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THE CONCEPT OF SIGN

Originally published as "Znak," *Studia Semiotyczne* 10 (1980), 123–154. Translated by Małgorzata Szubartowska.

I. INTRODUCTION

In the title of the next chapter, there appears the word *semeion*, deriving from Ancient Greek, which might create the impression that I intend to present here the history of the concept of sign. These remarks, however, are not going to be of historical nature. Neither is it going to be a systematic analysis of the meaning of the word 'sign', leading to a nominal definition of the term, nor a study of different types of signs, concluding with an unequivocal characterization of a sign, or its real definition. Instead, I wish to discuss a few chosen issues, upon the settling of which such a definition may depend. Yet, I shall not put forward any definite solutions, but rather pose questions, merely pointing to the direction of possible answers. Therefore, it is going to be neither a history, nor a theory of the concept of sign, but the prolegomena to its definition.

While analyzing the concept of sign, one might wonder WHAT IT MEANS, when we say that SOMETHING IS A SIGN OF SOMETHING ELSE and especially, WHAT IS THE RELATIONSHIP BETWEEN A SIGN AND THAT TO WHAT IT REFERS. But a slightly different question may just as well be asked: WHAT DOES IT MEAN when we say that AT A MOMENT t SOMEBODY USES SOMETHING AS A SIGN OF SOMETHING ELSE? I suggest to consider that latter question a basic one, with the former being secondary. It is motivated by my strong conviction that hardly anything is a sign conclusively, during its entire existence and nothing is a sign independently of how it was used in a particular case. The world does not consist of only two separate realms: signs and non-signs. Everything — every being, to use the language of philosophers, that is, an

object, a phenomenon, an event, a quality etc. — may temporarily become for somebody a sign of something else, of some other being, if this thing is used in a particular manner, a manner which requires further description. Hence, I propose treating expressions like "a sign denotes something" or "a sign expresses something" as metaphorical simplifications, replacing longer expressions such as "at a moment t X uses something to denote (express) something else" or "at a moment t X uses something to get to know (learn about) something else."

II. *Semeion*

The Stoics, the Epicureans and the Skeptics devoted more attention to the concept of *semeion* — an indication — than to the concept of *semainon* — a sign, especially a linguistic sign. It needs to be noted, however, that by rendering the Greek concept 'semeion' as 'indication' and 'semainon' as the noun 'sign', I am not making any terminological or conceptual choices; I am merely reporting how these Greek words are commonly translated. Therefore, in what follows, I will be using those terms in their original Ancient Greek form in order to avoid creating the impression that there is a certain theoretical decision or an interpretation behind this translation. So, most importantly, I am by no means deciding whether the word 'indication' is the right translation of 'semeion' or whether it should rather be rendered as e.g. 'index', 'manifestation' or 'sign', or maybe sometimes this way and sometimes the other.

What was *semeion*? According to Sextus Empiricus (Sextus Empiricus 2006: II, 143-276) the term can be used in one of the two ways: general or specific. In its GENERAL sense, the word refers to that what seems to reveal something; the name 'semeion' is therefore attributed to what brings into mind the object which was once observed together with the *semeion*. SPECIFICALLY, *semeion* is what indicates an unclear object, that is, the so-called *adelon*.

But there are three kinds of unclear; concealed things: unclear pure and simple, unclear by nature or unclear for the moment. The first type defies any apprehension, including that through a *semeion*. Only the other two are disclosed through it. An INDICATIVE *semeion* — *endeiktikon* — corresponds with things that are unclear by nature, like the human soul; e.g. body movements are the indicative *semeion* of the soul. This kind of *semeion*, thanks to its own nature, performs a disclosing function and it always indicates one unclear object. Meanwhile, objects that are unclear for the moment are revealed by means of a different type of *semeion* —

the RECOLLECTIVE, *hypomnestikon*; it is precisely that kind of *semeion*, which has been observed together with something and now, as that thing is no longer visible, reminds us of it. For example, smoke is a recollective *semeion* of a fire that is unseen at a given moment, a scar is one of an old wound and heart damage — of upcoming death.

Therefore, *semeion* — both the indicative and the recollective — is something relative: it cannot be said about anything that it is simply a *semeion*; one must always mention of what that *semeion* is, by saying "a *semeion* of this and that." The "this and that" cannot be observed together with its *semeion*: a shadow is a *semeion* of a body as long as the body itself remains unseen; but if we are simultaneously observing both the body and the shadow it casts, the latter ceases to be the *semeion* of that body. The same recollective *semeion* sometimes indicates only one thing and sometimes different things, sometimes this, sometimes that. Similarly, e.g. for one doctor a given phenomenon is a *semeion* of one illness and for another one it is an indication of a different illness; a raised firebrand is a *semeion* of approaching enemies for some, while for others it indicates that friends have arrived; a ringing bell is at times a *semeion* that the fish market has opened, but it can also be a *semeion* that it is time to pour water on a road. This results from the fact that the recollective *semeion* is in some cases ASSIGNED BY THE LEGISLATOR and it depends on him to what the *semeion* is supposed to indicate, whether it is to indicate one thing or several things at the same time, or maybe once this, once that.

Since the same phenomenon or event can be a *semeion* of different things and since the *semeion* is something that cannot be learned, but what we apprehend through reason instead of through the senses, and finally, since it is a PROPOSITION (after all, we say that one *SEMEION* of something is true, while the other is false and it is propositions, not objects that have a truth value), then the *semeion*, as Sextus Empiricus notices, is not a perceptible, but an intelligible, noetic thing.

The Stoics also considered the *semeion* a proposition, a sentence, an *axioma*, in other words, a proposition, in a logical sense, rather than a judgment, in a psychological one — *krisis*. However, in their view, not every proposition was a *semeion*, only the one that fulfilled the two conditions: it is TRUE and it is the ANTECEDENT OF A TRUE CONDITIONAL, that is, a sentence in which the consequent is true as well.

But not always, as the Stoics would say, a true antecedent of a true conditional is a *semeion* of the consequent in that particular sentence. For example, a proposition "it is daytime," although true in that given case, is

not the *semeion* of the proposition "it is bright," even though the former is the antecedent and the latter the consequent of a true conditional: it is not a *semeion*, because we see both — that it is daytime and that it is bright — with our own eyes. While in order for an antecedent to be the *semeion* of a consequent, it has to, according to the Stoics, REVEAL that consequent, as it is the case of the sentence "If she has milk in her breasts, she must have borne a child." Hence, what the *semeion* refers to, must be hidden and the *semeion* itself must be apparent.

However, the Stoics claimed, even though the consequent is hidden away, it is still valid and present at that moment. Those who believe that a thing from the present can be a *semeion* of something from either the past or the future are wrong, like in the sentences "If he has a scar now, he had a wound in the past" or "If he has an injured heart at this moment, he will die." It is true that in the former example a wound is something from the past (once it existed, but it is gone) and in the latter death is in the future (the injured is still alive). But what is past or future here are merely the objects or events, to which the propositions refer, while the very propositions exist in the present and they are already true at this moment. According to the Stoics, it is not the present thing (a scar), that is the *semeion* of a past thing (a wound), nor is the present thing (an injured heart), that is the *semeion* of something in the future (death). Both the *semeion* and its referent are present and contemporary to each other. The *semeion*, namely, the proposition that he has a scar, is present, just as the proposition that he was wounded exists now and is true at this moment; the *semeion*, namely, the proposition that he has an injured heart, is present, just as the proposition that he will die exists now and is true at this moment. Thus, the *semeion*, the Stoics stated, always refers to something present.

Therefore, they held that the notion of *semeion* is conceived by INFERENCE from one proposition (or propositions) to the other. Especially, a PROOF, *apodeixis*, was considered a variant of *semeion*, because, as they claimed, it makes the conclusion obvious; strictly speaking, the conjunction of an argument's premises is a *semeion* of a conclusion, like e.g. in the following argument: "If there is movement, then there is also vacuum," or, "If there is movement (*semeion*), then there is also vacuum (a conclusion, initially hidden away, but then revealed by premises, which altogether constitute the *semeion*)."

Some Epicureans as well, like Philodemus, associated the concept of *semeion* with INFERENCE but mostly with INDUCTION.

Sextus Empiricus, a Skeptic, also inclined to the view that premises,

especially in a proof, reveal a hidden conclusion, so they act as its *semeion*; however, due to his skepticism, he refrained from providing his final opinion on that matter. Yet, he criticized the Stoics for declaring so definitely that the *semeion* is a proposition. He argued that, after all, a proposition is the meaning of a sentence and meaning is something different from a sign or an indication, so a proposition cannot be either a sign, nor an indication, which means that the *semeion* is not a proposition.

He also argued with the Stoics' view that the *semeion* is a true antecedent of a conditional with a true consequent. He pointed to the fact that the consequent ought to be unapparent, otherwise it would not need a *semeion* as its intermediary, because it would be perceptible *per se*. But then, if the consequent is unapparent, how can we know if it is true or false, he asked. A conditional statement composed of a true, apparent antecedent and an unapparent consequent, he concluded, is undecidable in terms of its truth value: we do not know if it is true, because we do not know whether it has a true consequent, as well we cannot tell if it is false, because we do not know whether the consequent is false. Meanwhile, Sextus reminds us, the Stoics claimed that not only the antecedent of a conditional statement must be apparent and true in order to be the *semeion* of the consequent, but also that the entire sentence must be true, so it must have a true consequent. At the same time they required that the consequent be unapparent, but, according to Sextus, means we cannot know its truth value. From that criticism, Sextus drew a conclusion that the Stoics' view about the *semeion* being a true antecedent in a sound conditional statement does not hold water.

He rejected the view for one more reason: if the Stoics were right, the uneducated people, who have no clue about propositions and dialectical principles, or about logic, should not be able to use *semeia*. And yet, he notices, we know it from practice that they do it and they do it successfully, like simple helmsmen judging winds or farmers predicting droughts. In fact, it does not concern only human beings; the Stoics themselves, he reminds us, admit that even animals are capable of grasping *semeia*; a dog tracks an animal by its footprints and a horse leaps forward at the raising of a whip, even though — he adds humorously — the former does not make the inference "it is a footprint, then animals must be nearby" and the latter does not apply the inference "if a whip has been raised, I had better gallop."

Finally, he denied the Stoics' claim that supposedly the *semeion* and its referent coexist in the present moment. If it was so, then both would be directly accessible and neither would be indicating the other.

As we can see, ancient philosophers touched upon many crucial issues

in their discussions on the notion of *semeion*, such as: what kind of being is *semeion*, is the concept relative and what are the properties of the relation between the *semeion* and its referent. They made a number of valuable remarks, which remain valid until today; e.g. that a *semeion*'s referent ought not to be perceptible at the moment when we observe and interpret the *semeion* itself; that the relation between the *semeion* and the object it indicates may be either natural or conventional; that using *semeia* involves inferring; and that not only humans use *semeia*.

Let us treat these remarks as a starting point for our considerations, which, as I have already announced — will consist in formulating certain preliminary questions and in outlining possible answers to them.

III. What Kind of Being Is A Sign?

Peirce wrote:

I define a sign as anything which is so determined by something else, called its object, and so determines an effect upon a person, which effect I call its interpretant, that the latter is thereby mediately determined by the former. (Peirce 1977: 80-81)

He also described the sign as "anything which conveys any definite notion of an object in any way" (Peirce 1931-1935, 1.540). Therefore, according to Peirce, BOTH CONCRETE THINGS AND ABSTRACT BEINGS COULD BE SIGNS. For example, at least some singular signs, the so-called *sinsigns*, as well as some iconic signs, or *icons*, to use Peirce's terminology, were concrete things in his view. He also treated "the performance of concerted music" as an acoustic object, so as a concrete and singular thing, and at the same time as a sign (Peirce 1931-1935, 5.475). Whereas, what Peirce calls a *qualisign* and a *legisign*, an *interpretant*, that is, the meaning of a sign, a *dicent*, or a proposition, and an *argument* — reasoning or argumentation, — are all abstract beings, but they are different kinds of signs. Ideas, feelings, mental images, concepts, representations and thoughts have an abstract character as well; all of them, Peirce claimed, are signs or they can serve as signs. Thus, "ideas are the first logical interpretants of the phenomena that suggest them, and which, as suggesting them, are signs, of which we infer interpretants" (Peirce 1931-1935, 5.287). While discussing the other experiences, Peirce wrote that "whenever we think, we have present to the consciousness some feeling, image, conception, or other representation, which serves as a sign" (Peirce 1931-1935, 5.283) and then added that "we think

only in signs: these mental signs are of mixed nature; the symbol parts of them are called concepts” (Peirce 1931-1935, 2.300). There is no doubt then that, for Peirce, both concrete objects and abstract beings were signs.

Yet, there are scholars who believe that ALL SIGNS ARE ABSTRACT. For example, when de Saussure describes the sign as a combination of *signifiant* and *signifié*, the signifying unit and the meaning, noticing psychic elements in both, he must treat the entire combination of the two as something psychic, in other words, as a certain abstract being. But even those researchers who reckon that signs are abstract, often attribute a physical nature to the sign vehicles, such as e.g. particular sounds, images or inscriptions (Morris 1971: 96; Eco 1976: 49).

Other authors, on the other hand, claim that signs are some form of stimuli, therefore, SOMETHING COGNIZABLE THROUGH THE SENSES, SOMETHING PHYSICAL (Guiraud, 1974: 29 and 1976: 13-14).

An approach inbetween these extreme stands is adopted by the proponents of the view that SIGNS ARE OF A MIXED, complex, dual NATURE. They say that

the participation of an object in semiosis as a sign implies a dual nature for that object [...] The sign [...] is an object [...] empirically describable [...] but [...] it also is an 'element of my consciousness'. (Zeman, 1977: 25)

Yet another group of scholars maintain that only SIGNS IN THE NARROW SENSE, that is, symbols, ARE THINGS, while SIGNS IN A BROADER SENSE are EITHER PROCESSES AND STATES OF THINGS — and then they are called indications — OR concrete THINGS, called symbols (Dąbmska, 1973: 41).

A different example is provided by Prieto (1970: 107), for whom the sign is an abstract unit, composed of a class of signals, a class of messages and the relation between those classes, while the term 'signal' denotes a specific object.

Finally, there are authors who agree that SYMBOLS and SIGNS ought to be distinguished, since THE FORMER are EVENTS OR PHENOMENA, while THE LATTER are OBJECTS, nevertheless they do not see any possibility for formulating a general, overriding concept that would encompass both indications and signs (Kotarbińska 1957: 104).

The preceding overview attests to a divergence between the views on the ontological nature of the sign. It seems that while attempting to formulate the definition of a sign, one had better not restrict the scope of this concept in advance, for instance one should NOT PREJUDGE WHETHER SIGNS ARE EXCLUSIVELY ABSTRACT OR — on the contrary — EXCLUSIVELY CONCRETE BEINGS. Such premature decisions are undesirable for a number of reasons.

Even those who maintain that the sign is a concrete object may find it useful at times to consider a certain CLASS of signs, such as synonymous or isomorphic signs (or both); such a concept often proves a valuable analytical tool. Admittedly, the constituents of that class are concrete beings but the class itself is abstract. And yet, they do not refrain from calling it a sign, a word, an expression or a sentence, depending on a case. They say, for example, that the word 'rose' denotes this and that plant, instead of saying that this particular graphic or acoustic piece 'rose' (or each and every one of that sort) denotes such a plant. Therefore, IT WOULD BE BETTER TO ALSO HAVE THE CONCEPT OF THE SIGN AS AN ABSTRACT BEING.

Yet another fact supports this. As we know from practice, we sometimes treat our feelings and states of mind as signs, e.g. as indications or signals of some other emotional experiences: the fact that it was so easy for me to forgive him accounts for my affection for him; the very fact that I am hesitating to go to the movies is a sign for me that I do not really want to go. It would be quite unnatural and awkward to consider my state of mind (subject to a semiotic interpretation) a concrete object, since at a certain point I myself would become this object. But often at that very moment the other state of mind, which my first state signals, would be me. That is precisely the awkwardness of the situation: at some point I am a sign of myself at that very point. Yet, since a sign cannot be identical with its referent, there must be some other solution. The first one would consist in assuming that it is some aspect of myself that is a signal for me of another aspect of myself. But aspects are not concrete beings, which means that we would be departing from the concept of the sign as a concrete object. The other solution would call for the assumption that some physical part of my organism is, at a given moment, a sign for me of some other part of my body at that same moment. However, this would require me to be able to pinpoint where different states of mind can be found in my body and to accept that all my feelings (like the hesitation about going to the movies, as well the fact that we do not feel like going) are indeed located in particular

parts of myself. So again, it turns out that sometimes it is inconvenient to treat the sign as a concrete object.

On the other hand, sometimes it is just as inconvenient NOT TO HAVE THE CONCEPT OF THE SIGN AS A CONCRETE THING, which is so useful e.g. while discussing iconic signs, while analyzing a particular usage of a symbol or while exploring the modifications in the so-called dictionary meaning with respect to the context and situation in which an individual expression appears.

For that reason, I prefer to leave both possibilities open and to formulate the definition of the sign in the form of an alternative. Thus, let us agree that BOTH CONCRETE THINGS AND ABSTRACT BEINGS MAY BE SIGNS.

IV. The Concept of the Sign in a Broad Sense

IS IT POSSIBLE TO FORMULATE THE CONCEPT OF THE SIGN THAT WOULD INCLUDE what ancient Greek philosophers called a *semeion*, as well as what they called a *semainon*? One who accepts the abovementioned suggestion to assume that a sign can be either a concrete thing or an abstract being shall be also inclined to answer that question affirmatively.

However, many authors refuse to accept such an overriding, generic definition of the sign. They sometimes argue that accepting it would equal imposing a certain unity on signs, which in fact does not exist (Wells 1977: 7). Some of them mean by this that (1) THERE IS A CRUCIAL DIFFERENCE BETWEEN SIGNS AND INDICATIONS; THE FORMER ARE, in their view, CONVENTIONAL, while THE LATTER ARE NATURAL. Accommodating these opposite qualities within one generic concept of the sign would lead to, they believe, its heterogeneity and inconsistency (Guiraud 1974: 29-31). (2) Other authors, as it was already mentioned, think that INDICATIONS FALL UNDER THE CATEGORY OF FACTS OR EVENTS, while SIGNS, in the narrow sense of that word, TO THE CATEGORY OF THINGS; consequently, they claim, "it is impossible to propose one common definition without risking the accusation of a malformation, since such a formula would have to include variables which could be substituted by either names of objects or verbal equivalents of phenomena, in other words, by expressions belonging to different syntactic categories" (Kotarbińska 1957: 104).

The first accusation may be refuted by pointing out that even THE SO-CALLED NATURAL SIGN CONTAINS CONVENTIONAL ELEMENTS,

without which it could not function as a sign. Besides, it is always possible to come up with such a formulation of the definition, so that it encompasses both natural and conventional relations between the sign and the signified being. As to the opposition between the conventional and the natural, we shall return to that matter in the next chapter.

A possible response to the second accusation is that whenever something is used as a sign in the strictest sense of the term, it always occurs in a certain situation. This thing, isolated from that situation, ceases to function as a sign. The same white cane, which is the sign of a blind person when it is used to detect obstacles in the way or when it is held during a tram ride, but it stops to have meaning or to indicate anything when it is left in the corner of the hall, when it is hanging on a hanger or when it has been stuck into the ground and tied to a sapling to support it. It is not the cane that is the sign of blindness but **THE FACT THAT IT IS USED** in a particular way and at a particular moment. Therefore, the first possibility of formulating a common definition for indications and signs is by recognizing the latter as facts or phenomena as well; thus, the discussed distinction between indications and symbols would be no longer valid: **BOTH INDICATIONS AND SIGNS WOULD BE CONSIDERED FACTS OR PHENOMENA.**

Not everyone will agree with that argumentation. The difference between actual and potential signs will be surely brought up, in the light of which a white cane, no matter if it is tossed into a corner, if it is on the hanger or if it supports a tree, it is still a sign, or precisely speaking, a potential sign. The same goes for a car parked in the parking lot, which does not cease to be a means of transportation, a potential vehicle.

This is an issue worth discussing. For starters, notice that this analogy is by no means complete or that direct, since it is the car that is a means of transportation, not the fact that someone's driving it at a certain moment. So the matter remains open.

If somebody rejects the first possibility of formulating a common definition of indications and signs, because (s)he refuses to recognize the latter as facts or phenomena and (s)he insists that signs are things, while indications are facts, which, in her/his view, precludes the possibility of formulating a proper, common definition of both, there is one other possibility, inspired by Kotarbiński (1929: part I, chap. I and III). I therefore propose a reistic (or concretistic) elimination of apparent names, or onomatoids, that is, nouns denoting facts and phenomena, like the eruption of Vesuvius or impermeability, as well as concrete things, like the erupting Vesuvius or an impermeable object. A fact, or an event, is a certain "state of affairs

consisting in the fact that an individual located in a determinate place and time” has a certain property, while a phenomenon is precisely ”that property whose possession by an individual in a determinate place and time” was referred to as a fact or an event (Ajdukiewicz 1978: 90). In the light of this concretistic interpretation, facts, or events, and phenomena are considered things, which are such and such at this or that time and place (or at all times). Hence, we would no longer speak of facts and phenomena, but only about concrete things, which opens up the second POSSIBILITY OF PROVIDING A COHERENT DEFINITION OF BOTH INDICATIONS AND SIGNS, namely, BY MEANS of terms denoting CONCRETE OBJECTS.

The third possibility would consist in formulating the definition of sign IN A LANGUAGE THAT CLASSIFIES THE NAMES OF CONCRETE THINGS AND THE NAMES OF FACTS OR OF PHENOMENA INTO THE SAME SYNTACTIC CATEGORY, as it happens in many natural languages. This would eliminate the risk of the appearance in the proposed definition of such variables that are substituted by expressions from different syntactic categories. Thus, it would be possible to stick to the belief that an indication is a fact or a phenomenon, while a sign is a concrete thing, and at the same time to formulate their common definition, e.g. in the form of an alternative, without risking the accusation of malformation.

Summing up all that was said, there are three possibilities: firstly, we may describe signs in the strictest sense as facts or phenomena, just like indications; secondly, we may describe indications as concrete things, which in a given time and place (or always) are such and such, just like signs; finally, we may describe indications as facts or phenomena and signs in the strictest sense as concrete things, using a language in which the names of facts or of phenomena and the names of things belong to the same syntactic category. In each of these cases a proper definition of the generic notion of sign is possible. And I strongly believe that IT IS VITAL TO HAVE such A GLOBAL DEFINITION that ENCOMPASSES ALL INSTANCES IN WHICH SOMETHING WAS USED AS A SIGN.

V. Natural Versus Conventional Signs

Natural signs are usually contrasted with conventional ones: (1) either in terms of WHAT KIND OF OBJECTS, EVENTS OR PHENOMENA THEY ARE, (2) or in terms of WHAT KIND OF RELATIONSHIP EXISTS BETWEEN THE SIGN AND ITS REFERENT; (3) or in terms of both.

In the first instance, signs that are natural objects, events or phenomena are called NATURAL SIGNS, while everything else is simply called a SIGN.

So, even though thus understood naturalness is considered the opposite of artificiality, this is not reflected in the terminology: there is no such term as ‘artificial signs’.

The word ‘natural’ — so does ‘artificial’ — carries at least two different meanings here:

(a) The adjective ‘natural’ is attributed only to what DEVELOPS IN NATURE, like animals, plants, minerals, the rain etc., and what comes into being WITHOUT HUMAN INTERFERENCE, as well as what was neither processed and modified by men, nor used by them in any other way; all other objects, events or phenomena are considered artificial. In that sense, artificial animals are born as a result of human-led crossbreeding, roses that grew thanks to the gardener’s care, as well as a piece of amber thrown out by the sea and then encased in silver, rain brought down by physical or chemical methods or a river banked up by a dam.

(b) In the second sense, the adjective ‘natural’ refers to WHAT COMES DIRECTLY FROM NATURE, EVEN IF MEN WERE BEHIND its existence or if they modified or used it later on; here, the name ‘artificial’ would be given only to those objects, events or phenomena that do not have such a natural source of origin. From this perspective, natural is the abovementioned domesticated animals, garden roses, amber encased in silver, human-induced rain or waters banked up by a dam, as well as honey harvested from a honeycomb by the beekeeper, even if he had been feeding his bees with sugar, or a silk scarf and wool thread.

This distinction between the natural and the artificial gets even more complicated, as the word ‘natural’ may have a number of other meanings, especially with reference to actions and behaviors. These other meanings are connected with those mentioned before, which is why there are often confused.

1. What is considered natural are inborn behaviors or instinctive actions such as reflexes, e.g. pupil constriction in response to light; hence, the opposite of such naturalness is all that is acquired and learned — in the broad sense of that word, including the conditioned reactions of the organism.
2. Similarly, there is a distinction between behaviors and actions which are natural in the sense that they are INVOLUNTARY (such as sneezing) and those which are intentional, which result from the doer’s free will, like e.g. grunting. All instinctive behaviors or actions are involuntary, but never the other way round.

3. An analogous opposition is drawn between UNCONSCIOUS behaviors and those which the doer knows he is displaying; sometimes, the former are called natural. Instinctive may, but not necessarily, be unconscious, if we give that name to those behaviors of which the subject is not aware; for example, breathing is instinctive, but not unconscious in this sense of the term.
4. The word 'natural' is sometimes attributed to IMPULSIVE AND SPONTANEOUS actions and behaviors, that is, those which occurred WITHOUT PRIOR CONSIDERATION, like bursting out with laughter, screaming out of joy or fear; these are usually opposed to behaviors and actions performed with premeditation.
5. A state or a process is sometimes called natural, when it is SELF-CONTAINED, as opposed to those which are induced. This refers to a number of things. (a) Those states and processes are self-contained which are independent from any action or behavior whatsoever on the part of the person (or that thing), who (which) experiences those states and processes or who (which) is subject to them, e.g. aging over the course of time. (b) Self-contained are also (but in a slightly different sense) somebody's states or processes which are independent from their deliberate interference, e.g. even though the aging of the organism depends on the subject's actions and behaviors, some of which are conscious and deliberate, it is not directly caused by their intentional interference aimed at making them less physically able. By analogy, there is a difference between the self-containment of a process or a behavior (c) occurring independently of external factors (such as growing old, which was mentioned above) and of that (d) occurring independently of any intentional or unintentional interference of the outside world, e.g. spontaneous damage to a properly used device, not a damage that was done deliberately or as a result of a misuse of the device.
6. Naturalness is sometimes sought in UNINTENTIONAL, NON-DELIBERATE behaviors or actions, as opposed to intentional ones. But while before (point B) the word 'intentional' meant 'out of free will', here it also means 'purpose-driven', 'displayed or performed with a certain intention.' In that sense, the word 'unintentional' — and consequently, 'natural' — would refer to experiencing or exhibiting satisfaction at the opponent's error or failure, which inevitably, even if unintentionally,

adds to the loser's misery. All behaviors or actions that can be classified as cases of nature's dominance over culture may serve as examples of thus understood naturalness.

7. What is also considered natural are VOLUNTARY actions (as opposed to actions that are forced upon us), especially UNPROMPTED ones in contrast to those which are imposed, demanded or requested. Therefore, we speak of a natural upsurge of national spirit or of the milk of human kindness. Note that in this case naturalness is ascribed to actions which in point B were considered precisely the opposite of natural.

It does not take much to notice that the abovementioned meanings of the word 'natural' are very similar and the semantic scopes of this adjective often overlap when the word appears in senses which are related. Moreover, it also happens, although not as often, that the same behavior or action which is considered natural when contrasted with one thing is treated as unnatural in comparison with something else. But only a few of a those unnatural behaviors or actions are likely to be called artificial: perhaps, what occasionally deserves that name is a behavior which lacks spontaneity (point D), as well as a state or a process that is not self-contained (point E). Also, only some of them are referred to as conventional.

The latter word is ambiguous too. First of all, CONVENTIONAL is something that is either based on a convention or that conforms to a social convention. A convention is an agreement, a norm or a custom. Hence, Dąbbska proposed the following distinction of the word's three meanings (Dąbbska 1973, 35):

- 1) an AGREEMENT, that is, an activity of authorized persons consisting in accommodating actual or potential stands on a given issue and reaching a common position, which, under specific conditions, binds those who entered into this agreement (or a test of such an agreement, i.e. the effect of the above described activity);

- 2) a „DECISION regarding the choice of determinant or a class of determinants *W* which constitute a system (a certain order of relations) of sign-like productions that belong to the universe of cultural artifacts” (or the effect of that decision-making, namely, a ”thus chosen determinant,” such as ”a postulate, a definition, an axiom system, a rule, a literary or artistic canon etc.”).

- 3) a certain CUSTOMARY PRACTICE, a stereotypical WAY OF BEING, which is not instinctual, but designed to communicate a certain meaningful message set out in a directive (point 2) or in an agreement (point 1),

even if its practitioners remained unaware of the convention determining it” (or the effect of such a practice, namely, objectified displays of such a custom, like social conventions, conventional clothing, decorations etc.”) (Dąbbska 1973, 35-36).

The abovementioned ambiguity of the word ‘conventional’ makes it even more complicated to distinguish between NATURAL AND CONVENTIONAL SIGNS, even more so, if what is considered conventional, is to follow a custom or a habit without being aware of the determining convention behind it (point 3). In such a case we would consider conventional a spontaneous or unintentional behavior and action. Yet, it is precisely those types of behaviors that were previously classified as natural (points D and F). Therefore, certain understandings of the words ‘natural’ and ‘conventional’ question this very opposition.

So far, we have been discussing the distinction between natural signs and other types of signs — precisely speaking, conventional signs — in terms of what kind of objects, behaviors, actions, states or processes they are. However, it is much more common to distinguish them in terms of WHAT KIND OF RELATION BINDS A SIGN WITH THE BEING IT DENOTES. Moreover, it is often said that if this relationship is natural, then we have to do with natural signs and if it is conventional, then the signs are called conventional as well.

The most often cited examples of a natural relationship is that of CAUSALITY and, occasionally, SIMILARITY. Some claim that every natural relationship can be eventually reduced to a causal one — “a NATURAL (in the long run traceable to causal) relation between terms” — examples of which are provided as follows:

We are often enabled to infer a cause from an effect, an effect from a cause, or one phenomenon from the other in a pair of co-occurrent phenomena. Whenever we infer terms, we are in fact placing a phenomenon, as an index (left-hand term), into a relation $a \rightarrow b$. (Mulder, Hervey 1971: 328)

They also assert that this relationship is empirical, accessible by means of experience, and they give the following examples of natural indices to support that claim: clouds are indications of possible rain, lightning is an indication of thunder, a rash is a symptom of smallpox, limping is an indication of an injured leg, injuring a leg as an indication of limping and the whistle of a kettle as an index of boiling water. The latter example was differentiated from the others (called symptoms) and was referred to as a signaling device;

but each and every one of them falls under the category of natural indices (Mulder, Hervey 1971: 327-329).

This list of examples makes us wonder WHAT KIND OF ELEMENTS ARE LINKED BY such a NATURAL RELATION. Clouds are a concrete thing, but the possibility of rain is not. So if a natural relation can be established between two concrete objects or between a concrete object and an abstract being, it is not a cause-effect relation, as such a relationship can exist only between events. Assuming, however, that it is only a matter of formulation and that in all instances the scholars had indeed events in mind, is it really the same kind of relationship in all of the examples? The presence of clouds is a necessary but insufficient condition of rain, while injuring a leg is not a necessary condition of limping, although it may be sufficient. On the other hand, suffering from smallpox is both a necessary and a sufficient condition for breaking out in a specific rash, but lightning is by no means the cause of thunder, just as thunder does not cause lightning. The gathering of heavy clouds is an event which announces rain, but it does not announce the event of probable rain.

This leads us to suspect that when we speak of a causal relationship existing between an event treated as a natural indication of something else and an event which is precisely that "something else," we tend to confuse the cause-effect relation (which we shall call a relation of induction) with the RELATION OF SUCCESSION in the thinking process, one which occurs when one idea leads us to a different one. The latter relation will be further discussed in chapter five.

We shall accept the following popular definition of 'cause': "event A is the cause of event B" means that "whenever A occurs, always B happens next." But then, should only causal relations be called natural? What about the correlation between the cross-section of a human hair and the indicator of skull length and width or the relation between thermal conductivity and electric conductivity (Kotarbiński 1929, part IV, chap. 3), or the relationship between a free-fall time of a body and the distance covered by that body? Are these relations not natural? They are certainly not arbitrary — *thesei*. So if we were to call NATURAL THOSE RELATIONS WHICH ARE NOT ARBITRARY, but which were discovered in nature, which were proven to exist naturally, *physei*, then we would have to conclude that not only cause-effect relations between events are natural. We could perhaps formulate a stipulative definition in which a 'natural relation' equals a 'causal relation' (in the sense described before), but then the question would arise if such a terminological decision is sufficiently justifiable.

Opposing NATURAL AND CONVENTIONAL RELATIONS is sometimes founded upon a different premise than that the former are causal, while the latter are not or that the former can be found in nature, while the latter are established by men. Some of the examples provided by the authors seem to prove that, sometimes even against the authors' claims. For example, according to Mulder and Hervey, a langur's warning call at the sight of a tiger is supposed to serve as an example of a conventional, not a natural, index (Mulder, Hervey 1971: 331). What is the cause of the langur's call, we shall ask. The common answer would be: "The fact that he saw a tiger." Therefore, it would seem that we are dealing with a causal, and consequently, a natural relation. However, Mulder and Hervey maintain that it cannot be the cause, since tamed langurs in zoos do not react like this at the presence of a tiger; if we were to assume that the tiger is indeed the cause of a langur's warning call, we would have to admit that when langurs do not call at the sight an approaching tiger, the laws of nature are suspended. It seems that this argument can be refuted by another example given by the authors, which they classified as a natural indication, namely, the one with heavy clouds and rain. If heavy clouds have gathered in the sky, but there is no rain, does it mean that the laws of nature have been suspended? Not in the least. After all, the sight of a tiger and the gathering of clouds are both necessary but insufficient conditions. Why, then, some still maintain that clouds are a natural index, while the call of a langur is a conventional one? Presumably, the reasoning behind such a distinction is that in the case of a langur there is one more necessary condition, an intermediary one, that is, a specific emotional state triggered by the sight of a tiger, which culminates in an act of will, a "decision" to let out the call. By the way, notice that the freedom of this "decision" is probably highly limited: it is most likely a conditioned response. Yet, presumably, the authors apply the following reasoning: it depended on the langur whether to call out or remain silent, so it cannot be the exceptionless and necessary — the natural — relation of cause-effect.

They state that:

[t]he call itself is not CAUSED by the presence of the tiger[...] any more than going to bed is caused by feeling tired. It is MOTIVATED by the presence of a tiger just as going to bed may be motivated by feeling tired. (Mulder, Hervey 1971: 331)

What we are dealing here with, as it seems, is a different type of the natural-conventional distinction than before. This time, for a relation between

the sign and the denoted being to be natural, something more is required than just causality: it cannot include the RELATION OF MOTIVATION, otherwise it is treated as conventional. In that sense, natural indications may only be those objects, states of affairs, events or phenomena, which do not contain awareness or its products, in other words, natural relations can only be found within blind forces of nature, within a sphere of life governed solely by determinism. Whereas, whenever an animal's or a human's free WILL is involved, no matter the degree of freedom, in other words, in the case of indeterminism, we can speak only of conventional indications.

Apparently, this last distinction into the natural and the conventional was drawn not only on the basis of what kind of relationship there is between the indication and the denoted being, but also on the basis of what kind of being the indication is.

The opposition between natural and conventional indications based on these two principles together — the TYPE OF RELATIONSHIP AND the KIND OF ITS CONSTITUENTS — is more complex than those distinctions which include either only the relation or the kind of constituents.

It sometimes happens that we consider natural those objects, states of affairs, events or phenomena which do not contain in them HUMAN awareness, neither are they the products of such an awareness. If that is how we understand naturalness, then we would regard a dam built by beavers as a natural, not a conventional, indication of the beavers' presence, since it was not a human awareness that was involved in building that dam, but an animal's. Whereas the whistle of a kettle would qualify — in that understanding of naturalness — as a conventional indication of boiling water, since a man purposefully built a signaling device into a kettle. However, it is enough to change the meaning of the word 'natural' into, e.g. one that maintains a cause-effect relationship with some event, for the whistling of a kettle (Mulder, Hervey 1971: 329), the gauge of a barometer, the mercury level of a thermometer or the position and the speed of a windmill's wings to be considered natural indices of corresponding events.

It remains an open question whether it is always so that when an indication is not classified as natural in a particular case on account of the adopted understanding of the word 'natural', it means that it is a conventional indication. It would indeed always be the case if those who drew that distinction defined the word 'conventional' as the equivalent of the adjective 'unnatural'. But while defining both terms separately, they often treat them as non-complementary antonyms, and yet, they tend to classify signs as either natural or conventional just in case. Meanwhile, there

is also the possibility of including a different kind of sign apart from the two categories, e.g. FORMAL SIGNS or FORMAL INDICATIONS, that is, a sign distinguished by the formal relation between events like the one between the divisibility of the sum of digits in a given number by three and the divisibility of that very number by three (Kotarbińska 1957: 104, 106).

In some theories, opposing the natural and the conventional leads to a distinguishing of INDICATIONS, as natural signs, and SYMBOLS as conventional ones. For example, Peirce describes an indication, which he calls an index, as a sign „determined by its object [...] by being real and in its individual existence connected with the individual object,” while a symbol is a sign ”determined by its object by more or less approximate certainty that it will be interpreted as denoting the object, in consequence of a habit” (Peirce 1931-1935, 4.531).

Moreover, the opposition between natural and conventional signs sometimes serves as a basis for the distinction of ICONIC or visual SIGNS and SYMBOLS. Some scholars claim that an icon performs its semiotic function thanks to a natural relation with the represented object, that is, similarity or correspondence in a particular respect. For example, Peirce defines an icon, or likeness, as he also calls it, by saying that it is a sign ”whose relation to the object is a mere community in some quality” (Peirce 1931-1935, 1.558). Meanwhile, symbols are conventional signs ”the ground of whose relations to the objects is an imputed character” (Peirce 1931-1935, 1.558). In other words, a symbol is ” [...] the representation characteristic of which consist[s] precisely in its being a rule that will determine its interpretant” (Peirce 1931-1935, 2.292).

Thus, in those theories which do not recognize indications as signs (e.g. Bonta 1973: 28), the distinction between the notion of an indication and that of a sign, as well as certain classifications of signs, refer to the opposition between the natural and the conventional. But, as we already know, this opposition raises a lot of doubt. Therefore, before proceeding to draw the abovementioned distinctions and classifications on the basis of this opposition or formulating the definition of the sign, one ought to carry out a careful analysis of the meaning of the words ‘natural’ and ‘conventional’.

Only after specifying the concept of naturalness may one attempt to answer such questions as: (1) is the NATURAL RELATION BETWEEN *A* AND *B* A SUFFICIENT CONDITION FOR *A* TO BECOME THE INDICATION OF *B*? (2) is the SIMILARITY BETWEEN *A* AND *B*, or more importantly, SIMILARITY IN WHAT RESPECT IS A SUFFICIENT CONDITION FOR *A* TO BECOME THE ICON OF *B*.

Those who are willing to answer affirmatively to the second question should bear in mind the remark made by Peirce that "particularly deserving of notice are icons in which the likeness is aided by conventional rules; thus an algebraic formula is an icon" (Peirce 1931-1935, 2.279). They should also take into account Morris' view that "iconicity is a matter of degree" (Morris 1971: 273).

In fact, there is no icon in which resemblance would not be aided by convention. If we do not know the convention, in other words, if we do not know what code to use in a given case, we are not able to use a symmetric relation of similarity as a basis for an asymmetric semiotic relation. For that very reason, a dog does not recognize his master while looking at his photograph (although, if we are to believe the trademark of the gramophone company *His Master's Voice*, a dog is capable of using the recording of his master's voice as the icon of the master himself). We shall accept the abovementioned proposal to treat expressions like "A is an icon of B" as metaphorical simplifications replacing longer expressions such as, in this case, "at a moment t X is using A to represent B" or "at a moment t X is using A to imagine B." Accepting that proposal may lead someone to change the question if a certain similarity in between A and B is sufficient for A to become the icon of B into a different question, namely: can the fact that X believes that A is somewhat similar to B be a motive enough for X-A to use A to represent B at a moment t ?

Similarly, one might ask IF THE FACT THAT X BELIEVES THAT THERE IS A CERTAIN NATURAL RELATIONSHIP BETWEEN A AND B CAN BE A MOTIVE ENOUGH FOR X TO USE A AS INDICATING B AT A MOMENT t or IF THE FACT THAT X BELIEVES THAT A IS BOUND WITH B BY A CONVENTION, A CUSTOM, A HABIT, A RULE ETC. CAN BE A MOTIVE FOR X TO USE A AS INDICATING B AT A MOMENT t .

These questions refer not to a particular kind of sign, but to a particular usage of something as indicating something else. The word 'indicating' is used in those questions; a discussion about what it means that A indicates B will be provided in the next chapter. For now, I meant not to decide that in the case of a natural relation A is an index of B, whereas in the case of a conventional relation A is a sign of B; the word 'indicate' seemed neutral in the context of such a decision.

I believe that a thus formulated question can be answered affirmatively. If so, we would be characterizing e.g. the ICONIC USE OF A SIGN as partially and to some extent motivated by a conviction that the signs has

a certain natural quality, namely, it resembles the thing represents; but in order for such an iconic usage of a sign to occur, this actual or supposed similarity must be interpreted according to a convention, a custom, a habit, a rule etc. By analogy, using something as e.g. a NATURAL SYMPTOM of something else would be described partially and to some extent as motivated by the conviction that there is a certain relationship, e.g. a causal one, between this natural symptom and that something it symptomatizes; but in order for such a usage to occur, this actual or supposed relation needs to be interpreted according to an adequate law governing a natural course of events, which is certainly not free of some conventional elements such as idealization.

From that standpoint, there is NO purely natural signs, or rather, PURELY NATURAL USES OF SIGNS, just as there are NO FULLY ICONIC USES or, for that matter, NO USES of signs ARE PURE. Even e.g. the so-called symbolic use, that is, using SOMETHING AS A SYMBOL HAS A PINCH OF ICONICITY in it, which nevertheless does not make this use an iconic one, or briefly, it does not transform a symbol into an icon. What can be that pinch of iconicity, is e.g. the color of a singular graphic form of an icon. Even if the word ‘milk’ is printed in a black font, hardly anyone would use it as an icon of charcoal or tar based on the premise that they are the same color as the inscription. But it is not impossible, under the condition that an adequate convention is established and accepted for the purpose of that particular case, one that could serve as a foundation for such an iconic use of that inscription. Perhaps, that is what Peirce had in mind when he wrote that:

”the representative function of a sign lies neither in its material quality, nor in its pure demonstrative application, because it is something which the sign is, not in itself or in a real reaction to its object; but which it is to a thought [...]” (Peirce 1931-1935, 5.287)

VI. Sign Use and Inference

In the search for an overriding, generic notion of sign, one which encompasses all types and variants of signs, what draws our attention is the aforesaid concept of *semeion*. Since ancient times this notion has been used to refer to the sign in its most general understanding. Also, it is usually related to the INFERENCE in the broad sense, that is, ”shaping or

strengthening one's beliefs regarding something on the basis of some other, already held beliefs" (Kotarbińska 1957: 109).

Savan (1977: 180) notices that according to Peirce

"all man's thoughts and actions are inferences from signs. Signs then are quasi-premises themselves inferred from other quasi-premises."

This inferential character of the semiotic process, or semiosis, is reflected in such a Peirce's phrasing as:

"We think only in signs" (Peirce 1931-1935, 2.300), "[the first logical interpretants in human beings] take the form of conjectures," (Peirce 1931-1935, 5.480)

or

"a word has meaning for us in so far as we are able to make use of it in communicating our knowledge to others and in getting at the knowledge that others seek to communicate to us." (Peirce 1958, 8.176)

Perhaps, it is precisely the receiver's (the interpreter's) inference that Peirce has in mind when he writes that

"a sign is on the one hand so determined by an object and on the other hand so determines the mind of an interpreter of it that the latter is thereby determined mediately by that real object." (Peirce 1976, 3:886)

Even today many scholars consider INDICATION, a concept related to the Greek *semeion*, the most general type of sign and they refer to inference while defining it.

For example, Mulder and Hervey (1971: 326-335) consider the concept of index, or indicator, paramount and they define it as follows:

"An entity *a* is an index if and only if it conveys some information (that *b*) outside of itself [...] The relation *a* conveys the information that *b* could be rewritten as: from *a* it is possible to infer *b*." (Mulder, Hervey 1971: 327)

A similar thinking is behind Bonta's remarks, who claims, after Buysens and Prieto, that

"an indicator is a directly perceptible fact, by means of which it is possible to learn something about other indirectly perceptible facts." (Bonta 1973: 27)

According to Bonta, signals are also indices, or indicators, of some kind and they are characterized by the fact that

"they must be deliberately used [...] with the purpose of having an act of communication and recognized by the interpreter as such... Indicators tend to show [...] matters of fact [...], signals communicate states of consciousness of the emitter." (Bonta 1973: 28)

The fullest discussion of the issue of the "link between the scope of the notion of indication and the usages of the notion of inference" can be found in Kotarbińska's work (1957: 104 *et passim*). However, as it was already mentioned, she opposes the formulation of a generic concept of the sign that would encompass both indications and signs in the strictest sense: her remarks refer to indications only. Namely, based on the observations made by Husserl and Ajdukiewicz, she proposes the following NECESSARY CONDITION for something to become an indication:

"(a) in the OBJECTIVE sense:

phenomena type *A* shall be called indications of phenomena type *B*, Kotarbińska writes, only if there is a certain constant connection between these two types of phenomena that justifies inferring that a phenomenon type *B* will, did or does occur from the fact that a certain phenomenon type *A* had occurred.

(b) in the SUBJECTIVE sense:

by analogy, Kotarbińska continues, we shall say that a phenomenon type *A* is an indication of a phenomenon type *B* for a person *O* only if we want to affirm that a person *O* will infer the occurrence of a phenomenon type *B* from the occurrence of a phenomenon type *A*, or, in other words, if in the view of a person *O* there is a certain constant connection between phenomena type *A* and *B* that allows us to make such an inference." (Kotarbińska, 1957: 106)

Kotarbińska calls this fixed connection INFERENCIAL, explaining that in order to allow inferring this relation does not have to be a logical one, in which the conclusion is true if the premises are true; it suffices that true premises make the conclusion plausible.

Apart from necessary conditions, Kotarbińska also sets out SUFFICIENT CONDITIONS. Namely, if the former are fulfilled and

”if additionally, she continues referring to indications in the objective sense (s. 108), the relationship between two phenomena is either a natural one, grasped by the laws of science, or a conventional one, established by the power of tradition or as a result of a newly-developed social habit, then phenomena type A may be considered indications of phenomena type B [...] Phenomena type A may also be considered indications of phenomena type B if the former are such that $f(x)$, while the latter are such that $g(x)$ and if there exists a general relationship between them such as: $\pi x[f(x) \rightarrow g(x)]$, for certain values of x it, and besides it is true, for some x , it is true, approximately at least, that $f(x)$.”

Kotarbińska analogously formulates the sufficient conditions for indications in the subjective sense:

”If someone, after having ascertained that a phenomenon type A had occurred, infers the occurrence of a phenomenon type B on the basis of this assertion, the first phenomenon is to him an indication of the second one, provided that one of the following conditions is satisfied [naturally, apart from the abovementioned necessary condition — *J.P.*]: (a) in the view of that person there is a constant, either natural or conventional, regularity between phenomena type A and B or (b) the premise, upon which that person found their inference, holds that there occurred a phenomenon type $f(x)$, and the conclusion drawn from that premise holds that there occurred a certain event type $g(x)$, phenomena type A being phenomena type $f(x)$ and phenomena type B being phenomena type $g(x)$.” (Kotarbińska 1957: 108-109)

Out of the conditions proposed by Kotarbińska — the necessary, the sufficient and separately, those which refer to indications in the objective sense and those which refer to indications in the subjective sense — I suggest to

keep, however slightly modified, those which refer to the subjective notion of an indication. The rejecting of the conditions related to objective indications is a consequence of my previous proposal to speak of the USES of signs rather than of signs themselves and to replace metaphorical simplification like "a sign expresses something" with their non-metaphorical expansions such as "at a moment t X uses something to express something else."

What underlies this proposal is the belief that hardly anything is a sign conclusively, during its entire existence. The very same thing, event or phenomenon, if used in some specific way, functions as a sign but it ceases to play the role of a sign if it is used differently. Commonly, signs and indications are temporary, or rather they are USED *ad hoc*, for a particular, momentary occasion and they do not require their user to assume a PERMANENT, FIXED, CONSTANT, relation between the sign or the indication and the denoted being. That *ad hoc*, temporary and occasional sign is such as, among others, this supposed or actual relation, upon which a semiotic relation is based, not fixed at all, but it is temporary, passing, short-term, because e.g. the objects, events or phenomena between which there is a connection in the eyes of the user of a sign are temporary themselves or because this very relation was meant to be non-recurrent. Did we not establish such temporary relations during our school years when we believed that if the number of paving stones between the gate of the school courtyard and the school entrance is even, we will surely score well on the test; it is by no means a fixed relation, but at that particular moment it served to strengthen our conviction that we would not fail. Hence, I propose to eliminate from Kotarbińska's necessary condition for subjective indications the requirement of fixity of the relation which, in the view of the indication's user, connects it with the denoted being.

Next, we shall consider if the modified necessary condition and the sufficient conditions formulated by Kotarbińska in reference to subjective indications are fulfilled whenever someone USES something AS A SIGN of something else, in other words, if that person makes an inference.

It seems that the twofold usage of something as a sign needs to be taken into account: when a user of a sign is its INTERPRETER, especially its receiver, and when a user is the SENDER of the sign, especially its producer.

In the first case, the user-interpreter uses something — an object, an event, a set of objects or a phenomenon (A) — as a sign of something else (B), his inference being inspired by two motives: the belief that (A) did occur and the belief that there is a certain relation between (A) and (B), a relation already mentioned while discussing the necessary and sufficient

conditions for subjective indications.

In the case of PEOPLE interpreting signs, we may accept the following definition of inference:

”We call INFERENCE the activity of the mind consisting in that on the basis of accepting with some degree of certitude sentences called premises, the acceptance of another sentence, called conclusion, is reached with some, but always greater than before, degree of certitude.” (Ajdukiewicz 1965: 282)

The premises in the inference made by the interpreter of a sign are both the propositions regarding the assumed occurrence of such and such being (*A*), which the interpreter intends to use as a sign of some other being (*B*), and those regarding the relationship that, in the interpreter’s view, is supposed to exist between (*A*) and (*B*); whereas the conclusion is the proposition about the occurrence of (*B*).

The being (*B*), which in the interpreter’s view is indicated by the sign (*A*), can be an object, a set of objects, a feature, an event, a phenomenon etc. But sometimes (*B*) is the MENTAL STATE OF THE SENDER or of the producer of a sign (*A*). This happens especially when *A* is, in the interpreters’ view, a sign sent by someone DELIBERATELY. Such a sign sometimes appears under the name ‘SIGNAL’, however, this usually requires more than just the receiver’s belief in the deliberation behind sending the sign; in that case, the sign really has to be sent deliberately.

It remains an open question if signs sent deliberately, or treated as such by the interpreter, (a) turn his thoughts to only one (*B*), that is, (a₁) only to the INNER EXPERIENCE of their sender or (a₂) only to the signaled EXTERNAL STATE OF AFFAIRS; or (b) if they turn the interpreter’s thoughts to two different (*B*)’s — (b1) the experience of their sender, e.g. to his thought, as well as to (b2) an external object or event to which the thought refers; or perhaps, it turns (b1) DIRECTLY to the sender’s experience and (b2) INDIRECTLY to an external event, or vice versa. I suppose it may go both ways.

So, for example, from somebody’s deliberate gestures, facial expression or servile behavior, we are inclined to infer only, or mostly, the sender’s experiences or states. Whereas, when it comes to anonymous signals, especially the mechanical and the automatic ones such as the red light showing at a junction, we make conclusions only, or mostly, about a certain external state of affairs, not about the intentions of the signal’s co-senders, like those who

came up with and announced the traffic laws, those who preprogrammed the traffic lamp or those who placed it at the junction and activated it.

On the other hand, somebody's expressive, emotional statement inclines the interpreter to infer directly from it the mental state of the speaker and only then, indirectly, the state of affairs to which the statement refers. In that case, the interpreter uses the statement about the experience of the sign's sender inferred from the received signals as a premise for another inference that leads to the conclusion about a certain external event which was at the core of that person's inner experience. However, it sometimes goes the other way round: a diagnosis made by a doctor, an attended lecture or an obituary spotted in a newspaper are all signals that make us directly infer an external state of affairs; only the following statements about this state of affairs are used by the interpreter as premises for another inference about the thoughts or feelings of the signal's senders — the doctor, the lecturer or the family of the deceased, which published the obituary.

Usually, the relation between the signs and their senders' inner experiences is expressive — classified as PRAGMATIC — while the relation between the sign and the external being it denotes is considered SEMANTIC.

As we can see, linguistic utterances in normal communicative circumstances are spoken or written deliberately and they are thus treated by the receivers, which means that they belong to the SIGNALING USES OF SIGNS. Such uses consist in making the above discussed inferences. Hence, in his *Philosophical Investigations* (Wittgenstein 1953, § 20n., 486n.), Wittgenstein urged that we ought not to ask for the meaning of expressions but for the use of these particular expressions, which indirectly turned our attention e.g. to the inferences made by people participating in 'language-games'. These inferences are often RUDIMENTARY, so to speak, abbreviated, enthymematic and CONCEALED, even from those who infer, especially when they are proficient users of a given language. In brief, once we know perfectly well the relations between the sign and the denoted being, we do not make complete, developed inferences: in such a case the interpretation of a sign is merely GENETICALLY INFERENTIAL, which means that in practice it is as automatic as speaking one's native tongue. Perhaps it is precisely this awareness that inspired the associationist theories of meaning and the theory of intentional acts.

Whereas, while reflecting on whether USING something AS A SIGN always entails INFERENCE, we need to consider another instance, a much more complex and debatable one, namely, when the user of a sign is its SENDER, and particularly its producer. For now, I shall confine myself to

an analysis of the sending or the producing of signs by HUMANS, but only if it is DELIBERATE. So, the question is: does the person who consciously sends a sign at the same time make an inference similar to that which was observed in the case of interpreting signs? I believe so.

There comes into mind a twofold reconstruction of the inferences drawn by the sender of a sign.

The first variant is this: X knocks at the door, thereby sending a particular signal and becoming an originator of a certain semiotic process. But before this semiotic process began, X had participated in a different, preceding semiotic process as an interpreter: he had imagined the knocking at the door and, as the next step, he had recognized the conventional connection between this act and the state of affairs it denotes and so, he started inferring, but stopped immediately, since the conclusion was so well known to him. Only then did he knock, setting out conditions for an analogous inference made by the receiver, and at the same time the interpreter, of the signal on the other side of the door.

The second variant of a hypothetical reconstruction of the inner experiences of the sender of a sign looks as follows: before knocking at the door, X imagines the future behavior of the receiver of that signal as its interpreter, a behavior that obviously consists in making a certain inference. So, X mimics, as it were, the inference that the person behind the door is likely to start making any moment and reproduces it in his mind, thereby anticipating the likely result of his knocking at the door.

It needs not to be added that in both of these similar cases, X's inference is enthymematic, rudimentary and almost unconscious. It leaves no place or time for formulating premises and a conclusion in complete sentences. We may even doubt if this inference is composed of separate thoughts or if it is rather one, complex thought, in which the conviction about the occurrence of knocking is immediately followed by the belief that it is such and such a signal by the power of a certain convention, followed by the conviction that the door has to be opened: these thoughts appear so fast, one after another, that we could argue whether they do not actually appear at the same time.

If the above analysis is accurate, then in the case of a conscious, DELIBERATE SENDING or producing of SIGNS, we are dealing with inferences made by the sender. And since this inferential factor, as it was already mentioned, also appears in the course of INTERPRETING SIGNS, we may assume with a great degree of certainty that it is indispensable to ALL USAGES OF SIGNS BY HUMANS in a semiotic process, that is, to sending and receiving signs. Therefore, WHENEVER X USES SOMETHING AS A

SIGN OF SOMETHING ELSE AT A PARTICULAR MOMENT, HE/SHE MAKES INFERENCES OF THE KIND DESCRIBED ABOVE, AND VICE VERSA. We might call them SEMIOTIC INFERENCES, alluding to the fact that they were first observed and described in the discussions about the notion of *semeion* in ancient Greek philosophy. In every use of something as a sign there are also other factors, apart from the inferential one, characteristic of particular kinds or variants of semiotic uses, e.g. the signaling factor, the iconic factor etc. In that sense, we could say that there are NO PURE USES.

It needs to be reminded that Greek philosophy did not restrict the use of *semeia* to human kind: ANIMALS were also attributed the ability to use *semeia*. Even though we do not claim that all signs are *semeia*, we may nevertheless aim to define the notion of sign so as to be able to say that both signs and *semeia*, as understood by the ancient Greeks, may be used not only by people, but also by animal species, at least some of them.

If we wanted to extend the realm of signs into the animal world, we would have to either (a) let go of the well-established hypothesis that semiotic inference of the kind described above is a necessary and sufficient condition for using something as a sign or (b) modify the notion of semiotic inference in such a way that it would allow us to say that animals too make semiotic inferences.

SEMIOTIC INFERENCES made by human beings were classified above as mental activities consisting in gaining ACCEPTANCE, with a greater than before degree of certainty, of a particular PROPOSITION, namely a conclusion, based on having accepted some other proposition or propositions, that is, premises. Obviously, animals do not formulate, accept or reject propositions. But whether they do not hold, foster, strengthen or weaken some unstated desires, thoughts and BELIEFS — that I do not know. For an animal lover ignorant about biology like myself it is difficult to refrain from a personal, non-scientific conviction that a dog which leads his master by the coat and sits by the door or whimpers and jumps at the door handle is sending a signal, consciously or not, whereas a dog which displays joy at the sight of their masters' putting on their coats and reaching for the leash is interpreting signs and strengthening its belief about going for a walk very soon on the basis of convictions about activities that announce dog walking.

It is a question for animal psychology and the physiology of the animal brain to determine whether animals THINK and if so, then in what sense of the term. A psychologist attributes to many of them i.e. the ability of the so-called SENSORY-BASED THINKING, whose main component is the ability

of spatial and temporal orientation: "thinking, understood as learning the connections between things (e.g. spatial or causal relationships, relationships of subordination etc.), is possible without speech and it unquestionably exists among many animals" (Pieter 1963: 165). A neurophysiologist observes:

The totality of associations formed by people in their every-day life may be divided into two categories: associations involving speech in its every aspect (verbal associations) and associations formed without resorting to speech (non-verbal associations). While the former is restricted only to homo sapiens, the latter exists also among many other animal species [...] (Konorski 1969: 259)

The same expert asserts explicitly:

We believe [...] that if among human beings a mental experience of the perception of a stimulus pattern manifests itself through a particular behavioral act or through particular bioelectric potentials of the brain and if this pattern produces exactly the same reactions in a given animal (e.g. a monkey or a cat), then we are entitled to think that this animal experiences its perception of a given object in a more or less the same way as we do. Similarly, if a dog returns to its feeding spot, from which it was pulled away, just like we continue our unfinished meal, from which a phone call drove us away, we may assume that an animal has an idea of an unfinished meal just like the one we have. Contradicting such a claim would equal drawing a thick boundary line between the activity of a human brain and that of higher vertebrates, which would be unacceptable from a biological perspective. (Konorski 1969: 9)

Another psychologist writes: "Among facts of sensory perception we can distinguish representations and convictions" (Witwicki 1925: I, 71); the latter, according to the author, equals propositions.

Acknowledging the above information, we may conclude that since sensory perceptions in animals are similar in certain respects to those in humans and since these perceptions consist of e.g. convictions, or propositions, then animals are capable of experiencing some sort of conviction. So it seems that the door is not closed on the formulation of an adequately broad and liberal notion of inference, understood as proceeding from less to more strong

NON-VERBAL CONVICTIONS in a sensation-based manner, yet analogous to the process of inferential thinking in humans.

If we were able to formulate the notion of inference broadly enough as to allow us to say that both humans and animals infer, then we would also be able to claim that not only humans, but also animals use signs and that in both cases it consists in making semiotic inferences in the broad sense of the term.

For now, it seems premature to determine this question, due to e.g. the lack of sufficient knowledge about the mental experiences of animals. Yet, we may already opt for one of the following free solutions.

(1) Firstly, endorsing the view that THE USE OF SIGNS ENTAILS INFERENCE, we could adopt the anthropocentric viewpoint and maintain that ONLY HUMANS ARE CAPABLE OF USING SIGNS; but then we would be making a distinct division between the human and the animal mind, which is unacceptable for a specialist in that matter and which equals not being able to explain properly numerous well-known facts about animal behavior: such behaviors would be difficult to explain, if we would be forced to interpret something other than the sending or following signals.

(2) Secondly, we could agree that BOTH HUMANS AND ANIMALS USE SIGNS, yet IT DOES NOT ENTAIL INFERENCE IN EITHER CASE; but then we would be forced to reject the entire characterization of semiotic processes as provided above, since it is based precisely on the concept of inference.

(3) Finally, we could suppose that BOTH HUMANS AND ANIMALS USE SIGNS, yet IT INVOLVES INFERENCE ONLY IN THE CASE OF HUMANS, something completely different in the case of animals; but then we would have to forget about the possibility of formulating a common, overriding, generic notion of sign.

None of the above perspectives seem appealing to me. I am leaning toward a BROADER NOTION OF INFERENCE, one that TIES ALL USES OF SIGNS WITH MAKING INFERENCES, and to the view that BOTH HUMANS AND ANIMALS USE SIGNS. This is because I believe that it would be useful to have a NOTION OF SIGN which is AS GENERAL AS POSSIBLE. I also believe the hypothesis that the use of a sign is necessarily and sufficiently conditioned by a certain type of inference, called here a SEMIOTIC INFERENCE, and receives more and more confirmation; this makes way for a definition of an overriding, generic concept of sign, or rather, of the use of something as a sign.

VII. Prolegomena to the Definition of the Concept of Sign

A review of the above observations may constitute the prolegomena to the definition of the concept of sign or serve as preliminary remarks for the theory of sign:

1) When aiming to formulate such a theory, one ought to bear in mind how the Ancients commented on the concept of *semeion* and how the prominent philosophers of later times developed and improved former observations in their discussions about signs.

2) According to the common practice of understanding signs, they can be either concrete objects or abstract beings, individuals as well as sets, both events and phenomena, in other words, different sorts of beings. If one does not wish to reject this practice, they ought not to restrict the realm of signs to a single type of being or determine that signs of a particular kind are beings of a particular kind and that signs of a different kind are a different kind of entity.

3) The assumption that not only concrete, singular objects may be signs poses a risk of hypostasis. If we wish to avoid that risk, as well as others — like personifying or anthropomorphizing signs — it is useful to regard formulations referring to signs as metaphorical and simplified, and to replace them with formulations referring to the use of a sign in particular circumstances, that is, in a particular time and place, as well as by a particular user, or a sender or a receiver. Such a relativization has its benefits. It draws our attention to the fact that the same thing, or generally, the same being, becomes a sign or ceases to be a sign depending on how it was used; that something which is used as a sign does not really have to exist and it does not have to be in a particular relationship with the being it denotes: it is enough that the user of the sign believes so. It also highlights the fact that a given being may become a sign of one kind and sometimes of a different kind, depending on the particular use; finally, it also emphasizes that there are no pure uses: in each use there are elements proper to a different kind of sign.

4) The possible relations which, actually or at least in someone's view, connect the sign with the being it denotes, are said to be either natural or, on the contrary, conventional. This distinction sometimes serves as the basis for differentiating indications from signs or icons from symbols. But if one wants to use the opposition between the natural and the conventional, one ought to start by defining precisely both of these ambiguous terms, and then see if the scope of these concepts, thus defined, are complementary.

5) An analysis of different cases in which something was used as a sign allows us to put forward a hypothesis that this use is subject to a certain

kind of inference, called a semiotic inference. Such an inference is made by both the senders and the receivers of different types of signs: symptoms, syndromes, indications, symbols, icons, signals etc. The motives for using something (*A*) at a particular moment as a sign of something else (*B*), thus, for making a semiotic inference, are: the belief of the sign's user that *A* exists, in the broad sense of the term, and that there is a certain connection between *A* and *B*, such as a causal nexus, contractual or habitual relationship, or perhaps that of similarity. These motives incline the one who infers to accept the relevant premises. The conclusion of a semiotic inference refers either to mental states of an actual or a supposed sender (senders) of the sign interpreted by a receiver or to an external state of affairs to which the sign refers. Or it refers to both. The semiotic inference itself is often rudimentary and the users of the sign are not always aware that they are making one.

6) Recognizing that the semiotic inference is at the same time a necessary and sufficient condition for using something as a particular kind of sign paves the way for formulating the definition of an overriding, general and generic notion of sign which encompasses all types of signs; but it would have to be restricted to humans. It is because only humans are capable of making inferences, in the strictest sense of the term. If we wanted to attribute the ability of using signs to animals as well, but still be tying the use of signs with semiotic inference, we would have to modify the notion of the latter. Namely, we would have to reject the definition according to which all inferences consist in accepting one proposition, with a greater than before degree of certainty, on the basis of other accepted propositions. Instead, we would have to agree to a more liberal, and at the same time broader, notion of inference, according to which making inferences consists in, among others, proceeding from weaker to stronger sensation-based and nonverbal beliefs. Since, on one hand, we lack information about animal mental processes and, on the other, this extended definition is still a work in progress, we are not able to determine now if animals are capable of semiotic inferences. Hence, the question if animals use signs in this sense remains open.

7) Is it desirable to have such a general notion of inference, especially of semiotic inference, and consequently, such a general concept of sign, which encompasses all uses of different signs by both humans and animals? If we see major analogies between how humans use signs and how animals do it, if we believe that the attempts to integrate branches of science are useful, if, therefore, we approve of the state of affairs in semiotics, which operates this very broad concept of sign and which acts as an interdisciplinary method applicable to phenomena in both natural and human sciences, then we would

answer: yes.

Warsaw, July-August 1978 and January 1979.

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