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Two accounts could be written about the birth of pictorial semiotics, both taking their point of departure in the middle of the last century. The first story is about the *specificity* of the picture sign, as compared to other signs, and as related to its sub-types. It involves the Peircean notion of iconicity, less as it has been safeguarded by the true Peirceans, but as it emerges from half a century of criticism, by philosophers such as Bierman and Goodman, as well as semioticians such as Eco and Lindekens; and then rehabilitated, by, among others, Groupe μ , Bouissac, and Sonesson; and it also concerns the Saussurean idea of the way meanings may be organised, again as it was put to confused, and confusing, uses by Eco, Lindekens, and others, then elaborated in the work of Floch, Thürlemann, and other members of the Greimas school, as well as in that of Groupe μ ; and finally reconceived in the light of the findings of perceptual and cognitive psychology, in particular by Sonesson. We will have to take a look at some aspects of this narrative in the following.

The second story begins with Roland Barthes inventing a simplistic, but still inspiring, model which he applies to a publicity picture; it continues with representatives of the Greimas school, such as Floch and Thürlemann, explaining why this model is inadequate and constructing a new one, with Groupe μ proposing their own, rhetorically-based, model, as well as with the Quebec school insisting on perceptual features, the Australian school taking communicative functions as being fundamental, and the “Swedish school” (Saint-Martin 1994; Carani 1998) inventing a second-generation rhetorical model based on Lifeworld expectations and cognitive prototypes. In this adventure, Peircean semiotics proper has hardly taken any part: at the very most, pictures have sometimes (by Bense, Deledalle, Jappy, and others) been brought in to illustrate some Peircean concepts. This should not be surprising since, by its very nature, Peircean semiotics is much more about what is common to signs and meanings (and some very general kinds of signs and meanings such as icons, indices, and symbols) than about the specificity of semiotic resources such as language, gesture, pictures, and so on.

Pictorial semiotics involves the study of pictures as particular vehicles of signification. Pictorial semiotics, then, is that part of the science of signification that is particularly concerned to understand the nature and specificity of such meanings (or vehicles of meaning) that are colloquially identified by the term “picture”. In other words, pictorial semiotics is the study of depiction as a peculiar mode of information and communication. Indeed, although many semioticians have taken an interest in so-called “abstract” or “non-figurative art”, the prototypical concept of picture, which is also prevalent in everyday life, remains that of depiction in the narrow sense: the simulation of the world as it appears to human perception. And yet, the study of “non-figurative” aspects of ordinary pictures has permitted the discovery of another level of organization in the picture sign, the plastic layer.

The purview of pictorial semiotics must thus involve, at the very least, a demonstration of the semiotic character of pictures, as well as a study of the peculiarities which differentiate pictorial meanings from other kinds of signification, and an assessment of the ways (from some or other point of view) in which pictorial meanings are apt to differ from each other while still remaining pictorial in kind. In differentiating pictorial meaning from other meanings, we should in fact be particularly interested to know how they are distinguished from other kinds of visual signification, such as sculpture, architecture, gesture, and even writing; or how they differ from other iconic signs, that is, from other signs motivated by similarity or identity. Thus, apart from studying the properties which make the picture into a sign, and, more specifically, into a picture sign, we need to be concerned both with the subcategories in into which it can be divided, such as photography and painting, and with the categories of which it forms part, such as visual signs and iconical signs.

In actual fact, pictorial semiotics has turned out to be the privileged battle-ground on which the more wide-ranging battles over iconicity have been fought. It will therefore be necessary to say something here also about iconicity beyond pictures.

The domain of pictorial semiotics

In the work of the pioneers, pictorial semiotics, even when it concerned itself with advertisement pictures, tended to make its own the traditional conception of art history and literary history alike, according to which the object to be studied was the individual, purportedly unique, work of art. Many scholars have merely searched for a practical way of mapping an individual picture onto a verbal description, while retaining a minimum of confidence in the objectivity of the procedure. Although some scholars developed models of analysis which embodied hypotheses about wide-ranging regularities found in pictorial semiosis, there has been little awareness, until recently, that pictorial semiotics, if it is to be a part of general semiotics, must be concerned with all kinds of pictures, and formulate principles applicable to all empirically occurring picture kinds, and even to all objects potentially recognisable as pictures. Such a conception, although extended to the wider domain of visual semiosis, is implied (but not explicitly stated) in Saint-Martin's (1987) work. Arguments to the effect that pictorial semiotics should be a general science of depiction, or of visual images, are only presented in the recent books by Groupe μ (1992: 11ff), Sonesson (1989a: 9ff), and O'Toole (1994: 169ff).

To elucidate the meaning of pictorial semiosis must mean, among other things, to find out in what respects pictures are like other signs, and how they differ from them, most notably perhaps how they are differentiated from other signs of such sign categories to which they undoubtedly belong: the category of visual signs, and the category of iconic signs. Such a task, and even the very specificity of pictorial semiotics, obviously dissolves itself if we accept the idea of the Greimas school, according to which all meaning is of a kind, or is identical in nature as far as it is pertinent to semiotic theory (cf. Floch 1986b).

Curiously, Floch (1985: 11, 1986a: 12f) who defends this theory, also argues, on the other extreme, that semiotics should not concern itself with middle-range categories like "photography" and "painting", described as "socio-cultural", but should instead attend to the minute details of an individual picture. Thürlemann (1990), on the other hand, conceives of pictorial semiotics merely as an ancillary of art history. Groupe μ (1992: 12) follows suit in denying the pertinence of these same categories, which the group conceives of as being "sociological" or "institutionalised". Whatever the sociological status of photography and painting, however, it seems to me that they are also, and primarily, particular varieties of the picture sign, embodying a particular principle of pertinence, which serves to relay expression and content, and as such they should be of interest to semiotic theory.

A division of the pictorial signs founded on everyday language – and, beyond, it is hoped, on everyday use – may result in four categories of picture categories (Sonesson 1992a): *construction categories*, defined by what is relevant in the expression in relation to what is relevant in the content, which, among others, differentiates the photograph from the painting; *function categories*, that are divided according to the social effects anticipated, for example, the publicity picture which has as its goal to sell products, the satirical picture which serves to ridicule somebody, the pornographic picture, which is supposed to produce sexual stimulation; and the *categories of circulation* characterised by the channels through which the pictures circulate in a society, which makes the billboard into something different from the newspaper picture or the postcard into something different from the poster; and, finally, *organisation categories*, which depend on the conformation of the configuration occupying the expression plane of the picture (for which, contrary to the other categories, language does not have any proper terms).

This is of course a primary source of visual rhetoric: by means of the mixture of different construction categories, function categories, or circulation categories, a rupture of our expectations is produced (Sonesson 1994a, 1994c 1996a). Among well-known blends of construction categories may be counted the Cubist collages, whose materials are heterogeneous. A mixture of function categories is present in the well-known Benetton publicity, in which a news picture has been curiously blended into a publicity picture. A more abundant source of the rupture of the norm is, nevertheless, the expectations, which we entertain that there will be certain *correlations* between categories of construction, categories of function and categories of circulation (or perhaps also categories of organisation). A great part of Modernism (as well as Postmodernism) has consisted in breaking, in ever new forms, with the prototype of the art work that was current in the XIX century: an oil painting (construction category) with aesthetic function (function category) that circulates through galleries, museums and exhibition halls (circulation category). In this sense Modernism has been a gigantic rhetorical project, as Postmodernism was later to be.

However, even the very history of mass media and sign systems serves to undo the anticipated connections between pictorial kinds. This is valid also on a more general level: xylography already implies that the pictorial sign stops being absolutely bound to manual distribution; but only the computerised picture consummates the rupture with a construction realised by hand.

Pictorial semiotics, then, could well be conceived as that particular branch of semiotics which is concerned to determine in which way the picture sign is similar and different from other signs and meanings, in particular as far as its relationship to other iconic and/or visual meanings are concerned; and which is also called upon to analyse the systematic ways in which signs which are pictures may yet differ from each other, thus, for instance, as to construction, socially intended effects, channels of circulation, and configurational kinds.

Barthes on Panzani pasta and beyond

Although pictures are mentioned, and compared to verbal language, already by such precursors of semiotics as Lessing and Degérando, and in spite of the fact that Saussure, and even more Peirce, refer to pictorial signs repeatedly, pictorial semiotics must be considered a recent discipline indeed: the Russian formalists have little to say about pictures, and the Prague school merely uses them to illustrate general principles of semiosis. Only with the advent of French structuralism did a body of knowledge particularly geared to the elucidation of general principles underlying the organisation of the picture sign start to emerge.

The history of pictorial semiotics begins with two false starts, which are nevertheless immensely important, since everything that has happened since has emerged from the criticism of those two initial attempts: Barthes' article on Panzani publicity, and Eco's critique of iconicity. In the following sections, we will be concerned with Barthes and his posterity, turning then to Eco and the larger issue of iconicity.

First and foremost among the pioneers of pictorial semiotics must be mentioned Roland Barthes, whose article "La rhétorique de l'image", stands at the origin of two diverging developments within the semiotic field, the semiotics of publicity, represented by George Péninou and many others; and the semiotics of visual art, represented by, among others, Louis Marin, Hubert Damisch and Jean-Louis Schefer. In spite of the confusion to which Barthes testifies in his employment of linguistic terms, and although the usage to which he puts these terms is in itself incoherent, his article marks a real breakthrough in pictorial semiotics. There could be some intrinsic reasons for this, for the article may well constitute the first attempt to employ a simple model permitting to fix the recurring elements of pictorial signification. Yet the importance of the work is mainly due to the influence it was to exercise on almost all later analyses, either directly, the Barthesian terms being applied as a matter of course, or by way of reaction, when the authors took pains to dissociate their approach from that of Barthes.

Not only did Barthes and his followers try to reduce all meaning to the linguistic kind, employing a model inspired in structuralist linguistics, but in so doing, they unfortunately misunderstood the import of most linguistic terms. What is confused in Barthes' work tends to become even more so in that of his followers, who, moreover, inherit his exclusive attention to the content side of the pictorial sign, or more exactly, to the referent outside the sign and its ideological implications in the real world, even to the point of ignoring the way in which the latter are modulated within the sign. Indeed, it could be said that Barthes fails to attend to the picture as picture in two different ways: he has absolutely nothing to say about the particular perspective in which the Panzani products are presented, and the properties of these objects which are picked up and/or emphasized by the sign – that is, he ignores the three selectional principles of proper parts, properties and perspectives which permit the iconic sign to differ from that which it is sign of. In the second place, he also ignores the pictures as an object in its own right, a surface on which colours and shapes are organized in a particular way – in other words, that which will later be called the plastic layer of the pictures (which will be considered below).

The socio-critical strand of the Panzani analysis gave rise to several national traditions, differently integrated with other scholarly conceptions, which have seemed to be fairly immune to later developments in semiotics, such as, in the sixties and seventies, the work of Hermann Ehmer and others

in Germany, that of Peter Larsen in Denmark, and that of Gert Z. Nordström in Sweden, as well as, to some extent, the more recent publications by Gunther Kress, David Hodge, and Theo van Leeuwen in Britain.

Starting out from a few general observations, Barthes' pioneering article rapidly turns into a regular text analysis concerned with one particular photograph, defined both as to its means/ends category (publicity) and, somewhat more loosely, its channel division (magazine picture). The photograph under analysis shows samples of Panzani products, i.e. spaghetti, Italian tomato sauce, and grated cheese, together with a selection of vegetables presented in a string bag, which is held up by an invisible hand outside the picture. The brand name is to be read on the Panzani products, and there is also a short text below the depiction of the string bag. Barthes first comments on the importance of the linguistic part of the message, and then, in the main part of the essay, goes on to specify a series of "connotations" supposedly appearing partly in the verbal text and partly in the picture.

It is here (as well as in Barthes 1961) that Barthes proclaims his famous paradox, according to which the picture is a message deprived of a code. The term "image" in fact alternates in the same paragraph with the more particular term "photograph", as if this were the same thing, but later on the photograph is opposed in this respect to the drawing. Yet many followers of Barthes retain the wider interpretation, using it to defend the inanalysability, or ineffability, of paintings and other works of art. Actually, neither Barthes, nor his followers makes any real attempt to analyse the picture: they are discoursing all the time on the referent, that is, on the depicted scene. Lindekens (1971) already recognised that a "rhetoric of the referent", not of the picture sign, was at stake in the Panzani article.

Another fundamental *parti pris* of the Panzani essay, which has left its imprint on pictorial semiotics, is the idea of no picture being able to convey information by itself or, alternatively, containing so much contradictory information that a verbal message is needed to fix (or "anchor") its meaning. No matter which interpretation we choose (and the latter one may have more support in the text), pictorial meaning is supposed to depend on linguistic meaning. Pictures certainly offer much less *linguistic* information than verbal texts, except in those cases in which the picture itself contains the reproduction of written messages, as is the case of the Panzani publicity; but it could be argued that the picture much better conveys another kind of information that resembles the one present in the perceptual world (cf. Sonesson 1989a: 114ff).

The same errors of linguistic understanding are also found in Damisch's (1979) refutation of the linguistic model, identified with semiotics *tout court*, which, moreover, testifies to a much more serious confusion in comparing the merely intuitive, pre-theoretical notion of the picture with the concept of language as reconstructed in linguistic theory (just as Metz did in the case of the notion of film; cf. Sonesson 1989a: I.1.2).

The emergence of pictorial semiotics

In the late seventies and in the eighties, pictorial semiotics made something of a new start, or, rather, produced several fairly different, new beginnings: one, which is associated with the Greimas school, and whose main representatives are Jean-Marie Floch and Felix Thürlemann, and more recently also Jacques Fontanille; another, which comes out of the "general rhetoric" defended even earlier by the Liège group known as "Groupe μ "; and, finally, a development centred around Fernande Saint-Martin and her disciples in Montréal and Québec. To this could be added, following the distinction made by Saint-Martin and Carani, "the Swedish" or "ecological school", and also, in my view, another recent tradition (with two brands) rooted in the "social semiotics" of M. A. K. Halliday.

Jean-Marie Floch, Felix Thürlemann, and their followers accept the basic tenets of the Greimas school, and make use of its abundant paraphernalia, albeit with unusual restraint. Thus, like all contributions from the Greimasean camp, their articles employ an array of terms taken over from the linguistic theories of Saussure, Hjelmslev, Chomsky, and others, but given quite different meanings. The real problem resulting from this approach, therefore, is not, as it is often claimed, that it deforms pictures and other types of non-linguistic meanings by treating them as being on a par with language, but that, in attributing

quite different significations to terms having their origin in linguistic theory, it renders any serious comparison between linguistic and non-linguistic meanings impossible. Moreover, Floch and Thürlemann agree with other Greimaseans in taking all knowledge about the object of study derived from other sources to be irrelevant to semiotics, so that they must refrain from using the knowledge base of, for instance, perceptual psychology.

The interest of this approach resides not only in the fact that it involves the application of a model having fairly well-defined terms, which, at least to some extent, recur in a number of text analyses, but also is due to the capacity of this model to account for at least some of the peculiarities of pictorial discourse. Thus, for example, Floch and Thürlemann have noted the presence of a double layer of signification in the picture, termed the *iconic* and *plastic* levels. On the *iconic* level the picture is supposed to stand for some object recognisable from the ordinary perceptual Lifeworld (which is of course a much more restricted notion of iconicity than that found in the Peirce tradition); while concurrently, on the *plastic* level, simple qualities of the pictorial expression serve to convey abstract concepts. Floch, it is true, has tried to generalise these notions to other domains, most notably to literature, but they seem much better adapted to pictorial discourse. As we will see when to turn to iconicity below, this terminology is very unfortunate, since the plastic layer, in this sense, may very well be iconic in the Peircean sense.

A second, more controversial aspect of, in particular, the work of Floch, is the idea that pictorial meaning is organised into contrasts, i.e. binary terms, one member of which is an abstract property and the other its opposite ("continuity" vs. "discontinuity", "dark colours" vs. "light colours", etc.), both of which are present in different parts of the same picture. Indeed, each analysis starts out from an intuitive division of the picture into two parts, which may then be repeated inside one or both the division blocks. The remaining task of the analyst is thereafter to justify this segmentation, setting up long series of oppositional pairs, the members of which are located in the different division blocks resulting from the segmentation. Although Floch shows considerable ingenuity for discovering a binary division in all pictures studied, one may wonder whether such an analysis is equally adequate in all cases, and whether it remains on the same level of abstraction. Thus, it has been suggested (cf. Sonesson 1988, 1992a, 1992c, 1993) that some pictures may lend themselves more readily to a trinary division on a primary level, and also that the difference between an side-ordered division and a figure-ground relationship might be relevant.

Thürlemann appears to have been very little active in semiotics in recent years, and Floch died a few years ago. Jacques Fontanille, who now is the principle exponent of Greimasean pictorial semiotics, has tried to introduce a phenomenological tinge to the models inherited from Greimas. The Greimas school is still very influential in France and Spain and, in particular, in Latin America.

Equally of seminal importance to pictorial semiotics, the Groupe μ , or Liege school has consisted of different members through the years, the most constant of which are the linguists Jean-Marie Klinkenberg and Jacques Dubois, the chemist Francis Edeline and the aesthetician Philippe Minguet. Starting in the late sixties, this Belgian group of scholars produced a book of "general" rhetoric, in which they analysed in a novel way the "figures" appearing in the elaborate taxonomies of classical rhetoric, using linguistic feature analysis inspired in the work of Hjelmslev, as well as the mathematical theory of amounts. As in classical rhetoric, a figure is taken to exist only to the extent that there is a deviation from a norm. The latter is understood as redundancy, and thus identified with the Greimasean concept of isotopy, which henceforth becomes one of the essential building-blocks of the theory. At this stage, Groupe μ seems heavily dependent on a set of Hjelmslevian concepts (which they may not interpret quite correctly; cf. Sonesson 1988: II.1.3.7, 1989a: II.3–4), as well as on the notion of isotopy as conceived by Greimas (which in itself may be incoherent, cf. Sonesson 1988: II.1.3.5).

In spite of being general in import, the theory to begin with was mostly concerned with figures of rhetoric as they appear in verbal language. In a short study of a coffee pot disguised as a cat, Groupe μ (1976b) tries to implement the theory also in the pictorial domain. Over the years, the theory has been continuously remodelled, so as to account better for the peculiarities of pictorial meaning. Recently, Groupe μ rhetoric appears to leave behind at least part of the linguistic strait-jacket inherited from Hjelmslev, in order to incorporate "a certain amount of cognitivism" (in the words of Jean-Marie

Klinkenberg, pers. comm.). Yet, the theory still seems far from integrating the perceptual and sociocultural conditions that constitute the foundations of all rhetorical modulations.

Like the Greimas school, Groupe μ recognises the difference between the iconic and plastic layers of the picture sign (again using a notion of iconicity which is much more restricted than that of Peirce, which is unfortunate for the same reason as note in the context of the Greimas school). In this conception, iconic figures can be interpreted because of the redundancy of the iconic layer, and plastic figures acquire their sense thanks to a corresponding redundancy of the plastic layer (thus, for instance, we recognise the bottles substituted for the eyes of Captain Haddock as a figure, because of the context of his body; and we identify the geometrical shape substituted for the circle in one of Vasarely's works, because of the environment of repeated circles). More recently, Groupe μ (1992) also recognised iconico-plastic figures, which are produced in the plastic layers, while the redundancy occurs in the iconic one, or vice-versa (a comic strip personage which is like a human being but has blue skin would be of this kind, the bodily shape permitting recognition while the blue colour creates the deviation). Norms may be either general, valid for all pictures, or local, if they are created in a particular picture in order to be overturned: thus, the repetition of identical geometrical shapes in Vasarely's works is the backdrop on which another geometrical shape stands out as a deviation.

Groupe μ have also distinguished different kinds of transformations, which account for the difference between reality and what is seen in the picture sign. In the work of Klinkenberg (1996, in press), in particular, has been elaborated a concept of picture sign that relates the type, the signifier and the referent in the shape of a triangle, connected respectively by recognition, conformity, and transformation.

Contrary to the Greimas school, Groupe μ has never formed a closed movement. Instead, the group has inspired isolated followers in many parts of the world. The most serious, original studies, which heavily build on this work, however, are those of B rries Blanke (1998, 2003, in press), mostly in relation to the underlying sign concept, and of Andreas Br gger (1996), who has been particularly concerned with the different kinds of transformations taking place between the real world and the picture sign. Also part of the more recent work of Sonesson (1996a, 1996b, 1996c, 1997a, 2001b, 2004b, 2004c, 2005, 2008a) is very much, although critically, inspired by the contribution of Groupe μ .

The third conception of importance in the domain of pictorial semiotics is the one propounded by Fernande Saint-Martin and her collaborators, sometimes termed the Quebec school. In a number of publications (1985, 1987a), Saint-Martin has been elaborating a theory of visual semiotics, which is based on the conviction that a picture, before being anything else, is an object offered to the sense of visual perception. Visual meaning, according to this conception, is analysable into six variables, equivalent to a set of dimensions on which every surface point must evince a value: colour/tonality, texture, dimension/quantity, implantation into the plane, orientation/vectoriality, and frontiers/contours generating shapes. The surface points, specified for all these values, combine with each other, according to certain principles, notably those of topology, and those of Gestalt theory (cf. Saint-Martin 1980, 1990b). The principle merit of this approach is to have systematised a series of analytical conceptions familiar from earlier art history and Gestalt psychology.

Much of the importance of the Quebec schools resides in its explicit criticism of the Greimasean approach, most clearly spelled out by Marie Carani, who is also the author of important studies concerned with pictorial abstraction and perspective, respectively (Carani 1987, 1988). As compared to the binary opposition, which is the regulatory principle of the Greimas school approach, as well as to the norm and its deviations, which determines the conceptual economy of Groupe μ rhetoric, the Quebec school offers a much richer tool-kit of conceptual paraphernalia, more obviously adapted to the analysis of visual phenomena. Yet this very richness also appears to constitute the basic defect of the theory: it is not clear whether it offers any restrictions on what may be taken as relevant in the picture sign, which means that no analytical direction has been presented.

The constraints imposed by the grid taken over from the linguistic theory of M.A.K. Halliday by, notably, Michael O'Toole (1994), are, in this respect, much more enlightening. According to this conception, every work realises some alternative from among the ideational, interpersonal and textual "macro-functions",

renamed by O'Toole the representational, modal and compositional functions. The first function is involved with the relationships between the participants and processes in the real world, the second concerns the way in which this world is presented by the creator of the sign, and the third has to do with rules of internal patterning applying to the work as such. It is not clear why the functions are given other names, if they are really analogous to the functions Halliday finds realised in language; and indeed, one may doubt that they actually correspond to these functions in any very interesting sense. It is also very unfortunate that, in trying to specify by means of a cross-classification the different options available for the realisation of the different functions, O'Toole often employs traditional art-historical terms, which are notoriously vague and ambiguous, without O'Toole offering any specification of his own.

The pictorial semiotics proposed by Hodge and Kress (1988) and later by Kress and van Leeuwen (1996) also refers back to the linguistic theories of Halliday, but, in this respect truer to their master, they put much more emphasis on the social framework of picture use, and thus on pictures used in society generally, more than in the art world. In the first book, the invocation of Halliday seems largely vacuous: the book is really inspired by Barthes' Panzani analysis, and shares all its defects. The second work, however, is interesting for having recourse to other aspects of Halliday's work, his semantic (as opposed to syntactic) analysis of sentence structure, thus pointing out parallels, as well as their absence, between linguistic and pictorial organisation, without necessarily falling prey to the customary linguistic imperialism. In the end, however, it seems to me that Kress and van Leeuwen fail to make use of the most interesting contribution offered by Halliday, the analysis of thematic structure in terms of both given vs. new and them and theme, and thus they are unable to notice the really important differences between pictures and verbal signs. The work of Kress and van Leeuwen is also notable for propounding a number of completely arbitrary postulates: that that which is presupposed is always to the left and the new information is to the right; that the ideal is in the upper half, and reality is below; and that certain types of sentences cannot be rendered in pictures (cf. Sonesson 2004a, 2003c).

In this context, Sonesson's contributions to pictorial semiotics constitute a fourth (or fifth) strand, attributed, by certain commentators, to the "Swedish school" (Saint-Martin 1994) or the "ecological school" (Carani 1998). A more adequate term for this approach may be "the Lund school". In his main work which is devoted to a critical review of earlier accomplishments in pictorial semiotics, Sonesson (1989a) emphasises the basically perceptual nature of the picture sign, and expounds some of the consequences of this observation, invoking the testimony of contemporary perceptual psychology, and of philosophical and phenomenological theories of perception. Contrary to, most notably the Greimas school, "the ecological school" thus shuns the autonomy postulate of semiotics, admitting that pictorial semiotics has a lot to learn from psychology and other sciences, while claiming that their results must be inserted into a specifically semiotic framework, which has evolved from the age-old tradition of this science. Critically reviewing the use of many linguistic and otherwise semiotic concepts, such as sign, feature, connotation, iconicity, and so on, Sonesson argues that these are useful only to the extent that their import are clearly spelled out, so that the specificity of pictorial meaning can emerge. This work has later been extended, by Sonesson as well as by some students and collaborators, to pictorial rhetoric, photographic semiotics, cultural semiotics, and much else. Below more will be said about the critique of the iconicity critique. Sonesson's model of pictorial rhetoric, which is inspired in a critical reception of the μ model, puts more emphasis on perceptual experience, arguing that most figures suppose both the absence of something expected, and the presence of something which is not expected, rather than only one of these features; it also separates rhetoric along the dimension of indexicality (contiguity or factoriality), which is defined by more or less coherence than is expected, from the dimension of iconicity, which involves more or less similarity than expected, the symbolicity dimension, which is characterized by more or less sign levels than expected, and, finally, the social dimension, which has to do with the expected coincidence of constructional, circulatory, and functional picture categories.

Another scholar closely connected with the Lund school is Anders Marnér (1998, 2000) whose studies have concerned surrealist photography, notably in the work of the recently deceased Swedish photographer Christer Strömholm. Marnér's thesis develops a model of rhetoric as consisting in making something more familiar or more estranged in relation to the I-here-now situation of the Lifeworld. The model builds on the values of "high" and "low", and the figures of estrangement and familiarity as

directions that goes to and from the I-here-now position. A model of a rhetoric of time is also used. In relation to the I-here-now-position, retroactivity and reconstruction are seen as ways of construing the past, while on the other hand anticipation vs. contemporisation (the imposing of contemporary structures) are seen as relations to the future. Marner views the rhetoric of time in the light of Sonesson's distinction between a centripetal and centrifugal force, especially as evident in modernism's ambiguous tendency to include new media, but also to cultivate its isolation. In this view, reconstruction and contemporisation become centripetal figures in their capacity of being capturing practices, while retroactivity and anticipation, to the extent that they focus on singular aspects, may be regarded as centrifugal.

Other scholars working more or less within the framework of the Lund school approach are, notably, Hans Sternudd (2004), who has written about the semiotics of performance, notably as instantiated in the work of Hermann Nitsch, inquiring into the difference between plastic and material meanings; Fred Andersson (2007), whose study of the Swedish artist Elis Eriksson contains important pages of discussion about the rhetoric of Groupe μ as well as that of Sonesson; Christer Johansson (2008), whose dissertation about the difference between prose fiction and fiction film is very much indebted to Sonesson's theory of iconicity, as well as to recent work in cognitively inspired literary theory; Tomas Persson (2008), who uses the same theory of iconicity as a basis for his experimental works with picture interpretations in primates; and finally Sara Lenninger (in prep.) who studies children's capacity for understanding pictures using psychological methods together with semiotic theory.

Nothing have been said here about the orthodox Peirceans, who only recently seem to take an interest in pictures, mostly, however, in the spirit of a simple application of Peircean categories to a new domain of reality, pictures (e.g. Deledalle, Jappy). This is natural, in a sense, because Peircean semiotics is much more about what is common to all semiosis, than about what makes the differences between the varying semiotic resources. However, as an exception, Frederik Stjernfelt (2008: 277ff), has argued that diagrams, in the Peircean sense, are much more fundamental to the meaning of pictures than Peircean images.

Some contributions from philosophy and psychology

At its present stage, pictorial semiotics may well have less in common with Barthes' Panzani analysis than with that "linguistics of the visual image" invoked by the art historian E. H. Gombrich, or that "science of depiction" called for by the psychologist James Gibson; as well as with the studies of pictorial meaning initiated in philosophy by, for instance, Edmund Husserl, Ludwig Wittgenstein, Nelson Goodman, and Richard Wollheim. The most relevant reference, however, may well be that to Gibson, who, together with such disciples and colleagues as Julian Hochberg, John Kennedy, and Margaret Hagen, has started to elaborate a psychology of picture perception – but psycholinguistics cannot do without linguistics, and, by the same token, we need to establish a more general, theoretical, framework for the study of the picture sign (cf. Sonesson 1989a).

From the point of view of semiotics, the problem with the work of Goodman and his followers is that it is explicitly normative: not only does Goodman not attend to the common sense notion of picture, which he claims is contradictory, instead of which he introduces his own definition, but he compares pictures, not with real-world language, but with the logically reconstructed language of analytical philosophy. Philosophers of the phenomenological school, as well as some ordinary language philosophers have made more directly relevant contributions, since they start out from our experience of the common sense world. Thus, Wollheim's characterisation of the picture as being a kind of "seeing-in", inspired by Wittgenstein's work, is very similar to the earlier analyses of "pictorial consciousness" elaborated by Husserl. Both contribute to our understanding of the specificity of the picture sign within the general category of iconicity.

Within perceptual psychology, Gestalt psychology has often had recourse to pictures in order to illustrate certain general principles of perception, and the same is true of many social constructivists, notable with reference to so-called "impossible pictures" (similar to the work of Escher and Reutersvärd). Only James Gibson realised the necessity of a particular study of pictorial perception, originally because he wanted to protect ordinary perception from the abusive generalisations suggested by pictorial examples. To

perceive a picture is very different from the perception of the real, three-dimension world, already because the former is actually a surface, masquerading as part of the world of our experience. The work of Gibson, Kennedy, and Hochberg has been very important in pointing out the particularities of the picture as a sign. Contemporary pictorial semiotics has no business defending the old Structuralist postulate about the autonomy of semiotic knowledge. A lot can be learnt by delving deeper into the heritage of those philosophers and psychologists who have taken an interest in pictures, but their observations have to be replaced within a specifically semiotic framework.

The integration of psychological methods and semiotic theory, at least with respect to pictures, was pioneered by René Lindekens (1971), and another early contributor was Martin Krampen (1991). Most psychological studies of importance, however, were realised by psychologists lacking an adequate semiotical framework, such as, most notably, Judy DeLoache (2000, 2004). Such a semiotical framework for psychological studies, however, has recently been furnished, with reference to primate studies, in the work of Persson (2008) as well as by Call, Hribar and Sonesson (forthc.); and, in relation to children, in the work of Lenninger (in prep.). These studies suggest that picture interpretation in children and apes is much more difficult than would have been expected; but also that a lot depends on what is supposed to be interpreted, the picture as picture, the picture as an object of the world, or the relation between picture and object of the world.

Some more theoretical approaches

The second most influential figure in early pictorial semiotics was no doubt Umberto Eco, who defined two of the basis issues of the domain, and whose resolution of these issues was hardly contested until recently. Probably because only conventional signs, according to Saussure, were of interest to semiotics, Eco set out to show that pictures are as conventional as linguistic signs. In terms well-known within semiotics, Eco claimed that there were no iconic signs, that is, no signs motivated by similarity. Pursuing even further the analogy with linguistic signs, Eco went on to suggest that pictures could be analysed into elementary signs, which, in turn, could be dissolved into features having no meaning of their own. Although Eco himself was to qualify this latter idea ever more through the years, one or other versions of his conception continues to be accepted by many scholars in the field. Eco himself thus ended up rejoining the argument of the philosopher Nelson Goodman (1968), who thought pictures were similar to verbal language in being conventional, but different from them in not being made up of smaller units.

During the late 1980s and 90s, Eco's conception of the picture sign was heavily criticised by a number of scholars, notably by Paul Bouissac, Groupe μ , and the present author. My own argument, which relied both on evidence from perceptual psychology, and on a refutation of logical arguments, showed that, quite contrary to what had been claimed by Eco and Goodman, pictures were not fundamentally conventional, whereas they were indeed analysable into features, albeit of a very different kind from those found in linguistic signs. My conclusion was that there were both a *primary iconicity*, found mainly in pictures, in which it is the perception of similarity between the item serving as expression and the item serving as content which is one of the condition for the postulation of the sign character of the sign, and a *secondary iconicity*, in the case of which it is our knowledge about the sign character which first permits us to discover the similarity between the two items involved (Sonesson 1989a, 1994b, 1995a, 1997a, 1998b, 1998c, 2000). Taking stock of this strain of criticism, Eco (1997) in his latest books seems to pass to the other extreme, embracing something similar to the conception of the early Barthes, according to which the expression and content of (at least some) iconic signs are "tautologous".

Less influential than Barthes and Eco, but certainly as important for the development of pictorial semiotics, René Lindekens in his two early books (1971, 1976b) discusses questions pertaining to the basic structure of the pictorial sign (e.g., conventionality and double articulation), using photography as a privileged example. His theoretical baggage is complex: Hjelmslevian semiotics, of which he has a much more solid knowledge than Barthes, combined with an inkling of the Greimas school approach; phenomenology, which, however, affected him in the subjectivist reinterpretation of the existentialists; and the experimental psychology of perception, mainly derived from the Gestalt school. Yet, the different theoretical strands remain badly integrated, and much knowledge present in these perspectives is insufficiently exploited (cf. Sonesson 1989a).

In order to demonstrate the conventionality of pictures, and to show how they are structured into binary features, Lindekens (1971) suggests, on the basis of experimental facts and common sense, the existence of a primary photographic opposition between the shaded-off and the contrasted; at the same time, he also turns to experiments involving geometric drawings which have the function of brand marks, in order to discover the different plastic meanings (which Lindekens calls "intra-iconic") of elementary shapes. In fact, Lindekens would seem to argue for the same conventionalist and structuralist thesis as the early Eco (1968), but while the latter tends to ignore the photograph as the most embarrassing counter-example, Lindekens attacks it frontally from the beginning.

A theory of iconicity

In spite of the criticism formulated by Eco, Lindekens, Bierman, Goodman, and others, iconicity can be made out to be a perfectly coherent, and useful notion, as first shown by Göran Sonesson (1989a, 1995a, 1996b, 1998b, 2000, 2008b). What Peirce "really said" may not be of outmost importance here, since we are concerned with deriving a viable concept, not with writing the biography of Peirce's thinking. More recent experiences and analyses may thus force us to conceive of iconicity differently from Peirce. Yet it could be suggested that some of the usages to which iconicity are nowadays put are fairly different from the one intended by Peirce, and that something has got lost on the way. In particular, since large parts of recent semiotics has been concerned to reject the very notion of iconicity, it seems unfortunate that this critique has often started out from a very shallow understanding of Peirce's theory, and that the authors of this critique have hardly bothered to inquire into the possibility of adapting this notion to the present state of semiotic theory. Sonesson's theory differs from other in taking it departure in Peirce's work, yet remaining open to adapt it to what has been learnt about pictures and other iconic signs more recently.

Conceived in strictly Peircean terms, iconicity is one of the three relationships in which a representamen (expression) may stand to its object (content or referent) and which may be taken as the "ground" for their forming a sign: more precisely, it is the first kind of these relationships, termed Firstness, "the idea of that which is such at it is regardless of anything else" (5.66), as it applies to the relation in question. At the other extreme, iconicity has been variously conceived as a similarity, or identity, between the expression and the content of a sign, or as a particular variety of conventional coding.

Considerations of iconicity must start out from the iconic "ground", or what has been described as the "potential iconic sign". The ground is a part of the sign having the function to pick out the relevant elements of expression and content. It would appear that, in Peirce's view, two items share an iconic ground, being thus apt to enter, in the capacity of being its expression and content, into a semiotic function forming an iconic sign, to the extent that there are some or other set of properties which these items possess independently of each other, which are identical or similar when considered from a particular point of view, or which may be perceived or, more broadly, experienced as being identical or similar, where similarity is taken to be an identity perceived on the background of fundamental difference (cf. Sonesson 1989a: III.1-3).

Contrary to the indexical ground, which is a relation, the iconic ground thus consists of a set of two classes of properties ascribed to two different "things", which are taken to possess the properties in question independently, not only of the sign relation, but of each other. Indexicality as such involves two "things", and may therefore be conceived independently of the sign function (cf. indexicality). Since iconicity is Firstness, however, it only concerns one "thing". Indeed, as Peirce (3.1, 3.362, 4.447) never tires of repeating, a pure icon cannot even exist: it is a disembodied quality that we may experience for a floating instant when contemplating a painting out of awareness. Perhaps, then, to use some of Peirce's own examples, the blackness of a blackbird, or the fact of Franklin being American, can be considered iconicities; when we compare two black things or Franklin and Rumford from the point of view of their being Americans, we establish an iconic ground; but only when one of the black things is taken to stand for the other, or when Rumford is made to represent Franklin, do they become iconic signs (or hyp-icons, as Peirce sometimes said). Just as indexicality is conceivable, but is not a sign, until it enters the sign relation, iconicity has some kind of being, but does not exist, until a comparison takes place. In this sense, if indexicality is a potential sign, iconicity is only a potential ground.

Since the iconic ground is established on the basis of properties the two items possess only because of being what they are, the standard of comparison must be something like similarity or identity. Signs based on similarity have been distinguished before in semiotic theory, by Degérando, for instance, in terms of analogy. Indeed, Peirce also says that an icon (more exactly, a hypo-icon) is “a sign which stands for something merely because it resembles it” (3.362) or “partak/es/ in the characters of the object” (4.531). This point of view was pursued by Charles Morris (1946: 98ff), who considered that a sign was iconic to the extent that it had the same properties as its referent. According to this conception, iconicity becomes a question of degrees: a film is more iconic of a person than a painted portrait, but less so than the person itself. Abraham Moles (1981) has elaborated on this proposal, constructing a scale which comprises 13 degrees of iconicity going from the object itself to the zero degree epitomised by a verbal description. Such a conception of iconicity is problematic, not only because distinctions of different nature appear to be involved, but also because it takes for granted that identity is the highest degree of iconicity, and that the illusion of perceptual resemblance typically produced, in different ways, by the scale model and the picture sign, are as close as we can come to iconicity short of identity. Although Peirce does mention paintings and photographs as instances of iconic signs, he much more often refers to abstract properties.

The same confusion is found in other semiotic theories involved with iconicity. Umberto Eco's (1968: 1976) critique of iconicity is almost exclusively concerned with pictures. In pictorial semiotics, both as conceived by the Greimas school, and in the version of Groupe μ , iconicity is supposed to account for one of the two semiotic functions of the picture sign, the one giving the illusion of seeing something depicted in the sign, opposed to the plastic function, which is concerned with the abstract properties of the pictorial surface. However, if a circle, as in one of Groupe μ 's (1979) examples, is taken to stand for the sun on the iconic level, and on the plastic level for roundness, which, in turn, as we know from psychological tests, may signify softness, etc., then, what is called here the plastic language is at least as iconic, in Peirce's sense, as the iconic layer: for roundness is certainly a property possessed both by the circle representing the sun in this hypothetical drawing, and by the circle prototype; and, beyond that, there must be some abstract, synaesthetically experienced property which is common to the visual mode of roundness and the tactile mode of softness (cf. Sonesson 1994a).

When conceiving iconicity as engendering a “referential illusion” and as forming a stage in the generation of “figurative” meaning out of the abstract base structure, Greimas and Courtés (1979: 148, 177) similarly identify iconicity with perceptual appearance. In fact, however, not only is iconicity not particularly concerned with “optical illusion” or “realistic rendering”, but it does not necessarily involve perceptual predicates: many of Peirce's examples, like those of Degérando beforehand (cf. Sonesson 1989a: 204ff), have to do with mathematical formulae, and even the fact of being American is not really perceptual, even though some of its manifestations may be.

During the renewal of semiotic theory in the sixties and seventies, most semioticians were eager to abolish the notion of iconicity, again taking pictures as their favoured example, while claiming that pictures were, in some curious way, as conventional as linguistic signs. Bierman, Goodman, Lindekens, and Eco, have all argued against using similarity as a criterion in the definition of iconic signs and/or pictures; and even Burks and Greenlee have introduced some qualifications on Peirce's view, which serve to emphasise conventionality. Some of these thinkers, such as Bierman and Goodman, were mainly inspired by logical considerations, together with a set of proto-ethnological anecdotes, according to which so-called primitive tribes were incapable of interpreting pictures; Eco and Lindekens, in addition, wanted to show that pictures, conforming to the ideal of the perfect sign, as announced by Saussure, were as arbitrary or conventional as the sign studied by the most advanced of the semiotic sciences, general linguistics. Saussure himself never went to such extremes: in his unpublished notes he recognises the motivated character of both pictures and miming, but at least in the latter case, he argues that the rudiment of convention found in it is sufficient to make it an issue for semiotics.

The different versions of Eco's critique of iconicity are too numerous ever to be fully discussed, but we can distinguish three essential periods: at the first stage, Eco (1968, 1970a, 1972d) is basically concerned to show that iconic signs (the basic example being pictures) are similar to linguistic signs in being conventional and analysable into features; at the second stage (Eco 1976c, 1978b, 1984a, 1984b), he

abandons the idea of feature analysis but wants to dislocate the required similarity sideward, into some kind of proportionality. In the final stage, however (Eco 1997, 1998, 1999), he seems to give up almost everything he has so far believed in, and, while retaining a tiny part for convention, basically goes to the other extreme, making all icons into mirrors affording a direct view onto reality. The two first critiques have in coming trying to establish that iconicity is conventional, that is to say, that there is really no iconicity. As Sonesson (1989a, 1994c, 1996a, 2000) has shown in considerable detail elsewhere, Eco's arguments and examples fail, because either they establish the conventionality intrinsic to the world depicted, not the sign, or they show simply that there is a choice of different sets of iconical trait to pick up.

The most interesting arguments against iconicity were adduced by Arthur Bierman (1962), and were later repeated in another form, by, notably, Nelson Goodman (1970). According to one of these arguments, which may be called the argument of regression (cf. Sebeok 1976a: 128), all things in the world can be classified into a number of very general categories, such as "thing", "animal", "human being", etc., and therefore everything in the universe can refer to, and be referred to, everything else. Thus, if iconicity is at the origin of signs, everything in the world will be signs. This may not be so far from what Peirce thought: at least Franklin and Rumford are, as we know, potential signs of each other. It is certainly a conception of the world common in the Renaissance, and among Romantics and Symbolists. In the case of more common iconical signs, however, like pictures and models, a conventional sign function must either be superimposed on the iconic ground, or the iconic ground must itself be characterised by further properties. Even in the former case, however, iconicity is still needed, not to define the sign, but to characterise iconic signs (cf. Sonesson 1989a: 220ff).

Differently put, if Peirce meant to suggest that there are three properties, iconicity, indexicality, and symbolicity, which, by themselves and without any further requirement, trigger of the recognition of something as a sign, then the argument of regression will create trouble for his conception. On the other hand, if he merely wanted to suggest that something that was already recognized as being a sign, could be discovered to be an iconical sign, rather than an indexical or symbolic one, by means of tracing it back to the iconic ground, then the argument of regression will have no bearing on it.

According to another argument, which has been termed the symmetry argument (Sebeok 1976a: 128), iconicity cannot motivate a sign, for while similarity is symmetrical and reflexive, the sign is not. Pigments on paper, or carvings in a rock, could stand for a man, but not the reverse; nor will they, in their picture function, stand for themselves. This argument is based on an identification of the common sense notion of similarity with the equivalence relation of logic. No doubt, the equivalence relation, as defined in logic, is symmetric and reflexive, and thus cannot define any type of sign, since the sign, by definition, must be asymmetric and irreflexive. But to identify similarity with the equivalence relation it to suppose man to live in the world of the natural sciences, when in fact he inhabits a particular sociocultural Lifeworld. Similarity, as experienced in this Lifeworld, is actually asymmetric and irreflexive. Indeed, this fact is not only intuitively obvious, but has now been experimentally demonstrated (notably by Rosch 1975b; Tversky 1977; cf. also Sonesson 1989a: 220ff, 327ff). Contrary to the argument of regression, the symmetry argument may thus be warded off, without introducing a supplementary sign function, and without amending the definition of the iconic ground.

Goodman also argues that a painting is actually more similar to another painting than to that which it depicts. However, similarity should not be confused with identity: indeed, between two pictures (two canvases, etc.) there is identity, according to a principle of pertinence, and on the basis of this property a picture, just as any other object, may be used as a identity sign or an exemplification (as, for instance, in an art exhibition, or in front of the artist's workshop; cf. Goodman 1968). There is similarity, on the other hand, only on the basis of a fundamental dissimilarity. It is certainly not in their "important" properties, if that means the attributes defining them as "selves", that the picture and its referent (or content) are similar. In fact, the hierarchically dominant categories of the picture and its referent must be different; for a picture which is just a picture of the picture-of-X, is indistinguishable from a picture of X (cf. Sonesson 1989a: 226ff).

Although the sign relation is thus not needed in order to render similarity asymmetric and irreflexive, it is required in order to distinguish similarities that are signs from those that are not. At this stage, then, it would seem that the picture could be defined by the sign relation, together with similarity; but Eco rightly observes that, on closer inspection, there is really no similarity between the painted nose, and the nose of a real person. The same observation is even more obviously valid in the case of the stick-man, whether it is drawn on paper, or carved in the rock. However, it has no bearing whatsoever on iconic signs which are not picture signs, and the argument really shows the confusion between pictures and iconic sign in general: indeed, the American-ness of Franklin and Rumford is identical, as far as it goes, as is the roundness of circles and other round things, and the pattern and colour of a tailor's swatch and the cloth it exemplifies. In the case of the picture sign, it may really be necessary to construe similarity as a result, rather than a condition, upon the emergence of iconicity, but that is an issue which will concern the analysis of a specific variety of iconic signs, the picture, not iconicity generally.

The alternative analysis in terms of convention suggested by Goodman, Eco, and others, is conceived to take care of the case of pictures, but paradoxically, it seems that it would really be needed, not for pictures, but for some other iconic signs, which rely on identity. Goodman's and Greenlee's contention that the referent of each picture is appointed individually, and Eco's proposal that the relations of the picture are so correlated with those of the referent, are incompatible with what psychology tells us about the child's capacity for interpreting pictures when first confronted with them at 19 months of age (as demonstrated in a famous experiment by Hochberg). In 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 become signs of themselves, of some of their properties, or of the class of which they form part: a car at a car exhibition, the stone axe in the museum show-case or the tin can in the shop window, the emperor's impersonator when the emperor is away, and an urinal (if it happens to be Duchamp's "Fountain") at an art exhibition. There is never any doubt about their pure iconicity, or about their capacity for entering into an iconic ground – but a convention is needed to tell us they are signs.

From iconicity to the iconic sign

Within semiotics, the term icon is rarely used in its most common religious and art historical sense, to refer to a pictorial representation of persons or events derived from the sacred history of Christianity, particularly as used as an aid to devotion, although the only extant semiotic monograph concerned with a single pictorial genre is in fact about icons in this sense (Uspenskij 1976). Nor is the term normally used to refer to all things visible, or everything the elements of which are graphically disposed, as in the jargon of computer programming, or in cognitive psychology (e.g. Kolars 1977). In semiotic parlance, then, an icon is a sign in which the "thing" serving as expression is, in one or other respect, similar to, or shares properties with, another "thing", which serves as its content. In fact, if we follow Peirce, there are two further requirements: Not only should the relation connecting the two "things" exist independently of the sign relation, just as is the case with the index, but, in addition, the properties of the two "things" should inhere in them independently.

Thus, icons in the religious sense are not particularly good instances of icons in the semiotic sense, for they are, as Uspenskij has shown, subject to several conventions determining the kind of perspective which may be employed, and the kind of things and persons which may be represented in different parts of the picture. Contrary to the icons of computer programs and those of cognitive psychology, iconic signs may occur in any sense modality, e.g. in audition, notably in verbal language (not only onomatopoeic words, but also in the form of such regularities and symmetries which Jakobson [1965c, 1965d] terms "the poetry of grammar") and music (cf. Osmond-Smith 1972), and not all visual signs are iconic in the semiotic sense; indeed many icons found in computer programs are actually aniconic visual signs.

Many semioticians, in particular those who deny the existence of iconic signs, apparently believe pictures to be typical instances of this category. There are several reasons to think that this was not Peirce's view. Pure icons, he states (1.157), only appear in thinking, if ever. According to Peirce's conception, a painting is in fact largely conventional, or "symbolic". Indeed, it is only for a fleeting instant, "when we lose the consciousness that it is not the thing, the distinction of the real and the copy", that a painting may appear to be a pure icon (3.362; cf. iconicity and Sonesson 1989a: III.1).

It will be noted then that a pure icon is thus not a sign, as the latter term is commonly understood (although Peirce will sometimes state the contrary). At first, it may seem that, although the icon is not a socially *instituted* sign, i.e. not something which is accepted by a community of sign users, it could at least, for a short time span, become a sign to a single observer. But even this is contrary to the very conditions described by Peirce: he specifically refers to the case in which the sign loses its sign character, when it is not seen as a sign but is confused with reality itself (which could actually happen when looking at a picture through an key-hole with a single eye), when, as Piaget would have said, there is no differentiation between expression and content (cf. Sonesson 1989a, 1992a, 1992b; Sonesson and Zlatev forthc.).

Indeed, it would seem that, at least sometimes, the pure icon is taken to be something even less substantial: an impression of reality, which does not necessarily correspond to anything in the real world, for "it affords no assurance that there is any such thing in nature" (4.447). Thus, it seems to be very close to the "phaneron", the unit of Peircean phenomenology (itself close to the Husserlean "noema"), which is anything appearing to the mind, irrespective of its reality status (cf. Johansen 1993: 94ff). In this sense, the Peircean icon is somewhat similar to that of cognitive psychology, for it involves "sensible objects" (4.447), not signs in any precise sense: however, it still comprises all sense modalities.

In most cases, when reference is made to icons in semiotics, what is actually meant is what Peirce termed *hypo-icons*, that is, signs which involve iconicity but also, to a great extent, indexical and/or "symbolic" (that is, conventional, or perhaps more generally, rule-like) properties. There are supposed to be three kinds of hypo-icons: *images*, in which case the similarity between expression and content is one of "simple qualities"; *diagrams*, where the similarity is one of "analogous relations in their parts"; and *metaphors*, in which the relations of similarity are brought to an even further degree of mediation. Diagrams in the sense of ordinary language are also diagrams in the Peircean sense, e.g. the population curve which rises to the extent that the population does so. The Peircean concept is however much broader, as is the notion of metaphor, which would, for instance, also include the thermometer. Moreover, no matter how we choose to understand the simplicity of "simple qualities", the Peircean category of images will not include ordinary pictures (which would be metaphors of metaphors; cf. picture perception), although Peirce sometimes seems to say so: if anything, a Peircean image might be a colour sample used when picking out the paint to employ in repainting the kitchen wall.

Contrary to the way in which icons have been conceived in the later semiotic tradition, diagrams, rather than pictures, are at the core of Peircean iconicity: at least, they are of most interest to Peirce himself. Indeed, mathematical formulae and deductive schemes, which are based on conventional signs, are those most often discussed in his work.

There is still another sense in which pictures are far from being central instances of icons. As was noted above, the fact that an object serving as the expression of an icon, and another object serving as its content, possess, in some respects, the same properties, should not be a result of one of them having an influence on the other. In the case of an icon (contrary to the case of an index), "it simply happens that its qualities resemble those of that object, and excite analogous sensations in the mind for which it is a likeness" (2.299). Since both Franklin and Rumford are Americans, Peirce claims, one of them may serve as a sign of the other; but the fact that Franklin is an American is quite unrelated to Rumford's being one. But there is at least one sense in which this is not true, not only of a photograph (which Peirce often pronounces to be an index), but also in the case of a painting or the image on a computer screen: in each case, the "thing" serving as the expression is expressly constructed in order to resemble the "thing" serving as the content, although a direct physical connection only exists in the first instance. Leonardo painted the canvas known as Mona Lisa in order to create a resemblance to the wife of Francesco del Giocondo, and, although the resemblance is of a much more abstract kind, the same is true of Picasso painting Gertrude Stein or Kahnweiler. And it is as true of a synthetic computer picture showing a lamp as of a photograph with the same subject.

Peirce's claim that the properties of expression and content pertain to them independently seems more relevant to identity signs (like Franklin representing Rumford) than to pictures. In another sense, on the other hand, pictures are far more iconic than, for instance, objects representing themselves: they can do

with far less indexicality and convention. From this point of view, and contrary to what has been suggested by Morris (1946: 98ff), and often is repeated in theatre semiotics, an object is not its own best icon.

When used to stand for themselves, objects are clearly *iconical*: they are signs consisting of an expression which stands for a content because of properties which each of them possess intrinsically. And yet, without having access to a set of conventions and/or an array of stock situations, we have no possibility of knowing, neither *that* something is a sign, nor what it is a sign *of*: of itself as an individual object, of a particular category (among several possible ones) of which it is a member, or of one or other of its properties. A car, which is not a sign on the street, becomes one at a car exhibition, as does Man Ray's iron in the museum. We have to know the show-case convention to understand that the tin can in the shop-window stands for many other objects of the same category; we need to be familiar with the art exhibition convention to realise that each object merely signifies itself; and we are able to understand that the tailor's swatch is a sign of its pattern and colour, but not of its shape, only if we have learnt the convention associated with the swatch (cf. Sonesson 1989a: II.2.2, 1994a).

Convention is thus needed, not only to establish the sign character, but also the very iconicity of these icons. Since iconicity can be perceived only once the sign function, and a particular variety of it, is known to obtain, the resulting icons may be termed *secondary* (Sonesson 1994). This also applies to "doodles", a kind of limiting-case of a picture exemplified by Carracci's key, in which a triangle above a horizontal line is discovered to represent a mason behind a stone wall, once we are told so; as well as the manual signs of the North American Indians, which, according to Mallery (1880b: 94f), seem reasonable when we are informed about their meaning.

In these cases, knowledge about the sign function already obtaining between the two "things" involved is clearly a prerequisite to the discovery of their iconicity. The opposite case, in which it is the perception of iconicity which functions as one of the reasons for postulating a sign relation, would seem to be more germane to Peirce's conception of the icon. Such a *primary icon* is actually realised by the picture sign. Indeed, we know from child psychology and anthropology that no particular training is needed for a human being to perceive a surface as a picture. The possibility of this feat remains a mystery: the properties possessed in common by the picture and that which it represents are extremely abstract. It has been suggested that picture perception is only possible because there is a taken-for-granted hierarchy of things in the world of everyday life that makes certain objects and materials more probable sign-vehicles than others (Sonesson 1989a, 1994).

A caveat should be added at this point: what Hochberg's classical study actually establishes is that the child is able to see the similarity between the real doll and the picture of a doll, which is no mean feat, since they are optically very different. But we don't know whether the child of 19 months also sees the difference between the doll and its picture. But we do know by now that apes have difficulties seeing the picture of a banana as more than a less attractive banana (cf. Sonesson and Zlatev *forthc.*). Thus, primary iconic signs may not be so easy to interpret either, but not, contrary to Eco's and Bierman's, because of any conventionality.

The distinction between primary and secondary iconic signs, in any case, has recently been applied also to language (cf. De Cuypere 2008). Yet, it is precisely the application of those concepts to other semiotic resources than pictures which serves to suggest that the distinction may have to be elaborated (Sonesson 2008b).

The mirror and the picture sign

In his most recent work, Eco abandons his conventionalist theory of pictures, not going to the other extreme by claiming that television images are like mirrors, which are no signs. Sonesson (2003a) has argued, against Eco, that the mirror has all the properties of a genuine sign, and that, independently of that conclusion, the television image remains different from the mirror, since it is not only a sign, but a pictorial sign. The analogy between television and the mirror can be rejected without much argument (although there is of course more to it), because television is very rarely direct transmission, and because there are ample possibilities of making choices, thanks to computer devices even in real time. However,

the rejection of the argument purporting to show that the mirror (image) is no sign is of more theoretical importance for the semiotics of picture.

According to a theory first presented in Eco's (1984) dictionary entry on the mirror, and enlarged upon in his recent writings (1997, 1998, 1999), the mirror is no sign. In particular, Eco quotes seven reasons for denying the sign status of the mirror, which can be summarised as follows: 1) Instead of standing *for* something it stands *before* something (the mirror image is not present in the absence of its referent); 2) It is causally produced by its object; 3) It is not independent of the medium or the channel by means of which it is conveyed; 4) It cannot be used for lying; 5) It does not establish a relationship between tokens through the intermediary of types; 6) It does not suggest a content (or only a general one such as "human being"); 7) It cannot be interpreted further (only the object to which it refers can).

Contrary to what Eco suggests, many signs function *in the way they function* only in presence of their referent: this is the case with those pictures of birds with the names of their species written below them which are attached to the bird case in the zoo. Indeed it is the case with much of our language use: for although the female personal pronoun, for instance, figures extensively in the absence of a possible referent, it does not tell us very much. Other signs, however, are more radically dependant on their referents. Indeed, weathercocks, pointing fingers, cast shadows, and a lot of other signs cannot mean what they mean, if not in the presence of the object they refer to. Indeed, as we shall see, co-presence is a precondition at least for one kind of indexical sign. The sign character of these signs only endures as long as the object is in their presence, and such was no doubt originally the case also with personal pronouns such as "I". The classical definition of the sign, which Eco here refers to, is wrong in requiring the absence of the referent.

Neither Peirce nor Saussure have really defined the concept of sign, but simply take it for granted. We can spell out what is presupposed by the sign concept by making use of some ideas derived from Husserl and Piaget (cf. Sonesson 1992b). According to the former, the sign requires a difference in focus and mediation. The expression is *directly perceived* but is *not thematic*, and the content is *indirectly perceived* but *thematic*. But this criterion clearly applies to the mirror, just as well as to the picture. 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.

Piaget's criterion depends on the notion of differentiation. Expression and content are differentiated from the point of view of the subject. There seems to be two possible interpretations of this conception: Differentiation may mean that the expression does not continuously go over into the content in time and/or space; or that expression and content are conceived as being of different nature. In both senses, the mirror is certainly as sign. The person or thing in front of the mirror is clearly differentiated from the image in the mirror. 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 (they do not think the mirror image is part of themselves) but rather that concerned with the different nature of the two correlates (the cat takes the mirror image of a cat to be another cat).

We shall now have a look at the second argument, which says that the mirror image is causally produced by its object, which is not the case with the picture sign. Thus, causality is taken to exclude the sign character. This is curious, because one of Peirce's most currently quoted definitions of the index (which is a sign) says that it depends on a causal relation between expression and content. In fact, a lot of indices depends on causality, from the knock on the door (caused by the hand) to the cast shadow, the death mask and – something which is definitely also a picture – the photograph.

Pronouns like "I" change their meaning each time they are used, yet retain the meaning once they are written down (or, one might add, when the speech is recorded on tape). The mirror, Eco contends, continues to change its meaning for ever. However, the weathercock, one of Peirce's favourite examples of an index, behaves in all these respects more like the mirror than like the pronoun: if sent as a message from the seasonal resort, it will indicate the direction of the wind at the place where the receiver lives, not that which the sender observed before putting the device into the parcel. This is not to say that the weathercock functions exactly as the mirror. The difference between the mirror, the pronoun and the

weathercock has to do with the relative importance of the constant and variable element in the meaning, that is, with Eco's "content".

The difference between the pronoun, the mirror, and the weathercock depends on how far the constant elements of signification (Eco's "content") go in a sign. We know that "I" refers to the speaker or writer using a particular instance of the sign, and there are usually other ways of discovering who the speaker or writer is, or at least that he is not identical to ourselves. The constant element of the weathercock is the indication of the direction of the wind in the here and now. The constant element of the mirror is the rendering of something visible placed presently in front of it. The variable elements are too many ever to be retrievable; but it may yet be maintained that they all share a number of predicates, such as being visible, present in the here and now, and so on.

The opposition that Eco posits between mirrors and signs is seemingly the same as other thinkers (e.g. Gombrich) have always postulated as a difference between pictorial and verbal signs. It is often expressed as a difference between *singularity* and *generality*. A picture, it is said, can only show an individual person, not "a guard in general", but some very particular guard with individual features. As applied to pictures, these arguments are no doubt wrong. It is possible to construct very abstract or schematic pictures (children's drawings or logograms, for instance), which only convey very general facts. Indeed they are about "a woman in general", etc. But even a photograph with an abundance of individual detail will only signify to me something like "a young woman dressed in 1920ies apparel", if I do not happen to know the person in question. This also applies to mirrors: while looking at myself in the mirror, I may suddenly see some configuration which I interpret as "a man appearing behind my back". I do not have to recognise him as Frankenstein's monster to be frightened. In mirrors, as in pictures, singularity is not, in the last instance, in the sign, but in the use to which we put the sign.

Curiously, Eco all the time talks *as if mirrors were only used to look at ourselves*. In fact, mirrors are not only used for seeing oneself but for seeing others and other things. Some mirror types are actually specialised for such purposes. The rear mirror of a car is used for discovering other cars coming from behind. A dentist uses a mirror to investigate the status of our teeth. Indeed, a woman may know very well that she has lips, and still use a mirror to ascertain that she is putting the lipstick on to her best advantage. Even supposing that Eco's argument would have some relevance, these mirrors are not used to show something which is known beforehand, as the presence of cars, teeth, or lips, but to investigate special properties of these objects. Thus, they are not "symptoms", if we take this word in the ordinary language sense of an indexical sign which is unintentionally emitted.

It is not clear whether Eco's claim that the mirror is not independent of the medium or channel by which it is conveyed involves the different materials employed, or the fact of transference being possible. Historically, mirrors have been made out of different "substances", that is, different *materials*: once upon a time, they were made from metal sheets, which explains that Saint Paul could talk of us seeing "obscurely, as in a mirror". In this sense, the argument is historically wrong. On the other hand, if Eco means to say that a particular instance of mirroring is *not transferable* from one mirror to another, then something equivalent is true of many signs.

According to the fifth argument the mirror does not establish a relationship between tokens through the intermediary of types. We may certainly agree that mirrors do not comply with this criterion – but neither do paintings existing in one single copy (if we do not admit the reproductions as tokens, which most art historians would vehemently deny). Nor do *any momentary signs* comply with this criterion, from pointing fingers to weathercocks or cast shadows. For though the finger may endure, as does the mirror, the particular act of pointing, just as that of mirroring, does not repeat itself, nor does it admit a change of "substance".

The notion of momentary signs does not appear to exist for Eco, and yet it is an important one. The problem seems to be that Eco thinks something that once is a sign must then always be one. However, if we exclude all signs that are only momentarily signs of something, most of the examples given by Peirce and others will not be eligible as signs. You do not have to cut off a finger and send it off by post for it to change completely its meaning; even in its natural position, the content to which it points is

continuously changing. In fact, weathercocks, pointing fingers, and pronouns, seem to have functioned (and functioned as signs) much like the mirror, before different techniques for preserving tokens (as opposed to types) of signs were invented, a process which perhaps begun with writing and now has reached the state of computer memory.

Of course mirrors lie. The very business of the mirrors in the Fun House is to do just that (Vilchez 1983). They lie in a systematic way: there is always the same distance between the referent and the picture object, at least from a given position in front of the mirror, so there is actually a content (i.e. a type), which mediates between the subject and the mirror image. If distorting mirrors are possible, then all mirrors are no doubt somewhat distorting (as are all photographs), although we are too accustomed to them to realise it (cf. Sonesson 1989b). So the mirror image is also conveyed to us with the fidelity permitted by its particular channel. This all amounts to saying that, like the picture, the mirror has its "ground", its principle of relevance.

In fact, there are no zero-degree mirrors: as people who use mirrors professionally, from dentists to sales clerks at the dressmakers, will readily point out to us, all mirrors are adapted to particular uses. Actually all mirrors lie, or, more precisely, they *interpret*: they are adapted to different professional uses, the "channel" having a particular fraction in the case of the dentist, a particular tint for the dressmakers, etc.

Eco's final argument says that there is no chain of interpretants resulting from the mirror as in the case of the sign. The mirror cannot be interpreted further – only the object to which it refers can. But of course the mirror may be the starting-point for a chain of interpretations, just as any feature of the common sense Lifeworld. That is what the dentist does, the woman applying her lipstick in front of the mirror, the driver who sees a car coming up behind him, the person seeing the monster (which is not a vampire) in the mirror, etc. Eco would say this amounts to interpreting the object, but this would only be true if we had accepted his other arguments. If mirrors are adapted to their particular uses, as we just saw, then it really is a question of interpreting the object *as it is given* in the mirror, roughly similar to the interpretation of objects through the intermediary of a picture.

The case for photography

Like many other terms employed in pictorial semiotics, photography is a common-sense notion, which it is the task of semiotic theory to reconstruct. As such it designates a particular way of producing such marking on the surface which give rise the illusion of seeing a scene of the experimental world projected onto the surface, as well as that peculiar character of granularity which was (until the recent advent of the computer image) immediately recognized as the expression plane of a photographic sign. In this sense, it is an example of what has above been termed a construction category, most directly opposed to different kinds of pictures made by hand (sometimes known as chirography) such as drawing and painting. Although leading authorities of pictorial semiotics as Floch (1986) and Groupe μ (1992) have denied the semiotic relevance of such putatively "socio-cultural" categories as photography, this particular picture category has already, unlike most others, engendered a small body of literature concerned to lay bare the specificity of its sign function.

According to Philippe Dubois (1983: 20ff), the first semiotical theories of photography tended to look upon the photograph as a mirror of reality, or, in Peircean terms, as an icon; then came that most celebrated generation of iconoclasts who tried to demonstrate the conventionality of all signs, supposing even the photograph to present a "coded" version of reality, or, as Peirce (according to Dubois, at least) would have said, a symbol; and finally the photograph was seen for what, according to Dubois, it really is: an index, more specifically, a trace left behind by the referent itself. Without subscribing to Dubois' uni-linear story of progress, we will use his distinctions as a handy classification of the relevant epistemological attitudes.

The authorities quoted by Dubois from the first period are in fact largely pre-semiotical: Baudelaire, Taine, Benjamin, Bazin, but also Barthes. Most of the minor classics of semiotics are mustered for the part of the symbol addicted team: Metz, Eco, Barthes, Lindekens, Groupe μ , and so on. In the part of the daring moderns, we find, apart from Dubois himself, such writers as Bonitzer, Krauss, Vanlier, but also already

Barthes, Benjamin and Bazin, when considered from another vantage point, and, of course, Peirce. Barthes here appears as a proponent of the iconic conception, because of having opposed the conventional, historically relative, and learned character of drawing to the “quasi-tautological” nature which photographic expression shows in relation to its content. His claim to be a vindicator of the symbol view probably rests on his listing of photographic “connotations”. And he is considered a pioneer for the index theory for the reason that he has described each photograph as implying that “this has taken place” (“cela a été”). In fact, also Peirce may be considered as an authority for all conceptions: he sometimes tells us the photograph is an index, sometimes an icon, and elsewhere he observes that all real icons are somewhat conventional.

The most outspoken exponent of the conventionalist view is undoubtedly René Lindekens (1971), who argues for the conventionality of pictures, and their structuring in binary features using the fact that in a photograph nuance diminishes as contrast is augmented, and vice versa, so that one of these factors must always be untrue to reality; or, differently put, that the best rendering of contour and details is not obtained at the same time as the correct contrast. This argument may well show that, under the present technological conditions, photographs will never be able to reproduce integrally the reality photographed, but it certainly does not demonstrate an equivalence between linguistic structuring and that of photographs: a phoneme is either voiced or unvoiced, but a photograph, and in fact any single point of it, must be shaded-off to some degree and contrasted to some degree. Only the extremes would seem to exclude each other (cf. Sonesson 1989a: 81ff, 1989b: 12ff).

In the process, Lindekens (1971: 178ff) also takes his experiment a little further, to demonstrate that the interpretation of a photograph is influenced by its having been made more or less contrasted or shaded-off in the process of development. Quite independently, Espe (1983) also showed experimentally that an identical photograph may carry very different affective import for being differently contrasted. As a consequence, the evaluation is often projected onto the subject matter, so that the girl depicted appears more or less beautiful, the landscape more or less melancholic, and so on.

Actually, Barthes' (1964) defence for the iconicity view may not be as naive as has been claimed by Floch and others. According to Sonesson (1989b, 1999a, 2003b), Barthes could be interpreted to propose the theory that drawing, but not photography, requires there to be a set of rules for mapping perceptual experience onto marks made with a pen on paper; and these rules imply a particular segmentation of the world as it is given to perception, picking up some (kinds of?) features for reproduction, while rejecting others, and perhaps emphasising some properties at the same time as others are underplayed; and all this takes place under given historical circumstances, which are responsible for varying the emphases and the exclusions. Against this, it might be argued that Renaissance perspective, and a lot of other principles of rendering, are built into the camera: but the point is precisely that they are incorporated into the apparatus, and thus not present to consciousness in the actual process of picture production. More importantly, however, as we will see, this idea can be generalized to apply, in a different sense, to all kinds of pictures (Sonesson 1989b; summarized in Fossali and Dondero [2006], without very clear attribution of sources).

In terms of the factoriality between content and referent, Barthes may be taken to claim that photography is able to pick up particular proper parts (“son sujet”, “son cadre”) and perceptual angles of vision (“son angle”) of the whole motive, but cannot choose to render just a few of its attributes. In some all too obvious ways this is false: for essential reasons, photography only transmits visual properties, and it only conveys such features as are present on the sides of the object fronting the camera. Also, depending on the distance between the camera and the motive, only features contained in a particular range of sizes may be included.

As long as no trick photography is involved, however, it seems to be true that, without recurring to later modification of the exposed material, photography is merely able to pick up features, or restrict its selection of features, on the *global* level, whereas in drawing, local decisions can be made for each single feature (as suggested by Sonesson 1989b: 36ff; cf. Dubois 1983: 96f). This also applies to all other rules of photographic transposition listed by Ramírez (1981: 158ff) and Gubern (1974: 50ff): abolition of the third dimension, the delimitation of space through the frame, the exclusion of movement, mono-focal and

static vision, granular, discontinuous structure of the expression plane, abolition or distortion of colour, limitation to scenes having a certain range of luminosity, and abolition of non-visual stimuli.

The recent turn to an indexicalist position was taken together by Henri Vanlier (1983), Philippe Dubois (1983), and Jean-Marie Schaeffer (1987), yet the three theorists are very different in many respects. While Dubois and Schaeffer base their claims on Peirce's theory, Vanlier's notion of indexicality (split into the untranslatable opposition between "indice" and "index") is not really derived from Peirce; indeed, his "indice" is actually, in the most literal sense, a mere trace, of which he offers some very usefully descriptions. Schaeffer takes a less extreme stand than Vanlier and Dubois, arguing that the photograph is an indexical icon, or, in other cases, an iconical index (cf. Sonesson 1989b: 46ff).

When photographs are said to be indexical, contiguity is always meant, and a particular kind of contiguity at that: abrasion, i.e. the particular indexical relationship resulting from the fact that the object which it to become the referent has, on some prior moment of time, entered into contact with, and then detached itself from, what later is to become the expression plane of the sign, leaving on the surface of the latter some visible trace, however inconspicuous, of the event (cf. Sonesson 1989a: 40, 1989b: 46ff). In fact, however, as Vanlier (1983: 15) notes, the photograph must be taken as a direct and certain imprint of the photons, and only as an indirect and abstract one of the objects depicted. Unfortunately, Vanlier (1983: 23, 25) himself rapidly seems to forget this distinction, starting to talk of the scene as being the cause of the picture. In any case, he fails to note that, if the indexicality obtains between the photons and the plate, it does not occur between the same relata as the semiotic function, i.e. the objects depicted and the picture. Dubois (1983: 66) at least is more consistent with his conception of the photograph as being an index when he takes the photograph to be its most characteristic instance; yet, if this is the kind of photograph he is intent on explaining, he will fail to characterise what most people would consider prototypical photography.

Certain limitations are imposed on the photographic trace by the support on which it is inscribed. Some of these are mentioned by Vanlier: the quadrangular shape of the photograph, its digital nature, the information it leaves out, its inability to record the temporal aspects of the process giving rise to the trace, etc. This may be restated by saying that the photograph is not only an indexicality of the objects, or even the photons, but also of the properties of the film, of the lenses, of the photographic device generally, of the space travelled through by the photons, and so on. This observation is quite parallel to the one made in the study of animal traces, according to which the same animal will leave different traces on different ground (see Sonesson 1989a: 1.2.6, 1989b)

The trouble with a purely indexicalist account of photography seems to be that it cannot explain what the photograph is a picture of. There is no intrinsic reason for considering the cause producing a trace (and even so, we have seen than many more causes than the motif may be held responsible for the trace) to be a more important type of cause than the others. Indeed, we can only explain the importance of the motif, when we realise that a trace, in the most central sense of the term, contains not only indexical but also iconical aspects, and if we begin by admitting that a photograph is a kind of pictorial sign, and that all such signs are first and foremost grounded in the illusion of similarity.

Contrary to Vanlier and Dubois, Schaeffer (1987: 101ff) thinks that the photograph may be an indexical icon in some cases, and, in other cases, an iconical index. It could be argued, however, that the photograph, contrary, for example, to a hoof-print, is always primarily an icon (Sonesson 1989b: 68ff). While both the photograph and the hoof-print stand for a referent which has vanished from the scene, the signifier of the former sign continues to occupy the place that was that of the referent, and it stills remains temporally dated, whereas the photographic signifier, like that of the verbal sign, is omni-temporal and omni-spatial, tokens of its type being apt to be instantiated at any time and place (although only after the referential event and the time needed for development). In sum, in the case of a footstep, a hoof-print, etc., both the expression and the content are located at a particular time and place; in verbal language, none of them are; and in the case of photography, it is only the content (or, strictly speaking, the referent) which is bound up with spatio-temporality. Thus, the hoof-prints, present where before the horse was present, tells us something like "horse here before"; but the photograph of a horse, which

most likely does not occupy the scene where the horse was before, only tells us “horse”, and then we may start reconstructing the time and the place .

At this point, it may seem that we could say that, whereas the hoof-print is first and foremost an index, the photograph must originally be seen as an icon, before its indexical properties can be discovered. In fact, however, things may be still more complicated. Schaeffer is of course right in pointing out, against Peirce, that not all indices involve some iconic aspect, but it so happens that the hoof-prints, just like all other imprints and traces, in the narrow sense of these terms, also convey a partial similarity with the objects for which they stand. We have to recognise the hoof-print as such, that is, differentiate it from the traces of a man's feet, or of a donkey's, as well as from fake hoof-prints, and from accidental formations worked by the wind in the sand. Only then can we interpret the hoof-prints indexically. It remains true, however, that the essential meanings of the hoof-prints are embodied in indexicality: they tell us the whereabouts of the animal.

In the case of a photograph, on the other hand, we do not need to conceive of it indexically to be able to grasp its meaning. It will continue to convey signification to us, whether we are certain that it is a photograph or not. Indexicality, in photographs, really is a question of second thoughts and peculiar circumstances. It therefore appears that indexicality cannot be the primary sign relation of photographs, although it is an open potentiality present in their constitution, which is exploited in certain cases. First and foremost, the photograph is an iconic sign.

Stages in the evolution and development of picture use

There is a possible diachronic perspective on picture use which goes beyond history in the customary sense: the development of picture use, both on the level of creation and interpretation, in the child, and the evolution of the picture sign, from apes and other animals to human beings. For lack of evidence, we are generally forced to posit a parallelism between these two diachronic scales.

The semiotic function, as defined by Piaget, 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. 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” (which, in our terms, are only indexicalities) are possible long before the age of 18 months, but only because they do not suppose any differentiation between expression and content (cf. Sonesson 1992a, 1992b). The sign function thus characterizes a stage of child development, though Piaget himself chooses to describe this stage only negatively.

Contemporary studies of evolution suggest that not only human language, but also the capacity for using pictures, as well as many kinds of mimetic acts and indices, are (at least in their full, spontaneously developed form) uniquely human. It is clear that semiosis itself must be manifold and hierarchically structured, in ways not yet dreamt of in our philosophy. Merlin Donald (1991, 2001) has proposed an evolutionary scale, where the stages of episodic, mimetic, mythic and theoretic culture correspond to types of memory. According to this conception, many mammals, which otherwise 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. 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 tool use, miming, imitation, co-ordinated hunting, a complex social structure and simple rituals.

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, Donald does not think development stops there, even though 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 externally 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 diverse manifestations of Donald's second stage (mime, skill, imitation and gesture) are, in my view, (at least in part) iconic (based on similarity) – but for the most part they are *tokens* conforming to a *type* – members of a category – not yet signs. Somewhere in between mimesis and language the semiotic function arises (though Donald notes this only obliquely, mentioning the use of intentional systems of communication and the distinction of the referent). In fact, this certainly happens between animal camouflage and pictures. Yet, Deacon (1997: 74ff), who more explicitly than Donald pretends to having a semiotic framework, claims that iconicity as found in “a portrait” is “not basically different” from the fact of there being no distinction at all, that is, it would seem, from mere identity. On the following pages, Deacon then goes on to maintain that a number of phenomena which could otherwise appear to be completely different are in fact equivalent: the perception of the same “stuff” over and over again (seeing something that does not change into something else), camouflage as exemplified by the case of the moth's wings being seen by the bird as “just more tree”, “stimulus generalisation”, and even recognition, that is, the identification of something as pertaining to the same category. This may be true at some level, but it is not useful for determining either the systematic or the developmental properties of different semiotic resources. Although all or most abilities subsumed under the mimetic stage depend on iconic relations, as argued by Sonesson (2006, 2007) only some of them are signs, because they do not all involve some asymmetric relation between an expression and the content for which it stands.

This line of research is certainly very new, in general, and within a semiotic framework. So far, however, it seems clear that even higher apes, and thus perhaps our own predecessors, were not very good at interpreting pictures. They certainly do not appear to have any particular difficulty in discovering the similarity between certain outlines on surfaces and objects of the real world, contrary to what Gibson may have meant to suggest; but they often do not see the difference, instead trying to grasp and eat the depicted banana (Persson 2008; Sonesson and Zlatev forthc.). There is some, somewhat indirect, evidence, however, that some chimpanzees may be able to understand actions incompletely rendered in pictures, and thus to go beyond appearances to objects in the world (Call, Hribar and Sonesson forthc.). On the other hand, small children may not have all those difficulties interpreting pictures suggested by DeLoache (2000, 2004), if the task is simply to relate the picture to other pictures (which seems to require an understanding of the difference between pictures and referents), and no to the outside world (Lenninger in prep.).

Summary

Pictorial semiotics is concerned with the specificity of the picture sign, which involves relating it to those higher order categories of which it is a part, such as meanings, signs, iconic signs, visual signs, and so on, as well as scrutinising the different categories which it contains, such as construction types, function types, circulation types, and organisation types. After referring to the pioneering work of Barthes and Eco, which has been important mainly because of the critical reactions which they have spurred, we characterised the most important research traditions within contemporary pictorial semiotics, such as the Greimas school, the Liege school, the Quebec school, two approaches developed out of the linguistics of Halliday, and, finally, the Lund school. Within those frames, we took stock of the development of some important theoretical notions, such as the distinction of the plastic and pictorial (unfortunately often called iconic) layers of the picture, the binary contrasts accounting for the organization of some pictorial meanings, and the rhetorical figures found in pictures. We also noted the important contributions of some philosophers and psychologists, and we emphasised the interest of psychological experiments for the elucidation of semiotic problems. We looked more in particular at the critique of iconicity formulated by Eco, Goodman, and Lindekens, and the critical response to these theories, which found its most

systematic exponent in the work of Sonesson. Finally, we discussed one particular type of picture category, on which much has been written, the photograph. This overview shows that a lot of interesting things has happened in pictorial semiotics since Barthes first wrote his Panzani analysis; and that pictorial semiotics, at least in the case of iconicity, has been able to contribute to the development of general semiotics. It also shows that the accomplishment of many tasks still lay ahead of us.