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ON LINGUISTIC SIGNS

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**Introduction**

In the article entitled "Znak" ("Sign"), Jerzy Pelc (1980) recalls the definition of the Greek word *semeion*, which constitutes, as it were, a starting point for his investigations aimed at discovering common characteristics of all (i.e. natural and conventional) sign-relations that hold between a sign<sup>1</sup> and what it refers to. Pelc's article provides a broad basis for inquiries into the notion of sign. Even if we wish to confine ourselves to the description of signs in natural languages, Pelc's article facilitates 'topographic' localisation of the issue within the framework of the broadly understood semiotic research. Furthermore, it is worth emphasizing that the elasticity of his account allows room for other conceptions of sign. From a methodological point of view, Pelc recommends both the concrete and the abstract account of sign, without ruling out, of course, mixed accounts. Another methodological suggestion consists in pointing out the semantic heterogeneity of such semiotic terms as "conventional," "arbitrary," "natural," "artificial," "intentional," etc. Taking our cue from the author of "Sign," we see the need for finding a common concept, and thereby a term, that would encompass both indices (natural signs) and signs (conventional signs), which — from the viewpoint of a receiver, i.e. a potential addressee — share some properties. Both a sign and an index (on a unilateral account) indicate<sup>2</sup> something else. Following Pelc's

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<sup>1</sup>Pelc (1980) uses the term "sign" in the sense (signifying argument); in what follows, we will use the term "sign" in reference to 'the whole', i.e. to both the signifying and the signified argument of the corresponding relation.

<sup>2</sup>Pelc recommends the use of the neutral "indicates" instead of "A is a sign of B" and "A is a symptom of B."

suggestion, we adopt the name *semeion* as a common label for indices and signs.<sup>3</sup>

Let us begin by pointing out that the differences between Pelc's account and the account put forward in the present article stem, for the most part, from a distinct approach to the subject matter. Pelc focuses on the usage of signs, which — as it seems — inevitably leads to emphasizing the notion of semiotic inference. By contrast, we will zero in on the functional foundation of signs, that is, on conditions that must be met in order for a sign to be usable; accordingly, we lay greater stress on the feedback that occurs between the internal elements of a sign, which, in a sense, amounts to a return of associationism. This associationism, however, is far removed from its extremely individualistic manifestations criticized, among others, by Ajdukiewicz (1978) and Zawadowski (1957). Moreover, Pelc adopts the unilateral approach, while we are committed to the bilateral nature of a linguistic sign. We agree in this case with Weinsberg (1983: 48—49, n. 9) that this kind of discrepancy between positions may be purely terminological and need not involve a real difference of opinion.

Nevertheless, it seems that the lack of a separate term for the whole relation that holds between a semeion and what it refers to, 'overburdens' terms such as "semeion," "sign," and "index." In logical semiotics and, to some extent, in linguistic semiotics, "sign" is used in accordance with the ordinary understanding of this word, which can be briefly described as something that refers to something (indicates something). Still, studies devoted to the sign considered unilaterally are not just concerned with a single argument of the relation, namely, with the designating or denoting argument, but also with the denotatum or designatum. For this reason, at least in the titles, the term "sign" can refer both to the designating (denoting) argument and to the whole relation between the denoting argument and the denotatum. On this account, a sign, instead of being an isolated magnitude, is an argument of a relation — just as a minuend in the operation of subtraction is not an isolated number but a number standing in a suitable relation to another number. It would be odd to call the branch of mathematics devoted to subtraction — "minuend theory."

Unfortunately, ordinary language lacks a name for what comes under the rubric of sign in the bilateral theory of de Saussure. This divergence from the ordinary usage seems to be a serious shortcoming of bilateral

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<sup>3</sup>In the course of analysing the views of ancient philosophers, Pelc states that "the relation of *semeion* to the indicated thing can be either natural or conventional" (1980: 124 and ff., esp. 127).

terminology. It might be remedied by replacing the term "sign" with some verbal noun, such as "signification," "reference," "denotation," etc., but they are employed in other theories in a narrower sense. In spite of this inconvenience, we will continue to use the name "sign" to refer to the relation and its particular arguments, since, even in the unilateral theory, once something is regarded as a sign, it automatically entails the rest,<sup>4</sup> i.e. that which is connected with the sign. Thus, within the framework adopted here, "sign" consists in the signifying and the signified linked by the appropriate relation. The expressions "signifying" (*signifiant*) and "signified" (*signifié*), used nominally, share their form with corresponding participles, which may lead to misunderstanding. For this reason, instead of "signifying," we will use the term "signifier" (SR) and instead of "signified" — "significate" (ST). The term "significate" will be used in a different sense than "designatum," "referent," or "denotatum" ("denotation"), which are usually applied to fragments of reality, understood as objects. The condition of signification is fulfilled if a signifier corresponds to a concept.<sup>5</sup> For example, the signifiers <house>, <white>, <leprechaun>, <lies>, are significative (they have significates) because they correspond to concepts.<sup>6</sup> Without going into details, we would like to point out that some signifiers, in addition to the significative function, can play a relational role, for example <reads>, <writes>, etc., which apart from corresponding to certain concepts (being significative) serve as functors (operators),<sup>7</sup> both at the level of signifiers (<John writes (reads) a letter>) and that of significates ((John writes (reads) a letter)).<sup>8</sup> Thus: the signifier <writes> combines signifiers <John> and <a letter>, and the significate (writes) combines significates (John) and (a letter).

It seems that one of the corollaries of the unilateral approach to the notion of sign is the stress laid on interpretation of signs (=of signifiers), which is further encouraged by the rejection of associationism in the theory of sign. Of course, the subjectivist and individualist version of associationism, linking images of signifiers to images of referents, blurred the intersubjective character of signs. But the critique of associationism went too far, to the

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<sup>4</sup>Just as the usage of the expression "minuend" is connected with subtraction, subtrahend, and even with equation and remainder.

<sup>5</sup>In our view, there is no direct correspondence between a signifier-token (a morpheme, a word, a sentence, etc.) and a significate-object (see below).

<sup>6</sup>Or, in Mill's terminology, they have connotation.

<sup>7</sup>Relational functions can also be performed by some inflectional morphemes, e.g. the genitive ending in the Polish syntagma *dom Jan-a* (*John's house*), which at the significative level can mean (belongs to).

<sup>8</sup>All types of brackets will be explained in detail below.

point of total annihilation.<sup>9</sup> And yet no sign can function without an internal (mental) association between the signifier-concept and the referent-concept.<sup>10</sup> One could partially reverse the problem and ask what is involved in the interpretation<sup>11</sup> of a sign (= signifier) in each use<sup>12</sup> of the sign.

In both cases, i.e. in the case of associationism and interpretationism, we are dealing with two sides of the same issue. Interpretation always appeals to an established connection, i.e. a fixed association between the signifier-concept and the referent-concept. Presumably, the purpose of phrases such as "interpretation," "intention" (*Bedeutungsverleihende Akte*), "semiotic inference," which point to relations between SR and ST, is to oppose overly simplistic, not to say vulgarized, definitions of sign, in which a sign is characterized by an acoustic-physiological compound of sounds endowed with semantic content. If we consider interpretation of a signifier (or semiotic inference) as an action of the receiver of a message (MR) which assigns a definite meaning to a definite signifier, then it is reasonable to introduce the

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<sup>9</sup>This is the nature of the critique of associationism presented by Ajdukiewicz (1978: 8—17), who not only challenges the individualist aspects of associationism, but also its 'intersubjective version', which appeals to invariable associations established by linguistic usage (1978: 8). The author offers his own definition of associationism (in line with the intentions of its advocates). Since this definition (1978: 9) fails to preclude the situation in which use of an expression with a fixed meaning in the language *L* is accompanied by a unique, unrepeatable thought, the author introduces a new associationist definition of sign: "Thought-type *M* is the linguistic meaning of expression-type *E* in *L* if and only if: (1) expressions of type *E* belong to *L*, (2) the necessary and sufficient condition for a person *X* who makes use of an expression *A* of type *E*, to use it as an expression of *L* is that the use of *A* qua use of an expression of type *E* should be associated in the mind of *X* with a thought *B* as a thought of type *M*" (Ajdukiewicz 1978: 111). Ajdukiewicz's criticism of this definition is unconvincing; at the same time, the unquestionable advantage of the definition is that the single mental process in question (single thought) is just a token of a type — rather than an exclusively individual act.

<sup>10</sup>For now, I set aside the so-called empty names.

<sup>11</sup>The phrase "use of a sign" is taken in the sense of "sign's functioning" and is primarily understood as receiving a sign rather than sending or transmitting one.

<sup>12</sup>The term "interpretation" (e.g. in Peirce) is used either in two senses — corresponding to two stages of this process — or in one sense encompassing both stages: I — the stage of interpretation consisting in recognizing that a given item has been used as a sign; II — the stage consisting in assigning a suitable meaning to this sign (signifier). Yet, for Peirce, "sign" refers either to signifiers or to meanings. The latter understanding of "sign" occurs in contexts in which the author states that a sign is interpreted by another sign. It is hard to understand this other than as saying that the meaning of a sign is interpreted by the meaning of another sign.

opposition: interpretation — automatism.<sup>13</sup> We would speak of automatism in situations in which semiotic inference would, in practice, equal zero.

We would be dealing, therefore, with two polar opposites of the same phenomenon, primarily dependent on the nature of a given sign system (if we disregard the issue of competence of particular language users — their mastery of a given sign system). Automatic or interpretative assignment of meanings to signifiers in one-to-one languages would differ from the assignment in many-to-many languages. It would look differently in languages which lack syntax than in syntactic languages and differently in formalized language than in not formalized ones. In the case of the so-called isolated signs or in asyntactic sign systems, there is automatism between SR and ST. By contrast, in syntactic sign systems we would talk about automatism in the case of textual segments of significative (non-relational) nature. In the case of homonymous sections of the text, the assignment would consist in selecting one of the alternatives. Such a choice can be, and usually is, preceded by an analysis of the meaning of the remaining segments.

Presumably, automatism would be more applicable to SRs that serve purely significative functions than to relational ones. Yet, even here, the degree would vary depending on the object of analysis. In one-to-one languages, this process is automatized, since numerous operations are performed by symbols (signifiers) without reflecting on their content. By contrast, in natural languages, the inference follows the syntagmatic line, i.e. concerns the connection between meanings  $\langle x \rangle$  and  $\langle y \rangle$ , and it is on this basis that we establish or specify the value of the apposite relator (operator, functor)  $\langle R \rangle$ . This is not to say that we *infer* the meaning of SR  $\langle x \rangle$  and  $\langle y \rangle$  — it is given automatically. Rather, we infer the value of the relation between the meanings  $\langle x \rangle$  and  $\langle y \rangle$ .

The need for establishing the value of a relation is particularly noticeable if  $R$  is ambiguous or so general that it says nothing about the content of the

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<sup>13</sup>Pelc (1980: 147) does not exclude automatism in sign interpretation either. Differences consist, above all, in the approach to the subject, as Pelc's focus on sign usage, in which semiotic inference, especially in the case of a mother tongue, is enthymematic (fragmentary, abbreviated) and, in practice, can occur automatically. In such cases, sign interpretation is only genetically inferential. By contrast, we are concerned with the foundation of sign usage, which is the 'internal sign' (the link between internal SR and internal ST), invoked by a language user in deploying a signifier. On this approach, interpretation would consist in 'arriving' at this foundation, which may be either automatic or more or less complicated. We can speak of a 'complete inference' in the case of establishing the meaning of a signifier (of an unknown meaning) based on the context or the co-situation.

relation. As an example, consider the relation called possessive, expressed by means of possessive pronouns or the possessive genitive. This relation can take a variety of forms in different situations. For instance, <our bus> might mean (the bus we took), (the bus we are supposed to clean up), or (the number of bus line we usually take), etc.

### Signs and indices

In accordance with the bilateral conception of sign, which we have adopted in this study, we refer the name *semeion*, suggested by Pelc, to the whole relation holding between the indicating and the indicated argument of the relation of indication — in contrast to Pelc himself, who reserves it for the indicating element. We treat signs and indices in an analogous way: they refer to the entire relation including both arguments.

In a systematic study dedicated to semeia, one should introduce three ordered triples of terms — for two arguments and the relation between them, for semeion, sign, and symptom. Since we focus, in the present study, on the notion of sign, we will confine ourselves to the terms already introduced above: "signifier," "significate," and "the relation of correspondence." Names of the arguments of semeion — "indicating element" and "indicated element," as well as the name of the relation between them — "indication," are just working labels. As for indices, we call the first argument of the relation, in accordance with the customary usage, a symptom, the second argument — a phenomenon, and the relation between them — indication (just like in the case of semeion). Names of the above relations are assumed from the perspective of the receiver. Adopting the position of the sender is impossible for indices, and in part for semeia, since it would go beyond the characteristics shared by signs and indices, as the latter lacks senders.<sup>14</sup>

The issue looks differently on the side of information transmission. This purpose is exclusively served by signifiers (the sender cannot use a symptom to transmit information).<sup>15</sup> Furthermore, transmission of sign information only has one direction: signifier → significate, without the possibility to replace one with the other. But since we can infer the cause from the effect

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<sup>14</sup>We should emphasize that a phenomenon deserves the title of symptom only if there is a semiotic inference from it to the indicated phenomenon, carried out by the receiver of the symptom, based on preceding experience. If someone observes a phenomenon for the first time and notices its effects, it is a process of inquiry rather than a use of index (even if the effects of this process are being foreseen).

<sup>15</sup>With the exception of ostentatious symptoms, mentioned by Weinsberg (1983: 13). But these are only imitations of symptoms.

and vice versa, indices are commutative: the indicated argument and the indicating argument can switch their roles (cf. Mulder, Hervey 1971: 322), depending on which phenomenon could be, and is, observed directly.

### **Semeion**

According to the terminology adopted here, semeia are divided into signs and indices. We regard as indices all phenomena which — for an individual familiar with corresponding correlations — are carriers of information (other than the phenomenon itself), but have not been used by anybody in order to convey information. There is a close correlation between the phenomenon-vehicle of information and the phenomenon-information: they are both parts of the same process. A heavy cloud indicates rain (this particular rain) because it is a link in the same process. A fever of a given person is a manifestation of a process that takes place in the organism — the organism of this particular person. One can infer information from these symptoms, but it is not consciously transmitted. If a person wishes to inform someone about her illness by indicating that she has a fever, then this indication is a signifier of the illness, and the fever a symptom of the illness. Also tracks left by mobile creatures are symptoms, albeit they can be produced in order to convey information.

Accordingly, everything that is not absolutely determined and can be controlled can also be a signifier (not a symptom), i.e. can be consciously produced in order to inform. Some phenomena which are external manifestations of a process, such as prints in the snow, are — in a majority of cases — symptoms of a motion of a particular object in a specific place. Yet they can also be produced in the appropriate way and intentionally employed to convey suitable information. In contrast to symptoms, signifiers of conventional signs have the following properties: 1) the signifier and the significate are not links in the same physical process, unlike in the case of symptoms and processes, 2) signifiers are intentional, controlled phenomena, aimed at notifying.

The boundary between notifications and signifiers is not sharp. For this reason, in what follows we discuss SRs (or, strictly speaking, indicating arguments with a predominance of SRs), to the exclusion of classical symptoms, so as to simplify the classification. Let us adopt the following criteria of division of SR:

0. With respect to the cause, SRs are divided into:

1. direct — such that the information carried by SR was directly brought about by a stimulus, i.e. by the significate.

2. indirect — in which there is no direct connection between SR and the information conveyed by SR. That is to say, the phenomenon which is the content (object) of information need not be directly linked to such an act of informing.

Both types of SR, i.e. direct and indirect, are divided into:

1.1., 2.1. natural — in which SR is a natural reaction to a stimulus but is a carrier of information,

1.2., 2.2. artificial — in which SR is an artificial reaction to a stimulus and takes the form of an articulated signal,

1.1.1., 1.2.1. unintentional — which are information-vehicles for a receiver but are not intentionally transmitted by a 'sender',

1.1.2., 1.2.2. intentional — whose information is transmitted in order to inform a receiver.

The above classification can be illustrated by the following diagram:<sup>16</sup>

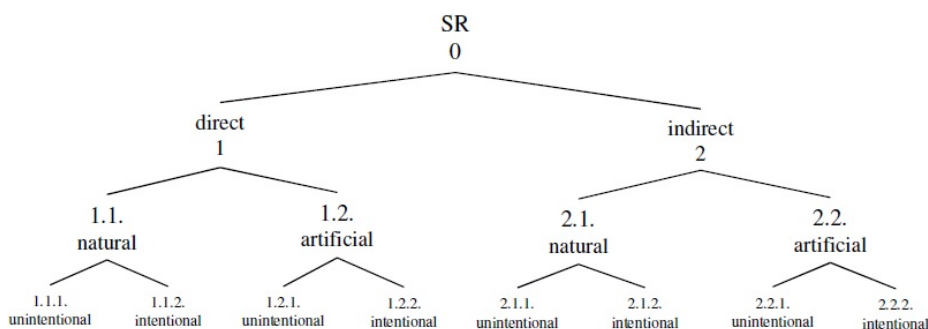


Figure 1. Division of signifiers.

EXAMPLES ILLUSTRATING THE DIAGRAM:

1.1.1. A groan let out by a human being or an animal, caused by pain.

1.1.2. A warning cry of an animal. It is a zoo psychological question whether an animal that reacts to danger and thereby warns the herd reacts both spontaneously and intentionally. Perhaps, 1.1.2 is an empty slot — in fact, we might be talking here about an artificial reaction, i.e. about a signal adapted to a given situation (cf. Mulder, Hervey 1971: 331).

1.2.1. A cry *oh!* caused by pain. A loud soliloquy about things and phenomena that directly affect the speaker.

1.2.2. Like 1.2.1 but aimed at informing, e.g. exclamation *Oh, Wojtek!* at the sight of Wojtek. Also each piece of linguistic information in the presence of the corresponding plane of significates, given its simultaneity or direct

<sup>16</sup>For the sake of precision, let us add that SRs have been taken too broadly here, e.g. 1.1.1. may be treated as symptom (but its usage qua signifier is not ruled out).



antecedence with respect to the time of informing. This category may also include information provided by thermometers, barometers, kettle whistles, etc. In this case, differences would concern: (A) a transmitting apparatus — (a) constituting an integral part of the message sender (MS), (b) not constituting an integral part of MS (in the case of indicating instruments); (B) intentionality — (a) present in the case of MS, (b) neutral in the case of indicating apparatuses, e.g. a thermometer; (C) proportionality — (a) contents can be proportionally mapped onto SR, but natural languages usually involve a signaldis continuum, distinctive (diacritical) function independent of the structure of ST, (b) in the case of indicating apparatuses — a proportional feedback between the continuum of ST and that of SR.

2.1.1., 2.1.2. No examples.

2.2.1. A soliloquy whose content was not elicited by the direct environment of the speaker (or by her physical impressions) — not directed at a receiver (an audience).

2.2.2. This category might comprise SRs similar to 2.2.1 but directed at a receiver (an audience) — of course, it might be a dialogue. We may include the so-called waggle dance here. The difference between human language and 'bee language', if we accept the popular opinion in this regard, would consist in certain indispensable correlations between the continuum of form and the continuum of content, which are proportional in the latter's case (Chafe 1970). (The greater distance or amount of resources, the longer and more intensive 'moves'). Thus 'bee language' lacks the distinctive (diacritical) function that should be entirely independent of the content. This is not to say that e.g. child language or the language of poetry must be devoid of proportions between the amount of something and the length of e.g. syllables or repetitions.

The above overview of examples shows that the diagram not only (1) disregards 'classical symptoms', but also (2) lacks certain criteria of linguistic signs.

Ad 1. The boundary between symptoms and SRs is fuzzy. For us, a classical symptom is an element of a process which is causally linked to another element of this process. Yet we have classified groans as SRs because, in spite of being caused by pain, they are consciously controlled, at least in the negative sense (it is possible to suppress a groan). The diagram has been organized in such a way as to put the SRs most similar to symptoms (directly caused, natural, unintentional) further to the left, whereas the SRs to the right (caused indirectly, artificial, intentional) are characteristic of linguistic SRs.

SRs under the rubric 2.2.2 may occasionally lack one or more positive features (and thus be transferred to the left side of the scheme — see examples). For instance, the exclamation *Oh, Wojtek has arrived!* (2.2.2) can be used as 1.2.1 (brought about directly and unintentionally). In this case, it would be uttered in an incomplete context, in the absence of a receiver and without communicational intention of the speaker, but this would not deprive the SR of communicational value for the speaker; furthermore, it can be actualized by appearance of a potential MS.

At any rate, the differences between symptoms and SRs are evident even on a behaviourist construal, in which the direct connection between a stimulus (*S*) and a reaction (*R*) —  $S \rightarrow R$  — is replaced with  $S \rightarrow r \dots s \rightarrow R$ ,<sup>17</sup> i.e. a direct connection is replaced with an indirect linguistic relation. But we should keep in mind that such a model does not take into account 'pure intelligible contents' (marked in the diagram as 2.2.2).

Ad 2. Distinctive (diacritical) features of linguistic signals (SR) have been omitted in the diagram not only for the sake of clarity. In our view, it is the artificiality of SR — i.e. a strictly symbolic character of SRs, which consist of optical, acoustic, or other elements, and refer to a variety of real phenomena — that should be regarded as the essential property of a linguistic sign. Other differences would concern the proportionality between some physical characteristics of ST and SR (determined by ST) and the lack of proportion manifested in diacritical features of SR that are independent of ST. Yet the property of proportionality, which, genetically, is at a lower level than distinctiveness, has gained a new status — not only in topography, but also in scientific and natural languages (analogies in grammatical systems).

Given these introductory remarks, outlining the topography of linguistic signs in semiotics, we can turn to natural language signs.

### **Linguistic sign**

So far, we have used wide-ranging terms "signifier" and "significate" while setting aside the fact that their meaning can vary depending on whether we understand signs in the abstract way or in accordance with 'mixed' conceptions of sign. If we assume, by and large, that in each sign we can distinguish two principal planes (the plane of signifiers and the plane of significates), then these descriptions (and this is particularly evident on the plane of significates) gain entirely distinct contents in the case of signifiers such as (a) <leprechaun>, <nymph>, <satyr> and in the case of signifiers

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<sup>17</sup>Cf. e.g. Ullmann's (1962) interpretation of Bloomfield's model.

of the type (b) <house>, <mountain>, <car>. In the former case it is only concepts (connotations) that can be significates of these signifiers, whereas in the latter case it will be both entities and the corresponding concepts. Let us begin with signifiers, which — due to their role in communication — must take a physical form (be perceptible) and correspond to something.

In each sign we can distinguish two planes — the external (physical) one and the internal (conceptual, mental) one. In order to function properly, a signifier needs to be not only recognizable but also identifiable as this particular signifier, which would be impossible without a reflection of a given signifier in the mind of a language user. The same is true, *mutatis mutandis*, of recognizing and identifying fragments of reality. The same mechanism is at work here. Thus on the plane of significates (for significates of the type (b)) we must distinguish two planes — external and internal (for significates of the type (a) there is only the internal plane).

The above concise discussion, which does not take into account the distinction between types and tokens, allows us to differentiate two principal elements of a sign — SR and ST, which in turn 'split'<sup>18</sup> into two further elements: SR into ESR (external signifier) and ISR (internal signifier), ST, by analogy, into EST and IST. These elements do not constitute an entity that could be identified in the external world, but at least three of them (ESR, ISR, IST) are indispensable in communication, while without the fourth one (EST), i.e. without reference, the communication could not be intersubjective. Even if we suppose, regardless, that some  $IST(x)$  can be explained by some  $IST(y)$ , which in turn can be explained by some other  $IST(n)$ , then at least some ISTs in this chain of internal links must refer to EST. Otherwise we would have to 'read' our interlocutor's mind.

In summation, we contend that the fact that there is a reflection of a signifier-substance in the human mind (ISR) allows a language user to single out the perceived segments and to produce such segments.<sup>19</sup> In this

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<sup>18</sup>Expressions such as "split into" and "consist of" in reference to signs ('composed of elements'), are metaphorical, since there is no such ontological item as an object *cum* its reflection or as an object *cum* its concept. Hence classical bilateral accounts exclude substance, while the human mind allows for a feedback between the signifier-concept and the referent-concept. In our view, this makes for the so-called internal sign by virtue of which there is an indirect relationship between the indicating object and the indicated one.

<sup>19</sup>This does not rule out producing segments of which the speaker has never heard. Yet we should bear in mind that production of phonic segments requires certain motor habits. This does not mean that sounds are not reproduced on the basis of recorded ISRs.

case, the mechanism of assimilating ESR is governed by the same laws as the mechanism of assimilating fragments of reality (EST). Fragments of reality are perceived and reflected by the mind of a rational being. One difference between SR and ST is that linguistic sounds and their division into segments are determined by a given language. By contrast, the division of reality is not given. Although it is regulated, to a considerable extent, by the vocabulary of a given language, it can also be autonomous.<sup>20</sup> The second difference between SR and ST consists in the fact that ESRs — in addition to being fragments of reality like e.g. other (non-linguistic) sounds — serve a symbolic function.<sup>21</sup>

We should assume, at least for the purposes of the first stage of our discussion, that the same mechanism is at work both on the plane of ST and on the plane of SR. We may speak of a unique relation between a physical substance and its reflection in mind, a relation which holds in both directions. Fragments of reality (including ESRs) are reflected in our minds and we are thereby in a position to re-identify these fragments. It is an analytic (perceptual) stance. For a synthetic, i.e. productive (with respect to SR), stance, it is important that on the basis of the reflection of a class  $x$ , produced in the mind by particular physical tokens belonging to  $x$ , a language user can produce new physical tokens of  $x$  (e.g. sounds).<sup>22</sup> Again, this feature is not characteristic of linguistic sounds alone, since — based on reflections of non-linguistic (non-symbolic) sounds, which arose in our minds — we can produce the same or similar non-linguistic signs.

If we denote the ESR *house* as  $\text{>house<}$  and its reflection in the mind (ISR) as  $\text{<house>}$ , then they stand in a relation which can be framed as follows:

$$\{\text{>house}_1\text{<}, \text{>house}_2\text{<}, \dots, \text{>house}_n\text{<}\} \leftrightarrow \text{<house>}$$

Sound tokens  $\{\text{>house}_1\text{<}, \text{>house}_2\text{<}, \dots, \text{>house}_n\text{<}\}$  produce in our minds a reflection of the class of sounds,  $\text{<house>}$ , which allows us to recognize any token  $\text{>house}_i\text{<}$ . The sign " $\leftrightarrow$ " denotes the natural (i.e. non-conventional, non-arbitrary) mutual connection between a fragment of reality and its reflection in the mind. The mutual character of the relation consists in the fact that the 'way' not only leads from the fragment of reality to its reflection but also — when we perceive and re-identify this fragment — from the

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<sup>20</sup>The vocabulary of a language, i.e. names established in the language (= signifiers), and the associated concepts, fix the division of reality into definite fragments.

<sup>21</sup>Few semiologists are aware of the similarity between ESR and EST or, to be more precise, of the similarity between the relation ESR:ISR and the relation EST:IST.

<sup>22</sup>Of course, this also applies, to some extent, to the reflection of EST, but the production of denotata is beyond the scope of linguistic investigations.

reflection to the fragment.

An analogous relation holds between a referent (a fragment of reality) of the name *house*, which we mark as  $\text{)house}^{\text{)}$ , and its reflection (IST), which we mark as  $\text{^house}$ . So the notation is similar to the notation for SR. The pointy and round signs whose tips or the points lying on the external part of the arch are directed towards the term between them ( $\text{>}a^{\text{<}}$ ,  $\text{^}a^{\text{^}}$ ), indicate objects, while the reverse signs ( $\text{<}a^{\text{>}}$ ,  $\text{^}(a)^{\text{^}}$ ) indicate the mental reflection of the objects (or simply the SR- or ST-concepts). The pointy signs also indicate that a given object and its mental reflection serve as SRs.

Zabrocki (1980) calls the reflection of reality in our minds *coding*, thereby diverging from the accepted meaning of this word.<sup>23</sup> Even if we accepted such a manner of speaking — that reality is coded in our minds — it would be a natural code.

We are aware that, so far, our account has been static. It is one thing to have a reflection (traces) of reality in the mind and another — to think. Still, we would not be inclined to make a far-fetched judgement that there is no thought without language (cf. Schaff 1960). We would be more tempted to accept Peirce's view that "whenever we think, we have present in the consciousness some feeling, image, conception, or other representation which serves as a sign" (Peirce 1931-35: 5.283). This means that a concept or representation of reality need not be accompanied by a 'concept' or 'representation' of a name which corresponds, but need not always correspond, to the given concept. Such an association of a concept (in this case — a reflection of a fragment of reality) with a concept, i.e. a reflection of its name, is indispensable in the process of communication. Yet it is not necessary for the process of thinking, albeit it can greatly facilitate, or hinder, thinking. Hindering would occur in situations in which we notice new elements in the object under investigation but we have an old network of connections imposed by the existing division of the object, fixed by the vocabulary of ordinary language (or the language of a given branch of science) — in such a case we must overcome the received divisions.

We would be dealing with just two planes, i.e. reality and its reflection, instead of four, if both groups — reality (including non-linguistic sounds) together with its reflection were not connected by a special relation with the naming group, i.e. sounds (and written marks) together with their reflection, as is presumably the case in the realm of animals, where mental

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<sup>23</sup>Presumably, Zabrocki's point is to preserve external terminological homogeneity, since — as a result — he is forced to use various expressions such as *kodowy*, *kodalny*, *akodalny* — in order to differentiate code in the strict sense from non-code.

reflections of most phenomena are not linked to any reflection of their names, since animals have no names for these phenomena. Still, they differentiate numerous objects and processes.

Yet we must immediately reject the claim that there is a direct relation between fragments of reality and linguistic sounds, which might seem to be implied by many superficial formulations such as "the word  $x$  refers to the designatum  $y$ ." A direct relation only holds between a reflection of reality (IST) and a reflection of a nominal sound (ISR), as it was put by de Saussure and Hjelmslev, who focused on the internal (mental) side of sign. The four planes of sign introduced above can be set out in the following way:

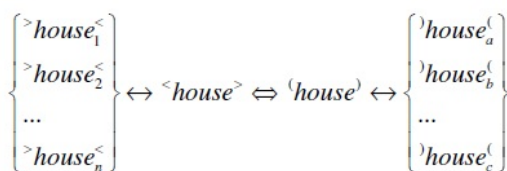


Figure 2. Four planes of sign.<sup>24</sup>

The sign " $\Leftrightarrow$ " denotes the feedback between the concept of the word,  $<house>$ , and the concept of the object,  $(house)$ .<sup>25</sup> This means that these concepts can evoke in each other our consciousness. Using " $\Leftrightarrow$ " instead of " $\leftrightarrow$ " stresses that we are talking about an arbitrary connection, that the feedback between these two concepts within one sign is accidental.

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<sup>24</sup>The change of indices to  $a, b, c$  has been introduced so as not to suggest that there is a correspondence between  $>house_1^<$  and  $)house_1^{(}$  and so forth.

<sup>25</sup>So far we have used the phrases "reflection of the word" etc. and "reflection of the object" (of the referent), which might suggest that we have in mind a 'simple reflection' of a fragment of reality in our mind. The term "concept" is supposed to emphasize that we are talking about a mental reflection; we use the term "concept" generally, i.e. it can refer both to ISR and IST, as well as to 'thought' which fails to refer to EST (an imaginary concept). Furthermore, a concept of a fragment of reality (or an imaginary concept) can exist whether or not it has a name. Any concepts linked to concepts of a name (having a name) are meanings.

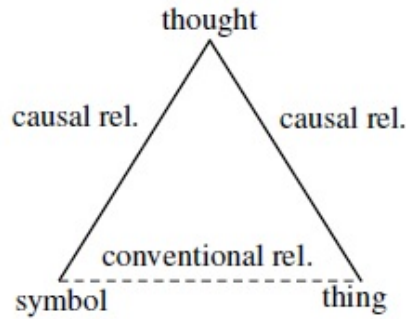


Figure 3. The semiotic triangle.<sup>26</sup>

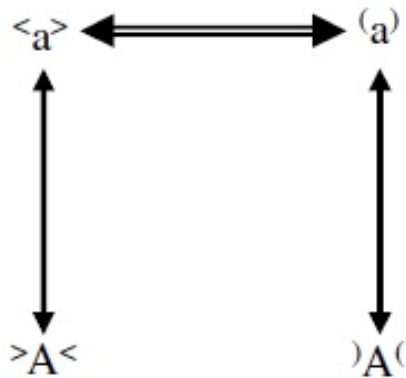


Figure 4. Our account of sign.

In theory, each of these elements can be replaced with a different one, that is to say, an object can receive a different name, and its original name could refer to a different object.

<sup>26</sup>A threefold sign is presented differently by different authors. In Figure 3, we show the semiotic triangle of Richard and Ogden (1923) with relations assumed in their work. Figure 4 provides a diagram of our account of sign in the form of a square (>A< denotes all actualizations of <a>, while )A(— all denotata of (a)). Setting aside differences concerning relations, (a) corresponds to a 'thought' (concept), whereas 'symbol' is divided into two elements — >A< and <a>. The lack of any link between >A< and )A(, i.e. between a physical signifier and a denotatum highlights the fact that there is no direct connection between them. Such a connection is called 'convention' or 'naming' — it is in virtue of naming that one establishes an indirect relation between >A< and )A(.

Accordingly, the whole sign relation contains four elements.<sup>27</sup> De Saussure's and Hjelmslev's theory emphasized the bilateral nature of signs, i.e. the internal feedback between ISR and IST, but both authors failed to entirely avoid incidental, or not incidental, 'asides' concerning external (substantial) elements of a sign. One might risk the hypothesis that it was not their intention to absolutely eliminate the external planes of sign; rather, they wished to indicate that a linguist should not be concerned with the whole physical (substantial) aspect of a sign. Thus the objection raised by Zawadowski (1966: 33) against de Saussure's theory, to the effect that it is characterized by a radical psychologism, seems wrong. De Saussure simply concentrates on the internal, mental side of signs.

Zawadowski's neopositivist theory can be regarded as a radical reaction to De Saussure's 'psychologism'. The theory avoids psychologisation by stressing the external elements of a sign: Text and Reality to which this text refers. Let us quote a passage which is typical of his account of linguistic sign:

Language is a set of classes of textual elements (*T*) serving to communicate extratextual fragments (*R*). Communicating consists in allowing the hearer to come to know extratextual fragments by virtue of the conventional relation between *T* and *R*. (Zawadowski 1966: 27)

To be more precise, let us add that the communicational function is performed:

not by the whole textual element (sign) but by a bundle of properties that only includes properties shared by all tokens of a given class of signs. We have called such a bundle *meanterial* [*znaczywo*] or a functional complex. Correspondingly, [the communicational function] is carried out not with respect to the whole designatum but only with respect to a bundle of properties shared by all tokens of a given class of designata. We have labelled this bundle *meaning* of the textual element which communicates it. (Zawadowski 1966: 131)

What we call internal sign (the feedback between ISR and IST),<sup>28</sup>

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<sup>27</sup>Our fourfold account of signs resembles Guiraud's definition: "A sign is a stimulus — that is, a perceptible substance — the mental image of which is associated in our minds with that of another stimulus. The function of the former stimulus is to evoke the latter with a view to communication" (Guiraud 1975: 22). Nevertheless, the division into form and substance, set out elsewhere in that work, and the placement of code (sign) in the schema of communication points to divergences from the above definition and from our conception of sign.

<sup>28</sup>A similar account can be found in Ziehen, who associates meaning not with words, but with images of words. This was rightly criticized by Zawadowski (1957), who observed that images associated with words are irrelevant to the study of meaning.



Zawadowski sees as the conventional connection between classes  $T$  and  $R$  (between the functional mass  $T$  and the functional mass  $R$ ). Such a model allows Zawadowski to exclude human psychology from the discussion about sign. It resurfaces, however, in formulations such as: "knows the correlation between  $T$  and  $R$ ," "fixing the relation between  $R$  and  $T$  in memory," and the like.

Zawadowski's sign is concrete. This is attested by passages in which the author says that the conventional connection between classes  $T$  and  $R$  holds distributively between particular tokens of  $T$ -classes and  $R$ -classes. Each token of a  $T$ - or  $R$ -class actually exemplifies the properties of this class. He disregards, however, the fact that a token of a  $T$ -class can refer to an  $R$ -class, not necessarily understood numerically. In comparison with Hejlslev's notion of sign, Zawadowski's account amounts to reversing the proportion between the concrete and abstract conception of sign. Of course, both are reasonable, but one should restore appropriate proportions in both cases. Avoiding the description of internal planes of the linguistic sign neither makes it non-existent nor denies that it is between them that the feedback occurs — the feedback between two internal elements of a sign; which in turn makes for the indirect relation between ESR and EST.<sup>29</sup> Neither the textual fragment  $\text{>house<}$  nor its reflection  $\text{<house>}$  mean anything in their own right — rather,  $\text{<house>}$  is just linked to the reflection (concept)  $\text{(house)}$ , and so we can say — albeit imprecisely — that  $\text{>house<}$ , or  $\text{<house>}$ , means  $\text{(house)}$  (or refers to  $\text{)house(}$ ).

We cannot claim, of course, that the neopositivist approach to the study of language (which only trusts things that are perceivable by the senses) must be rejected as a whole and that it yielded no positive results — especially regarding the process of learning an unknown language. For one thing, in natural languages there are analogies in virtue of which one can draw on the structure of ESR in order to say something about the structure of IST. Yet such reconstructions are thwarted by anomalies present in natural languages. Each reading of a text involves putting forward a hypothesis that, in the minds of people who use these texts, there was, or is, a feedback between  $\text{<a>}$  and  $\text{(a)}$ .

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Still, once freed from individual images inherited from psychologism, Ziehen's account deserves attention.

<sup>29</sup>One may further object to Zawadowski's theory that it is confined to signs with a concrete reference and fails to account for signs which lack it. The example of a siren, discussed by Zawadowski, apparently contradicts this observation, but we are still talking about a nonexistent 'compound' made of two concrete objects.

In every system of signs at least some signs must form an ordered quadruple  $\langle \text{ESR}, \text{ISR}, \text{IST}, \text{EST} \rangle$  — otherwise, sign systems would lack a social character. It is a necessary condition both of using signs and of learning the signs used in a given linguistic community. Yet the most frequent cases of sign usage in the process of communication follow the pattern:

$$(\text{Com}) \text{ MS: } (a) \rightarrow \langle a \rangle \rightarrow \rangle a_i \langle \rightarrow \text{MR: } \langle a \rangle \rightarrow (a),$$

that is, employing IST ( $(a)$ ) to the exclusion of EST ( $\langle a \rangle$ ), but not without ESR ( $\rangle a \langle$ ). In what follows we will consider signs in isolation from a communicational situation, i.e. in isolation from a concrete exchange, so we will no doubt frequently encounter signs forming an ordered triple, namely  $\rangle A \langle \leftrightarrow \langle a \rangle \Leftrightarrow (a)$ ; note that the lack of  $(A)$  might stem from the *lack* of a designatum, as is the case with the lack of the denotatum  $\rangle \text{leprechaun} \langle$ .

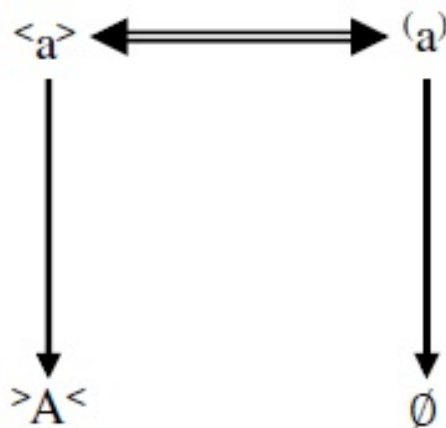


Figure 5. The unacceptable schema of a sign without a denotatum.<sup>30</sup>

<sup>30</sup>A schema of a threefold sign (without a denotatum) is illustrated by Figure 5. Yet it is unacceptable, since  $\rangle \text{leprechaun} \langle$ ,  $\rangle \text{werewolf} \langle$ , etc. were not formed through the contact with a denotatum. They might have been formed by means of a broadly understood definition (d) of a given notion; which is illustrated by Figure 6. If we substitute  $\rangle A \langle$  for  $\emptyset$ , the schema will apply to a situation in which MR (or MS) had 'access' to an actually existing denotatum. In Figure 5,  $\rangle A \langle$ ,  $\langle a \rangle$ , and  $(a)$  can be replaced with  $\rangle D \langle$ ,  $\langle d \rangle$ , and  $(d)$ , respectively, if  $(a)$  only has a descriptive name (a broadly understood definition) instead of a 'single' one;  $\emptyset$  can be replaced with  $\rangle D \langle$ , if  $(d)$  refers to an actual fragment of reality.

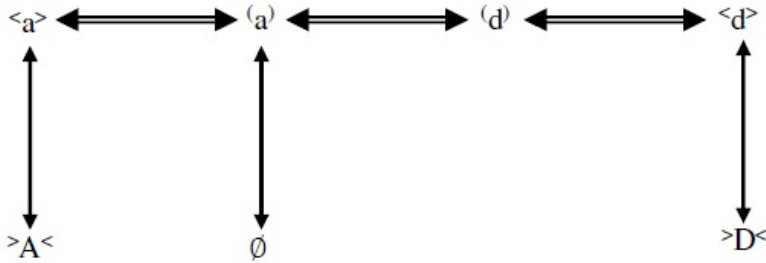


Figure 6. A sign without a denotatum.

Still, the concept (leprechaun) does exist. In other situations there might only be a conviction that )A( exists, as is the case with some beliefs. Consider the local saying (a rainbow drinks water) [*tęcza pije wodę*]: those who utter the sentence /ə 'reɪnbəʊ drɪŋks 'wɔ:tə/, usually believe that it has a reference, )a rainbow drinks water(. In the case of meanings such as (love), (anger), (friendship), (gravity), (force), we are talking about a classical ordered quadruple — yet the reference should not be understood materially here, but really, in this case as specific relations between objects (some of them with an emotional tinge).

The ordered triple  $\text{>A<} \leftrightarrow \text{<a>} \leftrightarrow \text{(a)}$  should not be confused with theories of threefold signs,<sup>31</sup> which are actually fourfold — their authors just omit the internal element of words, i.e. <a>.

Let us consider other theoretically (and practically) possible relations between sign elements, apart from the classical ordered quadruple or triple.

Communication by means of signs presupposes the existence of a bilateral sign, i.e.  $\text{<a>} \leftrightarrow \text{(a)}$  in the minds of MS and MR, but <a> must stand in the above-discussed relations to  $\text{>a<}$ , i.e.  $\text{>a<} \leftrightarrow \text{<a>}$ . If <a> could not be 'revealed' (actualized), there would be no communication.<sup>32</sup> The relation  $\text{(a)} \leftrightarrow \text{)a(}$ , i.e. the existence of EST, is dispensable; consider, for instance, (leprechaun) without )leprechaun(. Yet we must sharply distinguish the system of signs from a concrete act of communication in which the system's signs are deployed. There can be ordered triples  $\text{>a<} \leftrightarrow \text{<a>} \leftrightarrow \text{(a)}$  in a sign system without there being a relation  $\text{(a)} \leftrightarrow \text{)a(}$ , as is the case with the sign *leprechaun*.

There can also be ordered pairs of the type  $\text{)A(} \leftrightarrow \text{(a)}$ , i.e. a referent and its concept without a name (not communicable, of course). Also in the

<sup>31</sup>Such notions have survived since the time of Plato up to this day, cf. Lyons 1975: § 9.2.1; cf. above, n. 26.

<sup>32</sup>Communication will occur even if MR cannot actualize  $\text{>a<}$ ; it is enough that she can identify  $\text{>a}_i\text{<}$  with <a> and associate the latter with (a).

type  $\rangle A \langle \leftrightarrow \langle a \rangle$ , we are dealing with (often-heard) names, whose meaning, to put it simply, is unknown to us but we believe that they do have some meaning, which is attested by questions such as: what does "disambivalence" mean?

Communication processes usually fulfil the schema (*Com*) presented above. It is based on a systemic sign, and it is a side issue whether a given sign consists of three or four elements, that is, whether it has a referent perceivable by the senses. If so, then it is irrelevant whether the referent is present in the act of communication and whether it is perceived by the participants of communication (CP). The act of communication can only be performed due to the existence, in the minds of interlocutors, of a model of sign based on the ordered triple or quadruple.

At this point, we should head off some misconceptions about sign usage in a concrete situation, namely, that the linguistic content  $\langle a \rangle$  is just a mapping of a fragment of reality,  $\rangle a \langle$ ,<sup>33</sup> and so each act of expressing a linguistic content entails a renouncement of some features of reality. Such conclusions spring to mind if we juxtapose all possible real features  $\rangle a_i \langle$  with properties contained in the content  $\langle a \rangle$  expressed by means of  $\rangle a_j \langle \leftrightarrow \langle a \rangle$ . For example, I see  $\rangle a$  house on the hill $\langle$ , utter  $\rangle a$  'haus on d̄ə hil $\langle$ , and convey the meaning (there is a house on the hill). The meaning of this expression fails to include all individual properties of the house or the hill, nor does it fully specify the position of house with respect to the hill. Yet linguistic signs do not serve to express individual features of particular objects belonging to a given class. The content of a sign is grounded in a bundle of properties shared by all tokens of a given class whether or not these tokens are identical from the user's perspective.

From the point of view of natural languages, we should pose the question differently: can the content of a given expression refer to a given fragment of reality? The degree of detail offered by a representation of the fragment of reality is a separate issue altogether.

The model of sign described above,  $\rangle A \langle \leftrightarrow \langle a \rangle \Leftrightarrow \langle a \rangle \leftrightarrow \rangle A \langle$ , although necessary for communication, is not sufficient for the proper functioning of natural languages. It is a schema of communication employing non-systemic signs. Isolated SRs indicate isolated STs, e.g.  $\rangle$ scissors $\langle$  via the reflection (scissors) linked to the reflection (hairdressing salon) refers to  $\rangle$ a hairdressing salon $\langle$ . In order to avoid confusion and emphasize the symbolic character (SR) of  $\rangle$ scissors $\langle$ , below we put this expression in quotation marks. The

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<sup>33</sup>It is, so to speak, a topographic chart of reality.

model of this type of sign would look as follows:

)scissors( ↔ )(scissors) ↔ (hairdressing salon) ↔ )a hairdressing salon(

Without the feedback )(scissors) ↔ (hairdressing salon) the object )scissors( fails to serve as a sign.<sup>34</sup>

The above analysis of sign in the case of isolated signifiers and object-significates would strongly suggest that, contrary to existing views, isolated signs are possible.<sup>35</sup> We are far from endorsing structural immanentism, which (1) is committed to the realm of meanings (IST) as an autonomous product of the human mind, entirely separated from objective reality (EST), and (2) treats particular signs (IST) as a self-interpreting chain of signs (cf. Buczyńska-Garewicz 1975: 18—19), which allows each sign to be devoid of reference.

Many philosophers and linguists do not reject the idea of the mutual interpretation of signs, but it is Peirce's position that seems the most fertile. He believes that there is no sign outside of a system of signs, but there must be signs with reference (cf. Buczyńska-Garewicz 1975: chapter 1, Pelc 1980: *passim*). A positive impact of such positions, represented among others by de Saussure and Hjelmslev, upon the development of linguistics will be discussed elsewhere. Here, it is enough to point to Apresjan's *Lexical Semantics* (1992), where synonymy, i.e. mutual interpretation of linguistic signs, takes centre stage.

As for our stance in this debate, we agree with the prevailing view that natural languages consist of signs tied together into systems, yet this does not rule out the existence of isolated, ad hoc signs, outside of any system, albeit 'sharing' their content is usually dependent on another sign system.

Radical views in this regard stem from the fact that some epistemologists virtually equate language with epistemology. We look for suggestions as to the mechanics of natural languages in discussions of particular branches of natural languages, although they mostly fail to be incorporated into a model of communication or to be derived from it. There is a large gap

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<sup>34</sup>Let us return for a moment to the notation >house<, which is usually rendered as [house]. We are talking here about (1) a phonic magnitude (2) used as an ESR. But e.g. [babaracha] is not an equivalent of >babaracha< in our notation since >babaracha< fails to serve as ESR. Still, it can be rendered as )babaracha(, since it is a physical object, and so the notation "i" is, as it were, replaced with ") ("), i.e. a use of an object in the role of SR.

<sup>35</sup>We do not settle the issue of whether an isolated sign is possible; clearly, however, we can use isolated signs in communication — signs which belong to no specific sign system but could be translated into signs of a specific sign system.

between, on the one hand, semiotic accounts, which are usually confined to a description of isolated signs, and, on the other, e.g. a syntactic system, which is characterized in abstraction from the actual performance of the semiotic system. Remarks on the twofold structure of a linguistic sign barely contribute to this issue. We should rather take our cue from Bühler's (1990) and Milewski's (1973) discussions of the two-class character of signs, i.e. their syntactic and referential function.

A preliminary solution to the issue of the two-class nature of signs from the perspective of signifiers can be found in works by Zabrocki, who emphasizes that, given a certain type of analysis, non-substantiality may also apply to the phonic plane. Yet non-substantiality is a relative notion: according to Zabrocki it includes e.g. syntagmatic properties. Since *phones* — based on the contrast between phonetic properties of neighbouring sounds — are syntagmatic in nature, Zabrocki does not consider them as fully substantial units (1980: 75—100). We can speak of a substance only with regard to the physiological mass and its acoustic properties (1980: 52—74). By contrast, features resulting from various configurations of sounds, juxtapositions (i.e. relations between sounds) are, for Zabrocki, non-substantial.

We might put this another way: what is inferred from the syntagmatic system of sounds or from their paradigmatic relations is more or less non-substantial.<sup>36</sup> According to Zabrocki (1980: 35—39), functional properties of sounds present in divisions (of a string of sounds) determined by the plane of significates are non-substantial. In any case, applying such a division to the plane of signifiers reveals the complex, multi-layered structure of natural languages, entangled in manifold connections. Nonetheless, the lack of contrast with respect to a distinctive characteristic on the syntagmatic axis between actualizations of such and such phonemes does not amount to losing this characteristic. For instance, the lack of the contrast in the voicedness between phonemes in the word (*dvur*), in which all phonemes are voiced, does not mean that each of those phonemes loses the distinctive property of voicedness. It is true that on the syntagmatic axis (within a sequence) they differ with respect to other distinctive properties and do not contrast with regard to voicedness; yet voicedness, on the paradigmatic axis (i.e. juxtaposed with other sequences), retains its relevance. It is clearly shown by the comparison of sequences /*dvur*/ and /*tfur*/, where /*dv*/ and

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<sup>36</sup>We are talking about a certain degree of substantiality and non-substantiality. The point is that in various juxtapositions not all substantial properties are relevant, i.e. only selected substantial properties are employed, while specific relations between substantial elements are treated as non-substantial.

/tf/ contrast exclusively with respect to voicedness. So one cannot infer from the fact that neighbouring sounds share a property that it is neutralized and hence — substantial (Zabrocki 1980: 35—39). Thus, although we disagree with Zabrocki in details, it must be stressed that his study clearly shows — which was only a postulate in Hejlslev's works — that a 'simple'<sup>37</sup> reflection of a signifier-substance in the human mind, in the case of natural language, does not serve as the internal element of the signifier (ISR).

The positions of Zabrocki (who distinguishes non-substantial and substantial features in the plane of signifiers) and Ebeling (who distinguishes features of reality reflected in the mind from linguistic features constituting, as it were, a selection of those features (Ebeling 1978: 6 and ff., 106) make it necessary to consider potential differences which exist, or might exist, between a 'simple' reflection of reality in our minds and its linguistic character (linguistic structure of a given reflection). We are talking about seemingly trivial questions, e.g. whether the linguistic content ('table') can be equated with the mental reflection of common properties of the set of objects (tokens) 'table'; in short — whether the linguistic ('table') is identical with the real ('table'). Second question: is the class of sounds <a><sup>38</sup> identical with the phoneme /a/?

It seems that the linguistic structure of the phoneme /a/ in a given language differs from <a> regarded as the complex of all properties shared by the set of sounds >a<sub>1</sub><, >a<sub>2</sub><, ..., >a<sub>n</sub><. Properties of the phoneme /a/ differ from the properties of the class of sounds <a>. They are either weakened (reduced) or reinforced (brought out) with respect to the characteristics of <a>. Yet the reinforcement cannot go beyond the scope of the properties common to <a>. The point is that a barely perceivable property may be brought into sharp relief. For instance, differentiation within the sequence /c/:/č/:/ć/ in the Polish language, especially when it comes to the differences between /č/ and /ć/, is hard to grasp for non-Poles. On the other hand, as regards reductions of properties, it can be shown experimentally that many non-distinctive properties fail to be registered by language users.<sup>39</sup>

Above, we have presented sign as an ordered quadruple in which the 'word' (signifier) is also divided into a referent and a concept, albeit serving as signifiers. In Ebeling's *Syntax and Semantics* (1978) sign is an ordered sextuple  $\langle \alpha, a, "p", "f", W, |f| \rangle$ , where  $\alpha$  = a phonic sequence,  $a$  = phonological attributes, "p" = linguistic meaning, "f" = linguistic property,  $W$  =

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<sup>37</sup>I.e. based on sense perception alone.

<sup>39</sup>Another aspect of the same issue concerns perception of strings of sounds uttered in a foreign language through one's own phonological system,

a fragment of reality (actual or imagined),  $|f|$  = a feature of reality. Actually, however, it amounts to four elements, since semantic properties " $|f|$ " are part of the linguistic meaning " $p$ ",<sup>40</sup> and the features of reality  $|f|$  are part of (a fragment of)  $W$ .<sup>41</sup> As can be inferred from the sections of Ebeling's study dedicated to semantic properties and features of reality (1978: 108), features of reality cannot be completely equated with linguistic properties.

It is an exceptionally complex problem. A solution depends, to a large extent, on the particular area of reality and the area of linguistic meanings which interest us.

Imagine all possible common properties of all tokens  $\langle table_1 \rangle$ ,  $\langle table_2 \rangle$ , ...,  $\langle table_n \rangle$ . Now let us pose the following questions: are they part of the linguistic meaning  $\langle table \rangle$ ? Are there differences like in the case of juxtaposing a class of sounds with a phoneme corresponding to the same set of sounds? In our view, as regards names of multiple objects, the meaning of these names is a reflection of all properties shared by particular tokens belonging to a given class. A given concept (reflection) of the class  $\langle table \rangle$  is phonologically assigned a reflection of the name  $\langle table \rangle$ . It is another thing to define these properties — such a specification is difficult, if not impossible, since various language users identify the same objects by means of different properties. This may, but need not, lead to the situation where the same name would have distinct extensions for different language users. It depends crucially on the network of related conceptual roles, which, on the one hand, is dependent on the division of a given fragment of reality (e.g. the conceptual field of furniture is divided into particular sections according to shape and function) and, on the other — the assignment of specific names. For instance, a piece of furniture nowadays called  $\langle ława \rangle$  in Polish due to its shape similar to a bench [*ławka*] can also be called  $\langle table \rangle$  in virtue of its functions, not only by someone who is unfamiliar with its new name.

Ebeling does not equate features of a given fragment of reality represented in our minds with semantic (linguistic) properties corresponding to this fragment. He believes that properties of reality are innumerable, while semantic properties are actually countable but unknown at the early stages of semantic analysis (Ebeling 1978: 108). Yet this general way of posing the problem conceals multiple complex and intricate issues.

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<sup>40</sup>In a similar vein, I have distinguished a semantic structure (SS) in the content of expression (Piernikarski 1978: 167—177).

<sup>41</sup>There is an apparent lack of symmetry at the formal side of sign, where only two elements are present; yet  $a$  is a phonological record whose particular units are made up of distinctive features.



The first cluster of issues concerns, in general terms, the lack of a full correspondence between the meaning of a linguistic sign and all possible interpretations of fragments of reality to which we might refer the linguistic meaning of a given name or a given linguistic expression. We can distinguish at least three aspects of this issue.

1) One of them was discussed above, when we contrasted the systemic meaning of a sign with its concrete usage.

2) The second aspect concerns the meaning of lexemes with substantial reference, such as (table), (house), etc., which could hardly be assigned a linguistic meaning distinct from the 'real' one.<sup>42</sup> The reflection (table), left in our minds by *n* tokens of )table(, was assigned a reflection of the corresponding name — <table>. And it is difficult to imagine that a user of the English language should accommodate two opposite concepts (table), one linguistic and the other non-linguistic.<sup>43</sup> For instance, it is not implausible to assume that water means something else to a chemist than to an 'ordinary' language user. Either way, the point is about the factor responsible for the meaning expressed in the *ordinary* usage.<sup>44</sup> So in this case )water( would belong to two separate languages — an ordinary language *O* and the language of chemistry *C*.

3) The Dutch sentence *Kinderen spelen op straat*, which is subject to Ebeling's logical interpretation and is assigned three values: (1) (there are children playing in the street), (2) (it is true for all children that their playing ground is in the street), (3) (it is true for all children that, if they are in the street, they play) (Ebeling 1978: 7), has just one unspecified linguistic meaning and as such can cover all situations (without specification) corresponding to logical interpretations.

Hypothetical discussions of separate extensions of a given name must amount to specifying the language, or, to be more precise, the functional style (variety), in which a given name in the given sense has been used. By way of illustration, in ordinary Polish language, *wymijać* [*to pass*] does not specify the direction of two moving objects or whether one of them is immobile; so it encompasses what the language of the Polish traffic code describes by means of three expressions: *wyprzedzać* [*to overtake a vehicle moving in the same direction*], *wymijać* [*to pass a vehicle moving in the*

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<sup>42</sup>In accordance with the actual state of affairs — independently of the linguistic meaning.

<sup>43</sup>Ebeling discusses the discrepancy between linguistic and non-linguistic meanings by considering meanings of sentences instead of meanings of isolated lexemes.

<sup>44</sup>Both a child and an astronomer use the expression *sunset* in the sense )sunset(.

opposite direction], and *omijać* [to get past a stationary vehicle]. But again, this does not mean that in the language of the traffic code *wyprzedzać* has two distinct meanings — a linguistic one and a real one. We are merely talking about a different division of what is rather imprecisely called a conceptual field.

We do not completely deny de Saussure's observations, taken to extremes by Hjelmslev, that the 'shapeless conceptual mass' owes its structure to the linguistic form. Yet we do not wholly agree with such statements either. Some facts, due to such and such nature of sense perception, are, so to speak, predestined to such and such classification, e.g. *giraffe*, *elephant*, *sun*,<sup>45</sup> although eventually it is cognition, rather than simple sensation, that serves as the decisive factor.

In our opinion, marking out a fragment of reality — *pace* some linguists (and a few philosophers) — is prior to the first use of a name. Only an already (individually or socially) discriminated fragment stands in need of vocabulary. On the other hand, in learning a language of a given linguistic community we accept certain divisions of reality together with the corresponding vocabulary.<sup>46</sup> Not only in science but also in everyday life, we keep dividing reality or give different names to already separated fragments. For instance, introduction of the phrase *relaks* [*relaxation*] (to the Polish language), whose semantic scope differs from semantic scopes of *odpoczynek* [*rest*] and *odprężenie* [*stress relief*] amounts to a combination of the latter two semantic scopes. Even the emergence of a concept of a class which arises by virtue of recording in our mind a reflection of particular tokens characterized by the same collection of properties, need not be preceded by naming this class or a given set of tokens (exemplifying common properties). It is easy to imagine a situation in which we recognize specimens of flowers belonging to the same class though we do not know their name (nor create one for our own use). The emergence of a concept of a given fragment of reality enables identification of this fragment, if we encounter it again, i.e. when it is accessible to our perception. The emergence of a concept of a class enables identification of particular tokens of this class.

Marking out concepts is prior to vocabulary. The lack of names<sup>47</sup> might

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<sup>45</sup>This does not rule out concepts such as (kitty), which, in addition to the meaning (cat), expresses an emotional attitude to the referent )cat(.

<sup>46</sup>The problem is linked to the linguistic relativism (Whorf 1956). Does natural language impose a definite picture of reality on their users? An answer to this question would revolve around divergences between 'epistemologico-ontological' and grammatical categories. I tackle this issue in (Piernikarski 1969: 16—17).

<sup>47</sup>This kind of discussion is only possible in reference to an individual, since con-

contribute to the increased vagueness of boundaries between concepts in some conceptual fields;<sup>48</sup> which often cannot be remedied even by a vocabulary.

The second aspect of the issue which can lead to the conviction (of some linguists) that the real content (reflection of reality in our minds) differs from the linguistic content stems from a false interpretation of the difference between the so-called denotational meaning (referring to a situation) and the significative meaning (the mode of presenting a given situation). *Buy* and *sell*, for instance, allegedly have the same denotational meaning but differ in their significative meaning.<sup>49</sup> In both cases we are dealing with distinct denotational and significative meanings — which correspond to one another. The issue of denotational meaning which is, as it were, common to both significative meanings calls for an explanation.<sup>50</sup> Yet we must not forget that some real facts are perceived by people in different observational positions, and so the same fact is projected from different perspectives, which is reflected in the consciousness of members of a given community and receives a suitable vocabulary.

Perhaps we excessively emphasize the priority of conceptual division and the division of reality with respect to vocabulary. Yet this is just a firm reaction to the view that language forms the shapeless conceptual form. Language, or more precisely — names linked to concepts of a given fragment of reality, reinforce divisions of reality which are, so to speak, imposed on a given community.<sup>51</sup>

The third cluster of issues amounts to transferring the issues of the first cluster to the plane of grammatical categories, where the problem of discrepancy between the real meaning and the linguistic one is brought into sharp relief. The problem has not been fully solved since the time of

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cepts without a name (or its equivalent, e.g. gesture) cannot be conveyed to others.

<sup>48</sup>Boundaries would not be, and are not, blurred in cases where they are sharply drawn by nature and clearly separated in our perception, e.g. (elephant), (giraffe), and the like.

<sup>49</sup>This account is also applied to the opposition *activum*—*passivum*, e.g. *John wrote a book* — *A book was written by John*.

<sup>50</sup>We elaborate on this topic in our semantic syntax (in preparation), where we speak shared 'topographical' meanings, as opposed to 'perspectival' meanings.

<sup>51</sup>On the other hand, also against widespread ideas, we maintain that it is not the context that establishes a new meaning but it is the sender of a message that uses an 'old' name in a new meaning and in a context suitable for this 'new' meaning. Obviously, context can help decode this speaker meaning. In special cases, context can be 'imbued' with the meaning of its own context. Consider *popęłnić powieść* [*to perpetrate a novel*], where *popęłnić*, due to its occurrence in contexts with negative semantic tinge, can display the negative meaning even in neutral or positive contexts.

Aristotle. Does the same concept (white-), expressed — on the one hand — by means of the class *Adi* (white), and — on the other — by means of the class *Sbv* (whiteness), (1) make for two distinct linguistic meanings or are we dealing with two syntactic functions of the same concept? (2) Does the real meaning differ from the linguistic meaning in the case of (whiteness), whereas there is no such difference in the case of *Adi* (white)?<sup>52</sup>

The problem is brought to even sharper relief once we consider particular grammatical categories within a given NC,<sup>53</sup> e.g. gender, number, voice, tense, and so on, as well as such syntactic categories as subject, predicate, etc. We may also ask what it means that a verb governs the accusative — presumably no one will claim that we are dealing here with content rather than with form. Yet in the latter case it is reasonable to ask whether there is such a formal magnitude as <accusative>. If so, is it a non-substantial or a substantial 'reflection'? If we consider this issue in a broader context, we can pose the question: what is the relation between sign and the category of grammatical case?

We will discuss these matters in separate studies but in reference to the conception of sign set out here. The gist, in all the cases addressed above, is that the ordered sign-quadruple (>A<, <a>, (a), )A( ) becomes extremely complicated due to the complex network of relations, not just on the expression plane but also on the content plane. Since in what follows we are not going to deal with phonetic and phonological topics, we will confine ourselves — in order to close the above discussion — to general remarks in this regard.

We assume, in accordance with the line of thought presented so far, that (1) the class of sounds <x> is not to be equated with the phoneme /x/; (2) natural borders in sound sequences need not coincide with 'functional' boundaries; (3) 'functional' boundaries depend on the syntagmatic and paradigmatic structure of a given strings of sounds, while functional correlations cannot be reduced to mere proximity, i.e. to the fact that >x< takes place before >y< or after >y<; (4) these complicated systems give rise to a network of relations, which makes it impossible to assign certain physical elements to certain content-related (functional) elements — even at the phonological (not necessarily phonetic) level; (5) semantic surpluses or

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<sup>52</sup>Ebeling (1978: 188) has different semantic notations for (white) and (whiteness). Kuryłowicz (1960a: 41—50) takes a similar approach in his theory of primary and secondary linguistic functions.

<sup>53</sup>NC = nominal class (part of speech). We elaborate on this issue in our formal syntax (in preparation).

deficits in linguistic concepts with respect to real concepts call for separate discussion — we treat this topic extensively in our formal and semantic syntax (in preparation). Let us consider the last issue by focusing on a considerably abstract notion of grammatical case in Kuryłowicz's interpretation.

Formally, grammatical case is an obligatory complement of verbs — it can be actualized by all cases (with the exception of the nominative).

In functional terms, the notion of grammatical case would correspond, at the semantic level, to the necessity of complementing the relational content of a verb with an agent (actant). In formal (and to some extent — semantic) terms, the case is dependent on a given verb, but the case ending, which is the direct indicator of a given case, depends on the phonic form, meaning of the noun, or occasionally on the tradition. Consequently, notions from the formal plane such as, say, the accusative<sup>54</sup> — have a variety of actualizations.<sup>55</sup>

On the flip side, a formally individuated accusative — (1) as a necessary form in a given syntagmatic system (e.g. as governed by verbs), (2) as reactive to certain semantic, not syntagmatic, correlations (e.g. accusativus temporis) — does not fulfil just one function, whether formal or semantic. As a result, in the face of frequent syncretism of case endings, we need intricate knowledge about the textual elements and, every so often, about their reference, in order to determine the formal value of these elements. The adequate interpretation of functions of particular textual elements depends on familiarity with contents of some elements (e.g. *być dyrektorem* [to be a manager], *kierować samochodem* [to drive a car], *iść lasem* [to go through the forest], *pisać piórem* [to write in pen], *zachwycić się nocą* [to marvel at the night]). It seems impossible to build a formal grammar of a natural language that would not appeal — at least to some extent — to the knowledge of the meanings of some elements standing in formal relations.

### Final remarks

It was not the aim of this paper to discuss all issues associated with the theory of signs. Rather, we intended to present what we believe are the most controversial aspects of this topic. We emphasized phenomena which — if ignored or even partially neglected — may lead to misconceptions.

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<sup>54</sup>Concepts such as "accusative" belong to the metalanguage but are respected by language users whether or not they realize the existence of these concepts.

<sup>55</sup>In the Polish language these are:  $-\emptyset$  (null morpheme),  $-a$ ,  $-e$ , . . . ,  $-y$ ,  $-ów$ . We must not forget that some of these endings can appear after the same stem (in the same words) as indicators of different cases.

The most important thing, in our view, is to realize the fourfold character of linguistic signs. Phrases such as "word", "text" (= SR) are often ambiguous: various uses of these expressions may refer either to ESR, ISR, or to their connection (ESR  $\leftrightarrow$  ISR). Failure to distinguish them may lead to grave misunderstandings.<sup>56</sup> Even in a work by an exquisite linguist the word "text" is used in three senses on two successive pages: a) as SR, i.e. an external and internal signifier (= ESR  $\leftrightarrow$  ISR), (b) as ESR + ISR + IST,<sup>57</sup> c) as ESR. The distinction between internal and external elements of a sign terminates the controversy over the metaphysical status of sign — whether it is physical (concrete) or abstract by nature.

Assuming the fourfold sign allows us to consider its different, reduced forms. The threefold form (without EST), most frequent in the process of communication, is the most relevant one here. Some signs lack EST, but their communication value rests on translatability into classical fourfold signs.

In making the distinction between arbitrary signs and natural signs (indices), one often adduces facts (suitable criteria), which are not distinctively characteristic of indices but also accompany some arbitrary signs, which is illustrated by the diagram in Figure 1 and the corresponding examples.

Our account of sign also points to the need for a closer connection between the theory of sign and the research on particular branches of natural language.

The problem which has been touched upon in this article but requires a more thorough analysis is the relation between  $\langle a \rangle$  (the class of sound-tokens  $\langle a_1 \rangle, \langle a_2 \rangle, \dots, \langle a_n \rangle$ ) and the corresponding phoneme /a/, which is a class of the same sounds but considered from the perspective of the phonological system of a given natural language. A parallel issue concerns the relation between  $\langle a \rangle$ , regarded as an epistemological concept, and the corresponding linguistic meaning  $\langle a \rangle$  (we have not used a separate notation in this case) conceived of as part of the semantic structure of a given natural language.

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<sup>56</sup>In some studies on the philosophy of language ESR is treated as a constant, invariable element, whereas we are dealing here with different tokens with shared features, reflected in ISR.

<sup>57</sup>Text is occasionally described as a product of speech and thought.

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