.111), applied to the interpretation of other experiences. We are reminded of the characterization of Halbwachs and Bartlett, according to which the schemes stem from earlier actions and are applied to later experiences. This is clearly the same procedure which Husserl and Gurwitsch called *formalization*, and which the second compared to what Piaget describes as “abstraction from the action” (as opposed to “abstraction from the object); and it obviously related to the notion of *sedimentation*, which I have already adapted from Schütz.<sup>84</sup> In the theories of Bartlett, Piaget, Halbwachs, and Schütz, as well as in recent AI, the scheme thus seems to be a (more or less) static result of earlier actions, which in turn is applied to present actions in order to interpret them. In so doing, they connect present actions and/or objects (and perhaps also earlier and later instances) into a coherent whole. For all of these thinkers,

84 In later works, Schütz (1967:299,327f), describes the sign as made up of four different schemes, thus containing the sediments of experiences deriving from different spheres of existence.

however, with the exception of Piaget, schemes are not the results of individual experiences, but of experiences inscribed into a social context.

In an earlier work (Sonesson 1988), relying on the work of Bartlett, Piaget, Halbwachs, Janet, and Schütz, I determined that the scheme might be understood as *an overarching structure endowed with meaning, which, with the aid of a relation of order, in the form of syntagms and/or paradigms, joins together a set of in other respects independent units of meaning*; and it is *constituted out of earlier experiences, i.e. they are sediments of lapsed sequences of behaviour* (although at much higher levels of abstraction for Piaget than for Bartlett and Schütz.); and, more specifically, they are socially constituted, i.e. the actions from which they derive, and/or their results, arise in interaction with other members of the *socium*, and thus possess a least some amount of intersubjective validity, inside the limits of a particular society. Each scheme contains principles of relevance which serve to extricate from each ineffable object such features as are of importance relative to a particular point of view (this is Piaget’s *assimilation*, and the principle of *abstractive relevancy*, according to Bühler 1934); and it also supplies properties missing from the ineffable objects, or modify the objects so as to adapt them to the expectancies embodied in the schemes (this is

another aspect of Piaget's notion of *assimilation*, and what Bühler terms *apperceptive supplementation*; also, it is involved in what Halbwachs and Bartlett call reconstruction). Finally, the scheme schemes *incorporates (some of) the results of their own use* on ineffable objects, and are themselves changed in the process (this is Piaget's *accommodation*; and it also seems to correspond to what Lotman calls the *internal recoding* of "texts", and to the Bachtinean *intertext* conceived as a matrix for engendering other "texts").

Although it is a much vaguer notion, the so-called "image schemas" invoked by George Lakoff and Mark Johnson also seem to correspond to some kind of overarching structure connecting items into coherent wholes. Johnson (1987, 2005; & Rohrer in press), at least, describes image schemas as being abstractions from the interaction of organism and environment. As we have seen, the idea of a spatial, if not specifically bodily, projection, is important to the notions of scheme in the psychology and sociology of Janet, Halbwachs and Bartlett. However, while this spatial projection seems to take place in real space, much like that realised by the orator of Antiquity and the Renaissance, the projection with which Lakoff and Johnson are concerned rather seems to go from the vocabulary used to speak about space to non-spatial vocabularities (conceiving life as a voyage, the body as a contain-

er, etc.). The spatial terms, however, are said to be generalizations of "*a recurrent pattern, shape, and regularity in, or of, [...] ongoing ordering activities*" as actions, perceptions, and conceptions (Johnson 1987: 29, original italics). This seems to recast the schemes, much like those of Piaget and Schütz, as sedimentations of earlier actions, primarily perhaps of our own body in relation to the environment. In terms of von Uexküll's *Umwelt*, such schemes could be conceived as a kind of resegmentation, however solitary, of the environment from the point of view of the body. It turns out, however, that this is not at all what is meant by Lakoff and Johnson, who postulate some kind of innate neurophysiological structures (cf. Zlatev 2005). It is however the former notion that we are going to explore in the following.

### ***Collective memory and the "tragedy of culture"***

The notion of collective memory, if not that of scheme, has recently been taken up again by James Wertsch, in relation, in particular, to the work of Bartlett. Wertsch, however, conceives an opposition between the static conception of memory attributed to Halbwachs and a more dynamic idea of "remembering" for which he makes Bartlett responsible. But if schemes are the result of actions and are applied to actions, this opposition does not make sense. Not only is the dynamic aspect present in Halbwachs'



work, as Wertsch (2002:21ff) himself remarks, but the static aspect is incorporated into that of Bartlett, by means of the notion of scheme. This, however, leads to Wertsch having qualms about collective memory being some kind of super-mind separate from that of individuals. Instead he favours something which he calls a “distributed version of collective memory”.

To understand the human Lifeworld, however, it is necessary to posit at least two kinds of social memory, one of them being similar to the Saussurean language system, which is a Durkheimian notion, and the other comparable to the Saussurean *parole*, which is said to derive from Gabriel Tarde’s idea of conversation. There is nothing mystical about the former: as Husserl (1962a: 365–386) pointed out in the case of geometry, abstract systems are dependant for their existence on some kind of material incarnation, but cannot be entirely reduced to the latter. From the Bakhtin circle to pragmatics, there has been an unfortunately tendency to reduce sociality to dialogue, or more generally, joint action. But there is more to society than interaction. If we start out from the Ego, there clearly are different kinds of alterity: that of the other person (*alter*), that of the environment (*alius*), and that of the sign system itself (*aliquid*).

Having recourse to the metaphor of the three common types of personal pronouns to describe anal-

ogies between persons and cultures, Peirce originally put them in place of what was later to become the three fundamental categories of Firstness, Secondness, and Thirdness. But Peirce did not identify the second person, as one may at first naively expect, with Secondness, but with Thirdness. In his view, the second person was the most important, not the first: “all thought is addressed to a second person, or to one’s future self as a second person” (quoted from Singer, 1984: 83f). In terms that Peirce took over from Schiller, the first person stood for the infinite impulse (Firstness), the third person for sensuousness (Secondness), and the second person for the harmonising principle (Thirdness). Peirce called his own doctrine “Tuism” (from “Tu”, as opposed to “Ego” and “It”), and he prophesied about a “turistic age”, in which peace and harmony would prevail. So the Peircean other is a friend and collaborator; he is not the spirit that always says no, the devil in a Biblical sense.

It is striking that not only Peirce, but also the late Cassirer and Popper came up with threefold divisions of “what there is”. If one of these instances can be identified by subjectivity, then all three thinkers would seem to agree that there are two kinds of alterity. Even though both Peirce and Cassirer, at times, identified the triads with the personal pronouns, it does not seem that they were thinking about exactly the same thing; nor

was Popper.

The most general sense of alterity seems, at last according to some definitions, to be contained in Peirce's notion of Secondness: like Berkeley, Destutt de Tracy and Maine de Biran before him and Sartre after him, Peirce identifies our sense of reality with resistance, that is, "this sense of being acted upon, which is our sense of the reality of things" (Peirce 1998:4)

A door is slightly ajar. You try to open it. Something prevents. You put your shoulder against it, and experiences 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).

This explains that in Peirce's early trichotomy, using the three per-

sonal pronouns, it is the third person, and not the second person, which corresponds to the later notion of Secondness. But this only becomes self-explanatory, when we remember that, to Peirce, the other is never someone who stands opposed to the Ego, certainly not as in the Hegel-Sartre tradition, but not even in the more general sense of the Bakhtinean conception. Indeed, the second person is a harmonizing influence.

The basic problem, however, is that Alter is thus given the function later assigned to Thirdness. But this means the sign as such, which later becomes the incarnation of Thirdness, has no part to play in the earlier conception. Like the pragmatic models I have criticized elsewhere, it

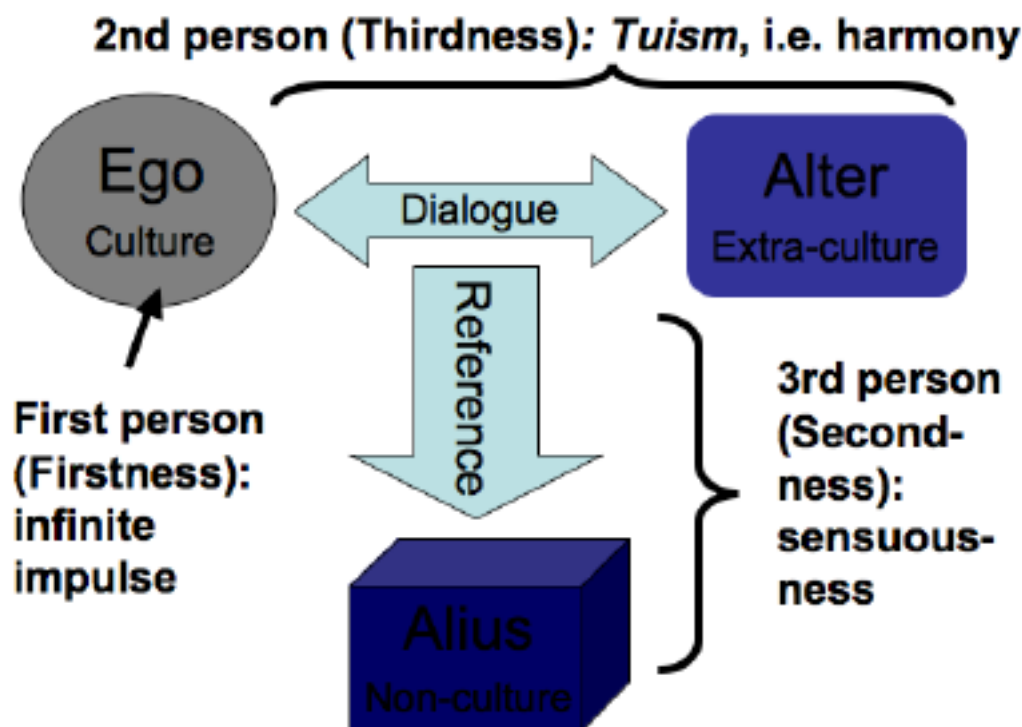


Fig. 18. Peirce's first trichotomy, expressed in terms of the three personal pronouns, as related to the categories of Cultural semiotics (Cf. Lecture 8).

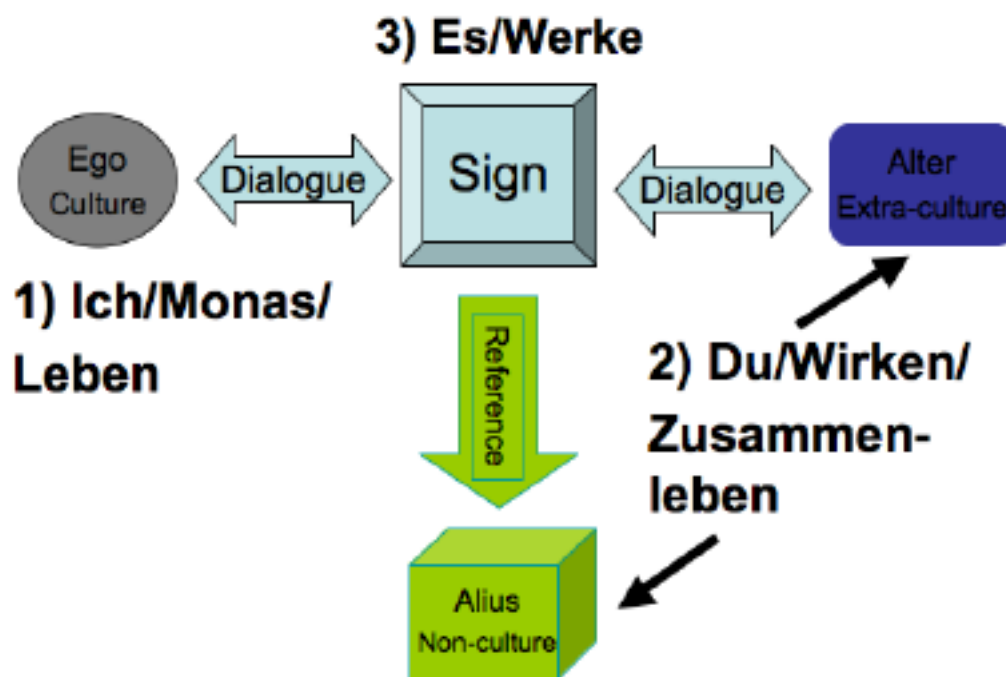


Fig. 18. Cassirer's three basic categories, as related to the categories of Peirce, Bakhtin and Cultural semiotics (Cf. Lecture 8).

thus presents a situation of communication in which speaker, hearer and referent encounter each other without any mediation. Indeed, like pragmatics, as well as the Bakhtin circle, this model tends to reduce the sign system to the interaction with the other (cf. Sonesson 1999b). There is thus no other alterity than the second person (which is not really an other, because he is in harmony with the Ego) – and that of the exterior world.

As far as I know, Peirce never put his later trichotomy in relation to the three pronouns, but if he had done so, I think he should have arrived at a quite different conception. If Firstness remains akin to “the infinite impulse”, then both the Ego and the Alter would basically be of this kind. But *as* an Alter, as partner in a dialogue, Alter would already be

a kind of Secondness, just as Ego would be to Alter. In this sense, just as the outside world, the sphere of reference, Alter is something which resists us, and which we resist. But even the sign, which is of the nature of law, and thus Thirdness, must partake of Secondness, because all semiotic structures impose constraints on our possibilities of dialogue, and, in the end, of being.

In this interpretation, the trichotomy is roughly similar to Popper's (1972) more generally well-known conception of the “three worlds”, with a different numbering: the first world corresponds the third person, the sphere of reference, and both the first and the second person pertain to the second world. The third world, however, is of the same general kind as Peircean Thirdness:

it involves the kind of generality that is the result of organism-independent representations. In the sociology of the early 20th century, as well as in latter-day Marxist writings, this is known as objectification or reification: the transformation of relations between people into artefacts standing on their own. In a late book, Cassirer (1942: 113ff ) argued, against Simmel more than against the Marxists, that such processes of objectification were not only negative phenomena, not only a “tragedy of culture”: rather, they represented the origin of culture.

When later on, in his *Nachlass*, Cassirer defines the three *Basisphänomene* in terms of the three pronouns, objectification is mentioned only in passing, but it seems essential to the whole conception (Fig. 18.). The first person, the “Monas”, also characterized as “Leben”, is no doubt close to the “infinite impulse” of Peirce (which is not so strange, because, while Peirce starts out from Schiller, Cassirer refers to Goethe). More explicitly than in Peirce’s discussion, the second person is not characterized in itself, but precisely as being second to a first: it involves “Wirken” and “Zusammenleben”, all of which is can only be in relation to a first person. However, it is also “Wirkung und Gegenwirkung”, just as the Peircean Secondness, which, as we have seen, does not concern the second person. The third person, finally, does not correspond to some-

thing “out there”, but to the to the world of our objectifications, epitomized by “Werke”.

The latter terms seem to be equivalent to the notion of *opus* that plays an important part in the theory of Augusto Ponzio (1993; where it seems to derive both from Rossi-Landi and Levinas): it is a kind of exteriorisation of the self (and perhaps also its relations to the other). Indeed, Ponzio talks about the other as being only an instance of “relative alterity”. “Absolute alterity”, on the other hand, seems at times to involve the material world, at times the world of signs or *opus*. Both descriptions are, in my view, correct. Both the material world and the world of objectifications impose much more severe constraints on our personal being than the other person as such; they are, so to speak, much less negotiable in the form of dialogue.

The suggestions made by Peirce as well as the late Cassirer concerning the basic categories (of the situation of communication if not of being) are fragmentary and difficult to analyse. Nevertheless, even our superficial considerations may offer some insights of value to semiotics generally and cultural semiotics in particular. From the point of view of cultural semiotics, three categories of understanding seem to be insufficient. It may be necessary to distinguish the relationship between persons (Peirce’s tuism, the Bakhtinean dialogue, etc.) from the thing charac-

ter of signs (“Werk”/opus/reification). And the latter must be kept separate from the resistance offered by the material world. Starting out from an egocentric definition, however, everything else turns out to involve differentiations within the sphere of alterity.

### ***From mimesis to theory in evolution and development***

Donald’s theory of human evolution really posits four different kinds of “cultures”, which he also characterizes as different “representational strategies”. When introducing the first “culture”, epitomized by a strategy of episodic representation, Donald (1991: 148ff) evokes Tulving’s well-known notion of episodic memory, which corresponds to a recollection of events, often in a narrative form, and involving the time and place of the event as well as associated emotions. Episodic memory, in this sense, is a kind of declarative memory, of “knowing-that”, as opposed to procedural memory, the “knowing-how”.

According to Donald, humans and apes and probably many other mammals share the capacities for both procedural memory and episodic memory. Since Donald (1991: 149) characterizes the behaviour of animals living in episodic culture as being “unreflective, concrete, and situation-bound”, and as a mode of “living entirely in the present”, one would expect this term to describe

no strategy of representation, and thus of memory, at all, but at the very most the protentions and retentions of consciousness. However, Donald goes on to quote Tulving’s concept of episodic memory, referring to its insertion in space and time, and he observes that, while procedural memory is common to all animals, episodic memory is shared only by some mammals, notably apes and birds. Episodic memory therefore already is a quite sophisticated property of mind.<sup>85</sup> While memory of this kind would seem to give rise to the use of signs in the form of *notae* as conceived by Leibniz and find its apotheosis in the calendar, a memory device discussed by Halbwachs, it clearly is not dependent of such organism-independent representations for its existence.

Mimetic culture starts out with the emergence of “conscious, self-initiated, representational acts, which are intentional [i.e. in the sense of deliberate, not object-directed] but not linguistic” (1991: 168). The examples given by Donald are such things as gesture, dance, ritual, mime, play-acting, and (precise) imitation, but

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85     Indeed, it was only recently that Clayton & Dickinson (1998) showed that western scrub-jays remember where they cached different food types and discriminately recovered them, depending on the perishability of the item and the amount of time that elapsed since caching, which seems to suggest they are able to remember the ‘what-where-and-when’ of specific caching events in the past.

also tool use (or perhaps rather the social generalization of tool use) and skill. Curiously, Donald (1991: 170) claims to have derived his idea of mimesis from the literary theorist Eric Auerbach, who wrote a history of realist literature with this very title – although Donald observes what Auerbach discusses is not pure mimesis in his terms. It is not clear, however, that this is Donaldean mimesis in any sense. Rather, it would have been more fitting to refer to the sense of the term *mimesis* in Antiquity, not perhaps as used by Plato to describe the relationship between perceptual reality and the world of ideas, but rather to one of the usages to which the term is put, mainly by Aristotle's, as the representation of action by action, different from (verbal) narration or *diegesis*.

In fact, in his early book, Donald (1991: 168f) opposes mimesis to mimicry and imitation, both of which are said to be quite common in animals but lacking “a representational dimension”. Though the import of this claim is not clear, it could be taken to mean that mimicry and imitation, in this sense, lack differentiation. In Donald's (2001: 260f) later book, however, “(precise) imitation” is an instance of mimesis. Perhaps the difference between imitation as referred to in these two passages could be taken to involve, on the one hand, the very early stage of more or less automatic imitation in the infant discovered by Meltzoff (such as sticking

out the tongue to one who does just that, and other instances of “neonatal mirroring”), and, on the other hand, a more explicit capacity for imitation which matures much later (Cf. Gallagher 2005 and Mandler 2004; also see Donald 2001: 264ff). Interestingly, imitation, in this advanced sense, is claimed by Piaget (1945) to be the origin of the semiotic function. Yet, it would seem that imitation, even in the latter sense, is not necessary what we have described above as a sign.

Or perhaps the different understanding of the place of imitation in Donald's two works could be referred to the distinction made by Tomasello (1999) between imitation of the goal, of which he believes apes to be capable, and imitation of the means, which is a capacity Tomasello would like to restrict to human beings, although he later on (in Tomasello et al 2005) recognizes its presence in at least some apes. Indeed, Donald (1991: 168f) claims imitation “is found especially in monkeys and apes”. At first it may seem strange that imitating the goal is presented as being easier than imitating the means by which the goal is achieved. But no doubt it is less demanding to recognize the interest of the aim (getting the banana) than the interest of the steps requisite for realising the goal. At another level, it is like attending to the content, not the expression, of a sign. Indeed, it is an instance of quite ordinary Lifeworld behaviour.

Not only is the means by which

a goal is realised not identical, though in some sense parallel, to a sign relation, but the imitation of such an act is not properly speaking a sign. As Searle (1995: 40f) points out, while anthropology texts routinely attributes fundamental importance to the emergence of tool use in human society, they tend to ignore the first imposition of meaning by means of collective intentionality, which, on the face of it, seems a much more important dividing line.<sup>86</sup> Why, one may wonder, would tool use by part of mimetic culture, and why would skill is general by such a part? One may wonder whether these types of behaviour are not simply “routine locomotor acts” or “procedural memory” which Donald (1991: 168) elsewhere takes pains to separate from mimesis. No doubt Donald (1991: 171ff) would answer that they are different because they comply with the criteria for mimetic acts in being “intentional” (that is, voluntary) “generative” (that is, analysable into components which may be recombined into new wholes)<sup>87</sup>, and “com-

86 Searle actually talks about the “imposition of functions” in a sense that seems considerably wider than our sign function. Prieto suggested signs were special instances of tool use, and Eco reduced tool use to the general case of meaning relationships. As I have argued elsewhere (Sonesson 1989:133ff), I think both these theories are unfounded, though signs and tools have in common being defined by something outside of themselves, that is, they are allo-functional. Cf. Lecture 5.

87 Cf. syntagm and paradigm, dis-

municative” (or at least, as we shall see “public”), having reference (“in mimesis the referential act must be distinguished from its referent”, that is, in our terms, there must be differentiation), standing for an unlimited number of object, and being auto-cued (produced without an external stimulus and therefore being the earliest form of “thinking”). As we have seen, generativity is a property of many kinds of meaning, which are not signs. However, it is not clear in what sense tool use and many other kinds of skill are “communicative”, and therefore, in which way they have reference and stand for an unlimited number of objects.

After introducing “communicativity” as a criterion of mimesis, however, Donald (1991: 172) goes on to say:

Although mimesis may not have originated as a means of communication, and might have originated in a different means of reproductive memory, such as toolmaking, mimetic acts by their nature are usually public and inherently possess the potential to communicate. A mimetic act can be interpreted by others who possess a sufficient capacity for event perception. Given the pre-established primate capacity for event perception, the presence of mimetic skills would inevitably lead to some form of social communication.

In view of this, I would say that tool use and other kinds of skill as such are not mimesis, because they are not communicative, but they are “public”, and they lend themselves to

cussed in Lecture 1, and which in earlier sections of this lecture were said to relate to a more general concept of meaning that that of sign.

imitation – which leads to generalization of tool use and skill in society. This is where they become different from routine acts and procedural memory. They are socially shared. But this is only possible if the act can be separated from the unique tool user and transferred to another user. That is, the act as *token* must be abstracted to a *type* in order to be realised in another *token*. What is shared is the type, in other words the scheme of interpretation, which defines the principles of relevance. In this sense (not in the sense of reference), a single mimetic act may correspond to various events.

It is therefore by means of imitation that the “extension of conscious control into the domain of action” (2001: 261) may be obtained. But the act of imitation is in no way a sign. If I see somebody use a stone as a tool to crack open the shell of a nut, I may do the same thing, not to bring into mind the act of the other person I have observed, but to obtain the same effect. I attempt to realise the same act as he did, that is, to open the shell up, so that I can take out the nut and eat it. Instead of producing an expression that is non-thematic but directly given which refers to a content that is thematic but indirectly given, I am realising a new instance of the category of acts consisting in cracking open a nutshell. Like Tomasello’s apes, I may of course try to obtain the same effect without attending to the adequate means,

which would produce a failed act of imitation. Or, I may merely simulate the outer actions of cracking the shell open, without letting them have a sufficient impact on the physical environment, in which case I may either be engaged in symbolic play, playing the theatre, or simply practicing the movements.

Imitation may thus be said to be differentiated, in the sense of separating the mediator and that which is mediated, but it is not asymmetric, neither in the sense of focus, nor in that of directness. Indeed, it is really the type that is mediated by the token. This also means that the purpose of the act of imitation is not to present the original act to another subject (or even to oneself). Bentele (1984) in fact argued against Piaget that imitation does not manifest the semiotic function, but is a prerequisite for it: indeed, it will function as a sign only to the extent that it is taken to refer back to the imitated act, instead of just being another instance of the same kind. The same observation should apply to “symbolic” play, and is in fact made by Bentele in another context: the toy is a sign, he claims, only to the extent that the child takes it to represent the real thing, which cannot be true, for instance, in the case of a toy lion if the child has no experience of the real animal. In fact, the extent of the knowledge of the child may not be the relevant factor, but rather the attitude taken by the child: according to



the degree of fictionality of the play world, i.e. its separateness from the real world, which is grasped by the child (cf. Winner 1982; Gardner & Wolf 1983) the lion may be made to instantiate a real lion act or to present into to the other children.

Acts of imitation in this sense have two interesting properties: they are “public”, in the very broad sense characterized by Donald, i.e. they may be perceptually, often visually, inspected; and they can be copied by means of the observer’s own body, with or without some additional implement such as a stone.<sup>88</sup> In both these ways, imitation is different from episodic memory; and it is different from procedural memory in being a public record. Like in procedural memory, the record is located in the own body, but it can only function as memory to the extent that it is somehow separable from the body as such. While being *in* the body, it is not *of* the body. In fact, this can only be so, to the extent that some memory traces are instantiated in other bodies as well as in the own body. This supposes a distinction between *token* and *type* (that is, relevance) preceding that of the semiotic function.

Jordan Zlatev (in press a, b; with Persson & Gärdenfors 2005) who has adapted Donald’s concept of mimesis and extended it to child devel-

opment, talks about “bodily mimesis” as being based on a cross-modal mapping between “*exteroception* (i.e. perception of the environment, normally dominated by vision) and *proprioception* (perception of one’s own body, normally through kinaesthetic sense)” (Zlatev, in press b).<sup>89</sup> This supposes a principle of relevance for realising the mapping and it would also seem to require a record of this mapping in the body. However, since this is also a property of what Zlatev calls proto-mimesis (which would include, for instance, “neonatal mirroring”), such a principle of relevance must be capable of being innate and/or resulting from a direct stimulus instead of auto-cuing.

Real mimesis, according to Zlatev, would in addition require a number of properties which I have already introduced in the definition of the sign: the signifier and the signified should be *differentiated* (with reference to my discussion of this concept); the subject of the act has the intention (in the sense of *purpose*) “for the act to *stand for* some action, object or event for an addressee (and for the addressee to recognize this intention)”;<sup>90</sup> and the act

88 I will suggest later on, in Lecture 10, that something more is required for an act having a public character, that is, what I will call the spectacular function.

89 Zlatev (in press a) defines “mimetic schemas” as “categories of acts of overt or covert bodily mimesis”. This seems to be compatible with my characterization of schemas, in particular as the mimetic schemas are said to be not necessary conscious but accessible to consciousness.

90 If schemes of interpretation are normally applied as a matter of course,

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

Fig. 19. Different types of memory, an interpretation of Donald's hierarchy

is *not conventional-normative*, nor does it have *system character*. Only cross-modal mapping and differentiation is necessary for dyadic mimesis, such as action imitation, shared attention, and mirror self-recognition. Triadic mimesis also requires declarative pointing, iconic gestures and full joint attention. Mimetic acts that are conventional and/or systemic such as sign language are post-mi-

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although they may in principle be made conscious, then, as I have already hinted above, and as we shall see in further detail in later lectures, it is better to define the sign from the point of view of the addressee: the addressee takes the addresser to use the expression with the purpose of representing the content to the addressee and he takes the addresser to have the purpose that this purpose shall be recognized. Later on, relying on the Prague school heritage, I will try to give a more adequate formulation to this observation. I obviously take representation to be explicated with what I have called double asymmetry above

metic. Here Zlatev also places ordinary spoken language.

Dyadic mimetic acts are thus still not signs. The differentiation they suppose is that between *Ego* and *Alter*, not necessarily, it seems, between expression and content. If however the own body is made to imitation the action first perceived on the body of the other, differentiation of expression and content here coincides with differentiation of self and other. It is, however, important to note that these are two different kinds of differentiation, for, first, this explain why the emergence of the sign function can only take place within mimesis, and, second, it raises the question how this double differentiation is then narrowed down to that between an expression separate from the body and a corresponding content.<sup>91</sup>

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91 The notion of “symbol”, as the

In describing ordinary language as post-mimetic, Zlatev would seem to reject the third stage posited by Donald, the mythic stage, which is dominated by language. Yet in terms of memory, as Donald originally expressed it, language is certainly different from mimesis. Language may reasonably be thought to have originated as a kind of mimetic device, being different at first, perhaps, because it does not rely any more to any appreciable extent on iconic and/or indexical relationships. Once it evinces system character, however, at least of the magnitude present in human languages, it acquires an existence of its own. In a way, language only seems to require the presence of at least two human beings to exist, who somehow maintain it between them, and when these two speakers die, the language also dies. And yet a language, while it exists, seems to be something more than its speakers. The manifold relationships between its terms must subsist somewhere, in a place that cannot be identified with any individual mind. As Searle observed, language itself is the foremost language-dependant fact. Language is not accumulated in the body like mimetic memory, nor as individual facts in the single historically situated mind, as is episodic memory. More than mimesis, it has at the same time a *systemic* and a

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term is used by Piaget, also seems to confuse these both senses of differentiation, as we have noted above.

*normative* existence, which goes beyond individuals. In this sense, it is clearly a constraint imposed on the individuals, as is Popper's "objective world" (World 3), a structure which puts up resistance to the individuals, in the Peircean sense. Already in its oral form, as conversation and tradition, it is part of collective memory, as Bartlett recognized (but Wertsch somehow ignored), initiating, as Donald (2001: 298ff) points out, the "collectivity of mind".

Husserl's (1962a: 365–386) description of the origin of geometry may be taken as a case in point. Geometry starts out from the acts accomplished by the land surveyors, which is a kind of skill or even tool use, and therefore pertaining to mimetic culture, being subject to imitation, though never becoming signs in themselves. Indeed, it may be added that, at first, the acts of land surveying may well have been inextricable parts of more global acts involving the practice of agriculture. They have to be imitated, and thus typified, in order to become part of mimetic culture. Acts of land surveying may be sedimented in the form of surveyor's maps. Husserl, however, is more interested in the way the general quantitative relationships of space are abstracted out, giving rise to the mathematical speciality known as geometry. Geometry, like language, has an existence, beyond all the fields it may be used to survey, in the abstract system of quan-

titative relationships we call geometry, as soon as it can be conveyed at least from one addresser to an addressee (who may be the same person at another point in time). It gains in independence becoming a coherent system where everything works together, as in the Saussurean concept of language, unknowingly taken up by Deacon (2003) in terms of “semiotic constraints”. Yet, like language, as Husserl, recognized, geometry retains only a precarious existence, as long as it cannot be materialised outside the minds of its users. Geometry, as it happens, can be externalized, both as lines and figures, and as mathematical notation. This is the beginning of what Donald calls theoretic culture.

The cognitive scientist Andy Clark (1997; 2003) has rediscovered the old (but still excellent) idea (which I traced back to Husserl in Sonesson, forthcoming b) according to which embodiment is not only a question of the embeddedness of the body into the world of our experience, but also involves the redistribution of mind onto structures independent of the own body. As Clark points out, the environment (in the sense of Uexküll’s *Umwelt*, for instance, to which Clark 1997 refers) is not only that which is in the neighbourhood of our physical bodies, but also all kinds of artefacts which function in a symbiosis with our organisms, as bodies and/or as minds. According to a somewhat different,

but overlapping, view, also presented by Clark, the notion of scaffolding, as used by Vygotsky, may be taken not exclusively in a social sense, but could be construed so as to comprise all kinds of extensions of the organism.

Human beings are all “natural-born cyborgs”, Clark (2003) claims, not only because auditory prostheses may be merged with the organism substituting for the auditory nerve making connection with ventral cochlear nucleus at different depths, but also, apparently more trivially, but in fact much more importantly, because, in multiplying a big sum, we can use pen and paper to write down the intermediary sums, or in order to remember what we have to do during next week, we can write down a list of things to do. Clark’s observations go a long way in our sense. Yet, there is still one important respect in which I must disagree with him: the social character of the extensions makes a big difference.

Indeed, the auditory prosthesis is not only truer to our idea of a cyborg, as formed more by science fiction writers than by the scientists who coined the term in 1960 (cf. Clark 2003: 13ff), it is, on the other hand, not very relevant to the developmental history of the human species. The auditory prosthesis, if anything, is an extension of the individual mind. Mathematics and writing are *extensions of the social mind*. It is essential for mathematics to exist

equally for all of us: not only should it be possible for one person to put down an intermediate sum on paper, and then go back to the calculation later, but it should also be possible for another person to use the intermediate sum in his own calculation. Therefore, while there certainly are non-social types of scaffolding, social scaffolding appears to be immensely more important for understanding human evolution.

Visuographic markings first appear, according to Donald (1991: 276ff; 2001: 305ff), with Marshack's engraved rib from Pech de l'Azé in France, which is however an isolated instance (if it is anything at all). It is followed up later by purposeful arrangements of objects in ritualistic settings, as well as by pictorial representation epitomized by cave paintings. The existence of pictures allows language to be given a visuo-graphic representation, which we know as writing (but which would also include geometrical notation). Writing and pictures together permit the emergence of science, which is independent of individual minds not only as representation, but also, at least in its aspiration, as referent.

Ivins (1953) pointed out that it is the reproducibility of pictures (as in Floras, for instance) that makes them into scientific instruments. In this sense, in their capacity of being permanent records, pictures are not, as art historians are wont to say, unavoidably unique, but, on the contra-

ry, are destined for reproduction. Indeed, they permit repeated acts of perception, as do no earlier memory records. The development of the capacity for reproducing the record itself has a long history recently giving rise to xylography, photography, and the computer picture. Writing, like pictures, is a result of the graphic act, the creation of marks on a surface. Yet these marks, considered as tokens, have a different relation to the corresponding types, because the types must precede all their tokens.<sup>92</sup> Moreover, writing, unlike picture, but similarly to language, follows a linear order, in Western writing systems from left to right. The anthropologist Jack Goody (1977; 1982), who, going beyond Vygotsky's linguistic determinism, has argued for the sway of writing, has however insisted in particular on such examples as lists, tables and recipes, which precisely are not read in an exclusively linear fashion, but are over-determined by a visuo-graphic character approaching that of pictures.

However, it is important to realise that, even when marked out in the sand (as were Archimedes' circles), pictures, or more broadly visuo-graphic structures, are *spatially*, though not *temporally*, organism-independent artefacts. This also applies, of course, to the writing in the desert sand imagined by Searle. Neverthe-

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92 On this difference, see the last part of the lecture, and also the discussion of Goodman in lecture 4.

less, no spatial record can be entirely outside of time. Drawings and writings in the sand simply have a very limited temporal life span. This still allows them to be objects of repeated acts of perception. Indeed, according to the Antique story, Archimedes, on being surrounded on the beach, told the soldiers not to disarrange his circles. To finish his accounts, he needed to perceive them again. To have the status of theoretic records, therefore, pictures simply have to be spatially organism-independent; to be available to our archaeology, however, they also must be temporally organism-independent.

The artifact, then, is that which bridges the distance between the act of addressing and the act of receiving. But if the record has at least a minimal temporal existence, there are indeed several distinct possible acts of reception.

Episodic memory is most clearly disembodied. It may refer to a bodily act, such as going in or out of a container-type object (such as, for instance, making love), 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. Mimetic memory still accumulates in the 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, which supposes generalisation or, more exactly, *typification*, the creation of a type

referring to different tokens instantiated in different bodies. Typification, in this sense, does not require the semiotic function, but is probably a prerequisite for it. 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, it requires the collaborative effort of at least two consciousnesses (which no doubt have to be embodied) for this existence to be sustained. Transitory artefacts, as verbal 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 itself is embodied. It has acquired the ability to persist independently of human beings. Of course, without anybody around 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.

### ***The three world circulations: Mates, money and love***

Even if accumulation may be as important as circulation, as Lotman maintains, also the study of circula-

tion may need to be revised and amplified. When studying circulation, the comparison between signs and goods once again come to the fore. According to Lévi-Strauss (1958: 329), there are three vast circulations going on in the world: the circulation of words, of merchandises, and of women. They are studied, in turn, by *linguistics*, *economy*, and *social anthropology*. Jakobson (1990: 19f, 460f) took this idea up and extended it: the three circulations concern messages (not only verbal signs), commodities (which comprise goods and services), and mates (men or woman as the case may be). The sciences that study these phenomena are *semiotics*, *economy*, and *social anthropology* in conjunction with *sociology*. The latter addition is perhaps not circumstantial: Lévi-Strauss is thinking about the kind of societies studied by anthropology, in which friendly relations are established between tribes by one tribe giving wives to another, which then may give wives to a third one, until, in the end, the first tribe receives wives back from one or other tribe in the chain of exchange. In the societies studied by sociology, on the other hand, the circulation would rather consist in one man and one woman given themselves up to each other (or so the rhetoric goes). Jakobson and Lévi-Strauss agree that these sciences studying circulations are all part of some more general science which they call the study of communication, but Jakobson also empha-

size that they all imply the presence of language or other signs, so that, in the end, it may seem that this more general science is semiotics itself.<sup>93</sup>

In an early work, Dan Sperber (1982) has taken exception to these parallels, arguing that, while circulation is a constitutive factor of the kinship system, it is only an accidental property of language, which is essentially a repertory of messages; and when information has circulated for a sufficient time, we will all be in possession of it, but a woman or a horse which is exchanged is lost for the donor; and while language signifies by means of a code, women only acquire meaning by means of the attention being directed to them.<sup>94</sup> It is easy to agree with the general drift of Sperber's argument, but sometimes he is widely off the mark. To begin with, a language that does not circulate (i.e. is not used in any acts of communication) is not much of a language; in fact, it is what we call a *dead* language (like Latin, or Hebrew until it was reborn). On the other hand, the circulation of women is certainly not constitutive *of women*. In fact, I think that, in the kinship system, women do not signify at all; it is

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93 In fact, Jakobson's position as far as the different sciences goes is much less clear-cut than I suggest here; cf. the passages referred to above. Roosi-Landi (1983: 73) actually claims economics is a part of semiotics.

94 This would correspond to the notion of meaning as relevance discussed in the section above.

	Position of displacement A    B	Final stage:	Several B	Displacement of receiver B    A
Transport	$a \rightarrow a$	a at B, nothing at A	no	—
Exchange (of women, goods, etc.)	$a \rightarrow a,$ $b \leftarrow b$	a at B and b at A	no	—
Language	$a \rightarrow a$	a at A and B	possible	—
Picture postcard	$a \rightarrow a$	a at B (sometimes also at A)	no	—
Television picture, film picture	$a \rightarrow a^1.$ $\dots b^n$	$a^1. \dots b^n$ at $A^1.$ $\dots B^n$ (usually at A)	yes	film (and to some extent TV): $b \leftarrow b$
Publicity poster	$a \rightarrow a^1.$ $\dots b^n$	$a^1. \dots b^n$ at $A^1.$ $\dots B^n$	yes	$b \leftarrow b$
Fresco painting	—	a at A	no	$b \leftarrow b$

Fig. 20. Some varieties of circulation for different kinds artefacts

the *act of exchanging* them that carries meaning. And this is certainly a difference to the exchange of signs, in which the latter carry at least the primary sense, which the exchange serves to convey. In fact, it is easy to imagine a way in which a woman, arriving from one tribe to another, does carry meaning in herself: speaking another language, having different customs, etc., she may appear as a “non-text” to the members of the receiving culture.<sup>95</sup> In fact, she

may even carry meaning as the individual person she is: even after reducing the message to make translation possible, as Lotman (1979: 91) so nicely puts it, the message may still contain indications for reconstructing the personality of the other (cf. Sonesson 1987; 1992a: 91ff).

Suppose, however, that it is really the woman (or, more generally, the mate) as such which is the message. This would presumably make her into a kind of “natural meaning”, in Grice’s sense, similarly to the way in which red spots mean measles, or

<sup>95</sup> In the sense of the semiotics of culture (on which something will be said in lecture 8). This may be to suppose too much heterogeneity between tribes that exchange women; it applies much more

properly to women or men marrying into another society at the present time.



clouds mean rain, as opposed to the “non-natural meaning”, epitomized by language (and, I suppose, money). In this view, there is an identity between cause and expression, on the one hand, and effect and content, on the other hand, the cloud being both the cause and the expression of the rain; or between cause and content, on the one hand, and effect and expression, on the other hand, the read spot being both the expression and the effect of measles. Non-natural meaning, as in language, on the other hand, relies, in the conception of the Griceans, on the recognition of someone having the purpose to communicate something, on this purpose being recognized, and so on. But what would the woman mean in this case? I suppose something like “effect of an exchange having taken place”.

Interestingly, however, in his later existence as a Gricean, Sperber, writing together with Deirdre Wilson (Sperber & Wilson 1986: 53f), denies the existence of two kinds of meaning: there is a continuum between that which Grice calls natural and non-natural meaning. In doing so, however, Sperber & Wilson seems to reduce all meaning to “relevance”, without there being any principle to the relevance, which amounts to some kind of “natural meaning” which includes the manifestation of purpose. On the contrary, I think there must be a principle determining what is relevant also in what Grice (1989) would call natural meaning:

the cloud only means rain to those who know about the relationship between clouds and rain, and who for reason of the Lifeworld choose to ignore other causes. Red spots of a certain type only mean measles to those who know about the symptoms of measles, and who do not care to take other causes or effects into account. The woman means “effect of an exchange with another tribe” only to those who are familiar with this kind of exchange pattern, and who think this is the only (or most) relevant aspect of the woman in question.<sup>96</sup>

If the woman of the mate exchange is really a message, then her circulation as a message is dependant on her circulation as a material object. But signs do not have to circulate, in this material sense at least, in order to be signs. They certainly have to cover the space between the addresser and the addressee, but this does not have to be a space in the real world, however small. And signs may travel from very far (as many signs have undoubtedly done so in time as well as space) without being able to function as signs, if there is no common system of interpretation.

Communication in the material sense (in the sense of the current spatial metaphor) really implies that something which leaves one place is not there any more when it arrives at a second place: this is true of the train, as well of the letter which

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96 More will be said about this kind of meaning in later lectures.

it may transport, and even of content of the latter, but not of course of the units of which the message is made up. The circulation of women (and of mates generally) as well as of commodities suppose a double movement from one place to another: one tribe gives women to another tribe and receives women back (or a man and a woman “give themselves up” to each other); and when receiving a horse, I give money or perhaps a donkey back. But the exchange of signs is not necessarily double; it does not even necessarily imply any spatial movement in the Lifeworld. A television picture or a web page is transferred from afar but they are not perceived to move in space. It seems rather absurd to speak of the meaning of a fresco painting being transferred by circulation – though there is of course a movement of the photons from the rocky surface to the eyes of the observer. A fresco painting is an example of a sign that would certainly not remain at its place of origin if it were transferred to a museum. Indeed, it is an instance of a sign system where it is the addressee that has to seek out the message, rather than the opposite (Fig. 20).

But neither would my drawing of the street systems remain in my study if I send it to you by the post. As we said, it is also true of the accompanying letter, though not of its constitutive elements. However, there is a sense in which a picture postcard or a reproduction of Mona

Lisa will remain at the point of origin while being sent of to some distant place: as a *type*, if not as a *token* (cf. Sonesson 1992a: 91ff). Thus, circulation, like accumulation, has more to do with the kind of temporal and spatial artefact in which the sign is embodied than with the sign function as such.

Indeed, circulation, in the case of signs, seems to be a misleading metaphor, not only because it suggests transport (spatial displacement) and recoding (the translation from one code to another), but in particular because it conceives sign creation as an unitary happening, binding one addresser to one addressee. In order to take into account the different kinds of “circulation” which I have described above (and many others not mentioned here), we should rather have to conceive of one (or perhaps several) *act(s) of addressing*, followed by what is normally many *acts of reception*, mediated by *temporally and/or spatially enduring artefacts*.

Apart from Lévi-Strauss, the author most responsible for the identification of “two basic modes of human behaviour, /.../ the production and circulation of goods (in the form of commodities) and the production and circulation of sentences (in the form of messages)” is no doubt Rossi-Landi (1983: 65), who calls these two modes “non-verbal” and “verbal communication”, respectively. It is interesting that, in addition to circu-

lation, Rossi-Landi attends to parallels between production, not accumulation, as Lotman suggested. However, on both counts, the comparison seems flawed from the beginning: the term “non-verbal communication”, which is a misnomer already in its common usage to refer to gesture, facial displays, paralanguage, and the like, is here extended so as to include practically everything in the world which is not verbal communication, such as politics, economics, law, fashion, cuisine, etc. Curiously, Rossi-Landi still opposes these “verbal and non-verbal signs” to “non-signs”. However, the only basis of the comparison seems to be the fact of exchange (which, as we have seen, is not necessarily a fact as far as real signs are concerned). It might indeed be profitable, as Rossi-Landi claims, to analyze commodities in the terminology of signs, and vice-versa, but such a comparison would have to attend also to their difference. It is, in fact, easy to agree with Rossi-Landi (1983: 68) that “a commodity *is a commodity*, rather than a mere product, because *it is a message*” (his italics) – but this is so, exactly because something has to be added to the production of a good, in order to make it into a commodity. In the end, Rossi-Landi (1983: 71ff) actually knows this, because he observes, with reference to the Lévi-Strausseau woman, that, apart from being a message, she is “extra-verbal and also extra-signs”. He goes on to observe that,

“the corporeity of, for instance, roast chickens, lies in the fact that they can be eaten” (which I take to be his extra-sign, which would correspond to a Gibsonian affordance), but, in addition, chicken is also “upper class food in one country and everyday, if not actually cheap fare, in another” (which I suppose are instances of his non-verbal signs but which I would rather describe as cultural affordances). But if it is true, as Rossi-Landi says, that “we must distinguish between the production and consumption of the body and the production and consumption of the sign”, then it does not seem that material production, consumption, and circulation have much to teach us about the parallel functions (to the extent that they exist) in signs.

The comparison between money and signs was made already in Saussure’s *Cours*, where it was formulated in terms of “values”, probably only to bring home the importance of the interrelationships between the items making up the system. Basically, money is only a particular instance of goods, conventionally taken to be the equivalence of any other kind of goods. In this sense, we should expect it to obligatorily circulate in a spatial sense, as goods do, not only optionally, as is the case with signs. This is of course no longer true, when a money transaction can be made by pressing some buttons on the Internet page of the bank or the Internet store. Within

a very different tradition, money is one of the instances of “institutional facts” most thoroughly discussed by Searle (1995: 32ff, 37ff). Money is in Searle’s view a kind of “status function” (“X counts as Y in C”), just as chess and language, that is, it is a “language dependant fact”, whether it is *commodity* money, which may constitute of gold or other things regarded as valuable in themselves, *contract* money, in which the value is ascribed to the promise to pay the bearer the equivalent amount in gold, or *fiat* money, which are simply pieces of paper declared to be money by some official agency such as a central bank. Commodity money is, of course, as we noted above, simply a privileged type of commodity. As for fiat money, as presented by Searle, it still has some kind of embodiment, in a Husserlean sense, but the materiality of Internet transactions seems to be considerably more subtle.

In the posterity of Saussure, the most recent instance of the money metaphor seems to have been offered by Alf Hornborg (1999; 2001a, b), who continues to consider money to be some kind of sign, although, in my view, he gives very good reason for abandoning this identification.<sup>97</sup> Hornborg suggests that what has happened to money historically could be

97 It must be noted, however, that, although he refers to both Saussure and Peirce, Hornborg (2001b) employs the term “sign” in a very wide sense, which includes what we would call meaning, specifically, perception (“sensory signs”).

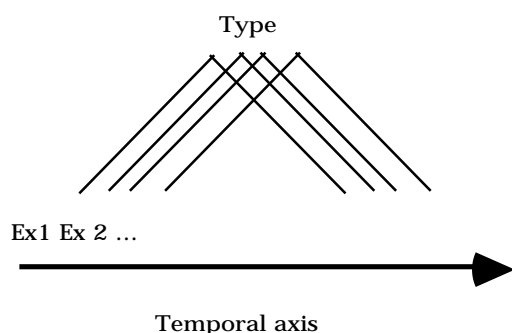
seen as a continuing conversion of signifiers into signifieds, gold standing for exchange value (to which it is indexically related), paper money standing for gold, and electronic money standing for paper money. This description is true enough, but it raises the question what the next step may be. However, Hornborg’s further discussion seems to indicate that all money, at least in Western society, is fundamentally deprived on meaning, which makes it into a very curious sign indeed. According to Hornborg (1999:151), money is “a code with only one sign” (his italics), which would be like “imagining a language with one phoneme, an alphabet with one letter, or a DNA molecule with only one kind of nucleotide”. This is of course a strange thing to say (quite apart from the fact that the word, not the phoneme, is the elementary sign of verbal language), because all kinds of currency appear to be made up of different units (such a “euro” and “cent”), to which further denominations are added by the number system. Indeed, this is probably why Saussure chose to compare language to money in the first place.<sup>98</sup>

98 A sign system having only one sign, as Prieto (1966: 43ff) argued, would be for instance be the white cane which signifies that its bearer is blind. This is so only because the absence of the white cane does not signify that the bearer is not blind, which is different from sign systems having more signs, such as the flag of the admiral’s ship, where the presence of the flag stands for the presence of the

It soon becomes clear, however, that Hornborg is really thinking about something very different, which, with Benveniste's (1969) term, may be called the "domain of validity" of the system, that is, the limited content resources. He opposes the Western concept of money to that of pre-modern societies such as the Nigerian Tiv, where there are three different kinds of value, that is, three different kinds of circulations of objects, which do not connect with each other. Indeed, not only is it possible, to express it in more adequate terms, to have several different money systems, each with its own domain of validity, between which no exchange is possible (contrary to what happens in the case of the currencies of different countries), but, at least at this point in history, it is still true that "*all* societies recognize spheres of human life which are not to be mediated by money" (Hornborg 1999:157; his italics). Although Hornborg does not give any examples, I believe it is taken for granted in our society that such things as love, friendship, and honour are not to be had for money,

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admiral on board, and the absence of the flag for his absence.



Ex. phoneme,  
word,  
standardized  
object

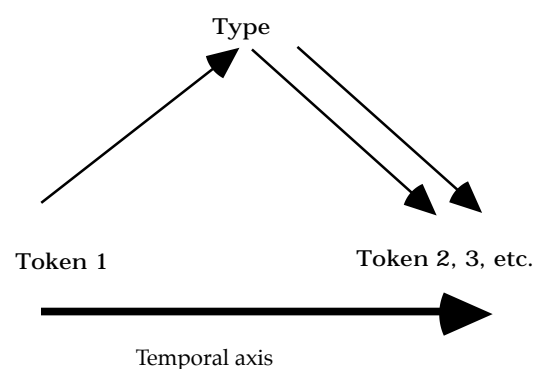


Fig. 21. The temporally bound type of typicality

but only for more love, friendship and honour. With such exceptions, however, the whole domain of goods can be exchanged for money in Western society. To this may be added a peculiar "mode of operation", in Benveniste's (1969) sense, that is, a limitation of expression resources, because, as Hornborg (1999: 153) notes, quoting Polanyi, "only quantifiable" objects may serve as money".<sup>99</sup> If love is only to be exchanged for love, then, I take it, love would not be money, because it is not quantifiable.

The correlate of money being able to stand for everything it that it is unable to stand for anything in

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<sup>99</sup> On these terms, cf. Lecture 4, where they are used to compare language and pictures, following the inspiration of Lessing.

Fig. 22. The temporally free type of typicality



Fig. 23. Linde's  
new tokens of  
Duchamp's  
ready-mades

particular: as Hornborg (1999: 153) observes, money does not correspond to any particular concept. It might be more correct so say, however, that money only corresponds to the concept of monetary value, which is really the same thing as saying that it is limited to a very narrow domain of validity.<sup>100</sup> Still, this means that it does not make sense to say that money is somehow directly given but not thematic while that which it is exchanged for is indirectly given and thematic. Hornborg also claims that money cannot be a “symbol” in the Saussurean sense, be-

cause there is not even a remnant of natural connection between signifier and signified. But Hornborg must be wrong about this: in fact, Saussure (1973: 115f) does not say that coins and words may be exchanged for unlike units, such as commodities and concepts, respectively, as Hornborg quotes him to say, but for *work* and concepts, and he goes on to contrast the natural relationship in the first case with the arbitrary one in the second case (which should not be surprising since Saussure always tends to single out the arbitrariness of language). Clearly, Saussure has an idea of the “true value” of things, measured in the amount of work, as we know it from Ricardo and Marx. As Marx recognised, however, this does not really describe the way money has been functioning in Western society over the last few hundred years. Still, I think there is some truth to Saussure’s observation: as a special

100 If most things in our society may be bought for money, then the domain of validity of the money system may not appear to be particularly limited. Here we must separate the intensional and the extensional domain. Money redescribes everything from the point of view of their monetary value. This only becomes a problem when the point of view of monetary value is the only point of view that is sanctioned by society.

kind of exchange of commodities, money is basically of the same kind as that for which it is exchanged. But the signifier is not really of the same kind as the signified. I may take some money for my work instead of the food I really need, but I would hardly accept the signifier “food” in place of its signifier.

Like the woman of the mate exchange, money only signifies in a secondary way, because it stands for the act of exchange of which it is a part. The circulation of mates and the circulation of goods are really first of all circulations, and then they may be made to signify the fact of circulation. Even though a sign which does not circulate is not much of a sign, circulation is not constitutive of sign-hood.

### ***Two types of types, with iconicity and mimesis***

The difference between type and exemplar is described by Peirce with the terms “type” and “token” (or “replica”). In the previous phrase, for example, the word “and” appears once, considered as a type, but twice considered as a token. The letter “t” is also one type only, at the same time that only in the first sentence of the paragraph there appears eight tokens of it. This reasoning is easily extended to other systems of meaning; a reproduction of Leonard’s “Mona Lisa” is of the same type as another reproduction, but they constitute two exemplars or tokens of those that ex-

ist. Considered as a totality, this article is a single type, but it will appear in as many tokens as this lecture is downloaded. As a first approximation, it seems that it is a sign the type of which provides for more than one token which may be universally shared, in the sense of Sperber and Masuda, and which may be said to remain at the point of origin while being sent out to circulate.

Yet it is not evident that the relation between type and token always is of the same kind. It seems reasonable to say that a painting first must be made in one exemplar before existing as a type; the first exemplar serves to establish the type, from which then further exemplars can be derived. In the same way, the first exemplar of an article must be written by the author, before a type is established, which then plays the role of a directive guideline for the different exemplars that are later created. In the case of phonemes, words, musical notes and so on, the procedure is different: there is not a first “I” which only then creates the type which is then repeated. It may certainly be possible to determine when a phoneme, or in any case a word, was used for the first time, but normally this is not relevant for the native speaker. And to the extent that it becomes relevant, the typicality has changed its character.

It will be convenient to distinguish between *temporarily bound* and *temporarily free* relations be-

tween type and token; in the first case (Fig. 21) but not in the second the type (Fig. 22) is established in time by means of the creation of a first exemplar (cf. Sonesson 1998c). Tokens of temporally free types may be sent off in all directions, but the types are still always available at the place of origin and elsewhere. The case of temporally bound types is more complex. Written texts are temporally bound types, but they are entirely made up of temporally free types. The scribbles made by the famous author on the back of his bar bill may remain the only tokens of their type, if they are not rescued by his editor. But once these notes make it onto the printing house, they are made available everywhere, at the bar where they were written as well as at any other place. Until recently, a picture was almost always, from the very beginning, a temporally bound typicality: whether it was a drawing or a photograph, all its elements were temporally bound — although the photograph is more easily made into a first exemplar engendering an indefinite number of tokens. With the advent of computer graphics, however, a picture can be made from the combination of temporally free entities, whether these are items of clip-art or scanned images, or the product of algebraic formulas. This means that, also in the case of pictorial communication, both the temporally free and the temporally bound types may give rise to an indefinite number of

tokens. Thus, also pictures may still be present at the place of origin while reaching other coasts.

The distinction between temporally bound and temporally free types is not identical to the one that Goodman (1968) makes between *autographic* and *allographical* arts. Among the temporarily bound typicalities previously mentioned, the verbal text is allographic, whereas the visual work of work is traditionally autographic; in other words, the art work, but not the work of literature, is defined as to its identity as well as to its value within our inherited social practice by means of its temporary association to the first exemplar created by a certain individual. This is why we do not have to queue up in front of the Stockholm National Library to read the only exemplar of “Röda Rummet” written by Strindberg, while a similar conduct is expected of us in the case of a work of visual art. The copy of the novel that we may buy at any bookshop is a token of the temporally bound typicality produced by Strindberg, and so is the reproduction of Mona Lisa, which we can buy at the Louvre. But our current social practice assigns different values to these two instances of multiple tokens from one type.

To understand the decisive events of the history of the art, we have to take into account the entire hierarchy of values present in our society: the radicalism of the first ready-made that Duchamp exhibit-



ed did not consist in treating a temporally free typicality as if it were a temporarily bound one. In fact, the bottle dryer and the urinal also depend on typicalities that are temporarily bound. They are founded on some kind of prototype. The difference is to be found in the different values attributed to the first exemplar that creates the type in the production of the object of use and the work of art. By signing the urinal (with a false name, to be sure), Duchamp did not only transform a temporally bound type with an indefinite number of tokens into a type having only one token, but he also transmuted an allographic entity into an autographic one. And this is where the adventure of Modernist art begins: very soon (thanks to Linde), Duchamp's urinal becomes a type engendering new tokens. But to exist as art it still needs autography – the signature of the author (Fig. 23).

If we now return to the act of imitation, as it pre-exists to the semiotic function, it seems to have more in common with pictures than with language. Unlike truly mimetic resources, and unlike language, the act of imitation, similarly to the picture, first has to create the typicality, which is then used for reproduction. Between mimetic resources and pictures there seems to be more similarity than simply the predominance of iconicity. In the next lecture, we will look at a particular kind of iconicity, which we will call pictoriality.

## **Summary**

Accumulation, as Lotman said, is just as important to signs as communication. The picture, just as any other sign, may be seen as a memory device, a tool for accumulating information. As such, it is at least more complex to produce (though not necessarily to interpret) than verbal language, since, unlike oral language, but similarly to writing, it supposes the presence of organism-independent vehicles of representation. Following Merlin Donald, pictures are precursors of theory in phylogeny, and thus perhaps, as others have suggested, also in ontogeny. The model of communication, which poses an analogy between the conveyance of information and transport in space, is problematical on any account, but particularly so, in the case of pictures. As a vehicle, the picture, like any other material objects, would seem to disappear from the place of origin, once it is conveyed to another place. But this is only true of paintings (and not even applicable to frescoes); other kinds of pictures, from picture post cards to web pictures, clearly exist as types, independently of their material manifestations. Also pictures have types, distinct from their tokens. But unlike the elements of language (and like compound linguistic signs such as verbal texts), pictures are temporally dated types: they have an origin in time, to which any token must refer. In this respect, pictures seem to be more similar to

the act of imitation than language. Although decidedly post-mimetic and post-linguistic, they recuperate some of the properties of mimesis not only in the sense of iconicity.

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