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Signs as functions: Edusemiotic and ontological foundations for a semiotic concept of a sign

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Abstract: As a branch of theoretical semiotics that aims to contribute to the development of the theory of both semiotics and education, edusemiotics must also problematize the most foundational semiotic conceptions of sign and semiosis. The biosemiotic notion that a sign relation is necessarily dependent on learning restricts semiotics to the biological sphere, to living beings. This fits well with education, which can be seen as transition from the zoosemiotic sphere to the anthroposemiotic sphere. However this radical discontinuity between living and non-living spheres makes it difficult to understand how signs and semiosis are viable at all and what their basic nature is. Ontologically we can imagine that sign relations must also be somehow based on the features of non-living beings. In this article I will analyze how a concept of a sign can be seen as a general model of interaction between any beings. This paper develops the conception of semiosis and signification with regard to the competence (or habits) of the subject experiencing the meaning. Such task requires the explication of the ontological basis of semiosis – a step often perceived as dangerous by semioticians or ignored by educators.

Keywords: semiotics, sign, education, interaction, learning, ontology

1 Introduction

The sign is a central concept in all branches of semiotics. Even if signification and communication (Greimas) or semiosis (Peirce) have been viewed as the center and object of research in semiotics we can think that these processes take place anyway via signs. For all this centrality in the theory or theories of semiotics the concept of the sign still holds some vagueness and controversy. The semiotics of education under the new label *edusemiotics* strives to be a new theoretical branch both in semiotics and education. This means that it does not

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only apply existing theories of semiotics to the problems of education, but it also tries to contribute to the development of theories of semiotics and education.

Why should one think that semiotics and education are an important and fruitful combination? First, most of us agree that education, learning, and human growth are sign mediated processes and actions. This would well justify the application of semiotics in education. But could it be also another way round? Could education or rather the theory of education be applied to the development of the theory of semiotics?

I will try to further develop a theory of semiotics, which I have called action theoretical semiotics (Pikkarainen 2011). The roots of this conception are in Greimassian semiotics on one hand and some action theoretical or praxeological threads of thinking in the Continental philosophy of education (put forward especially by Fichte; see, e.g., Benner 1996: 63–73) on the other. Briefly put, this starting point is that the *being* of a human being is action, and if we want to understand human beings we must understand this action. Greimassian semiotics stresses this same starting point so that the research object of semiotics, any meaningful expression whole (*ensemble significant*; Greimas 1976: 10) has a narrative, i.e., an action based core.[1] But Greimas still managed to make this action theoretical approach more educationally relevant by drawing attention to the competences of the subject of the action. Competence refers to an unattainable feature of the subject that makes it possible for her to act in a way she acts (Greimas and Courtés 1982: 44–46). So it is precisely these competences that are the object of our work as educators. But what are competences? One answer to this question is that they are surely something similar to dispositions. For this reason I have added to the foundations of this theory project the ontological theory of C. B. Martin and John Heil (Heil 2012; Martin 2008), which neatly sets out the concept of disposition (Martin 2002) and helps to build almost pansemiotic foundations for the semiotics of education or edusemiotics. But competence is still a more complicated concept than disposition, and it will be especially rich when we add the originally Greimasian concept of modal competence (Greimas 1987: ch. 8) – now fruitfully revitalized by existential semiotics (Tarasti 2012).

Even though it would first seem implausible, the area of biosemiotics and especially perhaps zoosemiotics provides a relevant source of tools and inspiration for edusemiotics. This is so at least partly because traditionally education has been seen as some kind of transformation from nature to culture. As Kant says: "Man can only become man through education" (Kant 1992: 13). This

1 This is visible first in the famous actantial structure (Greimas 1980: 150–154, 196–219) and then in the model of generative trajectory (Greimas and Courtés 1982: 130–134).

statement can be interpreted as meaning that a human being as a natural member of the biological species of Homo sapiens can only become a truly sapient member of human culture through education. However in view of this it does not follow that biosemiotics should be viewed as a purely negative principle or that it should be left behind as fast as possible, but rather it should be viewed as a permanent basis and part of our anthroposemiotic being (Sebeok 1985). An especially important source for present article was Kalevi Kull's writing on Peirce's error in identifying laws and habits (2014). Kull stresses that the laws of nature are stable and inexorable whereas habits are constantly changing and they change as a result of learning. The proper area of semiotics for him is the area of changing habits and living beings. Still there remains the somewhat mysterious problem of how changing habits could have been developed from unchanging and rigid laws.

It is exactly this latter problem of continuation that I will try to illuminate with the help of the Martin-Heil ontology. My main argument states roughly that in order to understand the function and action of signs we must take a look at their embryos in the sphere that I will call physiosemiotical. This will partly and in a quite restricted manner rehabilitate the Peircean pansemiotic view. But conversely the Peircean triadic classification of sign is – again partially – problematic. In any case the edusemiotic conclusion will triadically be that education, or human growth or *Bildung*[2] is physiosemiotically based becoming via biosemiotic sphere to anthroposemiotic sphere.

2 Principle of constructive mediation – semiotic Kantianism?

Perhaps the most commonly shared theoretical principle among semioticians is that all knowledge (or any phenomena similar to it, such as human belief) is based on signs and mediated via signs. We have no immediate way to the essences of things, but all that we know or think that we know about them is based on signs. Neither is there any direct channel through which the nature of things would flow to us as it is thought in the old and still implicitly popular model of *in-formation*.[3] According to this model the form (or essence or a feature as a part of essence) is

2 About the concept of Bildung see (Kivelä et al. 2012).

3 The term in-formation refers to the etymology of the word information, which can be understood as internalization of the form. This was a typical way of thought especially to Aristotle (Knuuttila 1998: 12).

somehow copied from the original object to the mind of the subject in the event of perception. This model is an attractive analogy of a reflection of the image via a mirror or lens but it should be resisted. Rather we should consider pragmatically that we can get knowledge about things in the universe only through the mediation of the effects those things cause within ourselves.

Does this view lead us to some form of Kantianism? Are things as such, things-in-themselves transcendent, unassailable to our knowledge, although we may have practical transactions with them? I do not suggest a strictly Kantian solution where we should not even consider our knowledge is about those things as such, but only our self-created structures based on perceptions and our own cognitive structure. Neither would I suggest plain pragmatist solutions where we are only interested in the effects (as such) of the things or objects and not about the objects themselves at all. Rather I believe that we should be interested in objects themselves because they are what exist in the last resort. Here I join to the so-called object oriented ontology (Harman 2011) but not in the sense that nothing else exists. It may be that events, relations, and features among other things exist and are even more important for semioticians than objects, but they can exist because objects exist: events happen to objects, relations exist between objects, and features characterize objects.

In any case this mediation principle will bind us to a certain kind of semiotic Kantianism and we can make a relative discrimination between phenomenal and noumenal areas. When signs mediate knowledge or something similar from objects to ourselves they always somehow modify or alter the content during the transportation. That is why the principle is called *constructive* mediation. The mediation – at least partially – constructs the content and form of the mediated knowledge. In this way the mediation can be thought of on the one hand as a curtain or wall that restricts our knowledge, but on the other hand also as a chink in the curtains, or an instrument by which we can glean at least some information about the object that would otherwise be quite unassailable. The separation of the phenomenal and noumenal spheres is relative and overlaps because we can gain some knowledge about objects, and perhaps over time, more and more knowledge, but nevertheless perhaps never any total and absolute knowledge (Hintikka 1989).

But what are signs? Here I seem to have been identifying signs and the effects of objects, but let's not run before we can walk. To start with we could define a sign provisionally as anything that mediates knowledge, or something like it, from the object of knowledge (or something like it) to the knowing subject (or something like it). Next we will try to clarify the essence of signs and add some details to all three supposed main semiotic spheres. The emphasis will be on the first sphere.

3 Physiosemiotics: Signs as indices

The following description or small theory about the sphere of physiosemiotics, which I will next describe, is based on simplified Martin-Heil ontology. This ontology can be characterized as a substance-property ontology and it is different from both (universal) realist and sharp nominalist ontologies and also from typical trope ontologies (Martin 1980; Simons 1994).[4] Its core starting point is the idea that properties and features must be properties and features of some object or substance – whatever the ultimate nature of these objects or substances is. For the sake of consistency and our sanity of thought we must suppose them although we may think that we encounter only the features and effects. However, objects and features are not separate entities. Rather the features are the way of being, and the way of existence of the object. If we could know all the features of an object then we would know all that is knowable about it.

What are then objects? There is no need to think of them as or restrict them to being merely eternal, inert, impassive, windowless, dull, traditional ideas of objects. But neither are we obliged to regard them as being imagined or fancy creations of the imagination that can be adopted and discarded at will (cf. Harman 2013). Rather we may consider them as being ordinary, often surprising or recalcitrant objects, which are able to change and resist, collide and interact with others and so on. These are objects that can cause many effects upon us and that we must try to take into account in all our practical activities. Objects have powers and energy, they are temporal and they have qualities. While all these features and properties are just the way of being of the objects this means that features change when the object changes and they end when an object ceases to exist. The object and its properties are one and the same thing.

Next we shall examine the second main conception of Martin-Heil ontology, namely, that connected to the concept of disposition (Heil 2003, 2005). Many ontological theories typically separate two types of features calling one of these dispositions and the other one (occurrent) features or qualities. An example of the first type is fragility and of the second type color, size or any "ordinary" property. Other theories try to either classify all the possible features according to these types or to reduce them to one type or the other. Instead Martin and Heil state that all features are both dispositional and qualitative. This can be understood so that for every manifest quality (such as size, color, movement, etc.) the object must have a disposition or readiness to manifest that quality in a suitable situation. If for example a ball is red that means that the ball has a disposition to

4 From the educational point of view see Pikkarainen (2013).

reflect red light when lit properly. If it is hard it has a disposition to resist pressure and a disposition to scratch other objects.

An object must have dispositions for every quality it manifests at each moment in a certain situation. In addition it can – and will – have dispositions to manifest different qualities at different moments and in different situations. The disposition of fragility means that the object may break in certain conditions, but in addition it must have a disposition to remain intact in certain other conditions. In this way every object can always be and do more than it merely is and is doing at the moment and what it has been and has done before. This is why objects are incurably surprising. We have absolutely no way of knowing anything about the dispositions of objects except by the qualities they have already manifested. In this way we know that an object has a disposition to manifest a particular quality in one situation, but we do not know what other qualities it could manifest in different situations.

Because of this restriction on knowability we can formulate a second principle – or an extension of the mediation principle – namely, the principle of uncertainty. This means that even if we can get more or less accurate and reliable information (knowledge) about an object through sign mediation there still always remains the residual mystery that we cannot know what else the object could be. This uncertainty is further increased by the possibility that the object's way of being can change so that it gains new dispositions and loses the old ones. After such changes it will behave in a new way in similar conditions where it earlier used to manifest different qualities. Thus we could say that the dispositional side of the being of an object is that which we have called the noumenal sphere and respectively the occurring qualitative side is the phenomenal sphere. In the following I will use a topological metaphor and talk about the internal and external sides of objects respectively as depicted in Figure 1.[5]

What makes an object manifest certain dispositions as certain qualities in a certain situation and others in other situations? If for simplicity we now leave out the possibility that an object may itself change between moments, the answer to this question is – other objects. Here we come to the third central category of the Martin-Heil ontology, namely, the view of causality as the reciprocal manifestation of disposition partners (Martin 1993). This means that causality is a relation between objects or rather between their dispositions so that one makes the other

5 Internal/external or noumenal/phenomenal division could be also referred by a concept pair from existential semiotics, namely, Sein/Schein (Tarasti 2012). Here it must be stressed that the internal side is not absolutely closed and windowless but rather it is just unperceivable or hard to perceive and perhaps never fully known.

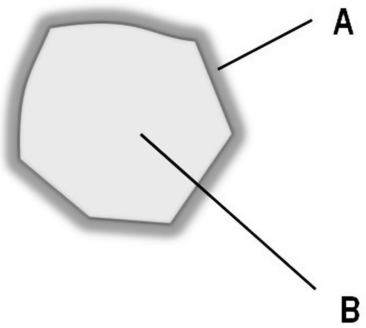

Figure 1: An object and its external (phenomenal A) and internal (noumenal B) sides.

manifest something and vice versa. For example, salt and water cause each other to manifest on the one hand solubility to water and on the other the solvability of salt (Martin and Heil 1998). This example is of course simplified because typically there are more than two partners or at least the environmental conditions must be suitable for the causal interaction to take place.

What is semiotically interesting in this view is, first, that we can no longer innocently use the expression "brute force"[6] to represent causal relations in physical nature. Rather every causal interaction seems like an exchange of information or even exchange of signs. The one object does not force the other one to do anything that depends only on the first one, but rather both react depending on their own dispositions. We could even assume that both objects somehow (immediately) interpret the effect of the other one and react to it in ways that fit their own nature. Of course there are events and interactions in physical nature that seem just like brute force – such as explosions and tornados – but it is the same within biological and social relations, as well, in the form of coercion or oppression.

As depicted in Figure 2 we may consider that causal interaction takes place reciprocally so that some quality of the first object affects (the upper arrow) the dispositions of the second and cause it to manifest some quality, and at the same time the converse reaction happens. While causal relations do not take place between events we can of course imagine an interaction process where one object manifests one quality and that then makes the other one manifest another new quality and so on. What and how any object manifests depends on a) its own dispositions and b) all the external influences it receives from other objects.

6 This was typical to Peirce to describe secondness as an area of brute force (e.g., Peirce 1894: ch. 1).

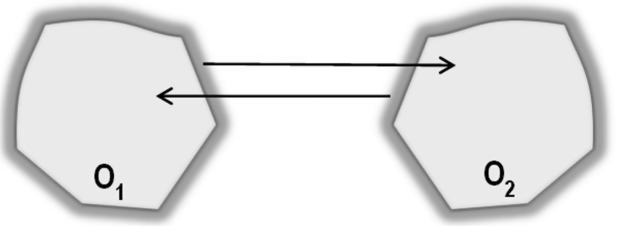

Figure 2: A causal interaction between two objects.

Now we can say that a quality of an object is a sign of its way of the being and of course at the same time part of that being. It tells us what kind of object it is and how it can behave, i.e., manifest a certain kind of quality in a certain kind of environment. But still more importantly we can say that at the same time the quality is a sign for the causal interaction partners to do something depending on their own dispositions. What the other object does (i.e., a manifestation of some new quality) is now also a sign of the effect of the quality of the first object on the second one and of the disposition of the latter. These signs are proper representations of those dispositions and earlier manifested qualities. This is why it is possible for us to know about objects. However they are not only signs for us, but also for the objects themselves as well. That is why we talk about the physiosemiotic sphere.

These dispositions and qualities as relata of multiadic sign relations are not necessarily qualitatively similar at all. However they are causally linked. In this way, according to a Peircean triadic classification of signs or its second triad these signs are quite purely indexical and not iconical at all (Peirce 1955: 102). However, these are the most simple and basic type of signs. So it seems here that Peircean secondness comes before firstness. This difference is quite natural if we take into account the difference between the ontological view of Peirce and the view described here. In a way Peirce seems to be a trope theorist, because for him firstness means both a quality and something that is independent of anything else. A trope is precisely that kind of independent quality instance and when tropes gather together as a bundle they form an object (Keinänen 2005; Simons 1994). Here however we have abandoned the trope theory. However, neither can it be said that objects come first and qualities second because they must be in a very strong sense concurrent.

As a conclusion of the previous considerations we can say that fundamentally all signs on the physiosemiotic level seem to be indexical representations.

The quality of an object represents a disposition of itself and also a quality and disposition of the causal disposition partner that made it possible for the first object to manifest that quality. This relation can be seen in a Peircean way as a continuous semiosis where every interpretant (new quality) can start a new similar relation (cf. Deely 2001). These events of semiosis are though quite restricted and not perhaps very interesting from the point of view of semiotic research.[7] Kull (2014) is right that it is better to leave this area to physical sciences. Semioticians do not master any research methods or instruments suitable to make detailed studies of this area. Also it must be remembered and stressed, that these events are really law-like. The (natural) law here means that an object with a certain disposition will invariably and without fail always behave in a similar way in a similar environment. Yet as stated before, objects can offer surprises because their dispositions and environments can change unbeknown to us.

In this sphere there is no proper action, no proper subjects and thus no meaning in a strong sense. Thus there is no proper interpretation in the sense that an object would somehow deliberate certain signs and would afterwards create a different interpretant. Neither is there a "then dimension" so that objects would anticipate their futures – in any other way except that a disposition is a readiness to react respectively to future disposition partners (Martin and Heil 1998: 300–301). But in spite of all these restrictions, this sphere is still screamingly important for semiotic theory. It can be supposed that all the more developed, more complex and really semiotic signs and events of semiosis such as icons and symbols are based on these simple physiosemiotic indices. There can be no icons and symbols without indices!

4 Biosemiotics: Iconic signs

Biosemiotic being is based on physiosemiotic being. Biosemiotic living beings are complex physiosemiotic or physical beings (cf. Pattee and Kull 2009). With this concept of complexity I mean here simply compositionality or that an object consists of other objects. Just as an atom consists of electrons and perhaps other particles and a molecule consists of atoms and perhaps smaller molecules. Similarly any living being consists of organs and molecules and atoms and electrons, etc., as its constituent parts. What is extremely important is the

7 For example we cannot find any icons from this sphere because objects do not care about similarities.

structure: the question is not only of what an object consists of, but rather what its structure is, and how it is built. A supposedly simple physical object has its dispositions and will manifest respective qualities depending on what relations it has with other objects. A complex object has all the dispositions of all its parts, but the qualities it will manifest also depend, in addition to its relations with other objects, on the relations between its parts. Furthermore, the qualities will be different from the qualities of its individual parts because they are mixtures and joint effects of those individual qualities. Thus a complex object can be very different from its constituent objects. This gives us a new reason to talk about the internal and external sides of objects and also about its internal and external relations.

In Figure 3 a very simple example of a complex object is depicted, an arch built of bricks. It is not even a biosemiotic object but it still shows some central questions belonging to this concept. The arch has radically different properties form the brick or some other kind of composition of bricks like a wall. For example it is possible to walk through the arch but not through a wall or a brick. Yet all the properties of an arch (and a wall) are very simply and clearly based on the dispositions of individual bricks and the structure between them. No mystical concept of emergence is needed here – not even in the borderline between inorganic and animate beings because we have already seen that there are the seeds of semiosis already in the simple physical objects.[8]

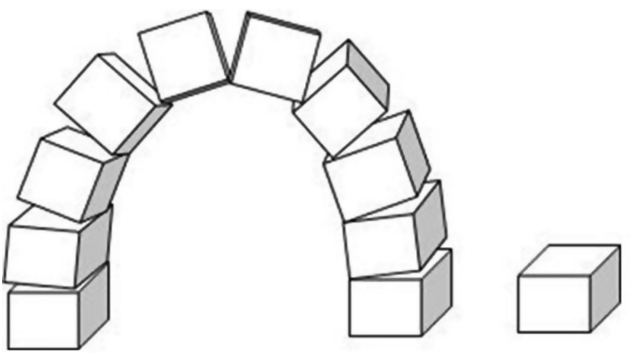

Figure 3: An arch and brick, a complex and (relatively) simple object.

8 This does not of course mean any scientistic reductionism: different levels of complexity require different descriptions. Rather it is in another way round. In complex objects the unthinkable amount of different qualities and quality possibilities are reduced to a few observable and understandable quality mixtures.

An ordinary object is an underdetermined and contested concept. For example a radical atomist would claim that in Figure 3 there are not two different objects but rather X similar objects. It can be disputed whether a flock of birds is an object or whether clouds are objects. These disputes can sometimes have a great practical significance. Sometimes it may be adequate to regard a flock as a single object and some other times consider only individual birds. There is probably no absolute rule here, but sometimes there are quite evident reasons to say that something is an object with much stronger rights than its constituent parts or the wholes where it is a part itself. A well-known special case of course are living beings such as humans and animals – but still even those are somewhat problematic. Anyway I state a simple two-step claim or hypothesis that first this "objectifying," i.e., regarding something as an object is always a constructive act and that second we could define a living being as an object that objectifies itself. Actually this is perhaps just another way of saying that living beings have an aspiration for self-preservation.[9] In practice this means that a complex living object needs to actively maintain its internal structure to stay alive within an external structure, which on the one hand helps this aspiration and on the other hand threatens it. In addition, the external structure may be in a state of continuous change.

So a living being has to act upon its environment. This is the difference from a purely physiosemiotic being: it does not only behave and react to external effects by manifesting qualities according to its dispositions. Instead it has a complex totality of dispositions that is modalized by the first basic modality of *Want*. Thus it has the *competence* to act. According to this competence it actively alters its own qualities and thus sends physiosemiotic signs to its environment to cause favorable changes. At the same time it receives signs itself from its environment that all alter its internal structure and some of these alterations are favorable for its aspiration of self-preservation, while others may be unfavorable or even fatal. Thus an essential part of a living being's action competence is the ability to acquire and collect favorable signs and also avoid and prevent unfavorable ones. Here begins the proper area of semiotics! Signs now have a proper meaning for the subject of action. The core of this meaning is the positive versus negative valence these sings have in relation to subject's wanting. More broadly we can define the meaning as an effect the sign has on the action of the subject. Thus now a sign may be redefined as anything that has meaning.

9 Here I pass many typical criteria of life like metabolism, reproduction, multiplication, heritability, etc., as either preconditions or consequences or forms of active self-objectifying, i.e., self-preservation (cf., e.g., Emmeche 1995: 42–48).

The proper meaning defined above can also be labelled a subjective meaning to separate it from the objective meaning that is nearer to the physiosemiotic effect. A subjective meaning is the way the subject actively changes or maintains its course of action in relation to the sign. The objective meaning is the way the sign alters the course of the subject's action independently of the desires of the subject. This separation is extremely important when we try to understand the use of signs in the biosemiotic (and consequently of course anthroposemiotic) sphere. The use of signs to direct one's action requires an ability to anticipate the future – to predict future signs according to present ones. For example seeing a piece of food is one sign and eating it is another. If you are hungry and see a delicious looking steak, you change your course of action and prepare to eat. This is a subjective meaning. However when you start eating, you may discover that it is made from plastic and is inedible, or you eat it but it was spoiled and you get immediately sick. On this unfortunate occasion the objective meaning is quite different from the subjective one. This separation makes it possible to lie with signs.[10] But on happy occasions it is this same phenomenon that makes it possible to use signs to direct successful action.

The use of signs in action requires the recognition of similarities between earlier signs and the present ones. So it is only at this stage that the icons come into existence. From your earlier experience you know how steak appears – and hopefully in the future you would know how a possibly inedible steak appears. Here we come to the question of learning. Learning means a change of competence and here we call it semiotic competence: the ability to recognize signs. Yet how do we think that this sort of learning takes place since we abandoned the in-formation model? The subject collects representations, but these representations are not copies of the represented objects. Here we could return to physiosemiotics. An object or rather some quality it has causes the subject to manifest some (other) quality in its own structure. This new quality of the subject is representation – an indexical sign – of the quality of the object. What this new quality is depends on the dispositions – or competence in this case – of the subject. It is not a copy nor perhaps even similar at all to the original quality of the object. Later when the subject encounters the same or similar object again the latter's same or similar quality will cause the subject to manifest a similar quality as it did the previous time. Now the subject can remember the previous representation and compare it against the present one and decide that this is the same sign as previously. Every time the semiotic competence changes, the

10 This is the famous criterion of a semiotic sign by Umberto Eco (1979: 58–59). In the biosemiotic sphere the respective interesting phenomenon is mimicry (Maran 2014).

subject will recognize signs differently and will learn to perceive new similarities and also new differences.

Action is not always successful. Subjects cannot always accomplish their goals. This simple truth creates the second basic modality of *Can*. Sometimes the environment has such a structure that some action is simply impossible. Sometimes the chances of success depend on the course of action the subject chooses. Successful and unsuccessful experiences change the competence of the subject, i.e., the subject learns all the time it acts. The collecting representations and other such parts of the competence create the third basic modality of *Knowledge*. Signs always have an objective meaning, but the subjective meaning is strongly dependent on the competence of the subject, though they both depend on the course of action of the subject. Here lies the difference between law and habit. The former are unexceptional and inexorable while the latter are changing and erroneous but also flexible to use in changing environments. The former are based on dispositions and the latter on competences. If we want to change the habits of a subject we must change its competence. In conclusion to these biosemiotic considerations Figure 4 depicts the action as a cyclical interaction between the subject and its environment mediated by the signs of the environment and deeds of the subject.

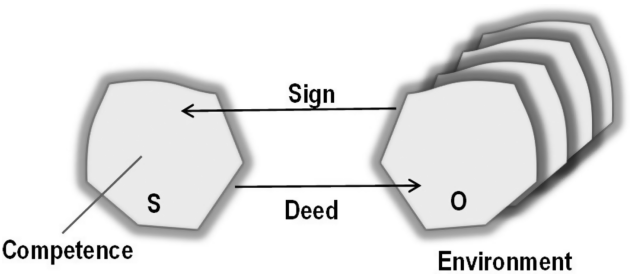

Figure 4: Signs as part of action.

5 Anthroposemiotics: Symbols as a new use of signs

Here I will only very briefly describe the one and probably most central feature that differentiates the human anthroposemiotic sphere from the previously described spheres (see more about this in Pikkarainen 2014b). This feature is

the symbolic sign or rather the symbolic use of signs. As we noted above, living beings started to use existing indexical signs as icons to find similarities and differences in their environments. Similarly the human symbolic use of signs is based on indices and their iconic use. The difference – a relative and gradual though not exclusive and absolute difference – is that the sign is now given a new environment, the semiotic system or language. Now the sign is no longer related only to objects and other similar signs but also to a large array of different signs and their combinations. In addition to the subject signs also become complex and composed. At the same time the human subject experiences a new environment: culture as languages. While for a biosemiotic subject the signs mediate for it from the physical objects of its environment, the signs for human beings also mediate from culture as a sign environment (cf. second nature in McDowell 1996; originally in Hegel 2008: §151).

Here it is important to stress that symbol does not only mean any arbitrary and habitual sign like the name of an object or an alarm call in a dangerous situation. Neither do I here mean a metaphoric icon, which is often called a symbol, as for example a lion being a "symbol" of courage. Rather a symbolic sign has a meaning that is definable in the language to which that sign belongs. So symbols belong to languages and they do not so much or directly refer to any objects outside the language, but rather to other sings of that same language. A second important feature of symbolic signs is that within the language new signs can endlessly be created by composing existing signs together for form larger expressions and discourses. This is a two way process: one sign can be defined and its meaning analyzed by expressions containing other signs and conversely a sign can be added to other signs to create new meanings. All this is best possible in natural (verbal) languages and some so-called artificial languages, such as languages of science and logic. But in languages such as visual arts and music it is rather that we can only create new meanings but not so much define and analyze the existing ones.

As Wittgenstein noted it is difficult to imagine a private language (Wittgenstein 1981: §243). Languages require social relations and they are more or less intersubjective and shared environments. The social relations and especially the need to commit oneself to the intersubjective rules of language in order to use it effectively create the fourth main modality *Must*. It is also the root of human morals and ethics. Thus the use of signs has vast consequences for the life of the sign user. All this does not mean that the human anthroposemiotic use of signs is purely a rule-bound closed language game where we would create and analyze expressions, and talk about talk, so to say. It is important to notice that symbolic expressions can of course be used as indices and icons – and often they are in fact used thus! Language gives us unforeseeable flexible and

effective tools to connect ourselves to physical and other non-linguistic environments and direct and organize our own and common actions. But above all this it provides tools to analyze and reflect these relations and the goals of our actions.

6 Conclusion

As a conclusion from the previous considerations I tend to say that a sign is not so much an object or quality of an object or any such entity, but rather a peculiar function[11]: an effect of an object or its quality on another object or, in the properly semiotic area, on a subject. In addition it can be an effect of another sign, i.e., the effect of another effect. We should not say that some object or word or any entity is a sign, but rather that it functions as a sign – or still more strictly that it functions as an argument of a sign function, or as a node of a sign relation. So it seems that even though in our ontology there exist only objects and their properties in a strong sense, in semiotics we are more interested in ontologically derivative entities such as relations and functions. But still in the last resort they are relations and functions of objects.

The most important question from the edusemiotics point of view is whether and how education can affect sign functions. We have seen that the answer is that sign function always maintains as one of its main arguments the competence of the subject – or the disposition of the object in the physiosemiotic sphere. If we can therefore change or develop this competence then the sign function will change and develop too. This is precisely what we are trying to do in education. It must be once more stressed that education is not an endeavor to change our habits – habit is what manifests in action if the competence and environment remain stable enough. If we want to change habits we must either change the competence or the environment. The former we cannot directly do so we must do the latter. After that the subject will probably start to act in a new way that will change its competence and that may then appear as a new habit. Also it must be remembered that human competence is always modalized and this is what makes education so difficult – but also possible (see more in Pikkarainen 2014a).

11 This is certainly not a new invention as such. This can be read at least implicitly from classics de Saussure and Peirce and very explicitly from Eco (1979: 48). What is meant to be new is the role of dispositions and competences, and consequently that of learning and education.

Table 1: Three types of signs.

Name	Meaning	Depends on	Function
Index	objective	dispositions and qualities	quality change
Icon	subjective	competence and qualities	recognition and action change
Symbol	intersubjective	modal competence and language	understanding

Finally I will collect the three types of signs considered here in Table 1. Once again it must be remembered that these types are relative and only gradually separate. It should also be remembered that that they are cumulative so that latter are based on the former. The latter use the former and the latter can also be used to realize the functions of the former. The meaning type means the initial type of that kind of sign. These can vary depending on the use situation. For example if a symbolic expression is used as an index then its meaning is not objective but still rather intersubjective – even though it can be objectively a true expression. The mediation of all types of signs can happen only via indices so that the sign is represented in some objective quality (form, sound, colors, etc.) that manifests some quality in the subject. Secondly it functions iconically so that the subject recognizes it as a certain kind of strange or familiar expression according to the sensations it evokes in her. Only after that can it have a symbolic meaning. In education we must remember this long route and it must be repeated many times in variable ways to achieve the desired competence change. In the end we must remember the uncertainty principle when we try to interpret the competence of the student from her actions and habits.

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