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Elżbieta Wolicka MIMESIS – NOËTICS – RHETORIC. THE PLATONIC VISION OF THE ORIGINS OF LANGUAGE AND THE ART OF DISCOURSE

Originally published as "Mimetyka – noetyka – retoryka. W kręgu Platońskiej wizji pocztąków języka i sztuki wymowy," Studia Semiotyczne 14–15 (1986), 57–81. Translated by Julita Mastelarz.

It is no accident that ancient thinkers referred to 'the principle' and 'the beginning' using the same term – arché (Stróżewski 1977: 21-44). The search for arché – in both its meanings – constitutes the very foundations of philosophy.

"It is one of the most polysemantic philosophical terms, yet ambiguity is not always a flaw. A word which encompasses many meanings may sometimes be a more faithful representation of our primary experience than any term with a fixed designation. Precise terms are the result of applying strict rules that may not be oriented towards describing what is really given. What is more, the ambiguity of a term may inspire us to ponder on its origins, discovering hidden, intimate relations between the various meanings. Such links may prove to reflect the innermost connections within reality itself" (Stróżewski 1977: 22).

Understanding primary intentions – thoughts which shape concepts as they emerge – seems to be a condition *sine qua non* for grasping the fundamental, archetypical sense of the ideas that become the living word present throughout the history of human thought. Words often change their meaning with time, and yet they also carry some of its permanent nature rooted in archaic pre-understanding, which enables post-understanding – the continuity of intellectual tradition – regardless of the place, time, cultural background, the circumstances of the original utterance and the situation in which it is later received.

The Platonic concept of (representation), which governs the development of the world, thought, expression and creation, constitutes one of the typical examples of polysemantic terms in this philosophy of beginnings. It seems a worthy topic for consideration, if only due to the freshness of intuition of the intimate connections and innermost links, yet unspoilt by the verbalistic mannerisms of specialist language, which often develops into a hermetic jargon difficult to acquire or enliven. The communicativeness of Plato's vision has a further advantage. It refers to the deeply human tendency to graphically depict similarities and differences within the pre-discursive and pre-verbal stages of cognition. Plato's images do not serve to illustrate concepts or lines of thought; they are not secondary instruments of discourse, but touch on the roots of heuristic mental processes, also those which have currently acquired the fashionable label of 'semiosis'. This is the reason behind their continual applicability in studies that do not shy away from the so-called essential questions.

1 Cognition as Representation of Reality

Cognition $(gn \acute{osis})$ and its relation to truth $(al\acute{e}theia)$ are among the issues that merited a special place in Plato's dialogues. This is the main focus of ruminations on the source and subject of knowledge, its credibility, exactness and clarity, as well as on the means and ends of acquiring and conveying information. Hermeneutics – the art of expressing and interpreting cognition through language and mimetic creation – also falls within the scope of these issues.

Plato's views on the nature of cognition underwent significant changes (Halevy 1896, Comford 1935, Robin 1957, Gulley 1962, Runciman 1962, Mathews 1972, Taylor 1976). As a successor of Parmenidean ontic, Plato assumed that being and thought are essentially one and the same (Gilson 1963: 20–40).¹ However, from the very beginning this assumption is juxta-

¹Throughout the present article the terms 'ontic' and 'noëtics' are used to signify 'the study of being', 'the study of cognition', in order to emphasise the distinctiveness of Platonic doctrine with regard to 'ontology' and 'gnoseology' or 'epistemology' which in later philosophical doctrines acquired a systematic nature in the form of a logically structured theory of being and cognition. Despite the coherence of his vision, Plato did not build a theoretical system. The mention of myths in explanations of philosophical problems as well as the aporetic nature of the analyses indicate that Plato approached his own thought with an open and critical mind. It suggests a kind of methodical

posed with a rich and colourful image of the world, where 'that which is immovably the same' mingles with things 'so conditioned as both to be and not to be' (*Timaeus* 28A, *The Republic* 477A). As a result of this collision of philosophical assumptions and intuitive notions, the monistic categories as defined by Eleatics crumble. Plato creates subcategories – he distinguishes between various stages of being and cognition, which differ with regard to the solidity of being and credibility of cognition.

Initially, Plato made a clear distinction between a true, justified, necessary and exact belief (*epistéme*) from an inexact, approximate and uncertain conjecture (*dóxa*) which is acquired by means of the senses (*aisthésis*), pertains mainly to changeable phenomena (*fainómena*) and is practically oriented (*Protagoras, Meno, Theaethetus*). Platonic aesthetics is a realm of passive experience (*páthema*), sensations, emotional states, moods and dispositions dependent on impulses and external conditions; the domain of physical agitations that are inspired by external factors and make the soul err and lose focus, since sensual urges it succumbs to are often delusive (See: *Phaedo* 79C). Aesthetics is therefore opposed by noëtics, the realm of inner auto-movement of the soul, activity limited to the virtual motion of the conscious mind (*noús*).

Here the soul may come into contact with that which is identical, unchanging and permanent, thus gaining knowledge, reason and wisdom (*epistéme*, *frónesis*, $sof\iota a$). These are things fundamentally different from sensations and opinions (*Theaetetus* 210A-B, where at the end of the dialogue Socrates refutes the Protagorean thesis, which resembles the doctrine of Heraclitus and Empedocles in its assumption that there is no knowledge but sensation).

Later, however, Plato begins to argue that conjectures may in some respects resemble truths and lead to knowledge, and therefore that cognition may undergo development, while the discovery of the semblance of truth is an important stage in this process (*The Republic, Sophist, Phaedo, Phaedrus, Timaeus*). He places an intermediary domain (*metaxý*) between knowledge and ignorance.

Conjecture is less clear than knowledge, but has more clarity than ignorance – it pertains to what seems both to be and not to be (*The Republic* 478D-E). The condition for veracious conjecture (*orthé dóxa*) is the dialectic method, which starts from hypotheses and arrives at principles (*arché*) and is corroborated by them. In this ascent (*anagogé*) many types

doubt and a poetic ease of expression, as well as the habit of questioning his own vision.

of lore and skills are used – most notably mathematics and geometry – which are not yet knowledge *sensu stricto*, but lead to it. Thus they steer the eye of the soul (psychés ómma) ever upwards, lifting cognition beyond notions (*eikasía*), convictions (*pístis*), through discursive thinking (*dianoia*) to knowledge (epistéme). The first two forms of cognition fall within the scope of conjecture $(d \delta x a)$ and refer to what is born or becomes, whereas the latter two encompass a purely mental awareness of essence (ousia). The relation between the essence and that which is born is analogous to that between awareness and conjectures, while the relation between awareness and conjectures mirrors the link between knowledge and discursive thinking, or conviction and notion (*The Republic* 533C-534A). Understanding must begin from sensations and notions, as it counts among the actions of a soul trapped within a body. However, not every sensation has cognitive value and leads to knowledge. Not all experiences stir thoughts. Only sensations and notions containing a contradiction: both truth and falsehood, showing a thing together with its exact opposite, provoke thought and lift us upwards towards truth and essence (*The Republic* 523A-C).

The mutual interrelations of the domains of being correspond to the relations between different stages – levels – of cognition. They follow a mathematic model of proportional analogy:

Essence: that which is born: :awareness: conjecture

Knowledge: discursive thinking: :conviction: notion.

In his later works, Plato started to define the cognitive relations as THE RELATION OF PROPORTIONAL REPRESENTATION (*mímesis* – see: Sophist, Statesman, Philebus, The Republic VI and VII, Timaeus, Letter VII). Within the framework of ontics, this relation is analogous to DERIVATION with the formal and model nature of a being which is born – the representation – of a being which always and in every manner is – the idea-models (*The Republic*, book V). Within the framework of noëtics this is the relation of REPRESENTATION of a varying, gradable value of clarity, exactness, expressibility and semblance of truth of the image to the represented object.

This is the method Plato uses to radically weaken the Parmenidean treatment of the relation between thought and being – the object of thought – ascribing more and more importance to COGNITION THROUGH ANAL-OGY. The process, method and result of cognition are described by means of analogous relations. All formal and structural connections within the

framework of ontic and noëtics are explained in terms of representation. Both ontic and noëtics are based on the same logic of analogous relations. These connections are dynamic in nature; they are a motion, a process. In the domain of beings, representation takes the guise of a descendent relation: from an idea-model to a phenomenon-representation, whereas in the realm of cognition representation is an ascent: from the conjecture that has a semblance of truth to factual knowledge which is fixed and permanent. This relation may be depicted in the following model:

Factual being Ideas	Model	$^{\wedge}$ Truth
the relation of formal model	the relation of imaging	the relation of representation
changeable being	representation	semblance of truth
changeable being	representation	semblance of

In *Timaeus* (28A) Plato returns to the basic distinction between 'that which is existent always but has no becoming' and the conviction of 'that which becomes and perishes and is never really existent'. The former is encompassed by thought with the term $(met\acute{a} \ l\acute{o}gou)$,² the latter with a wordless conjecture $(\acute{aneu} \ l\acute{o}gou)$ which results from experience. That which becomes, must have a cause – which Plato understands mostly as a permanent and unchanging model $(par\acute{a}deigma)$ of what is changeable; *ergo* he sees it in

²The term *lógos* has many meanings in Plato's philosophy (Ast 1908, vol. II: 253n.). It may signify speech, a word, an utterance, a phrase, but also reason, conformity with the law of thought, a principle that determines external possibility (dýnamis) of cognition, action and production, e.g.: lógos erotikós (Phaedrus 262C, Symposium 172B), prospaídzon lógos (Phaedrus 262D), lógos diagénesis (Theaetetus 143C), lógos poetikós (Protagoras 317C, 34M; Phaedo 115D; Sophist 239D; Laws 778D), lógos pragmatikós (Laws 935A). Acting in accord with the logós is acting in line with the principle of spiritual harmony, modelled by divine actions (*Phaedo* 85D, 88D; Philebus 62A), which are juxtaposed e.g. with acting on whim (Politeia 382E). Lógos as a term or an utterance which signifies both speech and a written phrase (*Phaedrus* 275E, 277D), a linguistic symbol with an individual meaning (*Theaetus*, 148D, 194A; Cratylus 432C, Phaedro 241B; Phaedo 65D; Symposium 195D; Laws 757A; Gorgias 499C). It may also mean 'inner term' which originats from an inner auto-movement of the soul that transcends external acts: utterances, actions and conscious moves (Laws 895E, 964A; Theaetetus 201C; Phaedrus 245E; Phaedo 78C; Sophist 221B). Lógos gives them the mark of truth, justice and wisdom (*Phaedrus* 270C; *Timaeus* 28A, 38A, 52C; Phaedo, 73A The Republic 529D, 582E, 586D; Laws 689A-D; Sophist 239B; Philebus 43E).

⁹

the logical, and not in the genetic sense. The representation of a model is an image-likeness ($eik \acute{o}n$). The relation between an image and a model mirrors the one between semblance and truth. A term that refers to something constant, unchanging and expressed by thought should, if possible, contain the same attributes, as in the medium of truth. Expressing conjectures is always approximate, changeable and semi-overt, since it is the representation of a semblance of truth. Just as the world of that which is becoming is the ideal image of the model, so conjectures constitute the likeness of irrefutable and unquestionable terms. Terms and likenesses of terms are related to what they express (*Timaeus* 29B-C).

The relation of causal representation in the realm of being, which Plato refers to as the resemblance between the image and the model, is encrypted in the vision of spatial-temporal reality that changes, 'becomes and perishes'. The relatively constant elements of this reality, such as numbers and numerical relations, constitute the representation of permanent ideas and its likeness. The spatio-temporal circulation of the spheres of the Platonic universe corresponds to the motion of thought, which proceeds and projects various aspects of being in cognitive representations that differ in the degree of generality and necessity, exactness and semblance of truth.³ The domain of noëtics is a faithful representation of the realm of ontic. The concept of the circulation of 'the Soul of the Universe' described in *Timaeus* (36E-37C) may be considered as an ideal model for noëtics.

The circulation of the soul is the perfect model for cognition, to which the human mind must ascend through philosophical *paideia* and dialectic exercises. The level of utmost resemblance to the model is achieved through ascent, if the consciousness of the individual is able to comprehend the truth of 'the truly existing essence' (*ousía óntos oúsa – Phaedrus* 247C). In this horizontal revolution, in which the soul encounters sensual stimuli, the primary source of convictions and conjectures is perception. It is the nearest semblance-image of mental vision, which takes place in a vertical revolution of the soul and results in knowledge. Philosophy derives from the kinship (*koinoniá*) between the soul and that which invariably is, by becoming a word that – as much as it is possible – expresses being and announces truth. The predilection for wisdom is realised through the focus on being. The ability to perceive is therefore of the utmost importance to philosophers, as

³The analysis of mythological sources of Plato's cosmogony was presented by A. Olerund (1951). Unfortunately, the author of the present publication had no access to the classical commentary to *Timaeus* written by A. E. Taylor.

it naturally leads from seeing images to a mental comprehension of ideas.⁴

The affinity between visual and mental perception (see: Sophist 254B, Symposium 21A, Timaeus 47A) is among the principal stipulations of Platonic noëtics (The Republic, books VI and VII). Seeing is the very nature of cognition. Cognition is mimetic in character – it is a visual (image-like) or mental (abstract) projection and is externally expressed as a representation. The articulation of cognition happens by means of images that resemble truth and are based on a conjecture, or explorative images which lead to knowledge. Only from a purely mental perspective of idea-models can the object be clearly, distinctly and directly perceived. Conjectural vision uses a number of intermediary means: names (\acute{onoma}), words ($l\acute{ogos}$), images ($eik\acute{on}$), models ($sch\acute{ema}$) or terms ($noet\acute{on}$) – see: Letter VII.

Knowledge of ideas may be divided into two subcategories. The first is scientific, discursive knowledge (*máthesis*), which uses general concepts and names (definitions) that capture the constant and necessary nature (*fýsis*) of things. What Plato means here is mostly mathematical concepts, definitions and models, as the structure of the nature of the world is based on numerical relations. Knowledge that does not need any intermediary means and is achieved through direct perception of ideas also falls within this category. General representations – those which possess a general meaning– i.e. names, models and some images are somewhere between conjecture and knowledge. Their generality and necessity gives them a scientific nature, but, due to their individual definiteness as intermediary means, they only resemble actual

⁴The term '*idea*', which Plato uses so often, is equivalent to '*eidos*' and constitutes one of the key concepts in his philosophy. It is the nominal equivalent of the verbs 'idéin' and 'eídenai' - 'to see' or 'to know' (Ast 1908, vol. 1, p. 602n; vol. 2, p. 85n.). According to the etymology, one might translate 'idea' as 'vis': that which is 'visible' or 'visual'. Words that appear in colloquial Polish: widmo, zwid and widok ['phantom', 'phantasm' and 'view'] do not constitute good equivalents, as the first two terms suggest the illusory nature of that which is seen, while the third is too empirical in nature. The term 'idea', in turn, is a linguistic calque. Its meaning has become almost entirely intentional, whereas for Plato the term 'idea' has a real ontic quality. It is not easy to draw a clear line between a factual (ontic) and intentional (noëtic) understanding of Plato's ideas, since both these aspects are in an 'intimate relationship' of form and origin. Both languages constantly blend with each other. Another difficulty in translating Plato's categories into modern languages is the fact that he frequently used participles to create philosophical terms. Such was the case of the term 'being' – $\delta n tos \delta n$ – which ought to be translated literally as 'existing being' or 'existing existence'. Due to the conceptual link between this term and the word 'essence' - ousia, an expression signifying the highest form of being – the author of the present publication decided to translate the term as 'truly existing essence'.

truth.

The vertical movement of the soul results in the unification of the seer and the seen, on the basis of affinity. The soul's identification with that which is identical and eternal – since identity is the final stage of clarity – may only be achieved in a long process of constant communion and closeness to the object, the fruition of a cognitive effort in which the mind - the immortal and divine element of the soul – goes through successive levels of experience and reasoning, letting oneself be purified of that which is particular, accidental and diffuse. Finally, it reaches the unchanging truth and in a single, intuitive act of perception encompasses all, penetrating the truly existing essence. This vision transcends the boundaries of scientific and discursive knowledge; it constitutes a qualitative leap from dialectic, in which the progress takes place in stages, ascending from the level of sensory vision to changeless principles, with the help of representations differing in the degree of exactness, clarity and semblance of truth. The use of various means and instruments of reaching a clearer perception of truth must be methodically guided.⁵ The criterion of truth and the semblance of truth is

The stages of dialectic 'ascent' of cognition towards a perfect perception (contemplation) of ideas are interpreted differently by various commentators of Plato's work. According to A. J. Festugière (1936), dialectic cognition proceeds as follows: (1) preempirical existence of the soul, during which it perceives direct ideas – this state is the necessary condition for the later dialectic ascent to knowledge, which prepares the soul in the state of degenerated empirical (incarnate) existence to perceive ideas again, (2) the first dialectic operation which results in 'universals' of an ever higher degree of generality, until a specific and typical form is achieved (3) encompassing the being within oneself, (4) descent from the level of dialectics to the level of that which is indivisible, clear and distinct by means of two operations: distinguishing (*diaíresis*) and comparison (*synagogé*), (5) mental intuition (*nóesis*) of being depicted as unity within plurality. Festugière recognises two moments of dialectic cognition: *dianóesis* which encompasses stages two and four and *theoria* which takes place in stages one, three and five.

M. R. Schaerer (1938) divides the stages of cognition according to the element of

⁵Runciman, quoting Cornford, goes as far as to claim that Plato's entire framework of cognition is built on the concept of 'knowledge how', 'knowledge by acquaintance'. The various types of knowledge would then be distinguished on the basis of the means and instruments of arriving at the truth or the semblance of truth, and not on the theses pertaining to the ontologically grounded difference between various objects of 'knowledge that'. This view seems to be corroborated by the fact that Plato's gradual ontic is – according to Runciman – more like a methodological postulate than a theorem justified by rational argumentation. As he puts it, 'Plato's own ontology is, in fact, assumed, not proved' (1962: 20-29). He also claims that Plato was skeptical about his own theory of ideas. Similar conclusions, though by means of a different argumentation, were presented by Gulley.

based on the degree of similarity between the representation and the model. Mimetic likeness of the representation is the criterion for its credibility and the usefulness or validity of the intermediary means for naming and defining, the art of proper discourse and producing accurate models, image-likenesses and comparisons that facilitate perception of the nature of things and truth itself. Mimetic intermediary measures are included in one set of cognitive operators by virtue of their common function of representations that bring us closer to the truth.

2 The Mimetic Concept of Language

The issue of language is the sole focus of one of the most hermetic and inaccessible of Plato's dialogues – Cratylus, which discusses the problem of the accuracy of names (*onómaton orthótes*).⁶ At the beginning Plato describes the relativistic view of Cratylus, who claims that names are ascribed to things by nature, but nature is – according to Heraclitus' doctrine – changeable, inconstant *and* contradictory. Hermogenes enters into polemic with Cratylus and claims that the accuracy of names is conventional in nature – it depends on the agreement of the speakers. Socrates admits that the issue is a difficult one and that a 'semblance of truth' solution will have to suffice. He points out

Goldschmidt (1963) conducted an analysis of books VI and VII of *The Republic* and *Letter* VII. He offers a division of the stages in the dialectic process based on the method used: (1) cognition through image, (2) cognition through definition, (3) essential cognition, (4) certain and necessary knowledge.

⁶Some authors (e.g. A. E. Taylor 1956) perceive *Cratylus* as a kind of a dialectic play of words, a presentation of uncoordinated opinions Plato was yet to make up his mind about. Others perform a logical reconstruction of the dialogue, attempting to reach the epistemological grounds of the discussion between Hermogenes, Cratylus and Socrates and ascertain Plato's own viewpoint. Robinson, for example, (1955: 221-236) presents a dychotomous view, juxtaposing Hermogenes' opinion with that of Cratylus and Socrates. Allen (1954: 271-287), Lorenz and Mittelstrass (1967: 1-20), Weingartner (1970: 5-25), Berger (1970/71: 213-233) and Kretzman (1971: 126-138) claim that *Cratylus* presented three different approaches and interpreted Socrates' perspective as Platon's own. In their opinion Plato was attempting to find some middle ground between Cratylus' radical naturalism and Hermogenes' conventionalism. The latter interpretation, supported by most scholars, seems the most convincing and in line with the message of the dialogue.

clarity and distinctiveness (pragmatic perfection) of knowledge: (1) illusion – an untrue conjecture based on sensual experience and on the semblance of truth, (2) ignorance – the awareness of the contradiction between being and non-being, (3) understanding – the intuitive comprehension of the first and transcendent principle of identity – admonition of truth and revelation of good, (4) knowledge – the return to the visible object in the light of the paramount principle of identity.

that Hermogenes' conventionalist view also leads to the kind of relativism Protagoras revealed by claiming that 'man is the measure of all things' and that reality is just as it seems to everyone. Yet, if every particular user of language could decide how things are to be *named*, the issue of correctness or truth and lies could not be discussed and each usage would be equally accurate.

At first, Plato probes the strength of Cratylus' naturalistic argumentation. Every action ($pr\acute{a}ksis$) falls within the scope of the natural order of things, and thus is, by nature, accurate. If it is not done accurately, it does not produce the accurate intended result. The speech-language ($l\acute{e}ksis$) is a kind of action, so it must also be subject to specific rules of natural accuracy.⁷ Each person perceives a given thing differently and that no object is the same for everybody, but it does not mean that objects are divided into the manifold images we produce. Finding a solution to the problem of names requires us to acknowledge that things of which we speak possess a fixed essence adequate to its nature. This assumption stems from the obvious fact that speech-language pertains to objects and that the sensibility and the truth or un-truth of utterances is verified by referring to the object which is being spoken of.

Naming is an action $(pr\acute{a}ksis)$ that concentrates on objects $(per\acute{a}ta pr\acute{a}gmata)$. The name – the smallest unit of speech with an independent meaning, composed of sounds and syllables or letters of script – is the means $(\acute{o}rganon)$ used. The aim of naming is to CATEGORISE OBJECTS $(d\acute{a}krisis)$ according to their nature and to EDUCATE $(diaskali\acute{a})$. A user of names should be called a teacher, such as the person who moves the shuttle between the warp and the weft of a cloth is called a weaver. Both of these actions may be perceived as an art and consist in choosing tools appropriate for the task – not arbitrarily but in line with the nature of the action, defined by its object and purpose. Thus, a teacher is a lawmaker

⁷Plato's views on the nature of language are in many requests similar to those held by the so-called philosophers of language (not to be confused with linguistic philosophy which uses the methods of logic and linguistics and is aimed at a formal reconstruction of the language system – *langue* – and not at studying linguistic facts and reconstructing the ways of using speech – *langue-parole*). According to philosophers of language (W. Quine, L. Linsky, B. Mates, P. F. Strawson, J. L. Austin, J. Katz, J. R. Searle may all be counted among them) language is not a perfect model, but above all a collection of utterances whose communicative function is based on the practical knowledge of language USAGE – the knowledge of how one should talk – which guarantees successful communication. Thus, speech-language is a form of a highly complicated action that involves various rules (Searle 1977: 16).

(*nomothétes*) – the creator and the giver of an accurate name to the object he distinguishes and teaches about. A master of the art of naming (*onomastiké téchne*) is someone who knows how to ask questions and provide answers – a dialectician philosopher.

By putting emphasis on the cognitive and communicative aims of using speech-language, Plato takes into consideration primarily the semantic aspect of the meaning of names – designation of objects – as well as the pragmatic aspect of speech acts, which is aimed at discovering the truth about the world and sharing it.⁸ The accuracy of names and utterances is judged on the basis of the nature of the things discussed and the nature of the speaker. Plato tried to resolve the problem of name accuracy through analysing the origins and sources of language. He started from etymological considerations of proper names and common nouns as well as some abstract concepts. In his view, all categories of names share a basic semantic function of representing the object or phenomenon they refer to. Plato strived to disentangle the process of building complex names from simple elements with respect to the mechanism of associating designations. The highest level of conformity to the nature of objects and phenomena is expressed through proper names. In this case, accuracy equals the appress of description of a given person. Particularly accurate are the names of gods and the descendants of gods - heroes.⁹ However, some names may be given randomly; sometimes they

⁹Searle (1969: 26n) defines singular the functions of definite referring expressions as identification, distinguishing and indication: 'Any expression which serves to identify any thing, event, process, action or any other kind of "individual" or "particular", I shall call a referring expression. Referring expressions point to particular things; they answer the questions "Who?", "What?", "Which?" It is by their function, not always by their surface grammatical form or their manner of performing their function, that referring expressions are to be known'. The function of identification or reference (simi-

⁸A comparison of Plato's description of the aim of naming (*onomázein*) and Searle's categories of language philosophy reveals similarities in their distinction of elements of a speech act, connected to one another in many different ways in various situations: the phonetic act, the semantic act (which encompasses topical reference – the categorical or individual identification of an object – as well as declaring the state of things; reference and predication) and the pragmatic act (illocution). The latter should not be confused with perlocution, which aims at producing a given, material result through speaking. It should be noted that, similarly to modern philosophers of language, Plato claims that a given utterance has a meaning if it is used by the speaker in a meaningful way, whereas a declarative remains a declarative so long as it is a part of a declarative utterance, i.e. one that aspires to be true (Searle 1977: 28-29). Authors interested in pre-verbal origins of utterances, inspired by neo-Cantism and phenomenology – such as Urban (1961), Arendt (1978) or Sokolowski (1978, 1979: 639-676) go even further.

express the intention of the name-giver rather than any characteristic of the name-bearer. Plato drew from the Greek naming tradition but claims that this assumption is also valid for other ethnic languages. Regardless of the external form (phonetics and graphic transcription), the origins of human speech are basically the same. The aim of the process was always to produce an effective tool for expressing the essence of things. The means and materials used are of secondary importance.

The large number of different tongues and their constant changes prevent us from reaching back to the very first words that could reveal the firstlings (*stoiheía*) of speech-language. Etymologies are not to be treated too seriously; what is important, however is that the basis for the accuracy of names needs to be constant and unchanging, regardless of the spatial, temporal and contextual circumstances. It has to be the same when we express something with sounds that form words or with gestures, as the deaf and dumb do.

In his search for the basis of the accuracy of names, Plato introduces the very same term he used to describe the cognitive relation between thought and being: each act of speech expressed by a gesture, a sound or in writing is a REPRESENTATION (*mímesis*) of things. He even goes as far as to try to ascribe the natural property of representing elementary qualitative essences to individual sounds and the corresponding letters.¹⁰

There is, however, a fundamental difference between linguistic representation and communication signals used by animals, aural representation known from music or visual similarity known from painting or sculpture. The art of naming does not aim to represent specific sounds, shapes or colours – i.e. the properties of the things we experience – but to capture their constant, general and necessary nature. The name shows WHAT a given thing IS ($h \acute{o}$ ti estín, tó dé tí) and not WHAT it IS LIKE (ti poíon ti).¹¹

lar to the Platonic *diaíresis*) may either be definitive or non-definitive (and appear singular or plural). Utterances that contain or constitute proper names may be counted among definitive expressions. Plato also notices the factual, semantic accuracy of pointing to an object by referring to its name and – interestingly – derives this accuracy from the method of qualitative and quantitative (i.e. universal) characteristic of the thing that is so named. Does he consider the first names to be some proto-universals defining basic ideal qualities? If so, then the actual source of language should be sought in some primary, elementary experience of the essence, which triggered the first act of naming.

¹⁰K. Lorenz and J. Mittelstrass use this concept as the basis for their analogy between the platonic representational concept of meaning and the picture theory of language developed by Wittgenstein in his *Tractatus Logicao-Philosphicus*. See also: Daitz 1953: 184-201.

¹¹Here Plato formulates the primary question of philosophy. The question 'What is

The dissimilarity between language and other forms of representation lies primarily in the MEANS OF ARTICULATION and in the NATURE OF MEANING. The two are tightly interrelated, but Plato clearly favoured the latter. In his view, musical and artistic representations differ from linguistic representation in the method of imaging rather than in the form of articulation. Thus, the issue of the accuracy of names proves to correspond to the issue of the accuracy of iconic images-likenesses in music and visual arts, with the reservation that the latter two types of representation do not show the nature of things – the essence – but the external characteristics and shapes. In both cases the aim is essentially the same: to create a representation faithful to the actual object. Visual and musical images may be considered to be likenesses of things due to their individual properties, which is why Plato held them in low regard from a cognitive point of view. Their resemblance to the truth is arbitrary and narrow, whereas truth itself is absolute and universal. The meaning of names contains an element of permanence, since it represents the necessary and general essence and not the particular givenness of a single object.

Plato does not clearly recognise the difference between what is meant (signifié) and the reference term (signifiant), so crucial for modern linguistics. Neither does he use the general term 'sign', which was introduced later, by Plato's student – Aristotle (*Perí hermeneías* I, 16A1). He considers the essence of semiotic relation to lie in representation – the function that is universal to all images containing cognitive nature. Finally, he does not distinguish between arbitrarily or symbolically denoting signs and natural (indication) signs or icons (images). He is not familiar with the concept of abstraction; it was developed later by Aristotle. For Plato, the general is equally visible and particular in nature as the particular – the only difference is that the former is seen by the purified 'eve of the soul', whereas the latter may be perceived by the senses. The only thing that may be discovered within Plato's framework is what can be labelled as the intuition of a BASIC SEMIOTIC INTENTION and compared to the contemporary concept of meaning as individual reference. This intuitive view pertains to the relation of representation, which Plato considers to be the most important in view of the role of language in learning and cognition. In Plato's eyes, individual

a given thing?' constitutes the foundation of the dialectics of doubt. Plato understands the question 'What is a given thing like?' both within the framework of the search for various manifestations and similarities in conjectures and discursive thinking and the framework of assessing the degree of realising values and their relative and absolute nature, which enables the representations-beings to be hierarchically structured.

reference is iconic in nature.

Plato considered searching for the origins of language by referring to the oldest names ($on \acute{o}mata \ pr\acute{o}ta$) and the primary means of forming words from individual sounds or letters as a hypothetical solution that has only the semblance of truth. Where does language come from? Was it bequeathed to us by the gods, is it the invention of some primitive tribe? If we cannot be certain of anything, should we stop trying to ascertain the beginnings of language altogether? Etymological considerations on the origins of individual terms are significant from the point of pragmatics – the art of proper application of language. A person who does not know the origins of a given name is not able to apply it correctly. According to Plato, ruminations on the origins of language as such remain in the domain of historical speculation, yet knowledge of some elements of – so to speak – historical and comparative linguistics are important factors in enhancing one's linguistic competence.

Just as the conventionalist arguments of Hermogenes seem to be refuted, his adversary – Cratylus the naturalist – enters the stage. Socrates also tested the strength of his argumentation, bringing to light the potential dangers of the naturalistic hypothesis. He starts by establishing the departure point in the discussion: all participants agree that a name is accurate if it shows the nature of the described object or phenomenon. Naming is subject to rules and therefore may be considered an art. If it is so, then - as any art - it begins with the creator. There are those who have mastered it and those who have not. The masters create their art in accordance with the rules. Cratylus believed that a name which is not accurate is not a name at all, but a sound without a meaning. However, those who use inappropriate names do not speak nonsense, but un-truth. An incorrect name – one that does not fit the object – remains a name nonetheless. It is like a portrait that remains an image even if it bears no resemblance to the model. Both the name and the portrait represent something, but not the object or person they were supposed to, or not in a sufficiently efficient manner.

Names are accurate if they are a representation of likeness – then they are true. The same may be said of utterances that state or deny something by combining names: nouns and verbs. Such a synthesis is a word (lógos) which tells the truth or a lie or, strictly speaking, is a likeness of a word "spoken within the soul." Truth and lies originate from the soul and speech-language is their incorporated form.

Images-likenesses represent objects or states – in language or mimetic arts – and therefore cannot be identical to the things they signify. They are not facsimiles. Similarly to visual images or musical compositions, names and declarative utterances are complex creations – and therefore cannot be considered entities but pluralities. Pluralities by nature have their shortcomings. The accuracy or inaccuracy of utterances in speech-language is relative – analogous and gradable.¹² In some cases the name may be a representation of an object despite having some flaws – it is inaccurately composed. We say that such a name is ugly, whereas an accurate name is considered beautiful.

Plato's Socrates defends the natural basis for the accuracy of names. linking it with the analogous resemblance to the represented object. He rejects Hermogenes' hypothesis in its radical, arbitrary and conventional form. The accuracy of speech-language cannot be brought down to an entirely subjective usage. In Plato's eyes, the limitations of language are not ones with the limitations of the world expressed in semantic categories. The reality portrayed by linguistic images-likenesses constitutes the model for human speech, which ought to represent objects and phenomena as accurately as possible. The danger of the naturalistic vision of the mimetic theory of language and the basis for the accuracy of names lies in the fact that such an approach allows us to treat the process of naming – creating and using names - as a representation of the process of emergence and demise of a changing reality which is EXPRESSED in words by the human race (Calvert 1970: 26-47). Plato's notion of meaning is nominal and representational, and therefore differs from the picture theory of language described by Wittgenstein in his Tractatus logico-philosophicus, not only due to the naturalistic understanding of the origins of language and the reference to the hypothesis of etymology and origin, but – more importantly – due to the noëtic substantiation which Plato saw as the basis for resolving the argument around the issue of the nature of speech-language.¹³

¹³Plato's noëtic approach to the issue of ultimate sources and bases for the accuracy of names in speech-language is similar to the views presented by Sokolowski (1979: 643n). What Plato sees as the most primordial (in the noëtic sense) is the differenciation between essence and disposition, which corresponds to the division into two aspects of being: 'that which is invariably the same' and 'that which becomes and perishes, but is never really existent', i.e. idea-models and phenomena-representations.

¹²Kretzman (1971) interprets this thesis in the following manner: The factual name N is accurate (= it ought to be used) if and only if by sounds or graphic symbols N incorporates the model of an accurate name for a given XY, i.e. (a) there exists such an XY, (b) N is used or is ready to be used as a name for this particular XY and (c) there is a model for an appropriate name for XY. He also claims that the model for an appropriate name for XY exists if and only if it is natural that it imitates the form X at least in (a) having a sufficient number of relevant XY qualities constitutive of the form X, so it may be the name of another form and (b) ruling out all individual qualities of all singular Xs and the distinctive features for all sub-groups of XY.

Mimesis - Noëtics - Rhetoric. The Platonic Vision of the Origins of Language and the Art of Discourse

A person who wishes to use language properly must, first of all, have a degree of knowledge about the surrounding world. Getting to know objects and phenomena is the starting point for speaking; cognition in turn results from convictions, discourse and conjectures, which may or may not be true. Discursive thinking and the spoken word are one and the same, with the proviso that the first constitutes a silent conversation of the soul with itself, whereas the second is heard as sounds that form a declarative or negative statement. When secretly born in the soul, a statement or a negation (fásis kaí apofásis) becomes a conviction. A conviction which stems from passive sensory experience $(p \acute{a} thema)$ is a mixture of truth and un-truth - a supposition we express by uttering the formula: I suppose (faínetai). Speech-language may be compared to producing images (*eidolopojiké*) which might either be likenesses of things or figments of imagination (see: Sophist 263D-264C). Here, Plato speaks of the beginnings of speech-language in the noëtic, and not in the historical or etymological sense. In his view, it is only that beginning which truly shows the true source of speech-language. The spoken word, directed at the listener, contains a clue (semeion) as to how the sounds are to be understood in accordance with their meaning.¹⁴

Sokolowski mentions four methods – degrees – of recognising essentials (1978, 135n). The first stage is naturally the most basic in the noëtic sense and constitutes the foundation for the others. Plato would perhaps call it innate knowledge which is retrieved through dialectic ascent in making distinctions and finding similarities. This allows us to recover what our soul has forgotten – reaching *anamnesis*. However, what Plato considers the highest degree of being conscious of differences and similarities is not the meta-theoretical level of reflection, but contemplative vision (*theoria*) in which a pure essence, unblemished by happenstance, reveals itself. In this sense, the Platonic concept of experiencing unity in multiplicity would correspond to the over- or beyond-philosophical thinking described by Sokolowski (1978: 172n).

¹⁴In Plato's works the term *semeion* may be used to signify a natural indicator (*Theaetetus* 129B, 208C, 194C; *Timaeus* 50C, 72B), the phonetic aspect of the spoken word (*Sophist* 262A-D) or a linguistic symbol – graphic or acoustic – which contains a meaning (*Cratylus* 392A, 415A, 427C), or a sign from the gods (*Phaedrus* 242B, 244C; *Timaeus* 72B) in a sense similar to the contemporary notion of a symbol (Ast 1908: vol. III, p. 245n.). The meaning of an indicator or a symptom may also be conveyed by the term *epiklen* – mark (*Philebus* 48C). At times Plato also uses the word *séma* – a sign – which may also mean a grave (*Cratylus* 400B-C, *Gorgias* 493A). He plays on this ambiguity by pointing to the phonetic similarities between the terms 'grave' and 'body' (*séma* – *sóma*). The body may be considered a grave for the soul, but it also allows the soul to show signs of life. The term 'symbol' appears in later dialogues in two forms – the noun *symbolé* (feminine gender) which signifies a union or link in the physical sense (*Timaeus* 74E, *Phaedo* 98D) and the noun *sýmbolon* (neuter gender) meaning a conventional sign (*The Republic* 371B) or a natural or conventional signal of expression (*Letter* XIII 360A, 363B). Sometimes the meanings of *sýmbolon* and

The combination of significance and sound which enables the speaker to communicate with the addressee must be based upon a convention – a set of customs and agreements known to all language users. Convention is also the basis for assessing similarity and accuracy of phrases. If speech is to result in mutual understanding, custom must walk arm in arm with social agreements. Convention is added at the stage where the silent conversation within the soul – a mental proto-understanding – is turned into a post-understanding – human communication.

In effect, we have to accept that the accuracy of speech-language and its smallest units – names – stems from two sources: similarity, i.e. the conformity between the verbal reference and the nature of the object or phenomenon it signifies and the convention adapted by language users. Plato offers an intermediary solution, an attempt at a compromise between two fundamentally different hypotheses: Cratylus' naturalistic theory and Hermogenes' conventionalist views. Both of these approaches lead to relativism, albeit by different routes. This compromise does not topple the notion of mimesis: it proves to be the strongest, as it ultimately pertains to the noëtic origins of speech-language, whereas both the naturalist hypothesis and the conventionalist framework only refer to the incorporated – i.e. secondary – semiotic situation. The act of speech contains two aspects: it stems from inner speech which the audible utterance is modelled after.¹⁵

¹⁵Saint Thomas Aquinas lists three types of words (*triplex verbum*): inner words (*verbum cordis, verbum interius*) which are tantamount to the act of understanding (*apprehensio, cognito, comprehensio*), simple or complex concepts which are the intellectual product of the cognitive act (*conceptus, verbum mentis, intentio intellecta, similitudo rei intellectae*) and words expressed outwardly (*verbum exprimens*) which are the incorporated synthesis of the previous two types. Such a holistic view on signification which also pertains to sentences is characteristic of the so-called old school of logic (*logica vetus*) in the Middle Ages. Within this framework the term 'sentence' had a very broad meaning. It could be understood as (a) the general sense of an utterance, (b) that which has the qualities of truth or falsehood, (c) that which is necessary, possible, circumstantial or impossible, (d) that which is known or thought; the object of knowledge, conviction or doubt. The old school of logic is sometimes called the dictional theory (from the Latin term *dictio*) in opposition to the terministic school with a nominalistic approach (Kneale 1921). Naturally, the categories of Platonic philosophy are even less varied and analytical in nature.

symbolé are identical (Symposium 191D). The mentioned words appear occasionally, and are ambiguous and not clearly defined; therefore they cannot be regarded as semiotic terms. The most symbolic of these terms is *mimesis*, as it may indicate a semiotic function of representation. It is used to signify various types of formal and analogous accuracy, with regard to being, cognition, language and creation (Ast 1908: vol. III, p. 245, 300).

Both of these hypotheses may be compared to naïve realism and extreme nominalism in contemporary theories of language. Plato's conceptualistic compromise avoids the traps of the two extremes – the problematic hypothesis of a genetic conformity between language and reality and the operationist hypothesis according to which the linguistic 'rules of the game' are the only criterion for accuracy (Wittgenstein, *Philosophical Investigations*). The latter hypothesis identifies the veracity of utterances within the domain of a given language. Brought down to the level of conventions applied in a given universe of discourse, the question of the basis for rules becomes insoluble.

Aware of all these problems, Plato formulated questions of real significance: what is the clue that prompts the listener to understand the utterance directed at him? Can searching and discovering (*heurésis kaí zétesis*) – studying the meanings of language and inquiring about the nature of things – be regarded as the same process in terms of aim and methodology? Is the consistency of language and the image expressed by it a sufficient warrant for the truth of utterances? – after all, even accurately formed diagrams used in geometry (which is an exact science based on logic) may contain errors resulting from faulty stipulations. The line of thought may be flawless and consistent, and yet a small error renders them entirely untrue.

Plato realises that exactitude is a characteristic and unavoidable feature of any language: polysemy and homonymy are very common,¹⁶ which makes it more difficult to ascertain the similarity between words and relevant phenomena or determine the truth or un-truth of an utterance (*Sophist* 251B). Names may 'mutiny' and 'take sides' – all of them aspire to be true and accurate. How can we determine, which of them indeed possess such qualities? Linguistic competence and knowledge of names alone does not provide the decisive criterion. Truth is not an immanent property of speechlanguage, but of being. If speech aims to identify objects and phenomena and at teaching what is true, this objective may be achieved only after acquiring knowledge of objects and phenomena, which is not the same as the ability to use speech.

¹⁶These are the phenomena Plato ultimately considers as inherent properties of speech. He even counts them among the merits of language. From the perspective of science and dialectics such phenomena are disadvantageous, as they hinder the process of arriving at clear definitions and names. They may, however, be used in the symbolic and metaphorical aspect of describing visions which transcend dialectic categories and allow us to 'see' being as a unity within multiplicity. In a hermeneutic clarification of such a climatic experience, the faults of language may be transformed into a transparency if a deep meaning of a poetic metaphor which constitutes the tenor of a myth, i.e. a complex symbol.

Mimesis - Noëtics - Rhetoric. The Platonic Vision of the Origins of Language and the Art of Discourse

Since speech-language is a representation of reality, how else can we assess the similarity between the original and the image, if not by knowing the model and comparing the likeness to it. How should accurate knowledge be obtained without the involvement of the faulty names, is a different question altogether. In any case, Plato considers reaching such knowledge to be a sufficient and necessary condition for learning to use speech accurately. Accurate speech means telling the truth is a clear and unambiguous (revealing) manner by pointing to true similarities. If, as in Heraclitus' view, the entire reality was undergoing constant change – its essence fleeting and fickle – cognition of truth would be impossible. By nature, cognition cannot both be and not be cognition. A changeable conjecture pertaining only to that which is changeable does not deserve to be deemed cognition. The latter term should above all refer to that which is immovably the same. If such a cognition had no raison d'être, we would remain forever limited to the level of fickle convictions about things 'so conditioned as both to be and not to be'. If the imperfections of speech-language were to become the measure of things and the only indication of the nature of what is meant, we would have to adapt Heraclitus' doctrine of universal and eternal changes of the world, cognition, representation and speech. We would then be forced to accept contradiction as the sole warp of reality and sophistry as the last word of apparent knowledge. Neither the essence, nor the cognition of truth would have any raison d'être.

The only way out of the dead end of universal relativism, postulated by the discussion between Hermogenes, Cratylus and Socrates, is the acceptance of a possibility of a direct cognition of idea-models and a language that would lead to a direct perception thereof. Speech-language appears to be a tool imperfect by nature – as any other indirect means of cognition. It might, however, be perfected and may effectively serve dialectics – the strenuous way up, which lifts the 'eye of the soul' and allows us to see the truth of being.

To sum up, an important aspect of Plato's views on speech-language is that the basis for the accuracy of names is linked with the nominal and representative function of their meaning, which reveals the truth – though only partially and approximately, as well as with the linguistic competence of the speaker whose art of discourse is based on the knowledge of things and methods as well as on the familiarity with the customs and conventions. Thus, the accuracy of speech-language may possess a – to use contemporary terms – a semantic and pragmatic aspect. We may also speak of a semantic and pragmatic aspect of the truth of utterances, based on the ontic truth of being. The art of discourse ought not to lose sight of this truth, as it determines whether discourse may be called art at all. It might as well be turning into sophistry, i.e. a linguistic game based on a fantasy and conjectures, incapable of distinguishing between truth and un-truth.

3 What is the Model for the Art of Discourse

All knowledge, according to Plato, has two aspects which correspond to the dual goals it is aiming for. These are either the understanding of things or acting and creating. The dual idea of knowledge: scientific (qnostiké epistéme) and practical (praktiké epistéme), provides great competence to the one who possesses the said knowledge (Statesman 258D). The difference between examination leading up to gaining knowledge and the utilisation of science lies in the conclusions reached. The goal of examination is passing judgement and evaluation, the goal of applying knowledge is setting rules and law for action and creation. The first one is theoretically-critical in nature while the latter is characterised by norm-creation and practicality (Statesman 260A-B). All practical abilities must be utilised in the cognitive process. Both those who use logistic – the art of proper deduction and leadership – and those who engage in the art of construction or of ruling a country have to possess an appropriate scope of knowledge about the subject matter, otherwise the outcomes of their actions will be inherently misdirected. Therefore for Plato 'knowing' meant: the ability to determine what the object is according to its nature – idea – and to know its natural utilisation, be able to use it properly. A person who has such knowledge is the lord of objects and his science is the art of kings (basiliké téchne – Statesman 258B, 259B, 292B, 300B).

All art worthy of its name must be based on cognition. Cognition, in turn, connects with art in utilising the laws of logistics and the methodological rules of discourse and the rhetoric which teaches the proper way of expressing oneself, of convincing and clarification of knowledge. Art and cognition meet through the pragmatic aspect of knowledge, speech-language and the mimetic production of similarities. The latter refers to the semantic function of imaging – representation – which is shared by cognition, language and other mimetic forms of expression.

Rhetoric is contemplated in two dialogues: *Gorgias* and *Phaedrus*, which present Plato's position on the art of discourse's role in the upbringing of a citizen and in the process of dialectic discourse. Together they form an outline of an in-depth communication theory covering a wide scope of issues,

based on assumptions of ontic and noëtics, i.e. the science of using speech in such a way, that it is in line with the nature of the act and the tool of cognition and understanding.¹⁷

The title character of the first dialogue states that the art of discourse has its source in the capability of creating convictions (*peithó poiesis*). This art has the power to convince elders at council meetings, judges in the court, or the audience during a general meeting to proceed in the direction designated by a seasoned speaker. Socrates asks: what level of importance of beings does rhetoric pertain to? He does not concern himself with the behaviour of the rhetorician but with the aim of discourse. It is revealed that the force of rhetorical persuasion may have two results: it may either persuade without providing true knowledge or both persuade and educate. The formulation of these disjunctive options has a profound impact, as it results in the polarisation of two different concepts of the communicative speech act. The first one treats discourse as A WAY OF USING A TOOL IN A LANGUAGE 'GAME' in accordance with the speaker's preconceived strategy, ergo it pertains to practical philosophy. The second one emphasises THE GOAL OF TRUTHFULNESS AND THE ALLIEGANCE TO THE TRUTH OF THE SPEACH-LANGUAGE which is the tool of 'divulging' the truth through proper similarity to the object.

Gorgias is enchanted by the captivating power of the word of rhetoric.¹⁸

¹⁸'The power of the word', as understood here by Gorgias, is not unlike Austin's 'perlocutionary act', where the goal, intention and preconception of discourse is to inspire a particular result in the form of a true effect on the feelings, thoughts or actions of the audience and of some accidental bystanders (Austin 1978; see also: Searle 1977: 25). The philosophers of language distinguish the general 'power of the word' from its meaning and the designated object (reference). This division is connected to the idea of language acts, which may simply aim at making a statement ('to say something IS to do something'), or what is being achieved through just saying something ('to do something IN saying something'). The first type of a statement is named by Austin a locutionary act, which makes sense and refers to an object, but at the same time may either be true or false. The second type he calls an illocutionary act; the

¹⁷One should, as etymology suggests, speak of the theory of the art of dialogue, i.e. dialectics. In Plato's texts the word *dialégien* means: expressing one's opinion, distinguishing, discerning, but also conversation, deliberation or discussion about something (Ast 1908: vol. I. p. 480). *Dialogós* means statement but also conversation (Ast 1908: vol. I. p. 483). The last meaning is positive, as it refers to a statement that leads to understanding, and is therefore oriented towards the contact between the speaker and the listener; moreover it is oriented towards the information and the expression of a subjective point of view (especially in terms of values) – towards everything that is connected with the word 'communication'.

He claims that there is no subject about which a rhetorician would not be able to speak to a crowd in a more convincing manner than a representative of any other profession. The conclusion of the above statement, as Socrates observed, is that the art of discourse does not require knowledge, only the skill of convincing uneducated listeners to accept the facts presented by the speaker. The power of rhetorical persuasion does not depend on the knowledge of the subject, but on the skill to influence others. Therefore rhetoric preys on ignorance and the inability to reach an agreement between the parties as to the matter at the core of a discussion or a dispute. People generally find it difficult to define the subject of a discussion and to present their point of view in a manner that would lead to a conclusion and establishing the positions of both parties. Instead of leading to a reasonable conclusion, a discussion often transforms into a dispute, where one party accuses the other of evil intentions and invectives follow.

Rhetoric seems to be an activity completely unrelated to art, requiring only cunning, courage and an ease when it comes to dealing with people which boils down to flattery. Another such activity is cooking - it seems to be an art yet it boils down to purely practical experience and skill. Two similar ones are cosmetics and sophistry. All activities performed to flatter are phantoms (eidola) and art imitations based on pretence: cooking is an imitation of curing, cosmetics of gymnastics, sophistry of an aspect of politics, namely legislation (Gorgias 465C). Arts, which do not need to flatter, cater to the physical and spiritual well-being of the citizens, while pseudo-arts only pretend to do so. For example, the aim of sophistry is not to sav what is best for the listeners, but that which would give them pleasure and would also be to the benefit of the speaker, who baits his audience and presents his particular interest as something of utmost value. The above may also be said of a badly executed painting which fails to resemble the model – instead of representing the depicted thing it merely imitates, becoming an example of deceitful art.

From the point of view of the educational influence, the basis for the art of discourse must be the TRUTH OF VALUE; the speaker should encourage the listeners to accept this truth and model their behaviour accordingly.

third is a perlocutionary act (Searle rejects the difference between a locutionary and illocutionary act, he simplifies the typology to a dual-division). The latter two types, apart from making sense and referencing an object, also hold the 'power of the word' (Searle gives the power of the word to all statements within the appropriate quality proportions) which is never connected to the truthfulness or falseness of a statement. Statements bearing the power of the word, but deprived of logical value are called performatives in contrast to the purely informative utterances – ascertainments.

The goal of rhetoric should be the creation of thoughtful convictions and, in consequence, the formulation of just attitudes and actions. Therefore, what seems to the main problem is the philosophically-axiological (ethical in particular) explanation for the art of discourse. This is an issue of utmost importance, for it is the JUDGING POWER of the spoken word and the influence achieved through it by the speaker. Speech-language has a particular assessing quality which colours most statements. Public speakers usually express their attitude towards values, thus influencing the assessing mechanisms of their listeners. Such an attitude may be based on the truth or on a lie. Flattering rhetoric is deceitful (*pseudologia*), born from an un-truthful attitude towards values. The axiological falsity described above originates in ignorance (aqnosia) and leads to a deceitful upbringing (pseudopaideia). If someone is able to accurately recognise the truth, right and beauty - this trinity of utmost values – then it is impossible for him not to be able or willing to express and teach them, making himself similar to them in the process.¹⁹

The basis for the judging power of the word is the knowledge of the nature of values. The nature of values causes them to be a measurement tool

 $^{^{19}\}mathrm{Plato}$ interprets the word pseudos very widely: both as 'a falsity' and as 'a lie'. Dambska (1979: 121-133) translated Plato's pseudos as 'falsity', pointing out that "Plato does not clearly distinguish between 'a judgement in terms of logic as true or false content of a sentence' and 'a judgement as an act of accepting or rejecting the state of affairs denoted by the content of the sentence'," to the contrary, he seems to broaden (e.g. Philebus 37-40) "the meaning of the term 'truthfulness' and 'falsity' to encompass 'emotional state'." Taking into account his concept of mimicking or creating forms, we have to assume that all images which are -a natural or artificial -copyhave an element of the *pseúdos*, i.e. a lack, in every representation. Sometimes the said element strips the copy of any semblance of truth, making it cognitively useless. For Plato this means an axiological deprivation in general. Looking at the issue of *pseudos* from the perspective of the axiological basis, we see that "the evil of telling the untruth, including telling lies is, considered by Plato as relative; on the other hand the evil coming from inner falsity, i.e. ignorance and mistake – is absolute." The reduction of evil coming from falsity is through awareness which "is the necessary condition of getting rid of [evil], and is therefore the condition a human must fulfil to get closer to the truth which is an important goal in his life." Such are the origins of Plato's ethical optimism. Not unlike Socrates, he believed that it suffices for a human to get to know the truth and accept it so he will be cured of lies. It is the utmost evil because it hurts the most important part of a human – the soul. Rhetoric may be useful if it is necessary to dissuade someone from committing an injustice or to convince that person of the need for atonement and undergoing a just punishment. The biggest evil is not suffering, but an untrue assessment of values which originates in axiological ignorance and leads to unjust actions. It is better to suffer unjustly than to commit unjust deeds (Gorgias 466D-469B).

for humans, a model governing their behaviour – their goal. Are pleasure and good the same thing? No. Do we seek pleasure to find good, or seek good for the pleasure of it? The former, of course. Pleasant things satisfy us, yet only good things make us better people. Our own good and all other kinds of goodness originate from action (*aretée*). All activity of the body and the spirit and anything that is alive does not happen accidentally, but originates from the natural order, correctness and art. Each being is, by its nature, entitled to some form of order which makes it good. The good for the soul is the ability to put its abilities in order. What is organised is wise. Therefore the whole universe is called 'order' (*kósmos*).

In this cosmologically grounded philosophy of values the science of geometry becomes useful, as it teaches us about the natural proportions between elements and parts of reality which form the basis for general order. Rhetoric should be based on such a knowledge of nature and its axiological laws, if its argumentation is to be not only convincing, but also true. Convincing must result from agreement which is achieved through mutual understanding between two similar parties of a conversation, that is between two friendly speakers. Every agreement requires knowledge, mutual goodwill (*eunoía*) and honesty (*parrhesía*) on both sides.²⁰ A common ground for communication is achieved through conformity of reference to values mutually accepted and recognised. From Plato's point of view, conformity of the speakers' ethos, based on accepting the truth about values, is a necessary prerequisite for reaching an agreement.

One who wishes to be a good speaker must be just and know what justice is. The same applies to a politician who fights for power and position in a state, and to everyone who wants to perform some kind of civil service. The state and its offices are best when both the citizens and the civil servants are good and beautiful. When the state and the citizens rebel against an evil tyrant, and he protests against this impudence and the questioning of his merits, how will he build his defence? It is the citizens, whom he allegedly taught good and justice, that want to remove him from office in the name of these very principles. A state ruled in a truly just manner never unjustly rebels against a just ruler. Such an assumption is in itself absurd. It is more

²⁰These three basic conditions of successful communication – and efficient dialogue – may be compared to Austin's analysis of a happy usage of performatives. The cases of unhappy, infelicitous usage are described by Austin as misfires or abuses. Misfires are purposeful acts, but they do not achieve their goal – are void – because they are done in a way which is disallowed, or vindicated, or improper and is characterised by misapplications. Abuses are declarative or alleged acts, insincere and masking, which pretend to be something else (Austin 1970: 18, 233, 253).

likely that the defence of the tyrant is based on sophistry and lies, when he pretends to abide by the values and courage, while truly disregarding them (*Gorgias* 519B–E).

In *Gorgias* Plato analysed the art of discourse in terms of practical philosophy, whereas in *Phaedrus* he considerd the theoretical grounds and searches for the nature of the skill of convincing based on the persuasive power of words.

If this art is not to be limited to the skill of conducting disputes in courts and at public assemblies, but also applied to all kinds of statements. then it must be based on a proper use of similarities. A good speaker should know how to methodically compare some things with others and, if possible, show the similarities and differences to invoke comparisons made by others. Noticing the similarities and differences in terms of truth is not a question of supposition, but of the proper distinguishing between beings. A person who makes suppositions based only on a superficial similarity of a phenomenon and relies only on the technical rhetoric skill, cheats only himself and his discourse cannot be called art. It is so because he does not discern the proper traits of the nature – idea – of things, he cannot combine the scattered multitude into one, or correctly define that which is particular. Without the above listed characteristics, the discourse cannot be clear or coherent (*Phaedrus* 261E-263B). The basis for the art of discourse is the wisdom of the word, i.e. the ability to see all that is naturally connected into one and all that is divided into multitude. Such distinctions (diacresis), connections (symbállein) and utilisations of similarities (analógisma) belong to the realm of dialectics. The art of discourse is therefore a part of the art of conversation – dialectic hermeneutics. Its essence is the noëtic rule of imitative representation (*afomoiosis*) based on the principle of paradigm – of seeing the relationship of analogy between the model and the image. It is difficult to present an idea without using analogies and images as references. The language of comparisons is the utilisation of appropriate speech to express being and paradigmatic thinking is the imaging of the analogy-based structure of reality.²¹

 $^{^{21}}$ In the integral vision of reality, at the end of the ascent, the basic duality emerges in the intuitive synthesis of purified thought encompassing the whole visible world (*kósmos hóratos*) with a single glance. This duality is the relationship with the invisible world perceived only by thoughts (*kósmos noetós*). Both these words transcend one another, yet this reality may only be discovered at the price of understanding insight above or beyond the discourse, into the nature participating in the importance of ideas. At that moment the whole world transpires in a symbolic manner: as a diversely meaningful structure, clear through its corporeality to what is beyond, and full of

Since the word is able to "lead the soul through convincing," then anyone who wants to be a speaker must also know what form-ideas the soul has. Speeches should be adjusted to listeners, because they are born different, and different words provoke different convictions in their souls. One has to learn what kind of speech would influence a particular kind of person, in accordance with the nature of the listener. In educating or convincing one must always know when it is better to speak and when to be silent, when one should speak simply and briefly, and when to talk more extensively with more refined language, when is the time to persuade, regret or to threaten. These are the rules of rhetoric correctness, and those who fail to abide by them cannot be masters of the art of discourse, and are inferior to the people who refuse to trust their discourse.

Thus, the art of discourse requires many skills: factual and axiological knowledge, knowledge of the method, psychological insight into the souls of the listeners and the ability to sense the appropriate moment (*kairós*) that is: the conditions and circumstances surrounding the discourse. People limited to the knowledge of discourse techniques, rhetoric figures and tricks how to psychologically influence the audience are similar to swindlers and fortune-tellers. Convincing should be based on an accurate portrayal of the semblance of truth which is accepted by the listeners because it is similar to facts. Those who learned the truth are capable of disclosing its similarities.

The fact that Plato connected rhetoric with dialectic and noëtic is profound in the context of the language concept based on the analysis of THE GOAL AND FUNCTION OF THE SPEECH ACT, while grammar and lexis are secondary. The invention of writing and grammatical systematisation of language – as shown in the tale about Theuth-Ammon, the Egyptian father of letters, mentioned in *Phaedrus* – is secondary, and may even be deceiving if the written word is granted more power than it really has. Trusting in writing causes the soul to succumb to oblivion (*léthe*), trusting in letters and images (*týpos*) rather than in training inner memory (*mnéme*). Writing is not the cure for oblivion, but is there to remind.²² It is not there

tension building between what is open and hidden, true and untrue, constant and changing, important and accidental, light and dark. Obviously Plato does not conduct an interpretation of reality in the spirit of symbolic forms, however the above can be reconstructed from and imprints upon the metaphysical meaning of the later dialogues.

 $^{^{22}}$ Plato uses two different words to describe recalling from memory: *hypomnéme* and *anámnesis*. The first one carries the meaning of simple remembering, recalling. The second one is synonymous with retrieving knowledge (*analambánein epistéme*) which is not to be understood as a psychological process of impressions association and a recalling of previously acquired experiences. The act of anamnesis – rediscovering – is

to regain knowledge, but it is a game of 'sowing gardens of letters'. It gives students an alleged knowledge, but does not give them the truth, because while reading we do not learn the living word: we think we get to know something, but in reality we stay ignorant. The only value of the written word lies in materialising what is already known. Writing $(qraf \acute{e})$ is similar to drawing (*zografía*). A portrayed thing looks lifelike, yet if asked anything it shall remain silent. The same may be said of written words: one may assume they speak wisely, yet if one asks and tries to learn what they say, it turns out that they constantly speak one and the same thing. They know not when and with whom to speak, they hover around those who want to listen, but also around those whom they never reach. They cannot defend themselves, they do not have the strength to survive an attack, so when they are abused and mistreated they need a 'father' to protect them. This said 'father' is a living discourse of the teacher of wisdom who like a farmer 'sows discourse accompanied by knowledge' directly to the fertile ground of a student's soul. Such a word is not barren and defenceless; it bears immortal fruit (*Phaedrus* 275D-E, 276E-277A).

The art of discourse proves useful for upbringing and teaching, both from the point of view of the object and the subject. To understand the nature - idea - of things one must look into the importance, the deep structure hidden under a multitude of various, changeable and fickle phenomena. One must also prepare the mind to such a perception of truth which comes slowly after a long journey of dialectic ascent of cognition from supposition to knowledge. When in the beginning one sees relationships within the multitude, one must move forward until one sees all the differences. When one sees the dissimilarities, one should not rest until one connects together all important things which are in relation – proportion – to one another, with a circle of similarities according to their importance (see: Statesman 285B). The above is simple, if things have clear similarities; however, the highest, most beautiful and valuable essences do not have any likeness that can be discerned and noticed by the physical eye. They can be only encompassed by the knowledge discourse born within the mind (*Statesman* 286A). To explain them, one needs special preparations and an art of discourse capable of

equal to clearer and clearer introspection $(episkop\acute{e})$ into the nature of things, mental, monumental understanding of the general and essential importance which transpires in a fact; however it is not an inductive process in the modern understanding of the word, neither is it an abstract operation as understood by Aristotle. It is an ideation, a mental penetration with the 'mental eye' into the deep sense of a thing, phenomenon, image or concept. For Plato's concept of anamnesis see: Gulley 1954:194-213; Allen 1959: 165.174; Dorter 1972: 198-218; Yates 1977: 49.

clarifying things transcending the object of various sciences, things accessible to only few minds of those not only proficient in sciences and gifted with memory, but also co-creative (*syngéne*) with the object. Such an awakening of the consciousness requires special preparations. Plato accepts the existence of an art which most quickly and effectively 'shifts or converts the soul' from unclear supposition towards the world of forms and introduces the possibility to mentally see it (see: *Republic* 518 B–E). Utilising this art, a teacher of wisdom becomes a divine hermeneutor who introduces the mystery of seeing not unlike an Eleusinian priest²³ (see: Statesman 260D, 290C; *Cratylus* 407E).

In his later works (*Phaedrus, Phaedo, Symposium, Timaeus*) Plato made intensive use of images, comparisons and parables, displaying his mastery of rhetorical art. He also enriched his noëtic with the notion of allegorical and symbolic thought which involved a model of discourse and art of interpretation far beyond the methodically organised dialectic of questions and answers, or the battle of arguments. In the intellectual struggle with these issues, understanding and expressing of which the discourse was not enough, he finally reached for POETHIC METAPHOR as the most suitable method of interpretation. The language of Socrates' disputes changes – Plato's dialogue transforms into a story-myth of allegorical or symbolic nature. The issue of the structure and function of platonic mythical images is a topic to be considered separately.

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²³Plato's understanding of hermeneutics encompasses all three basic meanings of the verb hermeneueín which were listed by R. E. Palmer (1969: 12-32): (1) to announce, to propagate something (2) to reveal, to explain, to interpret (this meaning is used by Aristotle in the treaty *Perí hermeneías – De interpreiatione*); (3) translation (from one language to another). The first meaning connects hermeneutic to Hermes – the divine messenger (*Cratylus* 407E). The second and third – with the function of a philosopher-dialectician and a legislator (*Republic* 524B, *Laws* 907D). A particularly divine hermenetician is a poet-prophet inspired by the Muses, whose message includes prophetic aspects and whose art may reveal metaphysical truths – great ideals (*Ion* 534E-535A, *Phaedrus* 261E). Plato transfers all benefits of religious initiation and poetic prophecy into philosophy and by doing so he aspires to light the being to its full brightness.

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Elżbieta Wolicka MYTHS, IMAGES AND ALEGORIES. PLATO'S INTERPRETATION OF MYTHS (PART I)

Originally published as "Mit – obraz – alegoria. W kręgu Platońskiej hermeneutyki mitów (Część I)," Studia Semiotyczne 14–15 (1986), 83–103. Translated by Julita Mastelarz.

A careful analysis of Plato's later dialogues reveals several semantic structures based on the relation of analogy, which may in turn be interpreted in terms of images-alegories or an elaborate symbol.¹ The discovery and study of these analogies throws some light on Plato's ruminations on symbols, characteristic for Plato's later works, and his preoccupation with finding a method to express deepest, essential intuition.

¹P. Ricoeur (1975: 7-24) considers symbols to be a separate category of signs and defines them as semantic structures (a) with a double – i.e. primary and secondary – intentionality; (b) which are untransparent and whose primary, literal meaning indicates the existence of a second denotation existing only within the framework of the primary one. He regards myth as a type of a symbol which takes the form of a story taking place in a specific location and at a specific time, which cannot be assigned to any existing spatial or temporal framework. Ricoeur, quoting Jaspers, distinguishes between the language of codes, the language of myths which serve as intermediaries for primary symbols, and the so-called tertiary, speculative symbols. The metaphorical and symbolic myths created by Plato ought to be included in this last category. Allegories differ from symbols, as they constitute a veiled literality. A necessary complement for an allegory is allegoresis, i.e. the interpretation of significance which nullifies the effect of the 'mask' of an allegory, rendering it superfluous. See also: Pepin 1976, who emphasizes the 'tautegorical' nature of the meaning of symbols and myths, as opposed to the allegorical meaning. The latter consists in an external, the former - in an internal reference (p. 71-72). Both symbols and myths are autosemantic structures – unless of course the myth transforms into an allegorical parable, as it is often the case with Plato. This issue shall be discussed in more detail in the course of our considerations on Plato's mythological and metaphorical hermeneutics.
Plato's symbolical and allegorical hermeneutics stems from cognition and perception of the essence, i.e. the noëtic paradigm – a model for perfection. It encompasses the domain of experience as well as expression and the art of interpretation or, rather, simply CONSTITUTES an art of seeing, expressing and explicating being, achieved by means of dialectic ascent, which makes use of all benefits of various sciences but is nonetheless superior to them in the light of the greatest clarity of being. The instrument of this art is the myth – the oldest, most archaic agent of human thought grappling with the enigmas of the visible reality and that which may only be experienced by the thinking mind. It is also an art constrained by certain rules. Plato's analysis of myths reveals a hierarchy of very particular functions.²

Plato starts with a methodical revaluation of the myths that played a vital role in the poetic and musical tradition of ancient Greece, shaping world-views and the cultural awareness of the Hellenes.³ Book II of *The*

 3 G. S. Kirk (1970) lists three basic types of mythical functions: the narrative and aesthetical function, the operative and evaluative function (the archaic function related to religion and moralising) and the speculative and explanatory function. This last role of the myth is at the same time a phase in the evolution of mythology. In the classical period, it was the dominant function. Plato's analysis of myths attempts to create an intellectual framework for the 'beautiful mythology' – Plato's viewpoint is thus in direct opposition to the primary notions of thought and explanation. In Plato's philosophy, a myth a form of a cultural archaism - a historical relic of a culture long gone, but a deliberately introduced and controlled method of expressing and interpreting metaphysical truths. This does not mean that it is a fully rationalised and allegorical form, even though platonic myths do perform such roles. Plato achieves a transposition and a travesty of old mythological topoi into the categories of a new beautiful mythology which is his own creation. Plato's philosophising of mythology consists in an arbitrary construction of RULES OF MYTHOLOGISATION with regard to both form and content (typology and topology). Allegorical and symbolical/metaphorical myths devised by Plato are used to draw attention to certain metaphysical truths – they are not the result of a free, creative fantasy. The rational construction of mythological rules does not cancel out the involvement of a poetic inspiration that is beyond reason and does not constitute the spontaneous evocation of irrational emotions. It results from a particularly lofty state of mind and not from the visions brought forth by the subconscious. In this sense, poetic frenzy (mania) may be a characteristic of sages. Thus, the hypothesis put forward by E. R. Dodds that Platonic philosophy may be understood in terms of the Freudian doctrine of sublimating the irrational (Cf.: Dodds 1951: 218), can hardly be considered just. Plato's mythology is a method of explanation with clearly defined rules and hermeneutic goals. It has more in common with the mythologism streak of modern avant-garde literature (Cf.: Mieletinski 1981).

 $^{^2{\}rm Cf.:}$ Stewart 1905, Bréhier 1914, Hirsch 1921, Reinhardt 1927, Tate 1929, Frutiger 1930, Stöcklein 1937, Schuhl 1947, Dąmbska 1948, Edelstein 1949, Marignac 1951, Guisdorf 1953, Riet 1960.

Republic contains a critical analysis of traditional myths and their creators from the perspective of ethical and political education. Plato claims that in poetic parables an opinion is all too often more powerful than knowledge or truth. He warns that they may be the means of spreading falsehoods and propagating immoral conduct. Plato also criticizes Hesiod and Homer for the anthropomorphism and amorality with which they portray the gods, as well as for glorifying acts of cruelty and violence, contributing to the deterioration of the citizens' reasoning and morals. Plato's primary motive for painting such a negative picture of the myths is the *paideia* (cf. Jaeger 1964: vol. II). He feels compelled to draft a program of upbringing for the citizens of the ideal state described in his opus magnum. Driven by concern for their spiritual health he starts by introducing censorship, especially with regard to literature for the youth. He also draws attention to the way philosophers use myths in explaining philosophical problems available only to the chosen few – those with the very best of natures – whose mental capabilities enable them to cherish knowledge and to become the rulers of the ideal state (The *Republic* 366B-367E).

By rejecting mendacious myths, Plato builds the theoretical anti-ethical framework for a beautiful mythology. He also specifies the rules of employing stories and images for educational and hermeneutic purposes. Such means should always be used with utmost care and controlled by competent pedagogues who are known for their wisdom and know the 'types' the poets ought to employ to create myths. Any myth which does not conform to these regulations should not be allowed to be known to the public (*The Republic* 369A).⁴

⁴Plato assumes that the value of all products of culture is measured by their moral effect and that the citizens' level of cultural refinement depends directly on their natural capabilities. Those capabilities, in turn, determine the positions held by individual people and by the social classes of an ideal state within an organically structured entity. Plato does not leave room for any changes in the hierarchy and distribution of social roles, consistently propagating the introduction of a universal censorship of culture. This task ought to be undertaken by the most competent stratum of society – namely legislators *cum* philosophers. Plato's view of his native culture is so critical it verges on an allegation of moral decadence: he disapproves of mimetic visual arts and theatrical performances, dislikes popular poetry and music, holds religious superstition and divination in deep contempt and stigmatises the charlatanry of priests and the naïvety of bigots. With regard to state religion, Plato's views are influenced by the rationalistic scepticism displayed by his tutor Socrates. He considers himself a member of the educated elite – people privy to the knowledge of the values that ought to become the foundation of a real culture. As evidenced by the tragic trial of Socrates, this knowledge is not available to the masses, yet it is neither impossible nor actually

1. The Roles of Myths in Dialectics and in the Paideia

The stories told by myths must be critically analysed not only in terms of their content, but also the way they are told. The only acceptable ones are those that portray something beautiful and do so with a serious intent, in accordance with the rules specified by the law (*The Republic* 379A-B, 392C, 398A-B). The songs of storytellers (mythológoi) consist of words, harmony and rhythm (*ibidem* 389C). The word ought to be presented in a suitable linguistic form, appropriate for the model - type - of the story, while harmony and rhythm should follow the word. The combination of the three elements ought to shape the structure of the soul (psychés éthos). A wellformed phrase (euloqía), harmony (euarmostía), chord (euschemosýne) and rhythmicity (eurythmía) align with the nature of the soul (euetheía), which is to be found not in maudlin stirrings of emotion, but in beautiful and true convictions. The lack of harmony, dissonance and arrhythmia coupled with inappropriate words (kakología) are a projection of the disorder within the soul (*ibidem* 400E-401A). The only poets sought for by the educators in an ideal state would be those able to portray virtuous and beautiful characters in a harmonious and rhythmical manner. An upbringing which employs poetry and music is felt deeply within the soul and shapes our personalities, instilling and developing the ability to connect separate elements into a harmonious body in accordance with the idea that forms the foundation for all entities and the model for all images – natural or artificial. What vision (théama) could be more beautiful than one which involves seeing (theástai) a mutual convergence of the beautiful nature of the soul with an appropriate musical framework of a poetic performance (*ibidem* 402C-D)?

The basic criterion for creating a beautiful mythology, apart from educational considerations, is the noëtic principle of IMITATIVE REPRE-SENTATION (*afomoiosis*). It stipulates that the representation ought to be

necessary to educate the people to such a degree. Knowledge should be administered in carefully measured doses, due to the natural limitations of those people who were not born to be philosophers. Granting access to a specific portion of knowledge to the various social strata ought to be the role of the intellectual elite of educators, whom Plato regards as the most competent to form the ruling caste of an efficiently functioning state. The government ought to control the citizens' access to products of culture in order to eliminate the danger of anarchy, revolution and social unrest and to prevent the unenlightened masses (who cannot control their behaviour) from becoming morally corrupt. A state based on an appropriate functional hierarchy, well defended by public security forces is the mainstay of the harmonious coexistence of all people. It also provides the perfect environment for the most valuable social stratum – the philosophers (Cf.: Jaeger 1964: vol. II, p. 306n).

presented in such a manner that even the verbal lie of a myth (*pseudología*) would have some semblance of truth. This criterion seems a clear paradox, yet Plato adds a number of very specific methodological rules that are to be applied in the process of making a mythical lie similar to the ideal truth. Through these regulations, mythology becomes subordinate to noëtics and dialectics. If applied to, they prevent the lie from instilling faulty convictions or propagating morally wrong attitudes (*pseudopaideia*), rendering the myths useful.

Plato's analysis of myths is based on the elementary rule of the paradigm – the analogy between the representation and the represented. The rules and models defining the implementation of this general rule are clearly visible in Plato's hermeneutics. He also distinguishes three basic functions of stories, images and comparisons that serve the art of discourse, which lead the best part of the soul up to the contemplation of what is best among realities (*ibidem* 532C-D).

The first type of images mentioned by Plato are examples (*parathítema*) which play an illustrative and aesthetic role. They constitute a literary embellishment that is nevertheless useful in terms of dialectics, as it helps the listener (or reader) to concentrate and piques his or her interest. The beauty of expression, the aptness of comparison and the expressiveness of an image draws the attention of the audience towards the subject of the lecture or discussion. It attracts the listeners, stirring their minds from lethargy – it is an aesthetic wake-up call. Such a role is performed e.g. by comparing the benefits of the educational influence of poetry and music to a wholesome climate in which young and impressionable disciples of the first stage of education are brought up⁵ (*ibidem* 401C). The realistic description of the surroundings in which the conversation between Socrates and Phaedrus takes place may also be considered a background – a stage design – for an intellectual drama which is about to play out in the celestial sphere of being (*Phaedrus* 229A–230E).

Plato's dialogues are full of images-examples whose primary function is to enrich and aesthetically improve the lecture on serious and difficult philosophical concepts. This is achieved by peppering the argument with comparisons or stories, many of which are allegorical in nature and can easily be 'translated' into the language of the discussion. Such a translation is usually provided – it discloses the hidden moral truth. One example of such

⁵J. Adam, a commentator of Plato's *Republic*, points to the poetic melodiousness of the verse in this fragment. The very cadences resemble gentle gusts of wind described by the author (cf. *The Republic of Plato*, vol. I, p. 166, note to verse 401C21).

an image-allegory is the comparison of the soul hidden within the body of the sea-god Glaucus, 'whose first nature can hardly be made out', because 'the original members of his body are broken off and mutilated' by the waves 'and other parts have attached themselves to him, accretions of shells and sea-weed and rocks, so that he is more like any wild creature than what he was by nature' (*The Republic* 611C-D). A similarly allegorical role may be ascribed to the example of a strong but a slightly deaf and visually impaired shipmaster, who is deemed unfit to be a leader (*ibidem* 488A-E). Allegorical images may take the form of a comparison or sometimes a parable with an illustrative and educational role. Such stories often contain a humorous or ironic aspect. One such allegory is the myth of the birth or Eros, told by Aristophanes in the *Symposium* (189C-193C), or the longer story of the creation of mankind included in *Protagoras* (320D-322D). The latter parable borders on explanatory stories whose aim is to illustrate an analogy presented in the language of discourse with the help of an image.

The second type of images is a myth followed or accompanied by a more or less precise paraphrase into the language of discourse. Usually the story is long and contains a moral lesson corresponding to the claim the allegory is explaining. A parable-myth resembling a historical (as in *Protagoras*) or a metaphysical legend (as the famous story about people trapped in a cave, described in book VII of *The Republic*) plays an interpretative and explanatory role which runs parallel to the line of discourse. Such stories are auxiliaries for reason, usually based on analogy. Plato also uses imageslikenesses description of that which may easily be presented in a graphic form, e.g. a model of the stages of cognition compared to the levels of reality of various forms of being in book VI of *The Republic* or the description of the biaxial revolutions of the soul of the universe described in *Timaeus*. What these images and allegorical parables have in common is that the author himself demythologizes them: precise composition of a model, image or parable is accompanied by a provocative decomposition – the imagecomparison is brought down to the level of discussion or the compilation of theoretical conclusions. The rules of composition and decomposition of myths are based on the model of analogy that assigns specific elements and entire relative structures according to the level of formal and qualitative similarity. The model of analogy – especially the analogy of proportion – is based on mathematical proportions of elements and systems.

The subjects for myths-comparisons, images-examples and allegorical parables are often taken from religious and literary tradition. However, Plato always tries to bring the intellectual core of the stories and legends to the foreground, by presenting a rational transposition of the plot which – if understood literally – is fictional or at least unverifiable. The beauty of myth consists in the hidden thought on some essence or truth, which has to be revealed through explanatory interpretation, showing a model of logical thinking in line with some analogy. This way even a fictional image-likeness may be lifted to the level of idea-models. This is the true knowledge of the type in accordance with which myths are to be created and explained. The formal structure of analogy found in images-likenesses and allegorical parables represent the order of the world, the rules of cognition and the model of dialectic ascent. Analogous mimesis constitutes the warp of reality – the relations of being – cognition, expression and interpretation.

The third type of mythical stories are symbolical myths performing a singular analytic function. They have no discursive equivalent in the form of a demythologizing interpretation, nor do they hint at the existence of such an interpretation. Their primary role is psychagogicial – they aim at conveying metaphysical truths pertaining to objects which are either too remote in space and time (like e.g. the cosmological myth in *Timaeus*) or escape both conjectures and terminological knowledge (e.g. the myths about the nature and fate of the soul included in *Phaedro* and *Phaedo*). Here, a mythological story is a substitute of a discussion, not its auxiliary. It does not aim at presenting a dialectic line of argument in a graphic way or at illustrating an analogy, but at introducing a new type of intuitive experience -vision (*theoría*) evocative of religious initiation into orphic or Pythagorean mysteries.⁶

Symbolic myths appearing in Plato's works touch on the most important metaphysical subjects and constitute the greatest achievement of his beautiful mythology and the art of discourse. Philosophical wisdom cannot be described in the language of science and dialectics. It requires a special explanation that may be effected with the help of means that – like a spark – light up

⁶Such a parareligious understanding of the analysis of myth is connected to the role of propagating a message that is more than a simple information, but also a revelation, an explanation and a translation. It facilitates understanding – in other words, brings a meaningful, but not sufficiently clear message closer to the audience. "The meaning of *hermeneúein* runs in three directions: speaking, explaining, translating. [...] What all hermeneutic aspects have in common is the assumption of the existence of a deeper level of the studied phenomena , searching from the truth which is not given ostensibly, for a reality that for some reason remains hidden. [...] It is assumed that the deeper meaning is true and the 'shallow' sense is not authentic (Cf. Bronk 1982: 28). The Platonic domain of deep structures on a semantic level corresponds to the sphere of pure noësis and the domain of essentials on the level of being.

the fire of understanding within the soul, which then continues to shine and feed oneself (*Letter VII*, 341C-D). The structure of metaphor in myths of initiation is a type of the formal model of the analogy of proportion. However, in order to grasp it properly, one must know not only comparisons based on similarity, but also accept the improbability (i.e. un-truth) of the story which, despite having an imaginary plot, does not become a figment of imagination or a lie, but a SYMBOL of a truth concealed in its additional meaning. Here, a fabrication of a story has a positive aspect, as it does not result from free fantasy, but describes an image born of thought and touching essence by the power of direct seeing. This truth ought to be sought not in the external explanatory and likelifying interpretation, but within the metaphor which penetrates deep into the deep structure and its meaning.

2. Allegorical Hermeneutics 2.1 Isomorphic and Homomorphic Proportions

Before we discuss the analytical function of myths-allegories, we ought to focus on the issue of analogy.⁷ The formal structure of such myths resembles the model of the analogy of proportion: A:B::C:D. The myths-analogies found in Plato's works make much use of the analogous relation of homomorphism, which can be depicted as the following:

$$\frac{(AB)}{(CD)} = \frac{S(AB)}{S'(CD)} = \frac{ARB}{CR'D} \cdot \frac{A(Ra)}{C(R'c)} \cdot \frac{B(Rb)}{D(R'd)}$$

This model is to be read: the set (pair) of AB and the set (pair) CD are analogous if and only if the structure S of the set (pair) AB is homomorphic to the structure S' of the set (pair) CD. The structures S and S' are homomorphic if the relation ARB is homomorphic to the relation CR'Dand when A in its relative properties a resulting from the relation R is homomorphic to C in its properties c resulting from the relation R', and B as an element of the relation R is homomorphic in its relative properties b to D in its properties d.

The terms of analogy comprise the structuralised sets (pairs) of objects: AB and CD. Analogous elements of those terms are the parts of the compared relative properties: a, b, e, d. The relation of proportional analogy include the so-called piloting term – the starting point of an analogy , and the piloted term – the element being compared to something else. If the elements, relations and properties of the building blocks of analogy are subject to the

 $^{^{7}}$ The general description of these issues is based on the article by Dąbska (1962). The author illustrates various models of thinking on analogies with the examples of Platonic myths.

same law and adhere to the same rule which constitutes the basis for analogy. then the similarity between the piloting and the piloted term is isomorphic in nature, whereas analogy is an essential. The relation of homomorphism is at the same time a relation of similarity, which depends on the degree of connection between the property, the elements and the structural relations and the principle – the basis – of the analogy. The homomorphism of structures, comprising the relations and properties of the segments of analogy, defines their mutual assignations that are not mono-mono-meaningful, but mono-multi-meaningful, determining the partial and gradable similarity between the compared terms. The analogy of homomorphic structures is contextual in character – its occurrence, significance and the degree of mutual assignability of terms depend on the assumed thesis or hypothesis, which forms the basis for the analogy and refers to the broader theoretical context. The demythologizing interpretation of allegorical images based on analogy/homomorphism must, therefore refer to philosophical premises, which indicate the correct direction of deciphering their meaning.

The fact that the piloting term usually belongs to a different area, a different ontic or noëtic category, than the piloted term is characteristic of Platonic analogies disguised as myth-allegories. Justification of conclusions drawn from an analysis of homomorphic representations should be conducted either (1) by checking the propositions regarding the compared objects or systems in a different manner, without referring to the analogy (Dambska 1962: 47-48), or (2) by demonstrating (in a discursive commentary completing the interpretation of the myth) that despite their ontic heterogeneity, both terms of the analogy are subordinate to the same law arising from the fundamental homology of all manifestations of being. Plato applies the second method of justifying analogies. Referring to the common principle, which governs all reality and constituted the basis for the homomorphism of compared structures, he treats this principle as an irrefutable thesisaxiom. An allegorical image based on the analogy of proportion can, in the end, be interpreted only when given the understanding of the more general conception of being and cognition, postulated practically at the point of departure. A myth-allegory assumes the character of a hypothetical model, whose function is to graphically explain the postulation assumed without proof.

The pattern of the relation of analogy of a homomorphic character constitutes the formal basis for an expanded philosophical argument referring to the nature of cognition. Analyses of this problem extend over two books in a row, that is books 6 and 7 of *The Republic*, and contain three consecutive

stages of hermeneutic explanation: (1) image – comparison; (2) model – schema, the deciphering of which is a continuation of the operation of comparing; (3) image – allegorical myth, revealing the following aspects of the problem under analysis.

2.2 Analogy of the Structures of Cognition

The first stage (*The Republic* 508A-509D) can be presented as the following theses:

(1) There are things which we cognize by sight; there are also those which we cognize by thought without seeing them.

(2) In order to see, the necessities are: (a) sight, (b) light, (c) the sun, which is the source of light, (d) the object seen.

(3) In order to cognize by thought, the necessities are: (a) the mind; (b) veracity (the clarity of an idea); (c) the Idea of Good, which reveals ideas and imparts veracity on the subjects of thoughts; (d) the subject of thoughts: the idea.

The following proposition provides the basis for a comparison of the structures of two areas: cognition by sight (*tópos horatós*) and cognition by mind (*tópos noetós*):

(4) To what the Idea of Good is in the area of thoughts and subjects of thoughts, the sun is to the visible world in relation to the objects seen (508C).

This analogy can be expressed by the following diagram:

$$\frac{S(ABCD)}{S'(WXYZ)} = \frac{ARC}{WR'Y} \bullet \frac{BRD}{XR'Z} = \frac{A(Ra)}{W(R'w)} \bullet \frac{C(Rc)}{Y(R'y)}$$

(S = structure of cognition by sight; S' = structure of cognition by mind; the piloting term: A = the sun, B = the light that makes an object visible, C = sight, D = the object seen by sight, R = seeing with sight, a = lighting of the visible object, c = visibleness; the piloted term: W = The Idea of Good; X = clarity making the object veritable, Y = the mind, Z = the object of thought (i.e. the idea), R' = seeing with the mind, w = clarification of the idea (the making true of the idea), y = cognizability by thought).

In order to complete the relation of analogy, it would be necessary to add to this diagram the following segments of the relation of similarity: $\frac{BRD}{XR'Z} \bullet \frac{ARD}{WR'Z}$, which should be read as: (1) light refers to the seeing by sight of the visible object in the same way as the clarity of the idea to the seeing by mind of the object of thought; (2) the sun refers to the seeing by sight of the visible object in the same way as the Idea of Good to the seeing by mind of the object of thought (the idea). However, Plato does not drive his analogy

precisely in this direction. The issue of the relation of the Idea of Good to all the remaining ideas, and the issue of the manner in which the Idea of Good reveals other ideas – subjects of thought, still remain unexplained. It is also unclear whether the above analogy could be broadened to include all types of sensual perception, given that, for example, the similarity of the clarity of idea and light, and the sun and the Idea of Good, fails in the case of perception by hearing. What is more, the relation of analogies that might seem a typical case of the homomorphism of the structures of sensual and mental cognition is founded by Plato on a principle of the obligatoriness which is formulated by him much more strongly than it evinces from the relation of similarity of the compared terms alone, thereby suggesting that this analogy is essential in character – that it is isomorphic, based on the principle of participation (*méteksis*) of all being and cognition in the Idea of Good.

The Idea of Good, the super-celestial divinity, is the overlord, the source of seeing and visibility, and at the same time the source of all that is seen. The corporeal sight is the instrument that most resembles the sun, although it is not the sun, but only derives from it, as from the cause, the possibility of seeing - it is, so to speak, the sun of the body. The sun, in turn, is the creation and image of the Idea of Good. The relation of the sun to seeing by sight is such as the relation of the Idea of Good to seeing by mind. The clarity of an idea is the analogue of the light. As we cannot see without light, we cannot cognize by thought without clarity. Clarity is the veracity of the idea. As the sun is the cause of light, and thus of visibility and of cognition by sight, so the Idea of Good is the cause of clarity, and thus of veracity of everything that is cognized by means of thought. Although, however, both truth and thought are beautiful, the Idea of Good must be thought of as something different from them and more beautiful than they. This is because the Idea of Good exceeds both truth and thought, and it exceeds that which is being thought as the subject of thought. From the Idea of Good the subjects of thoughts, the ideas, derive their "essentialness", their truth and cognizability. Thus, both the ideas (the essentials) and thought participate in what exceeds them and is separate from them (*horismós*). The Idea of Good is a hyperbole for all essentialness and all cognition (*The* Republic 509C).

In Plato's ontic hierarchy of values, Good is the super-essential that exceeds in beauty the truth grasped by thought.

The thesis derived from the following argument is the foundation for the analogy of the S and S' structures: (1) every cognition is a kind of seeing,

(2) every seeing is dependent on something external which makes the seen object visible,

(3) every cognition is dependent on something external that makes the object of cognition cognisable.

It is true that with respect to seeing with sight (as Plato's noëtics is thoroughly iconic!), what enables it from the outside is the sun; but the metaphysical source $(arch\acute{e})$ of every capability of cognition is the Idea of Good. It is from the Idea of Good that the sun derives its capability of shedding light on visible objects, following the pattern of, and due to, the Idea of Good.

The double hierarchy of ontic and noëtic representation according to Plato's pattern of analogy, reducing the one and the other to their shared prime cause, should finally appear as follows:⁸



The above analogy does not explain participation and derivation of being and cognition; it suggests and points to it at most. What is more, the relation of analogy under analysis ought to be reversed: the piloting term should be the structure of mental cognition as the one closer to the source of cognition and being, referring the seeing-cognition to the metaphysical principle and hence the clearer one; then, the piloted term would be the structure of

⁸A slightly different classification of the hierarchy of cognition and being is given in the running commentary to *The Republic* by J. Adam (1907: vol. II, p. 60, note to 508D29 and "Appendices to Book VII", *ibid.*, p. 171). In Plato, the metaphor of the light (clarity, veracity) of the sun (the Idea of Good) fulfils various ontic and noëtic functions. Its primary role, fully exploited and expanded by Plotinus, is to demonstrate not only the parallelism of the ontic and noëtic spheres, but also to the co-derivation and co-participation of being and cognition in the one, absolute and transcendental proto-principle. Cf. also Ferguson 1921 and 1922, Murphy 1932.

sensual seeing, which would be explained by referring, by analogy, to the first one. However, Plato fails to conduct such an operation ordering the analogical perception, at least on the level of discourse dialectics, where he follows the chronological order of knowledge in accordance with the stages of teaching. He does that with full awareness of the innate imperfection and inevitable indirectness of human cognition, which through necessity must begin from the level of sensual experiences and must resort to comparison and explanatory examples. Hence, Plato uses analogy to demonstrate that indirectness on the one hand, and on the other to point out that visibleness and cognizability, clarity and essentialness, in their final cause can be seen and understood thoroughly only with pure thought.

The operation of comparing structures, relations and elements is based on a principle which is proportionally and analogously fulfilled by visibleness and cognizability. The obligatoriness of this principle does not arise logically from the similarity of configurations alone, but is based on a thesis which is external to the analogy itself and forms the basis for the mutual relation of compared segments. Analogy is therefore only a elucidative method, helping to understand fundamental theorems of Platonic ontics and noëtics.

Here, however, lies a certain hermeneutical circle⁹ in Plato's dialectics:

⁹Concerning this, R. E. Pa1mer (1969: 25-26) writes: "For the interpreter to 'perform' the text, he must 'understand' it: he must pre-understand the subject and the situation before he can enter the horizon of its meaning. Only when he can step into the magic circle of its horizon can the interpreter understand its meaning. This is that mysterious 'hermeneutical circle' without which the meaning of the text cannot emerge. But there is a contradiction here. How can a text be understood, when the condition for its understanding is already to have understood what it is about? The answer is that somehow, by a dialectical process, a partial understanding is used to understand still further, like using the pieces of a puzzle to figure out what is missing. A literary work furnishes a context for its own understanding; a fundamental problem in hermeneutics is that of how an individual's horizon can be accommodated to that of the work. A certain pre-understanding of the subject is necessary or no communication will happen, yet that understanding must be altered in the act of understanding. [...] Interpretation as saying is reminiscent of the performatory nature of reading; yet even for the performance of reading a literary text, the performer must already 'understand' it. This implies explanation; yet here again explanation is grounded in preunderstanding, so that prior to any meaningful explanation, he must enter the horizon of the subject and situation. He must in his own understanding grasp and be grasped by the text. His stance in this encounter, the preunderstanding of the material and situation which he must bring to it, the whole problem, in other words, of the merging of his horizon of understanding with the horizon of understanding which comes to meet him in the text – this is the dynamic complexity of interpretation. It is the 'hermeneutical problem". These remarks can be applied in full to the Platonic method of dialectics of

the point of departure for the operation of comparing turns out to be a thesis, the acceptance of which is a condition for the correct reading of the analogy and for the recognition of the similarity between the compared elements. The aim of the analogy is to clarify understanding, to grasp the truth more clearly; acceptance of the fundamental thesis is a necessary condition for this. Being the basis for the homomorphism of structures, this thesis is, therefore, both the implicit point of departure, a pre-judgment for the operation of comparing, and the point of arrival in the shape of the clearly expressed concluding judgment. Understanding the sense of homology, the relation of analogy, must be based on the same principle that enables the allegorising interpretation of a comparison. Hence the explanation of the basic thesis through analogy relies on the paradigmatic approaching of the same truth, and the hermeneutic operations that bring closer its explanation and understanding are mainly of an intensive, not extensive character. This arises from the intuitive-imagistic (contemplative) conception of cognition, which emphasises the increasingly clear and distinct seeing/understanding. This conception of cognition, which is obviously dominant in later Platonic dialectics, attaches the greatest importance to the method of actualisation, through a certain type of hermeneutic persuasion, the subjective conditions of mental seeing and finally leads to the idea of un-forgetting (anámnesis) as the proper act of reclaiming knowledge.

2.3 The Schematic Model of Cognitive Structures

The second stage of the elucidative analysis of the nature of cognition, found in Book VI of *The Republic*, can be presented as a geometric model illustrating proportional relations between various types and phases of cognition and various areas of being – the subject of cognition. This model is described by Plato in much detail (*The Republic* 509D-511C). A diagram of the proportion of the area of seeing and area of thought with respect to their gradable clarity is obtained by dividing a straight line into two unequal sections, which in turn are again divided into two shorter ones in the same proportion. The first section of what is visible are images, among which Plato counts shadows, phenomena reflected in water or in smooth, lustrous surfaces, and other similar images that are fabrications of imagination. The second section are those things, of which the former are

ascent, with the proviso that the text to be read and understood is here the logos of reality itself, whose essential deep structure requires to be revealed in the process of interpretation. Thus, in Plato, the 'performing' of the text would be noticing analogous structures – relations between the pattern and the imitation of the pattern – which impose order on the hierarchy of the spheres of being and cognition.

images, shadows and likenesses, i.e. natural and created objects to which opinions and convictions refer. The section of those things, which are graspable by thought, is divided into two sections as well. The first section is the one to which dialectics pertains while formulating hypotheses, which provide a starting point in moving from them, as assumptions/premises, towards principles/conclusions by using visible objects and images as comparisons and examples and thus acquiring permanent convictions. The second and last section of the thought area are objects which are graspable by thought alone, without images or comparisons, i.e. principles, from which one descends to the preceding conclusions and thus acquires sure knowledge. The third stage (section) represents the subject of sciences and arts based on mathematics and geometry. The fourth section represents the subject of the dialectic operations proper. This is the above model in graphic form:

a	b	c	d
A	В	C	D
α	β	 γ	δ

The length of sections in this diagram illustrates the degree of the "essential" perfection, i.e. clarity and distinctness, generality and necessity of cognition, analogously to the degree of perfection of the appropriate categories of being.

Categories of being as a subject of cognition: a = shadows, reflections, representations, images/likenesses (skiai, fantásmata, eikónes) b = natural objects and phenomena, created objects (fytentón genos, zóa, skeuastón genos, fainómena) c = numbers, schemata, geometric figures (schémata, mathémata, goníon eíde) d = ideas, subjects of thought (eíde, noetón génos metá archés) horoméno génos nouméno génos,noetá

Types of cognition with regard to perfection types – clarity, distinctness, generality, necessity:

A = representation (eikon) B = conviction (pistis)	$\big\}$ opinion (<i>dóksa</i>)	
C = discursive thinking (dianoia)	$\left.\right\}$ mental awareness (<i>nóesis</i>)	
D = scientific knowledge (epistéme)	J menear awareness (weess	

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Types of cognitive capabilities:

 $\alpha = \text{imagination and fancy (eikasia, fantasta)}$

 β = sensual experiences (afsthests)

 $\gamma = \text{reason } (l \delta g o s)$

 $\delta = \min(nous)$

The above model may subsequently be translated into the diagram of the analogy of proportion, which develops the preceding image/comparison:

$$\frac{a}{b} :: \frac{c}{d} :: \frac{A}{B} : \frac{C}{D} :: \frac{\alpha}{\beta} : \frac{\gamma}{\delta}.$$

Reading the above diagram, it is possible to formulate the following propositions:

(1) the lower categories of being are an analogous (proportional) representation of the higher categories of being,

(2) the lower types of cognition are an analogous (proportional) representation of the higher types of cognition,

(3) the lower capabilities and cognitive actions are an analogous (proportional) representation of the higher capabilities and cognitive actions.

The diagram of this analogy can be developed in the following way:

$$\frac{a}{A}:\frac{b}{B}\cdot\frac{c}{C}:\frac{d}{C}:\frac{A}{\alpha}:\frac{B}{\beta}\cdot\frac{C}{\gamma}:\frac{D}{\delta}=f\left(\frac{a}{b}:\frac{c}{d}\right)::F\left(\frac{A}{B}:\frac{C}{D}\right)::\varphi\left(\frac{\alpha}{\beta}:\frac{\gamma}{\delta}\right)$$

(f = a feature of the perfection of being; F = a feature of the perfection of cognition, φ = a feature of the perfection of capability and cognitive action)

From this diagram, the following general statements can be drawn:

(4) every category of being/subject of cognition is analogous (proportional) to the type of cognition that pertains to it,

(5) every type of cognition is analogous (proportional) to the type of capability and cognitive action,

(6) every category of being/subject of cognition is analogous (proportional) to the type of capability and cognitive action,

(7) the feature of perfection of every category of being/subject of cognition, and the feature of perfection of the type of cognition that pertains to it, and the feature of perfection of capability and cognitive action, are mutually analogous (proportional), (8) categories of being/subject of cognition, types of cognition and types of capabilities and cognitive actions belong to the mutually analogous (proportional) areas,

(9) the ontic area of the subjects of cognition and the noëtic area of cognition and capabilities and cognitive actions are analogous (proportional) with respect to the respective perfection of being and cognition.

An analogous (proportional) feature of perfection pertains to relevant areas such as: (a) an ontic identity and immutability of the being/subject of cognition; (b) a noëtic clarity, distinctness, generality and necessity of cognition; (c) infallibility and reliability of capabilities and cognitive actions.

The relations of analogy occurring between the type of cognition and the being/subject of cognition, between the type of cognition and the type of capability and cognitive action, and between the lower and higher types of cognition, as well as the lower and higher categories of being and the lower and higher types of capabilities and cognitive actions, fulfil the scheme of representation, universal in Platonic dialectics, based on the analogy of proportion which occurs in a non-symmetrical and non-reversible manner, with respect to the appropriate degree of the feature of perfection. Thus, the analogy of proportion of the structures of being and cognition is, in Plato, combined with the analogy of attribution – according to the gradation of the feature of perfection, which to the initial term, the analogon, is appropriate in the highest degree, and to the consecutive analogates is appropriate in the suitably (proportionally) lower degrees.

The question arises: to what analogon – the epitome and optimum of perfection – does Plato finally compare the structures of being and cognition and the features of perfection of the terms under comparison? The answer to this question, the question about the *tertium comparationis* of analogy, must out of necessity have an external character in relation to analogy itself, and must refer to the central theses/axioms of Platonic ontics and noetics. It is clear from the earlier conclusions that:

(a) in the area of being, the optimum of perfection is the Idea of Good,

(h) in the cognitive sphere, the optimum perfection is fulfilled by the direct, purely mental (i.e. dispensing with the intermediary representations) vision of the Idea of Good as the proto-principle of being and cognition,

(c) in the sphere of capabilities and cognitive actions, the optimum is reached at the stage when the most perfect part of the soul, the mind, becomes similar to the Idea of Good by participating in it.

Thus we return to the hermeneutic circle, typical to Platonic analyses based on analogical thinking. This circle is based on the gradual explanatory and elucidative clarification of essentially the same fundamental truth. This process of interpretation is completed by a mythical image – the allegory of the cave. This third stage of hermeneutic elucidation is a development of the preceding stages, which advances, or rather deepens, the understanding of the nature of cognition in relation to being.

2.4 The Myth-Allegory of the Cave The demythologising 'translation' of this myth¹⁰ into the language of discourse is, to a great extent, done by Plato himself. At the very start of the image-allegory he offers a clue¹¹ that steers the interpretation of the story in a specific direction. One should envisage the state of one's nature with respect to education (*paideia*) and lack thereof (*apaideia* – 514A). This image is accompanied by considerations on the cognitive situation of the people whose perception is limited to a single aspect of reality: they sit in a subterranean cave, fettered to the ground, unable to turn their heads; they look ahead, unaware of what transpires behind their backs. They can only see shadows moving on the cave walls, silhouettes of men carrying various objects, illuminated by the fire that burns somewhere behind the prisoners. The shackled people hear no voices, only faint echoes. The image symbolises limitation of the mind to

¹¹This clue may be treated as a kind of a 'performative utterance' which defines the interpretation of the entire passage. This is a measure characteristic of literature and poetry, and takes the form of an overt or covert semantic directive: 'seeing as'. This issue has been widely discussed by analytical philosophers influenced by Wittgenstein's later works (Philosophical Investigations). Cf. Aldrich 1958, 1962, Hester 1967. P. Ricoeur defines seeing as in the following manner: 'Seeing as' is the sensible aspect of poetic language. Half thought, half experience, 'seeing as' is the intuitive relationship that holds sense and image together. How? Essentially through its selective character: "Seeing as' is an intuitive experience-act by which one selects from the quasi-sensory mass of imagery one has on reading metaphor the relevant aspects of such imagery. This definition contains the essential points. 'Seeing as' is an experience and an act at one and the same time. On the one hand the mass of images is beyond all voluntary control; the image arises, occurs, and there is no rule to be learned for 'having images'. One sees or one does not see. The intuitive talent of 'seeing as' cannot be taught; at most, it can be assisted, as when one is helped to see the rabbit's eve in the ambiguous figure. On the other hand, 'seeing as' is an act. To understand is to do something [...] the image is not free, but tied; and in effect 'seeing as' orders the flux and governs iconic deployment. In this way, the experience-act of 'seeing as' ensures that imagery is implicated in metaphorical signification: 'The same imagery which occurs also means'. $[\ldots]$ Thus, 'seeing as' quite precisely plays the role of the schema that unites the *empty* concept and the *blind* impression; thanks to its character as half thought and half experience, it joins the light of sense with the fullness of the image. In this way, the non-verbal and the verbal are firmly united at the core of the image-ing function of language." (1977: 212-213).

 $^{^{10}\}mathrm{On}$ the myth of the cave in *The Republic* cf. Wright 1906, Raven 1953.

the dimensions of space and time, the incapacitation of cognition with the inertia of matter and corporeality, the reliance on uncertain and changeable sensory experiences and the quasi-idolatry of the shadow, immobilisation of perception, a focus on the phantoms of objects unavailable to direct vision. There exists, however, a different aspect of reality – unseen by the people in the cave – which includes actual being and the light that enables them to see at all. The shadows they perceive are changeable, flickering phantoms and apparitions, deceitful figments of the imagination.

The myth-allegory illustrates the mental state of people who are as if in a dream – in a state of ignorance they mistake for knowledge. On the lowest of levels, they are able to perceive only faint, fickle, unstable and transient phenomena, unable to reach their factual, permanent basis of being – the essentialness. They may at most form faulty convictions and temporary conjectures, having no knowledge and reaching no truth, but merely the semblance of truth. The original state of ignorance and mental passivity subject to the relativism of the perspective of the world they see in front of their corporeal eyes, is a kind of a prison, difficult to break out from. To exit the cave (*eisódos*), free oneself from the fetters of illusion and false conjecture and lift one's gaze upwards towards the light, one needs to fulfil a number of internal and external conditions – not all individual are capable of performing such a feat or ever get the opportunity. To be cured of ignorance one must have a wise and demanding teacher, who can ask questions and force his student to contemplate the nature of things, to determine whether there is a more existing existence than what seems obviously extant (as it is seen by the eye); is there something more real than the likenesses, the constant motion and relativity of the shadows, phantoms and apparitions. A student compelled to make such an effort resists and shies away as someone unused to seeing the sun. This stage is difficult and painful both to the student and to the teacher. Very few are able to continue their ascent (anábasis) until they reach the exit from the cave and reach true knowledge.

The image-allegory refers to the previously presented linear model and the image-comparison. The cave represents an image of the visible world (kósmos horatós) illuminated by the sun, to which the backs of the ignorant are turned, so that even their sensory perception is distorted and limited to the realm of shadows, phantoms and apparitions. It is as though despite having corporeal eyes they are unable to see actual things but only reflections, remaining in the darkness of unawareness. The way upwards from the shadows of the cave represents the gradual turning of one's sight towards the bright light of the world of thought ($k \circ smos \ noet \circ s$). Upbringing is primarily the process of shaping the mind – the essence ethical bravery is reason ($fr \circ nesis$) and the path to reason is at the same time the path towards purification ($k \circ tharsis$) of the human ethos. The theoretical and practical domains of human life (theoretik \circ s i os – praktik \circ s i os) are interconnected and respective to one another (homologia), while the Idea of Good is both a metaphysical and noëtic principle, and the basis for axiological order and ethical bravery.

The process of learning must be gradual. The stages of cognition follow one another in necessary order determined by the state of the nature entangled in sensuality and accustomed to what is corporeal and conjectural (doksastón). Education does not consist in filling the emptiness of the mind with knowledge, but in a gradual awakening of thought and turning the eye of the soul away from shadows, phantoms and phenomena-likenesses towards the truth of being and the brightest light of the Idea of Good. The thought revolves in an upward motion, in sharp contrast with the horizontal turns of sensual experiences, conjectures and opinions which revolve around what is changeable, multifarious and diffuse (518B-521D). This process represents the stages of penetrating the nature of reality, from seeing shadows, images, likenesses and corporeal objects and interpreting them by making distinctions, noticing differences and similarities, perceiving analogy and opposition, differentiating between sensations that 'awaken thought' from those that let it lay dormant (523A-524C). At this stage, it is especially important to engage in physical education – gymnastics – and practice poetry and music as well as craftsmanship. This is, however, a pre-scientific beginning of upbringing and education, a kind of an ethical training – instilling good habits and skills that prepare the student for the mental ascent.

The next step is to reach a level of mental discipline – be able to analyse the nature of things with the use of mathematical sciences. These sciences (mathemata) are taught in the following order: (1) a study of numbers and logistic (arithmetiké, logistiké), (2) geometry (geometria), (3) stereometry (sfairiké), (4) astronomy (astronomía), (5) harmonic (harmoniké) (cf. Adam 1907, vol. II: 163-179). This knowledge helps the student understand the structure of reality as a whole, with all its constant and permanent elements. From wrapping his mind around the simplest notions: numbers, points, lines and planes, through three-dimensional figures and spherical coordinate systems, the student learns to understand spatio-temporal and rhythmic harmonic structures. The aim of studying mathematics is to comprehend ever more complex entities, the inner, organic connection of elements within a whole, finally reaching the level of a mathematical order of the greatest entity – the order of the world and the inner harmony of the soul structured by an educated mind. Such a soul becomes a harmonious (*symfónos*) equivalent of the musical structure of the cosmic spheres (525C-531C). The human soul is a sister to the soul of the universe (cf. *Timaeus* 35A).

According to Plato, the core of education is mental ideation which purifies the mind from the sensual, and not abstraction (in Aristotle's understanding of the term) based on an inferential generalisation of sensory experiences. The mind is cleared through perfecting its understanding of structures and forms that may only be encompassed by thought and are ever closer to ideas – essentials. The Platonic concept of learning is therefore purely idealistic and anti-empirical. Plato emphasises the higher use of impractical sciences – treating them with neglect leads to mental disarray and consequently – ethical and political disorder (528B-D).

Sciences are the stepping stone between ignorance and proper knowledge. They do not speak of ideas – essentials – but draw us closer to perceiving them with our minds, accustoming the intellect to that which is eternal and unmoving (*aidía kaí akinetá*). They are the propodeutic (*propaideia*) of dialectic. The way to mental elevation leads through dialectic ascent¹², which allows the prisoners to leave the cave and see the light of the ideas. The true

¹²A. J. Festugière (1950) describes the way of the dialectics of ascent (la dialectique ascendente) as the way of twofold purification of the mind: through the so-called qualitative abstraction, consisting in a gradual dematerialisation of sensory information, and the so-called quantitative anstraction, which unifies and reduces the extensive and particular knowledge to a single, all-encompassing contemplative vision (p. 104n.). The author points to the parallelism of discourse in *The Republic* and *Symposium*, which essentially lead to the same theoretical and methodological conclusions: [...] just like the ascent to Beauty in itself in Symposium, the search for the Idea of Good through ideas in The Republic is an ascent [anábasis - 519D]. Each stage [epibásis] of the ascent is a new leap, marked by the perception of the essence in the multitude of being" (p. 184). "Thus in *The Republic*, as in *Symposium*, the movement is a return towards entity. The mind adapts to it inasmuch it is able to transcend that which is complex to reach complete concentration on unity, through a synoptic gathering into one" (p. 171–172) (trans. – JM). The only fault to be found in Festugière's detailed analysis is that in introducing the categories of qualitative and quantitative abstraction he 'translates' Platonic thought into the language or Aristotle's philosophy (or even mediaeval interpretations thereof), which seems a distortion. He is right in emphasising the fact that ascent is proceeded by leaps, yet he does not come to the conclusion that seems natural to the reader of Platonic dialogues – that their author propagates primarily a mental 'detachment' from empiricism, and not the continuity of the cognitive process or a constant return to images, characteristic for the process of abstraction as described by Aristotle.

aim of cognition is to see the Idea of Good – the basis for cognizability and veracity.

Plato's characteristic of ideas runs in two directions. With regard to ontic, he distinguishes essentials (ousíaí), separate beings (horistá), always mutually perfectly identical (homoia) different from whatever is detailed and changeable, and different from the mind, remaining in kinship (koinonía) with what can be described as the general and necessary element of the nature or form of things – the element which is grounded in the one and indivisible existing being ($\acute{o}ntos \acute{o}n$) nevertheless manifests itself in the multiplicity of phenomena of the nascent and dying reality (e.g. what is beautiful or good reveals and points to beauty and beauty and goodness, a human being reveals humanity etc.). Plato describes the relation between ideas and phenomena using terms metaphorical in nature, such as: kinship (koinonía), manifestation (parousía), participation (méteksis), similarity between the image (*eikón*) and the model (*parádeigma*), or representation (*mímesis*). From the noëtic side ideas are described as something which is grasped by a pure thought (*noémata*) divine or human, something true (alethés), bright, clear and luminous (fána, fanerá).

Despite the original and theological explanations provided in *Timaeus* and the ethical considerations included in *The Republic*, the problem of the relation between the Idea of Good, the realm of phenomena and the realm of ideas – essentials – was never resolved by Plato by means of discourse. The manner in which the changeable world participates in the realm of idea-models, the fact that ideas stem from the Idea of Good and the representation of ideas in the mind and their perception in the light of the Idea of Good is described by means of allegories and metaphors. This issue, which is the axis of a hermeneutic wheel of many comparisons, parables and analogies, is discussed in the Dialogues time and again.

Platonic 'dialectics of ascent', i.e. the process of intellectual education supervised by an able teacher *cum* hermeneutician (cf. Festugière 1950: 160n), consists first of all in training the student to distinguish and connect (*diaíresis – sýnthesis*, *diakrísis - synagogé*) and to converse logically by asking appropriate questions and giving correct answers, to reach conclusions based on hypotheses and premises and to deduce on the basis of the principles of specific theses.¹³ However, there is more to ascent than just dialectics. The final stage of mental elevation towards the highest clarity of being is the re-acquisition of knowledge (*analambánein epistéme*) through anamnesis.

 $^{^{13}}$ Thus, Festugière distinguishes two aspects of the dialectic process: 'dialectic of ascent' and 'dialectic of descent' which complement one another (1950: 186).

The idea of cognition-vision (theoría) is explained through metaphorical and symbolic myths included in *Phaedrus* and *Pheado* (and also in *Symposium*). These dialogues describe the highest metaphorical and poetic experience of pure thought – Plato refers here to the musical and prophetic initiation, which may happen to the few individuals who are best and particularly persevering in their ascent, as they reach the top and the mind, illuminated by the light of truth, does not turn to individual sciences, reasoning and dialectic argumentation. This ideal may only be reached through the hardship of dialectic discourse. In order to purify the mind, one must have talent, patience and self-discipline, habitually strive to reach higher and higher, be astute, know how to use various tools of mathematics and dialectics as well as be proficient in the art of interpreting images, comparisons and parables. Gaining knowledge is strictly related to moral improvement – it requires ascetism – versatile exercises in bravery.

The problem of mental perception of an actually existing being is related to the self-cognition of the soul – the *residuum* of knowledge and the participant of the highest level of cognition. Plato tackles this issue on a different plane, aware not only at the achievements, but also of the limitations of the knowledge gained by means of the sciences and dialectics, using extra-discursive means and methods of expressing the deepest metaphysical intuitions.¹⁴ This does not mean that he disregarded all that the

¹⁴Due to the separateness and the radical transcendence of total vision with regard to sensory perception and terminological discourse characteristic for scientific thinking and dialectics based on reasoning, dispute and argumentation, seeing the essence constitutes a radical qualitative leap in the process of cognition. One ought to take into account both the holistic, intuitive and symbolical nature of experiencing pure thought, and the distinctiveness of its manner of expression with regard to descriptive language or dialogue argumentation. The intuitive act of anamnesis differs fundamentally from experiences, terms and scholarly reasoning, from the way of dialectic discourse to the end of which it constitutes. There is a proportionally wide epistemological difference between metaphorical and symbolical hermeneutics and dialectics of discourse and allegorical interpretation. Therefore, my understanding of the term 'mental perception' (theoria) is more narrow than that used by Festugière who supports the theory of the continuity of discourse and contemplation in Plato's works. In my opinion, scientific knowledge (epistéme, máthesis) and contemplative vision (theoría) are two heterogeneous types of cognition. The former starts with perception and seeing differences and similarities, differentiating and connecting in order to get closer and closer to mental perception through reasoning, questions and answers. The latter is an act of momentary and total comprehension of the entirety by the eye of the soul awakened through anamnesis. Both these perceptions differ with regard to both the method and the subject of cognition – scientific cognition and mental discourse do not touch in transcendence.

long dialectic ascent has brought. Only after having passed through all the stages of cognition does it lead to knowledge of what is good by nature in the soul of one who is good by nature. One ought to cognize, in an eternal struggle and lasting exertion, both truth and lies about every single being, rubbing against one another, as if on a grindstone, the things and words, visual images and sensory experience, testing their strength and using the method of questions and answers, honestly and persistently, perfecting cognition and knowledge, not out of lowly motives, but in search for the truth. Only then can one be illuminated with the light of true comprehension of all things and reach understanding stretched to the limits of human capability (*Letter* VII 343E–344B). According to Plato, the impulse that initiates the flash of understanding within the human mind is poetic metaphor, which constitutes the fabric of the dialogues discussing metaphysical psychognosis – reaching into the world of the human soul with an inspired thought.

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Elżbieta Kowalska ON CERTAIN CONTEMPORARY CONTENTS IN WILHELM VON HUMBOLDT'S PHILOSOPHY OF LANGUAGE

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Wilhelm von Humboldt's philosophy of language anticipated the present and surely also the future of language research to such an extent that now it still may be considered an interesting proposal. A certain linguistic treatment is necessary to show the current theoretical value of Humboldt's philosophy, which would be a rather controversial one from the viewpoint of a historian: it requires an explication of Humboldt's views using today's commonly accepted terminology. On one hand, such a decision is justified by the aim of the attempt (it should not be regarded as a mere presentation of Humboldt's mind and language conception, but rather a free contemporary interpretation of it), and on the other hand, by terminological fluctuation in the texts of this author, where traditional terms appear next to modern ones.¹ The aim

¹Quotations refer to the following source texts: W. v. Humboldt, Gesammelte Schriften, vol. I — XVII, ed. A. Leitzmann, B. Gebhardt, W. Richter, Berlin: Behr, 1903—1936, de Gruyter, 1968 — numbers of volumes and pages follow, translation into English by K.K., and W. v. Humboldt, Über die Verschiedenheit des menschlichen Sprachbauesund ihren Einfluss auf die geistige Entwickelung des Menschengeschlechts, Berlin: S. Calvary Co., 1876 — later on as Sprachbau + page number: translation into English by K.K. Broad passages are taken from On Language. On the Diversity of Human Language Construction and its Influence on the Mental Development of the Human Species. Ed, Michael Losonsky, Translated by Peter Heath, Cambridge Texts in the History of Philosophy, Cambridge: Cambridge University Press 1999, (accessed October, 2012) — later on as Diversity.

of the present contribution to the contemporary discussions on mentalism is to show how essential the problem of thinking and mind is for linguistic theory, and to present a certain consequent concept of language based on mental phenomena. In the first part the general outline of mind functioning is sketched, the second part presents language as an intellectual process.

1. INTELLECTUAL PROCESS

According to Humboldt, there are two spheres in which the mind's activity is performed in parallel and equal ways: thinking — let us call it cognitive — which is about the outer and the inner reality of a human being, as well as language — all the intellectual procedures that give the cognitive thinking its language form: let us call these verbalizing thinking.²

²Humboldt states a "double activity of the mind that drives [man - K.K.] to the thought and word" ("die zwiefache Geistesthätigkeit, die ihn auf den Gedanken und das Wort treibt" - V, 323). Because "in the language, everything is mental" ([Da] "alles in der Srache geistig ist" — V, 395), "language is the formative organ of thought" — Diversity ("[ist] die Sprache das bildende Organ des Gedankens", Sprachbau, 64). "Language is one of the fields whence the general mental power of human beings emerges in constantly active operation" — *Diversity*) ("Die Sprache ist eine der Seiten, von welchen aus die allgemeine menschliche Geisteskraft in beständig thätige Wirksamkeit tritt — Sprachbau, 26). "The division of mankind into peoples $[\ldots]$, and the diversity of their languages [...], are indeed directly linked with each other, but are also connected with, and dependent upon, a third and higher phenomenon, the growth of man's mental powers" — Diversity ("Die Vertheilung des Menschengeschlechts in Völker [...] und die Verschiedenheit seiner Sprachen [...] hängen zwar unmittelbar mit einander zusammen, stehen aber auch in Verbindung und unter Abhängigkeit einer dritten, höheren Erscheinung, der Erzeugung menschlicher Geisteskraft" — Sprachbau, 16-17). Languages "grew up in similarly conditioned fashion, along with mental power, and form at the same time the animating inspiring principle of the latter. But neither proceeds in succession to or apart from the other, for each is utterly and inseparably the same act of the intellectual faculty" — Diversity ([Die Sprachen] "wachsen auf gleich bedingte Weise mit der Geisteskraft empor, und bilden zugleich das belebend anregende Princip derselben. Beides aber geht nicht nach einander und abgesondert vor sich, sondern ist durchaus und unzertrennlich dieselbe Handlung des intellectuellen Vermögens" — Sprachbau, 51). "For intellectuality and language allow and further only forms that are mutually congenial to one another" — Diversity ("Denn die Intellectualität und die Sprache gestalten und befördern nur einander gegenseitig zusagende Formen" — Sprachbau, 52). However, they are not identical with one another: "Though it appears as not possible to think without language, man still knows thought from word" ("Nun ist es zwar unmöglich, ohne die Sprache zu denken. Allein der Mensch unterscheidet doch den Gedanken vom Wort" — V, 323). There exists a "double activity" of the mind that drives [man — K.K.] to the thought" ("zwiefache Geistesthätigkeit, die ihn auf den Gedanken $[\dots]$ treibt" — V, 323) and "a thinking disjoined from the

The relationship between these two kinds of the mind's performance is called the symbolization relationship; it results in verbal thinking.

Cognitive as well as verbalizing thinking are the only forms of the mind's existence. Our mind is not a substance; it exists as long as it works, and only in the way it works; it is a kind of energy, which is only describable by the forms of its performance, but not by its core, as its core does not exist without its forms. The way it works can be described, but not the way it is: the mind is namely exactly the way it works.³

It does not mean the merely hypothetical existence of the mind; any negation of the mind can be put on a par with negation of culture, civilization and language. Any explanation endeavours of human behavior in these fields, using empiric categories, turn out to be unsuccessful; if one is willing to explain them, one should attribute them to the inner human intellectual activity.⁴

There is a certain analogy between the forms of the mind's work:⁵ the

garment of language" ("von der Einkleidung in Sprache geschiedenen Gedanken" — V, 323) but "Thinking and speaking mutually perfect one another" ([wobei] "Denken und Sprechen sich immer wechselseitig vollenden" - *Sprachbau*, 289).

³Thou Humboldt "is lacking the specifieded notion of mind" ([Humboldt] "fehlt" [zwar] "der bestimmte Begriff des Geistes" — IV, 288), still "the existence of spirit as such can be thought of only in and as activity" — *Diversity* ([doch] "lässt sich das Dasein des Geistes überhaupt nur in Thätigkeit und als solche denken", *Sprachbau*, 56). "the mental faculty exists only as activity" ("das geistige Vermögen hat aber sein Dasein allein in seiner Thätigkeit" — *Sprachbau*, 104). "Thinking is a steady development, a movement exclusively inward, in which nothing as steady, stable or resting can be assumed" ("Das Denken [...] ist ein fortschreitendes Entwickeln, eine blosse innere Bewegung, in der nichts Bleibendes, Ständiges, Ruhendes angenommen werden kann" — V, 376-377). The same of language: "Language, regarded in its real nature, is an enduring thing, and at every moment a transitory one" — *Diversity* ([Genauso ist die Sprache], "in ihrem wirklichen Wesen aufgefasst", "etwas beständig und in jedem Augenblicke Vorübergehedes" — *Sprachbau*, 55).

⁴"This development [of the language faculty — K.K.] is not the one of an instinct that could be explained exclusively physiologically" ("Diese Entwicklung [des Sprachvernögens] ist aber nicht die eines Instincts, der bloss physiologisch erklärt werden könnte" — Sprachbau, 306, cf. also Sprachbau § 2-7); "[...] this connection of outwardly unlinked phenomena [culture, civilization and language — K.K.] must lie in a common inner cause [...]" — Diversity ("[...] so muss dieser Zusammenhang äusserlich nicht verbundener Erscheinungen in einer allgemeinen inneren Ursach liegen [",]" — Sprachbau, 26, cf. also Sprachbau § 2-7).

⁵"Since man therefore first began to speak as he was not able to think without a language, thus the form he had given to his speech were determined by the **communal laws** of thinking" ("Weil der Mensch zuerst darum sprach, weil er ohne Sprache nicht zu denken vermochte, so bestimmte die Allgemeinheit der Denkgesetze die Form, die

differences between cognitive and verbalizing thinking are based on the diversity of the reference object, not of the way. The cognitive activity of our intellect performs some reality treatments, altering them into the already learnt reality. These treatments include distinction between things as well as relationships between them. Linguistic activity of the mind symbolizes the cognitive one, transferring it back to the physical reality (text).⁶

The cognitive and verbalizing mind's performance is a constant process, as it is not possible to remain quiescent for something that is supposed to be an action *ex definitione*. This process is eternal for the mankind: a human being is a human being as long as his mind works, as long as he is capable of thinking and of speaking.⁷ This does not exclude neither the hypothesis

⁶"Intellectual activity that is entirely internal, and to some extent passing without trace, becomes, through sound, externalized in speech and perceptible to the senses" — *Diversity* ("Die intellectuelle Thätigkeit, durchaus geistig, durchaus innerlich, und gewissermassen spurlos vorübergehend, wird durch den Laut in der Rede äusserlich und wahrnehmbar für die Sinne" (*Sprachbau*, 64). Language is the "everlasting intermediary, uniting mind and nature" (Die Sprache ist "ewige Vermittlerin zwischen dem Geiste und der Natur" — *Sprachbau*, 215).

⁷"For us, who receive light from a brief past only, language shares this *infinitude*, without beginning or end, with the whole existence of mankind" — *Diversity* ("Die Sprache hat diese anfangs- und endlose Unendlichkeit für uns, denen nur eine kurze

er seiner Rede gab" — VII, 596). "If language should be produced in conformity to the thought, it must in its structure be, as far as possible, appropriate to the organism of the thought" [i.e., to the structure of thinking — K.K.] ("Soll nun die Sprache dem Denken gerecht seyn, so muss sie in ihrem Baue, soviel als möglich, seinem Organismus [i.e., der Struktur des Denkens — E.K.] entsprechen" — IV, 307); the term "organism" is by Humboldt used interchangeably with the term "structure" (Struktur - cf.Sprachbau, 205). On the analogy between language and thought: "According to the mysterious analogy appearing between all the human faculties [Vermögen], as soon as man clearly recognized an object as distinct from him, he must have at the same time produced a sound that had to refer to this object [...] The same analogy has remained valid later on. When the man was looking for linguistic signs, his intellect was busy at distinguishing. It thereat continuously created wholes that were not real things, but were concepts permitting every single division and a new combination. After this, the tongue [Zunge] thus also selected articulated sounds consisting of elements that allowed multiple combinations" ("[...] nach der geheimen Analogie, die zwischen allen Vermögen des Menschen ist, musste der Mensch, sobald er deutlich einen Gegenstand als geschieden von sich erkannte, auch unmittelbar den Ton aussprechen, der denselben bezeichnen sollte [...] Dieselbe Analogie wirkte weiter fort. Als der Mensch Sprachzeichen suchte, hatte sein Verstand das Geschäft zu unterscheiden. Er bildete ferner dabei Ganze, die nicht wirkliche Dinge, sondern Begriffe [...], abermalige Trennung und neue Verbindung, zulassend, waren. Diesem gemäss wählte also auch die Zunge articulirte Töne, solche die aus Elementen bestehen, welche vielfache neue Zusammensetzungen erlauben" — VII, 582-583).

of the chronological beginning of the language nor the evolutionary theory; the eternity of the cognitive-linguistic process as a matter of fact comprises the thesis about constitution of the humanity by thought and language.

Now, let us name certain consequences of the concept of the doubleworking (cognitive as well as verbalising) mind, which is considered to be a twofold eternal intellectual process.

An intellectual process, in whichever form — may it be cognitive or linguistic — consists in manifold creation. First and foremost, it changes the reality, which, learnt and defined by empirically perceivable words, is not a mere physical reality any more. Thus, the phenomenon of the mind's existence is creative as itself — the phenomenon of thinking and the one of language. Besides, this process is nothing more than a variety of changes, which develop one from another; where there are there no changes, no process exists, only continuation exists. Our mind does not last, but our mind functions; while functioning, it changes itself, but at the same time it also changes everything that it influences. This means, an intellectual process should have certain components: some techniques to make changes in itself as well as means to alter the object it influences. The results of this formation are the next step of the creative change introduced by the process. As the intellectual process is performed eternally (admittedly, eternity is here relativized to the human's perspective, but it may be absolutized for the greater intellectual comfort), the changes it introduces are unending and so are the changes occurring in it; thus, there needs to be the opportunity to be able to be endlessly creative as well as the ability of self-creation. Finally, in spite of its endlessness, seen as an indispensable attribute of the human's mind, the mental process can be assigned to an individual human being: it can be performed in only the one individual, being at the same time the process of his development as well as his self-creation. Hence, not only the mental process is creative in terms of its capabilities, but also, or maybe mainly, an individual is creative in the process: the performance of our mind acts as a tool and as a goal of the development of an individual.

Let us now consider the place of communication in our discussion, supposing language is the mind's procedure parallel to the thinking process. As Humboldt claims, there is nonetheless no direct transfer from one human's consciousness to the other one, but people still have a sense of belonging

Vergangenheit Licht zuwirft mit dem ganzen Dasein des Menschengeschlechts gemein" (*Sprachbau*, 76). "All comprehension of man lies only between the two [i.e., in the language — K.K.]" — *Diversity* ("Alles Begreifen des Menschen liegt in der Mitte von beiden [d.h. von der Sprache — E.K.]" (*Sprachbau*, 48).

to the same species and a need to contact with others intellectually as well as emotionally, which results from their mind.⁸ This need is satisfied by \communication, of which the most precise tool is language, being the medium in perceiving the physical reality of the mind and in creating its own reality — the mental one.

The need of the intellectual contact, which would support the selfcreation of an individual, provides a bridge between the mind of an individual and the mind of the other one, namely communication.⁹ The bridge of the text is only symbolic and conventional: actually, it is a mere impulse created on the other side of the gap between two people's consciousness as well; it works when the other part accepts the impulse. Communication is a part of the mental process in two ways: through the process of text production by the text producer (the text recipient's task is to receive the text) as well as through the fact that the text producer is able to have a verbalized thought (which is then received by the recipient on the basis of the text). In that way it is possible to maintain the double parallel character of the mind's procedures: text production by the text producer as well as text reception by the text make both the verbalization process of our mind, which is performed in the minds of both parts of a communication act, though the way it is performed is not the same; the process of verbalized thought creation and the one of interpreting it belong both to cognitive thinking. That means the interpretation act is as creative as the creation act: it is necessary for the recipient to have the ability to understand the text. The difference between

⁹"Nobody means a word precisely and exactly of what his neighbour does, [...]Thus all understanding is at the same time a non understanding, all occurrence in thought and feeling at the same time a divergence" — *Diversity* "Keiner denkt bei dem Worte gerade und genau das, was der andre. [...] Alles Verstehen ist daher immer zugleich ein Nicht-Verstehen, alle Uebereinstimmung in Gedanken und Gefühlen zugleich ein Auseinandergehen" — *Sprachbau*, 78); language "creates bridges from one individuality to another, and intermediates in understanding one another" (die Sprache "baut wohl Brücken von einer Individualität zur andern, und vermittelt das gegenseitige Verständnis" — *Sprachbau*, 208).

⁸"Between mind and mind there exists no other intermediary than the language" ("Zwischen Denkkraft und Denkkraft [...] giebt es keine andre Vermittlerin, als die Sprache" — VI, 26). "Nor do we even have [...] the remotest inkling of another as an individual consciousness" — *Diversity* ("Wir haben auch nicht einmal die entfernteste Ahndung eines andren, als eines individuellen Bewusstseins - *Sprachbau*, 45). "The power of thinking needs something that is like it and yet different from it. By the like it *is* kindled, and by the different it obtains a touchstone of the essentiality of its inner creations" — *Diversity* ("Die Denkkraft bedarf etwas ihr Gleiches und doch von ihr Geschiednes. Durch das Gleiche wird sie entzündet, durch das von ihr Geschiedne erhält sie einen Prüfstein der Wesenheit ihrer innren Erzeugungen" — *Sprachbau*, 68).

the text recipient and the text producer is that the stimulus to produce one's own thought is different (the recipient's stimulus is the perceived text, the producer's — any other stimulus), and not their participation in communication. Understanding of a text requires namely the same mind's activity as the text production.¹⁰

In this approach, it would be simply irrelevant to what extent the recipient used the empirical reality and to what extent this has already been shaped in his mind (either by the epoch's mind or by the idea processed by historians, or simply available to them directly) or how much of the text producer's initial idea his current utterance contains. The author or the content transferred by the text producer are not significant for the reception. Important is the content which the text recipient could create by himself. In other words, one can understand only things one can think up. Hence, an interpretation can be one of the forms of an intellectual creation, meaning it is a part of the mental process.

The phenomenon of a communicative medium is the other aspect of the creative intellect's working; if you continue to use the interpretation scheme applied above, you should state that the one text is something different if you regard it as a kind of expression, and it is different if you regard it as a communique for the recipient — among others with regard to honesty category use, which can be supposed in expression, but which would be risky in the communication process. The presupposition as regards the diligence of the text producer is therefore justified as a premise, either enthymematic or expressed *explicite* when analyzing a text in the sense of an expressed thought, i.e. in its relation to the producer and not with reference to the recipient, for the former may have various intentions towards the latter. The ground of communication requires different descriptive measures because it makes a new quality in the production of the language.

¹⁰"Understanding of a word only takes place because one would be able to speak the latter by itself" (("Man versteht das gehörte Wort nur, weil man es selbst hätte sagen können" — V, 382). "There can be nothing present in the soul, save for one's own activity [...]" — *Diversity* ("Es kann in der Seele nichts, als durch eigne Thätigkeit, vorhanden sein [...]" — *Sprachbau*, 68); cf. also VI, 174. "[...] nor is it otherwise with understanding. It wholly rests upon an inner self-creation, and conversing together is only stimulating for the hearer's dispositions" — ("[...] dass auch das Verstehen ganz auf der inneren Selbstthätigkeit beruht, und das Sprechen miteinander nur ein gegenseitiges Wecken des Vermögens des Hörenden ist" — VI, 176). "[...] and language as depending upon speaking as well as understanding always is only a common effect for both the speakers" ("[...] und abhängig zugleich vom Meynen und Verstehen ist die Sprache allemal nur das gemeinschaftliche Resultat beider Sprechenden" — VII, 597).

The description of a creative intellectual process (in the above interpretation) concerns the processes of cognition and language equally, yet in a different manner. The reason why it is impossible to identify thinking with language would be that they are complementary and in principle nonreducible to each other. This can be exemplified as follows: depending on linguistic measures the most eminent heuristic intuition can be formulated accurately or be oversimplified to a banality by a less successful verbalization, while even the most banal thought can become a linguistic discovery in poetry. In order to explain this phenomenon (if the above interpretation is right) we obviously must propose more detailed hypotheses concerning the relation between language and thinking that would be as significant as the hypothesis of the intellectual character of both of them.

The issue of the non-identicalness of the cognitive and linguistic processes from Humboldt's perspective can be reconstructed in the following way: the cognitive thinking is a kind of superstructure over the physical reality, as it were. The reality of thinking is a sort of a mind-constituted and verbalized meta-reality.¹¹ The process of cognition has several stages. The first stage embraces the constitution of an image based on observation: this includes the analysis (the identification of features perceived in time and space) and the synthesis (the unification of the features into an image). The second stage consists in creating notions: in this case the mind's activity comprises the analysis (of various images) and the synthesis (of the images of a certain kind into a notion). An indispensible link between an image and a notion is a word; if the word that we can apply for different images of certain common features or for different instances of a given object were not created, a notion could never exist, and, conversely, the word will not exist if there is not a notion.¹²

¹¹"[...] language becomes [...] a world created as congenial to the reality" (VI, 364). "If we imagine language as a second world constituted by man from the impressions perceived by him from the real world, then words therein are the individual objects [...]" ("Wenn man sich die Sprache als eine zweite, von dem Menschen nach den Eindrücken, die er von der wahren empfängt, aus sich selbst heraus objectivirte Welt vorstellt, so sind die Wörter die einzelnen Gegenstände darin [...]" — Sprachbau, 88).

¹²"The nature of thinking lies in reflecting, that is, in the act by which the thinking subject is opposed to what he has thought [...]. Now, in order to reflect we must in our mind arrest the continuous flow of impressions in order to concentrate on something, comprehend this something as a separate unit *(Einheit)*, and set it as an object over and against our thinking activity" ("Das Wesen des Denkens besteht im Reflectiren, d.h. im Unterscheiden des Denkenden von dem Gedachten. Um zu reflectiren, muss der Geist in seiner fortschreitenden Thätigkeit [...] das eben Vorgestellte in eine

The introduction of the term "notion" permits us to explain why we use exactly the same word for different instances of a given object or for different images of these instances in our consciousness. It also helps us answer the question of how we can tell that an object belongs (or not) to the category of objects denoted by this particular word after having seen the object for the first time. The prognostic value would be a measure of clarity of the notion denoted by a given word.

Even though the creation of a notion and its lexical equivalent is a simultaneous process, their emergence occurs as a different intellectual and analytic-synthetic procedure in both cases. They both use different elements and have different results. While creating a notion, the mind uses images it had previously singled out — these are perceptive units that can be resolved into images — i.e. sensory equivalents of the perceived features. In the process of creating a word the mind uses linguistic units (phonemes) that can also be divided into features. In both cases it manages the rules of carrying out operations as well. Therefore, the intellectual (cognitive and linguistic) process occurs by means of articulative measures on several levels with the use of rules of creating the higher-order units. The rules of articulation and creation are specifically different for both of these mind activities.¹³

¹³"In man, two domains combine with one another, which are capable of dividing itself up into a finite number of elements, but also to combine the latter *ad infinitum*, in which each part always presents its particular nature as a relation to the parts of its domain. Man possesses the power to divide these domains, mentally by reflection, physically by articulation, and to connect the elements again, mentally by a synthesis of the intellect, physically by accent, that connects syllables into words and words into speech. [...] Their mutual interpretation must be caused by the same power that arises from the mind" ("Es vereinigen sich also im Menschen zwei Gebiete, welche

Einheit fassen, und auf diese Weise, als Gegenstand, sich selbst entgegenstellen" — VII, 581). "The activity of the senses must combine synthetically with the inner action of the mind, and from this combination the idea is ejected, becomes an object vis-a-vis the subjective power, and, perceived anew as such, returns back into the latter. [...] But language is indispensable for this. [...] and without this transformation, occurring constantly with the help of language [...] into an objectivity that returns to the subject, the act of concept-formation, and with it all true thinking, is impossible" ("Die Thätigkeit der Sinne muss sich mit der inneren Handlung des Geistes synthetisch verbinden, und aus dieser Verbindung reisst sich die Vorstellung los, wird, der subjektiven Kraft gegenüber, zum Object, und kehrt, als solche aufs neue wahrgenommen, in jene zurück. Hierzu aber ist die Sprache unentbehrlich; [...] ohne diese, wo Sprache mitwirkt, auch stillschweigend immer vorgehende Versetzung in zum Subject zurückkehrende Objectivität ist die Bildung des Begriffs, mithin alles wahre Denken, unmöglich" — Sprachbau, 66-67).

Before we can describe the consequences of such a perspective, we must indicate another important aspect of the outlined epistemological schema. A word that is placed between the images of reality (mental units) and notions (intellectual units) means, according to Humboldt, that the mind accesses the reality through both its cognitive and linguistic processes. The linguistic categories co-determine the cognition equally with other categories of the intellect. In a way language — as an existing one we did not create is another cognitive category, a way of perceiving the world that must be allowed for in the gnoseology. The mind consorts with the objects provided by senses and language.¹⁴

The only thing remaining is to ponder the legitimacy of introducing the category of "notion" — or more generally "mind" — into linguistic research. First, let us define the issue not as a question of the ontological status of the terminology but rather one of validity of analyzing language (in whatever form) in the context of more extended research, i.e. anthropological, philosophical, sociological and psychological.

The simplest explanation would be: an object itself imposes it, because of a wide variety of its functions and relations it forms with all sorts of

¹⁴There "[...] resides in every language a characteristic worldview" (60): as the individual sound stands between man and the object, so the entire language steps in between him and the nature that operates, both inwardly and outwardly, upon him. He surrounds himself with a world of sounds, so as to take up and process within himself the world of objects [...] Man lives primarily with objects, indeed, since feeling and acting in him depend on his presentations, he actually does so exclusively, as language presents them to him" — Diversity ("[...] so light in jeder Sprache eine eigenthümliche Weltansicht. Wie der einzelne Laut zwischen den Gegenstand und den Menschen, so tritt die ganze Sprache zwischen ihn und die innerlich und äusserlich auf ihn einwirkende Natur. Er umgiebt sich mit einer Welt von Lauten, um die Welt von Gegenständen in sich aufzunehmen und zu bearbeiten. [....] Der Mensch lebt mit den Gegenständen hauptsächlich, ja, da Empfinden und Handeln in ihm von seinen Vorstellungen abhängen, sogar ausschliesslich so, wie die Sprache sie ihm zuführt" (Sprachbau, 72-3). But "in passing, by means of it [i.e., language — E.K.], into a world of sounds, we do not abandon the world that really surrounds us" — Diversity ([jedoch] "indem wir an ihrer Hand in eine Welt von Lauten übergehen, verlassen wir nicht die uns wirklich umgebende" — (Sprachbau, 74).

der Theilung bis auf eine übersehbare Zahl fester Elemente, der Verbindung dieser aber bis ins Unendliche fähig sind, und in welchen jeder Theil seine eigenthümliche Natur immer zugleich als Verhältnis zu den zu ihm gehörenden darstellt. Der Mernsch besitzt die Kraft, diese Gebiete zu theilen, geistig durch Reflexion, körperlich durch Articulation, und ihre Theile wieder zu verbinden, geistig durch die Synthesis des Verstandes, körperlich durch den Accent, welcher die Silben zum Worte, und die Worte zur Rede vereint. [...] Ihre wechselseitige Durchdringung kann nur durch eine und dieselbe Kraft geschehen, und diese nur vom Verstande ausgehen" — IV, 4).

reality aspects. However, this is not an argument for the opponents of nonpresuppositional knowledge.¹⁵ It would be difficult for the supporters of the thesis on the disproportion of scientific theories to outline the limits of a more general theory which would include the phenomena described as a part of a previous theory that is being replaced. Nonetheless, an identical problem appears in the so called "pure" linguistics. The question of the transition from phonology to morphology, from morphology to syntax etc. (the theories that use different terminological systems), is usually ostentatiously neglected. Since it is impossible to discuss the thesis on inter-theoretical disproportion within this dissertation, it will suffice to merely indicate this issue.

However, it is significant to discuss the problem of relation between the language theory and a more extended theory (e.g. theory of mind) from a different perspective: not as a question of transition from the language theory to a more general theory but as an issue concerning the scope of phenomena that should be explained within the extended theory. Aside from the argument indicating the greater explanatory power and the like, that are accessible in the reference books¹⁶ and support the creation of theories that go beyond the corpus analysis, there is no doubt that the types of described facts must be limited. A general theory of everything does not explain anything, hence, even the most extended language theory must be limited to the facts that are directly connected with language. One of such facts is the interpretation: it is of immense significance to decide how, and not if, to describe it, either as a physical behavior or as behavioral directives (that are — if they are just a directive — non-certifiable, exactly like mental facts in verbal and out of verbal behavior) or finally as a mentalistic category. According to Humboldt, the uniformity of the conception seems to support the latter.

If we assume that there are two types of mind activity and that the reaction of symbolization occurs between them, we can place language within mental facts and thereby identify not only non-identicalness but also a direct connection of thinking and language. When a given mind activity is

¹⁵I mean here the so called epistemological anarchism of Feyerabend (1963: 29): "What happens here when a transition is made from a theory T' to a wider theory T (which, we shall assume, is capable of covering all the phenomena that have been covered by T') is something much more radical than incorporation of the unchanged theory T' [...] into the context of T. What does happen is, rather, a complete replacement of the ontology of T' by the ontology of T, and a corresponding change of the meanings of the descriptive elements of T' (provided these elements and this formalism are still used)".

¹⁶Cf. Chomsky (1964), Katz (1964).
assumed, there is no reason to reject a priori any hypothesis that surely is easier to prove than to disprove, i.e. the hypothesis concerning the similarity of intellectual processes. Some theses concerning language then pertain retaining the non-identicalness — also to thinking. Perceiving language and thinking as two fields that are structurally isomorphic, thereby retaining the assumption of articulacy (division) that has been outlined above and creativity of both thinking and language let us treat both as systems. A mental system would then have to be assumed as a very general theory which uses cognitive variables (impressions), cognitive constants (time and space), a certain amount of general patterns of forming notions and schemes of logical reasoning. The functioning of such a hypothetical construction of mind would result in creating any sensible thought.

It seems that many of Humboldt's concepts aim towards this conclusion: in view of the (assumed) versatility of the mental system, in which the cognitive information changes but the general schemes of combining and functioning of the information remain the same, we can — if this explicative procedure is right — perceive this system as a theory formulated in a language that is unknown and inaccessible to empirical knowledge. Any ethnic language with its characteristic morphological structure (semantic and grammatical) would be a model of this theory. The functioning of the mental structures is of course a very subtle and abstract process so we can inspect these structures only through further close-up research in which we examine the sphere that is, because of its structure, mostly similar to thinking — an example of such a directly cognate field are languages. By detecting the regularities of logic ruling all accessible ethnic languages we can gain an insight into the functioning of mental structures which are not given directly but in the form of language systems that have already been interpreted and filled with notional content.¹⁷ In view of the phenomenon of the variety of languages and the universality of the principles of thinking (that is independent from natural or symbolic language which we use by formulating the principles) it would be justified to seek one of many models

¹⁷According to Humboldt, languages are "forms of thinking" ("Formen des Denkens" — V, 419), and linguistics is "a method of passing the domain of thinking through the diversity of languages" ("Methode, das Gebiet des Denkens durch die Mannigfaltigkeit der Sprachen auszumessen" — IV, 288). Humboldt also speaks of an "invisible organism of the mind, laws of thinking, classification of its categories" ("dem unsichtbaren Organismus des Geistes, den Gesetzen des Denkens, der Classification seiner Kategorien" — VI, 24). "Thus, a study of earth's languages is a world history of thinking and feeling of mankind" ("Das Studium der Sprachen des Erdbodens ist also die Weltgeschichte der Gedanken und Empfindungen der Menschheit" — VII, 602-603).

of a logical-cognitive system in every language. After all, we practically operate words or texts in their physical form; they are an empirical material that helps the researchers construct the theory of language.¹⁸ For the sake of methodological accuracy, researchers have to base their findings on the language material and by treating it as a given one (or, alternatively by constructing its theoretical model), search for mental universals through their linguistic interpretation. If we want the language description to be adequate, we must consider the transition from a language to the cognitive system. On the basis of the language description we can draw conclusions in relation to thinking only within a more general theory of mind. In that case the approach will be methodologically justified and not — as usually happens — intuitive.

By this interpretation the discussed conception of analogical cognitive and language procedures reinforces the logical theory of a natural language; by describing the regularities of a given language regardless of its morphological form, the conception introduces the mind structures. Such an approach also creates the basis for the referential semantics (Stanosz, Nowaczyk 1976): a language system that is a projection of mental structures can be interpreted in various reality fields. According to Humboldt, in the cognitive reality the mind discovers the regularities in accordance with its own structure that is reflected by means of language, hence the abstracted (and alternatively formulated in an artificial language) regularities of a natural language can — through its relation with the mental system — pertain to reality or its fragments recognized by the mind.¹⁹

The cognitive and language systems use different elements but the

¹⁸"This comparison of language with an ideal domain as with something it refers to, seems [...] to require a descent from concepts to words [...] However, passing this way is suppressed by an inner hindrance for concepts, being stamped with individual words, cannot represent anything general any more [...]" ("Diese Vergleichung der Sprache mit dem ideellen Gebiete, als demjenigen, dessen Bezeichnung sie ist, scheint [...] zu fordern, von den Begriffen aus zu den Wörtern herabzusteigen [...]. Das Verfolgen dieses Weges wird aber durch ein inneres Hindernis gehemmt, da die Begriffe, so wie man sie mit einzelnen Wörtern stempelt, nicht mehr bloss etwas Allgemeines [...] darstellen können" — Sprachbau 122).

¹⁹"Our subsequent reflection discovers therein [i.e., in the nature — K.K.] a regularity congenial to our mental form. [...] All this we find again [...] within language [...] The regularity of language's own structure is akin to that of nature" — *Diversity* ("Unser Nachdenken entdeckt in ihr [d.h. in der Natur — E.K.] eine unserer Geistesform zusagende Gesetzmässigkeit [...]. Alles dies finden wir [...] in der Sprache wieder. [...] Mit der Gesetzmässigkeit der Natur ist die ihres eigenen Baues verwandt [...]"—*Sprachbau*,74).

ways of using them are analogical: thinking and language are based on procedures in a given structure (i.e. collection of mutually related elements). In case of language it would be a morphological structure and in case of cognitive thinking — a conceptual framework. These procedures lead to new results: a sentence/text in the first and a thought/mental complex in the second case. Both the structure and the products of the operations as well as operations themselves are parts of systems. The analysis of the interpretation mechanisms means in fact the analysis of the relation between the two systems. On the basis of the above mentioned findings we can attribute the observed phenomenon of double articulation in language (division into morphemes and phonemes) to thinking. This is the main reason why the category of "notion" has been introduced into the discussion about language.

An important issue that arises while discussing the legitimacy of applying mental categories to linguistic phenomena is the potential illegitimacy of setting apart mental beings such as "notions" that are understood in a colloquial way. However, in the depicted theory the notions are not substantialist beings: they are rather units that can be isolated in mental processes, in a ceaseless mind's activity.²⁰ The notions are parts of the mind's activity and thus are included in the procedure of creation. A notion can be fixed only within a word, although a notion gets recreated every time a word is uttered — the same applies to thoughts and sentences — a new thought gets formed every time a sentence is uttered. A "notion" is more about the activity of understanding than about its effect, it is more of a verb than a noun. The process of thinking consists of understanding activity, notions are the units which get distinguished in the continuum of this process. An intellectual process, like any other one, including the physical process of speaking, has to comprise differences and changes; what is more, these changes must happen in accordance with the rules, i.e. they must be repeatable but not necessarily repeated. It has to be possible to distinguish the oppositions of multiple kinds and levels (the way to do this is a separate issue) that occur between certain units. The transition from a phonological opposition to a phoneme — i.e. a phonological unit takes place in the same way. The ontological

²⁰Thinking consists then, for Humboldt "in segmenting its own course, thereby forming whole units out of certain portions of its activity, and in opposing these formations to other formations, collectively, however, as objects, in opposition to the thinking subject" ("Das Wesen des Denkens besteht also darin, Abschnitte in seinem eignen Gange zu machen; dadurch aus gewissen Portionen seiner Thätigkeit Ganze zu bilden; und diese Bildungen einzeln sich selbst unter einander, alle zusammen aber, als Objecte, dem denkenden Subjecte entgegenzusetzen" — VII. 581).

status of the notion would be then similar to the one of the phoneme.²¹ A phoneme determines a certain class of abstraction on account of some interesting phonological qualities in a given language and, in similar way, a notion could be described as a complex of semantically relevant features that are crucial for distinguishing and identifying images (hence objects). Therefore, perceiving the language as a process creates a uniform criterion for its comprehensive description from its phonological characteristics to interpretation.

Having briefly pondered on the subject, let us now discuss it in greater detail: since the theory of the double character of intellectual processes has already been generally outlined, let us focus more on the process of language.

2. LANGUAGE AS AN INTELLECTUAL PROCESS

The basic phenomenon of language — considered logically prior to the researcher and primary to the user of language — is uttering; all the procedures that are used in uttering constitute language. The priority of speech over the language system is coherent with Humboldt's dynamic conception of mind as an activity; language is a verbalizing activity of the mind. The process of uttering consists in transforming a non-verbalized intellectual intuition into text.²² However, verbalized intuition, deserves to

²¹"From the mass of thinking that still waits to be specified and shaped, a word tears out a number of properties, it ties them with one another, and by selecting sounds, connecting them with other related words and by adding accidental further meanings, it provides them with shape and character" ("Aus der Masse des unbestimmten, gleichsam formlosen Denkens reisst ein Wort eine gewisse Anzahl von Merkmalen heraus, verbindet sie, giebt ihnen durch die Wahl der Laute die Verbindung mit andern verwandten Wörtern [...] Gestalt und Farbe" (IV, 248). On the phoneme, cf. Batóg (1961).

²²"We must look upon language, not as a dead product, but far more as a producing [...] Language, regarded in its real nature, is an enduring thing, and at every moment a transitory one [...] In itself it is no product (*Ergon*), but an activity (*Energeia*). Its true definition can therefore only be a genetic one. For it is the everrepeated mental labour of making the articulated sound capable of expressing thought. In a direct and strict sense, this is the definition of speech on any occasion; in its true and essential meaning, however, we can also regard, as it were, only the totality of this speaking as the language" — *Diversity* ("Man muss die Sprache nicht sowohl wie ein todtes Erzeugtes, sondern weit mehr wie eine Erzeugung ansehen [...]. Die Sprache, in ihrem wirklichen Wesen aufgefasst, ist etwas beständig und in jedem Augenblicke Vorübergehendes [...]. Sie selbst ist kein Werk (*Ergon*), sondern eine Thätigkeit (*Energeia*). Ihre wahre Definition kann daher nur eine genetische sein. Sie ist nämlich die sich ewig wiederholende Arbeit des Geistes, den articulirten Laut zum Ausdruck des

be called a thought; nevertheless, possessing of a non-verbalized intuition is a condition for uttering.

Uttering, then, appears not as relatively easy to understand, but as easy to describe ascriptions of once and for all defined texts to the given events, but rather it is the whole complex of procedures that leads from a non-verbalized cognitive thought (this is the name we are giving, to make it easier, to the intuition, until it has been symbolized in the language) to the ready text.

It is obvious now that in the production of the simplest text the existence of purely linguistic techniques which permit its production is taken for granted: as such techniques appear in the generative mechanisms of language, i.e. rules determining operations made on the morphological structure of language, as well as the structure itself, which is determined by certain rules too. Apart from these syntactic mechanisms, every act of uttering includes a mechanism underlying the interpretation: rules of a semantic nature in an adequate way give permission to ascribe appropriate syntactic phenomena (including phonology) to any mental intuition, and *vice versa*: to ascribe certain mental phenomena to the given syntactic phenomena, as it happens to be during the perception of language. Generally, in a linguistic interpretation act, the translation of any mental intuition into linguistic meanings (conceptual thinking) is included.

The condition for the application of the (syntactic and interpretative) generative mechanism is its coherence and recoursiveness. In other words, rules that determine the process of transforming mental intuitions into utterances must stay in relation to each other, i.e., they must constitute a system that must be an open one, which permits an indefinite number of uses.

According to Humboldt, the first postulate resolves itself in the claim of the hierarchical articulation (segmentation) of language, the second one — with the problem of creativity (the "infiniteness" of language); these are the two sides of the process of language production.²³

Gedanken fähig zu machen. Unmittelbar und streng genommen, ist dies die Definition des jedesmaligen Sprechens; aber im wahren und wesentlichen Sinne kann man auch nur gleichsam die Totalität dieses Sprechens als die Sprache ansehen" — *Sprachbau*, 54-56).

 $^{^{23}}$ Both the articulation and the form of mental activity "divide their field into basic parts; a combining of them constitutes exclusively such wholes that strive to become parts of new wholes" ("[zerlegen] ihr Gebiet in Grundtheile, deren Zusammenfügung lauter solche Ganze bildet, welche das Streben in sich tragen, Theile neuer Ganzen zu werden" — Sprachbau. 81).

The articulateness and creativity thesis concerns the uttering procedure in a special way. The articulation and creation properties render uttering unimportant, and — in extreme cases (deaf-and-dumb persons) — where there are no production of sounds, but an action of mind: these techniques are both of intellectual, not of physical nature.²⁴

These properties initiate a new factor in the process of transforming a non-verbalized thought into a text: they underlie the syntactic production of language and, therefore initiate the presence of the language system in each act of uttering.²⁵

²⁵"Apart from the mere evoking of a word's meaning articulation presents the word directly through its form as a part of an infinite whole, a language. Thanks to the form, there exists, even in individual words, the possibility to construe from their elements a really indeterminate number of other words in conformity to specific feelings and rules" — Diversity ("Nun ist aber dasjenige, was die Articulation dem blossen Hervorrufen seiner Bedeutung [...] hinzufügt, dass sie das Wort unmittelbar durch seune Form als einen Theil eines unendlichen Ganzen, einer Sprache, darstellt. Denn es ist durch sie, auch in einzelnen Wörtern, die Möglichkeit gegeben, aus den Elementen dieser eine wirklich bis ins Unbestimmte gehende Anzahl anderer Wörter nach bestimmten Gefühlen und Regeln zu bilden [...]" — Sprachbau. 69). "There exists nothing singular in the language, each of the elements of language appears only as a part of a whole" ("Es giebt nichts Einzelnes in der Sprache, jedes ihrer Elemente kündigt sich nur als Theil eines Ganzen an" — IV, 14-15). "Language may be compared with an extraordinary fabric whose each part more or less recognizably is connected with another part and all of them with the whole. When speaking, man touches [...] only a separated one; but instinctively he always does it in a way, as were at the same moment all the parts present for him, with which the single one necessarily must be in conformity" ("Man kann die Sprache mit einem ungeheuren Gewebe vergleichen, in dem jeder Theil mit dem andren und alle mit dem Ganzen in mehr oder weniger deutlich erkennbarem Zusammenhange stehen. Der Mensch berührt im Sprechen [...] immer nur einen abgesonderten Theil dieses Gewebes, thut dies aber instinctmässig immer dergestalt, als wären ihm zugleich alle, mit welchen jener einzelne nothwendig in Uebereinstimmung stehen muss, im gleichen Augenblick gegenwärtig" — Sprachbau.

²⁴"That language really is quite inward and possible without producing and perceiving of sounds, that teaches the case of deaf-and-dumb-persons. [...] They learn to understand speaking by movements of the speech organs [...] It only can happen because they also possess an articulation faculty [...] They learn it not only because they, like other people, posses an intellect (*Vernunft*), but also the linguistic faculty (*Sprachfähigkeit*)" ("Dass die Sprache wirklich ganz innerlich ist, und auch ohne Lauthervorbringung und Vernehmung möglich bleibt, lehrt das Beispiel der Taubstummen. [...] sie lernen [...] das Gesprochene an der Bewegung der Sprachwerkzeuge [...] verstehen [...]. Dies kann nur durch das, auch ihnen beiwohnende Articulationsvermögen geschehen. [...] Sie erlernen dies, nicht bloss dadurch, dass sie Vernunft, wie andre Menschen, sondern [...] dadurch, dass sie auch Sprachfähigkeit besitzen." — V, 375-376, cf. Sprachbau. 80).

This statement may be understood in the following way: each articulated element (from the range of a first or a second articulation) applied in the utterance, is produced to constitute opposition to other elements, not necessarily present in the text, but belonging to the structure. Consequently, if the text belongs to the system (and every text of any language belongs to the language *ex definitione*), then the system must be included in the text, at least in two ways: as discriminated in the text, then in a given moment unmarked, nevertheless — as an opposition element — an existing and therefore relevant possibility, as well as on the level of research: the text is the only way to elicit the system regularities conveyed by it. Of course, a single corpus may not demonstrate all the system regularities, since uttering as an intellectual matter is an infinite process and the limits of utterance are put forward optionally or even fortuitously, it is therefore not easy to obtain a representative attempt/pattern/sample/proof: this is a technical issue by itself.

Focusing utterances in language research is inevitably followed by introducing the category of the text (an effect of uttering) on the one hand, and the category of the structure on the other hand. Uttering does not belong to structure, while it is a system procedure (the text also belongs to the system — it is an effect of operations made on morphological structure); uttering in a necessary way takes the structure for granted (and not vice versa). In other words, uttering anything in any language means reactivating the structure of this language for the purposes of the given utterance; a presence of the system is necessary for the text to become a real existing one.

In this way, the system steps in between non-verbalized thought and the ready text; uttering is not simply ascribing certain words to certain objects or even thoughts, but every activation of the structure, the text generation rules, the interpretation rules, and certainly the constituting of a new text — 'new' always in the sense of an event, and not for the reason of an innovative value of the thought expressed In this sense, every utterance appears as a

^{85-86). &}quot;It [language — K.K.] must in each moment of its being possess what it makes a whole" ("sie [die Sprache — E.K.] muss in jedem Augenblick ihres Daseyns dasjenige besitzen, was sie zu einem Ganzen macht" — IV, 3). "In this way language resides in every human being in its whole range, which means, however, nothing else but that everyone possesses [...] a system of rules — K.K.], to bring forth gradually the whole of language from within himself, or when brought forth to understand it, as outer or inner occasion may determine" ("Es liegt daher in jedem Menschen die Sprache in ihrem ganzen Umfange, was aber nichts anders sagen will, als dass jeder ein [...] geregeltes System besitzt, die ganze Sprache, wie es äussere oder innere Veranlassung herbeiführt, nach und nach hervorzubringen, oder hervorgebracht zu verstehen" — V, 382).

creative (it constitutes the text) and a re-creative one (it re-activates the structure and the functions). The re-creativity appears as a creativity as well; the only existence to which the system can be ascribed is the one which manifests itself partially in the text, and implies the remaining, not the manifested part. This implicative language system existence is not only intersubjective in its nature, but it is also a practically verifiable one: it must manifest itself in other texts that use other rules. This circumstance results in the fact that the only thing we can recognize in the language — apart from ready linguistic products — is an existence of the structure as well as uttering rules: what comes to a realization, is real.

Creation, posed by the uttering process, has also a cognitive aspect, apart from the syntactic aspect (the "infiniteness" of language, i.e. the recoursivity of rules) and the genetic one (creating the utterance by activating the system). In the uttering process that runs from non-formatted thought to the physical text, then from mind to the outer reality, a thought — still being verbalized — meets the prism of the linguistic reality structuring, and it leaves this prism as a rather linguistically refracted one. The change of direction may not be significant, since the evolution of language runs according to the laws of intellect, but even though it is invisible, it nevertheless always occurs: for instance from associations of a purely linguistic nature, from the specificity of grammatical laws²⁶ as well as from the differences between the imagined world and the view of the world that is conveyed by language. Because the way from the text to thought, i.e. the interpretation, also runs through

²⁶"As a matter of fact, during the speech course the form of a grammar is inwardly connected with the form of thinking, because a sentence [...] is always an uttering of what has been thought. However, it is necessary to distinguish not only of both form and matter, but also of form and form $[\ldots]$. Grammar not always clearly refers to what — as a logical form — in an obvious way is connected with the content of thinking, but grammar builds on constructions corresponding to no separate logical form. [...] Here, language appears as a peculiar activity of its own. The mental activity is different from it, and, though a pure thinking without language, being a mere abstraction, constitutes no separate concept, it nevertheless may be assumed to appear as an unmeasurable volume serving $[\ldots]$ as a comparison point for a language-dependent thinking" ("Die Form der Grammatik ist zwar mit der Form des Denkens in der Rede innig verbunden, da der Satz [...] immer die Aussage eines Gedachten ist. Dennoch ist es nothwendig, beide von einander, mithin nicht bloss Form von Materie, sondern auch Form von Form sorgfältig zu trennen. [...] [...] Die Sprache tritt hier ganz eigentlich in ihrer nur ihr angehörenden Wirksamkeit auf. Die des Denkens wird von ihr getrennt, und obgleich das reine Denken ohne Sprache gar keinen bestimmten Begriff giebt, und eine blosse Abstraction ist, so kann es doch als eine unmessbare Grösse vorausgesetzt werden, um zu einem Vergleichungspunkte des durch Sprache gefärbten Denkens [...] zu dienen [...]" — VI, 349-350).

the system of language (therein consists perception and the acquisition of language), thoughts expressed and interpreted are always influenced by the linguistic world view, and not solely by the empirical one. For the cognition, every language carries its own view of the world, since it structures the reality in a different way (which, compared with the oppositional nature of elements articulated, is not to be disregarded for the semantic structures of languages as a whole): this linguistic view of the world determines the acts of cognition in which the linguistic categories are used by the subject.²⁷

However, linguistic determination may be partially verified, in cognition; apart from a linguistic approach to object, the mind also makes use of images (their formatting is certainly based on sensory data), so the language rather co-determinates, not totally determinates, this view of the reality. As Humboldt claims, the learning of a foreign language with its own world semantezation may be helpful with the neutralization of the cognitive determination by language: it permits us to acquire a new standpoint in the reality — the view one had until the current moment. Having the ability to speak the languages would enable an overview of the already realized cognitive capacities of the human mind, if not all of them. Such an attempt is unrealizable, but speaking even one or some foreign languages fluently would increase one's cognitive capacities to a great extent.²⁸

The creation of a semantacized world during which every uttering is followed by a certain important consequence. Linguistic reality symbolizes a reality already known (i.e., a conceptual one). A symbol always makes things distinct and precise, but at the same time it also sets some restrictions: words evoke only certain aspects of what they refer to; thus, they leave behind an area of non-determinacy. What has been expressed, inspires the mind to search for new means of expression.²⁹ In this sense, non-determinacy

²⁷"All the words, by which different languages want to designate the same concept, may be imagined as a setting of limits within the same space of the domain of thinking; however, settings that never entirely coincide" (IV, 248)."[...] different languages are not different ways of designating the same thing; they are its different views" ("[...] mehrere Sprachen sind nicht ebensoviele Bezeichnungen einer Sache; es sind verschiedene Ansichten derselben" — VII, 602).

²⁸"To learn a foreign language should therefore be to acquire a new standpoint in the world-view" — *Diversity* ("Die Erlernung einer fremden Sprache sollte daher die Gewinnung eines neuen Standpunktes in der bisherigen Weltansicht sein [...]" — *Sprachbau*, 73).

²⁹"What the soul is capable of expressing is only a fragment [...] To this single fragment the requirement of a further presentation and evaluation is joined, then the ones directly contained in it [...]" ("Was die Seele hervorbringen mag, so ist es nur Bruchstück [...]; an das Einzelne hängt sich die Forderung weiterer Darstellung und

stimulates the progress in the uttering process. Out of necessity, this process is a never-ending one, because the language exists to symbolize, and it always does this inaccurately: a complete identification of symbol and denotat is not possible by the terms of definition and through the difference in their functions. Therefore, the process of uttering is always an infinite one, irrespective of the finiteness of physical texts and their authors: infinite in the sense of chronology and definition.

An *a priori* imperfection of the language: the impossibility of a complete expression is one of the properties which guarantee the self-creativity of the linguistic process. This is a systemic guarantee for the potential creative change of linguistic rules that inevitably must take place, for the existing expression technics seem not to be sufficient. By this immanent teleology included in the system, the language changes diachronically. Language changes are stimulated by language usage;³⁰ in a certain sense, every use of language is a change (creation), but some uses of language are followed by transformations in the morphological structure. It should be possible because the language structure, for the same reason as the text effects, also belongs to the uttering effects; being construed during the speaking process, it may be reconstructed as such, less or more innovatively, according to the needs of the given use of language. It can be applied in the case of syntactic rules (in a larger sense, including phonological rules), as well as of the rules of interpretation. Technical change possibilities of the linguistic rules are situated in construing the system during the uttering; a necessity of such a change also lies in the system itself, and it follows from the inadequacy of this system in respect to the mental system.

The phenomenon of linguistic creativity in Humboldt's philosophy can

Entwicklung, als in ihm unmittelbar liegt $[\dots]$ " — Sprachbau, 220).

³⁰"Language is formatted by *speaking*, and *speaking* is the *expression of thought* or *feeling*" ("Die Sprache wird durch Sprechen gebildet, und das Sprechen ist Ausdruck des Gedanken oder der Empfindung" — *Sprachbau*, 204). [...] from speaking there constitutes itself language, a stock of words and a system of rules [...]" ("Aus dem Sprechen [...]" — V, 338). "[...] every generation nevertheless produces a change in it, which only too often escapes notice. For the change does not always reside in the words and forms themselves, but at times only in their differently modified usage; and where writing and literature are lacking, the latter is harder to perceive" — *Diversity* ("[...] bringt demungeachtet jede Generation eine Veränderung liegt nicht immer in den Wörtern und Formen selbst, sondern bisweilen nur in dem anders modificirten Gebrauche derselben; und dies letztere ist, wo Schrift und Literatur mangeln, schwieriger wahrzunehmen" — Sprachbau, 78).

also be explained in the other way. The linguistic process follows step by step intellectual processes that precede the concept: I mean here the preverbal mental intuition at the stage of image analysis. During image synthesis into the concept, a homogenous action of the mind, existing until now, splits into cognitive (concept beginning) and linguistic ones (word beginning). If the mind at this moment gave up uttering, the mental process would be interrupted, but the definition seems to exclude this. Therefore, since a cognitive action in a certain direction has been started and certain images have been analyzed, i.e., since the mental intuition (we may call it disposition) has started, the mind tends to provide a conceptual and a verbal precision. The cognitive activity of mind precedes and implies linguistic action, and guarantees the continuation of the verbalization process.

As it has been stressed above, the conception introduced — a rather free transcription of Humboldt's ideas in the philosophy of language — elucidates language as a creative phenomenon, where creativity may be understood in various ways, it enables us to look at language in a communication frame, it also is an attempt to outline the role of language in cognition; the present description is only merely a summary of the mentioned aspects of Wilhelm von Humboldt's linguistic and philosophical output, and it certainly does not intend to provide a synthesis of ideas of this linguist and philosopher.

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Władysław Kunicki-Goldfinger THE INTERNAL AND EXTERNAL LIMITATIONS OF INTRODUCING NOVELTY IN BIOLOGY

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Judging from the contents of Wielka Encyklopedia Powszechna (The Great Universal Encyclopedia) published by PWN, in the Polish language terms such as twórczość (creativity), wynalazek (invention) or inwencja (inventiveness) carry a very limited, operational meaning. The entry for twórczość refers only to a periodical bearing the title; wynalazek is only characterised as a legal concept; while *inwencja* is treated solely as a musical term. The old Encyklopedia Powszechna (Universal Encyclopedia) issued by Samuel Orgelbrand in 1884 proves a more comprehensive source of information in this respect. It defines twórczość (creativity) as the "ability to find new combinations out of materials common to everyone (notions, ideas, natural phenomena, facts or social and political relations), in order to either create new ideas and opinions or implement ideas of one's own or of others." The entry also introduces a distinction between inventive and practical creativity. Hopefully, however, despite the conciseness of the entries in modern encyclopaedic sources, the notions of creativity, inventiveness and invention do have some equivalents in the features of human beings and the society of Poland. Creativity – understood as the ability to create new ideas – may be defined in a manner similar to the one presented in the century-old encyclopaedia, with only one emendation: new combinations may arise not only out of known "materials," but also by means of adding new elements to the mixture.

The ability to create lies within the scope of interest of psychologists, sociologists and specialists in other human sciences. This human competence

is, however, rooted in biology. This branch of science has been included in the fields of study concerned with the understanding of the origins, mechanics and development of the mentioned human properties, as evidenced by the emergence of the recent advancements in ethological research on the behaviour of animals and their ability to learn, to create and employ symbols, to be inventive (Bonner 1980; Kurth, Eibl-Eibesfeldt 1975; Köhler 1925; Premack, Premack 1983; Schrier, Stollnitz 1971); the developing field of evolutionary epistemology (Vollmer 1980; Riedl 1969) searching for the eldest sources and patterns of human cognitive behaviour, which have been amassed, altered and enriched in the process of the evolution of the behavioural models of our animal relatives. This being said, the mentioned issues, fascinating though they may be, shall not be discussed in the present article, as it aims at searching for origins and sources of creativity at a deeper level, in basic biological mechanisms.

In fact, our analysis must go even deeper. New views on cosmology, postulating the constant expansion of the universe that was birthed in the "Big Bang," describe the creation of order out of chaos, the emergence of elementary particles, atoms, their combinations, galaxies, suns and planets. Prigogine's non-equilibrium thermodynamics (Glansdorf, Prigogine 1979; Nicolis, Prigogine 1977; Prigogine 1978 and 1980) breaks off with the symmetry of time. The directionality of time, stemming from the Second Law of Thermodynamics, is treated not as an indication of our imperfect cognition, or as an anomaly that may be disregarded, but as a basic principle of nonreversible processes, that are far from being at equilibrium and constitute the foundation of our universe. The course of events that occurred in the first split seconds of time starting from the Big Bang, or the question of whether the world that emerged was the only option or just one of the many possibilities, may prove irrelevant to the topic under our consideration. Equally insignificant in this context is the question of whether the Second Law of Thermodynamics applies only to the known universe or extends beyond it. We live in a world that is available to us, and even if it developed as a result of some great fluctuation and other possible worlds may exist, the emergence of life and our species was only possible as a result of those fluctuations and bifurcations in which – as demonstrated by Prigogine – the appearance of order out of chaos and the creation of organised systems and dissipative structures out of a pre-existing disorder are really achievable. Thus, in his recent book for the general reader Prigogine (Prigogine, Stengers) 1984) discusses the "creative course of time," while Elasser (1982), Popper (1977) and Medawar (1974) mention the creative element in biology.

Life itself consists of creating novelty and is constantly searching for new structures and functions. The details of the history of life are still, and perhaps shall forever remain, outside the scope of our knowledge. Given the fact that history is based on accidental, unpredictable courses of events resulting from fluctuations of systems in imprecisely defined underlying conditions, its reconstruction may only be conjectural. However, as proved by Eigen (Eigen, Schustr 1979), Prigogine's theory and the knowledge of the structure and functions of living organisms may serve as the basis for a probable model of the process of biogenesis congruent with the current state of research in biology, physics and chemistry. The emergence of life may be counted among the most astonishing "inventions" of the universe. The process resulted in self-replicating structures capable of extracting matter. energy and information from their environment and transforming them into new self-replicating structures. Significantly, they also had the ability, or even a necessity (defined by the rules of probability) to make mistakes in the process of replication. As is often the case, the error became the source of innovation. The production of identical copies of structures out of pre-existing elements would be tantamount to stagnation, a consolidation of a single, already defined system. The error in replication of some of the components introduced a new element, the error in the reconstruction of a combination of elements within a system gave rise to a new structure. Naturally, the majority of errors led nowhere – the new structures proved ineffective and were consequently eliminated. In some cases, however, the mistakes were advantageous, leading to a better use of the environmental resources or enabling the system to explore a previously unavailable environment, or perhaps having little or no deteriorating effect on the efficiency of the system, but allowing it to explore the changes at some later point in the future.

The creation of novelty and inventiveness – though not appearing consciously – have been the basis for the transformation of the hypothetical proto-cells called protobionts into structures known to science (such as prokaryotes – e.g. bacteria) and as yet undiscovered (such as the proposed proto-eukaryotes). The term eukaryotes, i.e. organisms with a nucleus in their cells, applies to all known living organisms apart from bacteria.

One astonishing phenomenon that must be brought to mind is the fact that although bacteria have existed for more than three billion years (see e.g. Kunicki-Goldfinger 1976), the earliest known fossils seem to differ very little from currently observable types. In other words, prokaryotes appear to be an extremely conservative group. Conversely, eukaryotes – the earliest traces of which are found in rocks around a billion years younger than the

age of bacteria, have developed an incredible abundance of forms – from single-cell amoebas and algae to humans.

Do prokaryotes lack the ability to innovate, then? The answer is yes and no. When the development of protobionts led to a state far from equilibrium, a bifurcation occurred, opening new possibilities for evolution. The realisation of one of the possible paths led to the emergence of a prokaryote cell – at the same time closing all other possibilities.

Prokaryotes are very small structures; their size oscillates around 1/1000 of a millimetre. The small volume of their bodies causes many limitations. They do not possess a definite cell nucleus or complex chromosome structures; they cannot develop cellular skeletal structures; the mobility of cytoplasm proves redundant; contractile proteins, tubulin and calcium-related proteins do not form. In a way, their structure has become petrified – it cannot become larger or more complex. It is not possible for their pool of genetic material to expand. In the case of bacteria, the DNA helix has reached its critical length. Extending it any further would disturb the fidelity of replication and destabilise the organism. Increasing the number of helices would be impossible without an apparatus ensuring their distribution among offspring cells – and such organisms possess neither the space nor the materials to develop such an apparatus. As a result, prokaryotes are not capable of introducing structural innovation and create new forms that would differ morphologically and boast a more complex structure.

At the same time, however, prokaryotes are equipped with a large arsenal of possibilities for biochemical and physiological innovation; they are capable of creating new functional systems.

Their susceptibility to mutation is, most probably, similar to that of eukaryotes. Be that as it may, they have much potential for rebuilding their genome. The main reason for this is the sheer number of prokaryotes – each gram of earth contains hundreds of millions of them. Secondly, they multiply rapidly – many bacteria cells may divide every ten minutes or so. Thirdly, prokaryotes have developed numerous methods of transferring their genetic material: conjugation, transduction, transformation and special mechanisms of relocating a fragment of genetic material to a different part of the genome or between different genomes. These mechanisms have created favourable conditions for the emergence of a great diversity in the physiology of prokaryotes.

The first prokaryotes were almost certainly anaerobic heterotrophs feeding on the organic substances that had gathered on the Earth's surface in the process of abiogenetic synthesis of inorganic matter. It was prokaryotes

that "invented" the methods of consuming carbon dioxide and salts. One of the first attempts of this kind was most probably the mechanism "discovered" by methanogenic bacteria binding CO_2 in a specialised process using the energy produced in the anaerobic oxidisation of hydrogen combined with the reduction of carbon dioxide to methane. Another, more advanced "invention" was carbon fixation through the Calvin cycle. Initially the process was anaerobic in nature and employed the energy of the Sun – today this method is still observable in purple sulphur and non-sulphur bacteria as well as in green sulphur bacteria. Later on, a new revolutionary "invention" appeared - aerobic photosynthesis resulting in the release of oxygen. This feat was also achieved by bacteria, such as cyanobacteria (still found in today's waters) and related organisms. The "innovation" brought significant changes to the Earth's surface and the biosphere – photosynthesis is the main source of oxygen in the air. Before the development of this process, oxygen only appeared as a product of the photodissasociation of water and was scarce in the atmosphere. Cyanobacteria were the first organisms to produce it in ever increasing quantities. As the amount of oxygen in the air grew, the ozone layer began to form, shielding Earth from harmful UV light, which, in turn, enabled life to enter shallow waters and the surface of the land. It became possible to substitute the existing anaerobic models with oxygen breathing. The "invention" of aerobic respiration, which provided more than ten times as much energy per one unit of oxidised substrates, is another "contribution" made by bacteria. Finally, bacteria have "invented" methods of feeding on various organic substances – not only on ones produced by other living organisms, but also on products of their transformations and manmade chemical compounds, such as hydrocarbons, formaldehyde, phenols, detergents etc.

Internal limitations resulting from the peculiarities in prokaryotes' physical frame have prevented their structures from evolving. This setback was compensated for by extremely varied and abundant physiological evolution.

The current available information seems to suggest that proto-eukaryotes were anaerobic organisms that were mostly predatory in nature, i.e. fed on particular matter, mainly bacteria. The energetically inefficient anaerobic respiration made further evolution difficult, if not downright impossible. Astonishingly, however, proto-eukaryotes made a new "invention" – their existence based on close cooperation with prokaryotes (Kunicki-Goldfinger 1980 and 1983). It appears that rather than search for a method of developing aerobic respiration on their own, eukaryotes adopted an existing "invention" made by bacteria. They simply absorbed oxygen-breathing bacteria, creating a symbiotic system. The efficiently breathing bacteria provided an energy source; the eukaryotic host sheltered the bacteria within its cell and provided a steady flow of organic matter. In time, the bacteria simplified their structure and transformed into mitochondria, playing the role of the energy source in each cell. Later on, some cells also absorbed photosynthesising cyanobacteria or similar organisms – this "invention" is responsible for the emergence of green plants. Plants assimilate carbon dioxide with the help of sunlight – the process occurs in chloroplasts, intracellular structures derived from cyanobacteria or their relatives (Kunicki-Goldfinger 1980, 1983). From a structural point of view, the composition of their cells gave eukaryotes the potential for further structural evolution. The limiting factor was the lack of an efficient mechanism that would provide energy. Entering a symbiosis with prokaryotes allowed these organisms to bypass their limitations.

The entire course of further evolution consists of a series of "inventions", some of which were very small and simply perfected an existing structure. They are responsible for the abundance of forms within a single type, e.g. in insects, birds or mammals. Others were groundbreaking changes, altering entire models of organisms – these led to the emergence of new types of living creatures, such as the aforementioned insects, birds, etc. There is much evidence to support the claim that, although the former category of evolutionary "inventions" (based on small alterations within an existing structure) resulted from the mechanisms described in the synthetic theory of evolution, the latter kind (changing the entire structural plan) was brought on by bifurcations after the evolving systems had reached a state far from equilibrium, as specified by Prigogine. The bifurcations may always occur if a system strays far from equilibrium – which may, in turn, happen if for some reason it increases in size and becomes more complex as a result of significant changes in the environment etc. Prigogine analysed such processes, using simpler models such as hydrodynamic phenomena and combinations of chemical reactions. Interestingly, more than a hundred years before a similar notion was mentioned (but not characterised in detail) by the pioneer of electromagnetism, J. C. Maxwell. He writes that (1892: 443):

In all such cases [e.g. a gunpowder explosion, which he describes in an earlier passage] there is one common circumstance – the system has a quantity of potential energy, which is capable of being transformed into motion, but which cannot begin to be so transformed till the system has reached a certain configuration, to attain which requires an expenditure of work, which in certain cases may be infinitesimally small, and in general bears no definite proportion to the energy developed in consequence thereof. For example, the rock loosed by frost and balanced on a singular point of the mountain-side, the little spark which kindles the great forest, the little word that sets the world a fighting, the little scruple which prevents a man from doing his will, the little spore which blights all the potatoes, the little gemmule which makes us philosophers or idiots. Every existence above a certain rank has its singular points: the higher the rank, the more of them. At these points, influences whose physical magnitude is too small to be taken account of by a finite being, may produce results of the greatest importance. All great results produced by human endeavour depend on taking advantage of these singular states when they occur.

When a system is far from equilibrium and – to use Maxwell's terms – it has numerous singular points, minuscule stimuli may cause tremendous effects. Meteorologists use the term "butterfly effect" to describe a situation in which a small change in the initial conditions triggers a chain of events resulting in a natural disaster. Similarly, in the world of living organisms – which are, in their nature, far from equilibrium at least occasionally and locally – trivial causes may have great effects.

A system far from equilibrium reaching the stage of bifurcation may develop in several different directions. The path to be implemented is chosen at random; it is a coincidence – the infinitesimally small, incalculable stimulus described by Maxwell. Thus, the choice of bifurcation is coincidental in nature, yet after it has been made, further development of the system, if it proves possible, proceeds in a strictly deterministic manner, until the system strays from equilibrium again, provided that such an occurrence takes place.

Such choices of new biological "inventions" may pertain to global phenomena, e.g. the emergence of prokaryotic and eukaryotic cells, the development of basic mechanisms for acquiring and processing energy, etc. Yet they might also pertain to very small phenomena. For example, in the history of living organisms light-sensitive receptors have been "invented" several times. Even the particular types of photoreceptors that may be found in the human eye have been "designed" by a number of organisms. *Halobacteria* living in salty environments produce bacteriorhodopsin, which is almost identical to the light-sensitive proteins in our eyes. This genus of bacteria makes two similar types of bacteriorhodopsin and uses it in a very different manner than mammals do. One type is involved in the mechanism of transforming sunlight into chemical energy needed to fuel the metabolism; the other is coupled with the locomotive system of the bacteria enabling it to choose the direction of its motion depending on the source and colour of the light that reaches it. Rhodopsin has also been discovered in single-cell algae called *Chlamydomas*. It is found in the so-called eye spot and is used to direct the organism towards the source of light. Finally, rhodopsin may also be found in certain brain structures of some species of birds. It reacts to the few photons that penetrate through the skull and is used to regulate the repetitive periods of the birds' life. As illustrated, the "invention" has been made several times and used to different ends. At the present state of research science can offer many examples of similar phenomena.

As stated above, the choice of bifurcation – the use of Maxwell's singular point – is random. This does not mean that these random choices are not influenced by various limitations – both internal and external. The external ones result from the laws of physics and chemistry. Consequently, all choices that would violate these laws are automatically rejected. As regards the issue under consideration, however, internal limitations seem more interesting.

Internal limitations stem from the "memory" available to living organisms. Apart from the intellectual and emotional memory, characteristic of humans and presumably also of certain species of birds and mammals, organisms possess many types of memory. First of all, they have their genetic memory, embedded in their DNA structure. This type of memory directly regulates mainly the time, intensity and location of protein synthesis. Such memory comprises genetic information, and is therefore transferred from one generation to another. As with most processes of this kind, transmission errors can and do occur – the memory becomes distorted. These types of changes are dubbed mutations. The memory is also modified to some degree when the memories of parent organisms are combined and mixed in the offspring. The distortions that occur during the transferring of genetic information are the source of genetic variability. They are also the source of novelty, as the changes resulting from distortions may be creative in character, leading to the emergence of new structures or a change in their function.

Genetic memory is extremely long-lasting; certain elements are as old as life on Earth, i.e. more than three billion years old. All living organisms share the same DNA structure, utilise the same genetic code (the differences in the code of certain mitochondria may be disregarded). The representation of genetic information regarding the structure of certain proteins found in many organisms is nearly the same in all of them. For example, the structure of cytochrome c, a protein involved in the electron transport chain used in cellular respiration, varies very little regardless of whether it is found in bacteria or in a human being. This indicates that the genetic information on the structure of the protein must also be similar. Histones, which are proteins found in eukaryote chromosomes, are identical in nearly all eukaryotic organisms. Thus, genetic memory may be considered durable, but modifiable. Moreover, it is constantly expanded in the process of evolution. In the case of bacteria the amount of genetic information is relatively small compared to eukaryotes, especially eumetazoa.

Organisms also possess topological memory, which pertains mainly to the general model of their structure. Unfortunately, little is known about the manner of preservation and transfer of this memory or its relation to genetic memory. It certainly has some kind of connection to the skeletal structures of cells and its gradients and oscillations.

Biochemical memory, in contrast, is short-lasting. For example Escherichia coli bacteria are not capable of fermenting lactose until they have come in contact with this type of sugar. Only after the smallest amount of lactose particles has entered the cell of E. coli, does the bacterium treat it as a signal to commence the synthesis of enzymatic proteins needed for fermentation. The preliminary stage of the synthesis involves transcribing the genetic information regarding the structure of these proteins from DNA to messenger RNA, which initiates the synthesis of the proteins. The messenger RNA is produced for as long as the cell emits an appropriate signal, i.e. as long as any particles of lactose are present. When lactose disappears, synthesis of proteins ceases. The mRNA itself is not durable - its half-life lasts only for several minutes. Thus, a bacterium only "remembers" how to synthesise specific enzymes for a period of a few minutes, and is not able to initiate the process without receiving a new signal. In eukaryotic cells messenger RNA is much more durable, and therefore the biochemical memory of such organisms may be longer-lasting. The workings of such memory may be illustrated with many more examples, the one provided here merely served as a means to offer a general characterisation.

Vertebrate animals, warm-blooded ones in particular, have developed a new and intriguing model of immunological memory. In a very simplified manner, it can be described as a process of "remembering" even an isolated case of contact with any alien protein, and – consequently – also with bacteria which contain its own proteins differing from that of the organism that identifies them. After the alien protein or bacteria has entered the organism, white blood cells start to produce a specific type of protein called antibodies, which react only to the kind of protein that triggered their synthesis. This type of memory is the basis for developing immunity to an infectious disease after contracting it once, or by means of a vaccine. Immunological memory is also the reason behind the fact that specific types of sera work against various kinds of toxins (e.g. snake venom, botulinum toxin, c. tetani endospores, etc.). Finally, it is responsible for intolerance reactions, e.g. after a transfusion of a different blood type or an organ transplant, or in various types of allergies.

Each of the possible novelties emerging after a bifurcation may only be implemented if it conforms to the limitations delineated by the different types of "memory" embedded in the changing organism. Naturally, the novelty on which the bifurcation is based may destabilise the system, pushing it further from the state of equilibrium; but it cannot destroy its structure and hamper functioning – otherwise it will perish along with the system.

Thus, all types of memory impose certain limitations on evolutionary invention and the new elements that are introduced to the system. In fact, such limitations emerge with every attempt at inventing something new. Each choice in every successive bifurcation excludes all other possibilities, which stem only from the possibility that is rejected. It also clears the path for implementing all potential possibilities incorporated in the chosen course of bifurcation. Each new invention represents the loss of certain possibilities and the gain of some other chances for change. In a manner of speaking, biological inventions are channelled, directed in a certain way by these mentioned limitations. Naturally, it is not possible to predict the choice a system will make at the point of bifurcation. Yet once the choice has been made, the possibilities of taking a given direction may be studied and determined.

Complex systems straying from equilibrium and undergoing successive bifurcations are characterised by mechanisms of communication (transfer of information) between the elements of the system and between the system and its environment. These mechanisms ensure internal coherence of the system and regulate the relations between the surroundings and the system, which must by definition be open and susceptible to the flow or energy, matter and information from the outside. Naturally, living systems also possess this property.

To illustrate this point, let us use the simplest example taken from the life cycle of the most primitive living organisms, namely bacteria. Each

bacterial cell encounters numerous stimuli in the form of a physical and chemical influence on the environment. Most of these stimuli are not received by the organism; the bacterium does not react to them unless their intensity causes a non-singular, destructive effect. Bacterial cells are equipped with many receptors, mostly chemical in nature, which allow it to identify the stimulus and determine its intensity, and in many cases also the direction from which the signal is emitted. Such receptors in the cell membrane are usually specific to a given bacterium and enable the cell to identify the nature of the stimulus and to react appropriately (e.g. by changing the direction or speed of its movement). Other receptors are used to determined the chemical structure of the objects encountered by the bacterium on its path. Certain chemical structures on the cellular membranes of an animal, a plant or another bacterium may act as a signal to stick to this surface. This is the method used by the bacteria that live inside other organisms (human or animal) to identify the structures which they can enter and live within. Rhizobia bacteria, which fix atmospheric nitrogen, employ a similar mechanism to identify the root hairs on the surface of legume plants. As a result, they infect only those plants which are capable of entering a symbiosis with them. Certain bacteria are also able to receive physical signals from the environment, e.g. detect light – as mentioned in a previous section of the present article.

The entire metabolism of a cell is dependent on the interplay of a large number of intracellular signals, chemical stimuli, which take the form of proteins or small-particle regulatory substances.

Finally, even bacteria engage in communication between specimens. One example of such processes may be observed in myxobacteria. These small organisms (measuring several thousandths of a millimetre) have an elongated shape and can move by gliding on surfaces. At a certain stage of growth, when the amount of food and the concentration of bacterial cells reaches a specific critical level, the bacteria begin to huddle together. This is because in such circumstances their cells start to synthesise and secrete a relatively simple organic substance called cyclic adenosine monophosphate (cAMP), which plays various regulatory roles in nearly all living organisms. The surface of the cell membrane of a myxobactorium contains special receptors for identifying cAMP. The presence of this substance in its environment acts as a stimulus prompting the bacteria to start their march towards the point of maximum cAMP concentration. It also stimulates them to start synthesising this substance. Thus, if at a certain stage of the population's growth a cell begins to secrete cAMP, it draws the closest cells to itself, prompting them to synthesise greater amounts of cAMP. The signal to "come together" will therefore be transmitted by an ever-growing group of cells, becoming stronger and stronger and reaching further and further from the cell which initiated it. As a result, cells from an area as large as several square centimetres will gather in a single spot. They will then proceed to create aggregations known as fruiting bodies, which are massive enough to be easily seen by the naked eye and contain vegetative forms of the bacteria.

Thus, all living organisms seem to have the ability to send and receive signals. A signal may be characterised as a type of influence of a specific chemical or physical nature. However, the physical or chemical nature of a given influence is not enough to classify it as a signal. The decisive factor is the relation between the influence and the system that comes in contact with it. A given influence becomes a signal if the system exposed to it possesses a mechanism to identify it (usually in the form of certain types of receptors) and methods of transforming the stimulus into changes within the system. The use of influences as signals was also "invented" by living organisms. The creative ingenuity of bacteria is rather meagre in this respect – their mechanisms of receiving and transmitting signals are simple and to a large degree may be explained on the molecular level.

Bacteria are far removed from structures as complex as a human being, yet ultimately our bodies are the result of a series of successive "inventions" selected and reinforced in the process of evolution. It should therefore be remembered that the human organism has roots that hide mechanisms which developed in the course of evolution, even if they are obscured by cultural phenomena. Our actions continue to be realised within the framework of limitations imposed by all types of "memory" cumulating in our biological development. These limitations may be bypassed, yet this would require a deeper knowledge of them, which does not seem attainable without biological research.

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Marek Tokarz SEMANTICS WITHOUT THE CONCEPT OF DENOTATION

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This article is composed of two distinct parts: the syntactical part (I and II) and the semantic part (III). Their topics are quite far from each other, but they are combined into a single article because there exists a formal construction of language \mathbf{L} (II) common for both these parts. The syntactic part is an attempt at taking a new approach to the syntactic function of common nouns and indicative pronouns. The analysis will lead to the said formal construction in section II, broadly referring to one of the works by A. Nowaczyk (1971). In the final part of the text (III), the semantic system for the formal language has been presented. It differs from other semantics in that here the problem of interpretation of this language comes down to indicating true statements among particularly simple expressions, referred to as atomic sentences, while not requiring the specification of object references for names of any type — neither individual nor general.

I. THE SYNTACTIC ROLE OF GENERAL NAMES

In this article, under 'general names' we understand all names that are not individual, while under 'individual names' we understand those which correspond to proper nouns, such as: *Aristotle*, *Vistula*, *Moon* and those that are created by indicating one object as their reference, e.g. this man here, that running dog, etc. (these expressions are an attempt to direct the reader's thoughts in a more or less relevant direction; they are not exact definitions and should not be treated as such). The logical division along the line 'general names' — 'individual names' is somewhat similar to the division into 'common nouns' and 'proper nouns' existing in grammar, although it is not totally equivalent. The set of general names will be marked as \mathbf{G} , and the set of individual (singular) names as \mathbf{J} .

Usually we identify \mathbf{G} and \mathbf{J} as both semantically different (\mathbf{J} refers to objects, \mathbf{G} — to a class of objects) and syntactically different (\mathbf{G} can be used as both the subject of a sentence and the predicative nominal of sentences like x is y, \mathbf{J} — only as the subject). We can easily explain the semantic basis of the syntactic difference. The following sentences, which are isomorphic in terms of syntax:

- (a) Aristotle is a philosopher,
- (b) The dog is a mammal,
- (c) The Morning Star is the Evening Star

are interpreted as describing different kinds of relations. Sentence (a) corresponds to $x \in y$, sentence (b) to $x \subseteq y$, while (c) to x = y.

We have already mentioned the sentence pattern x is y. Further on, we will need a more general concept of pattern, more specifically: SENTENCE PATTERN. By sentence pattern, we shall understand an expression containing a VARIABLE (or variables) that represents an entire class of sentences of a similar structure. These sentences are formed by replacing the variables in the pattern with expressions belonging to a specified set, called the SCOPE OF THE VARIABLE. Let us stress that the scope of a variable shall be understood herein as a set of expressions, i.e. as something of language origin; thus, it is a syntactic, not semantic term, although in practice the METHOD OF DEFINING this set may be semantic. For example, in the pattern x + 5 =y the scope of both variables is NOT a set of natural numbers but rather a set of DIGITS, i.e. signs of numbers. In the pattern x believes that Earth is a sphere the scope of x is a set of personal proper nouns, and in the pattern John believes that x, the scope of x is a set of declarative sentences. In the nominal sentence pattern (in the sense adopted in logic) x is y the scope of x is $\mathbf{J} \cup \mathbf{G}$, and the scope of y is \mathbf{G} .

The fact that a pattern (an expression containing variables which may be replaced, the so called FREE VARIABLES) must implicitly provide an instruction on the scope of the variables that it contains should not be questionable, if we analyse the example (+) x believes that y. If no scope was established, (+) would produce fully grammatical sentences, such as John believes that Earth is a sphere, but it would produce ungrammatical sentences as well, for example Earth is a sphere believes that John. A sentence created according to pattern \mathbf{A} by replacing the variables contained in \mathbf{A} with expressions from the scope(s) of these variables will be called the REALISATION of A. Another type of sentences based on patterns are some particular sentences created by QUANTIFICATION. They establish (or define) the frequency of true realisations in the set of all realisations of a given pattern.

Let us sum up what has been said so far. The characteristic features of sentence patterns are that: (a) they represent a certain class of sentences; (b) the class is created by replacing the variable contained in the pattern with expressions from the scope of the variable; (c) the scope is defined in advance for every pattern; and (d) replacing a variable by an expression from beyond its scope leads to ungrammatical expressions, i.e. such that it is pointless to ask about their truth value; (e) sentences based on patterns can be also formed by quantification.

Let us consider what plays the role of variables in expressions (sentence forms) of natural language (naturally, they are not letter variables, such as $x, y, z, \ldots; p_1, p_2, \ldots$, etc.). It is usually believed that some types of pronouns function as these variables, e.g. *someone*, *something*, *this*, *that*, etc. Let us take a closer look at this statement. We might suppose that the 'variability' of the indicative pronoun *this*, for example, results from the actual variability of its meaning. If someone is turning around with his arm stretched out and the index finger pointing straight ahead, while saying *this!*, then the denotation of *this* is constantly changing, depending on the object which is currently being pointed at.

This solution is therefore related to a special, colloquial definition of the term 'variable', originating in physics, or rather from the stage in the development of mathematics in which theories were still indistinguishable from their practical applications. In the colloquial use, the word 'variable' is, namely, understood as 'something that can change in terms of quantity' or 'something that we can change in terms of quantity and possibly observe the quantitative effects of this change'. A variable is thus something of an independent variable. This point of view is not accepted in present-day logic. As a matter of fact, it gives rise to paradoxes pointed out already by Frege. Its persisting existence in the logical theory of syntax seems to be a copy of the solutions of traditional grammar. To back up this thesis, we can refer to a passage from the book *Gramatyka języka polskiego* [*Grammar of the Polish language*] by Stanisław Szober (1953):

The individual content contained in proper nouns makes them similar in terms of semantic

value to pronouns, as these also always have individual content. The difference is that the content related to a noun is constant, while the individual content of a pronoun changes, as is commonly known, depending on the circumstances in which we use it. Consequently, pronouns have an unlimited scope of usage, while in proper nouns the scope is strictly related to the set content.

It seems unquestionable that in some contexts, some relative and indefinite pronouns (e.g. any, someone, something, every) play the role of variables and at the same time of operators binding them (quantifiers), as it is in the statement *Everybody loves somebody*. A very interesting and subtle analysis of such contexts was presented by A. Nowaczyk in his work Zaimki zamiast zmiennych i operatorów (Pronouns in the place of variables and operators, Nowaczyk 1971). Many ideas for the present article were taken from this work, as e.g. introducing internal negation, which cannot be easily eliminated from some expressions. In our terminology, the symbol corresponding to the word *is* will be *E*, therefore 'internal negation' will be marked as \overline{E} , read as 'is not'; \overline{E} corresponds to the term est used by Nowaczyk. However, our task in the present part of this article is completely different from the above. We are namely trying to convince the reader of two theses: (I) that the INDICATIVE pronouns are constant-like rather than variable-like, and (II) that the grammatical function of variables in many statements of natural language, and most probably in a vast majority of sentences, is fulfilled by general names.

Let us consider the statement *człowiek jest ssakiem* [man is a mammal]. It does not say anything specific about anything, as it is not indicated whether it is about all human beings or only some of them, or maybe a specific human being. This example has been selected on purpose, to confuse two meanings of the noun man — the one referring to class and the individual one. It might give the impression that the above statement is a sentence, and one accurately describing the reality at that. If someone claims that the statement man is a mammal is simply a true sentence, he says that because he unconsciously identifies this statement with the sentence every man is amammal. We can prove that this identification is unjustified by quoting an isomorphic (structurally identical) expression *człowiek jest blondynem* [man is a blond which clearly requires an 'interpretation': either 'every man is a blond' or 'a man is a blond', or 'this man here is a blond' (when 'the man here' means e.g. John Smith, just indicated by the speaker), or 'every second man is a blond', or yet something else. The role of the word *man* in this example [man is a blond] is obvious. It marks the place that can be filled

with various individual names. These names, however, only include names of people (the expression *sprawiedliwość jest blondynem* [*justice is a blond*] would be ungrammatical), therefore we have to assume that the scope of the variable is specified. The term *człowiek* is also subject to quantification we can say *każdy człowiek* [*every man*], *pewien człowiek* [*a certain man*]..., etc. It is clear, then, that the term plays the role of a variable in the sense described above: it has a scope, it can be replaced by individual names from this scope and lends itself to quantification. These characteristics distinguish general names from individual names in a more fundamental way than others, usually incidental characteristics quoted as distinctive features.

What was said above refers only to those names which are used in the position of a subject (here: man), and not general names used as predicatives, i.e. not names such as mammal or blond. Although the phrases is a mammal, is a blond can be broken down using grammatical methods, they cannot be broken down in logical terms. From the logical perspective, both these phrases could look like this: ssakuje like in człowiek ssakuje [man is mammaling] and blondynuje like in człowiek blondynuje [man is blonding]. We have the right to adopt this arbitrary solution, as the aims of logical analysis are different than the aims of grammar, and while the aim does not justify the means, it certainly defines them.

On the other hand, in the sentence ten człowiek jest znanym chirurgiem [this man is a famous surgeon], probably neither the pronoun this, nor the phrase this man can be treated as marking the grammatical position of the whole class of acceptable replacements. We perceive the above statement as SENTENTIAL, not as a PATTERN of possible sentences of a certain shape. It shows much more resemblance to sentences such as Ryszard Wójcicki jest znanym metodologiem [Ryszard Wójcicki is a famous methodologist], Wrocław jest dużym miastem [Wrocław is a large city] than e.g. to the statement człowiek jest znanym chirurgiem [man is a famous surgeon]. The structure of the latter is not that of a sentence, but of a sentence form. In a half-formal language, it would correspond to the pattern x is a famous surgeon, in which the scope of x would be defined as a set of personal proper nouns.

It is also clear that expressions such as ten człowiek [this man], as opposed to the phrase *lysy człowiek* [bald man] do not lend themselves to quantification. We can say każdy *lysy człowiek* [every bald man], but the strings of words każdy ten człowiek [every this man] and ten każdy człowiek [this every man] would be ungrammatical in all possible contexts.

The above analysis has revealed the role of the indicative pronoun,

which, when placed before a general name (a common noun) creates a phrase which syntactically corresponds to individual names (proper nouns). The seeming variability stems from pragmatic aspects: in real life, the actual content of the word *this* depends on what is currently being pointed at, i.e. on circumstances. The said pronoun is thus a so called indexical expression. However, it shares its incidentality with a vast majority of natural language expressions. Therefore, there is no reason to attach any special significance to it, at least no greater significance than to other typical incidental statements (*it is raining, I'll be back in five minutes, today is Friday, tomorrow is my birthday*, etc.).

It is clear that, for instance, in the sentence Ten człowiek jest sumienny, a ten jest nieodpowiedzialny [This man is diligent, and this one is irresponsible], the first pronoun ten [this] corresponds to a different person than the one indicated by the second pronoun. In formal language models, seeming variability is avoided by, for instance, attaching indexes to repeating indicative pronouns. In its initial formalised form, the above example would have the following structure: Ten_1 człowiek jest sumienny, a ten_2 jest nieodpowiedzialny. In the written version of Polish, the actual realisation of the latter structure could be as follows: Ten pierwszy człowiek jest sumienny, a ten drugi jest nieodpowiedzialny [The first man is diligent, and the other one is irresponsible]. Therefore, we can sometimes say, without any contradiction: Tamten człowiek jest szatynem i równocześnie tamten człowiek jest łysy [That man has dark hair and, at the same time, that man is bald], namely when this statement is one of the possible realisation of the deeper structure Tamten_człowiek jest szatynem i równocześnie tamten_człowiek jest lysy.

Eventually, we must assume that the role of an indicative pronoun, making a general name an individual one, is to transform sentence forms (patterns) with a common noun as a free variable by replacing the variable by a certain individual name (in the form: an indicative pronoun + a general name).

The aim of the first two sections of this article is, as has been said, to make a general analysis of purely syntactic problems related to general names. Now, we intend to build simple formal language employing this type of names in — as it seems — a way syntactically typical of them. The simplest languages of this type, \mathbf{L}_1 and \mathbf{L}_2 , do not contain proper nouns; \mathbf{L}_1 has no individual names at all. \mathbf{L}_1 corresponds to the language of syllogism, based on general sentences as primary sentences. The role of patterns (formulae which are not sentences) is played there by the expressions *S* is *P* and *S* is not *P*, which in our construction take a slightly different form. Our further discussion will be relatively highly formalised. It will include the standard logic and set-theoretic notation. Readers who are unsure whether they understand a certain symbol correctly should refer to a handbook of formal logic (e.g. Bańczerowski, Pogonowski, Zgółka 1982: 98—100).

II. FORMAL LANGUAGE CONSTRUCTION

The vocabulary of \mathbf{L}_1 contains n + 4 symbols:

$$g_1, g_2, \ldots, g_n, E, \overline{E}, K, \sim$$

We shall be using the following abbreviation:

$$\mathbf{G} = \{g_1, \ldots, g_n\}.$$

G shall be called a set of GENERAL NAMES. If $x \in \mathbf{G}$, then Kx, read as 'every x' is called a QUANTIFIER PHRASE (of language \mathbf{L}_1). The set of all quantifier phrases of language \mathbf{L}_1 shall be marked as \mathbf{QP}_1 . General names and quantifier phrases are jointly called noun phrases (of language \mathbf{L}_1); the set of noun phrases of language \mathbf{L}_1 shall be marked as \mathbf{NP}_1 , i.e. $\mathbf{NP}_1 = \mathbf{G}$ $\cup \mathbf{QP}_1$. The set of expressions taking the form Ex and Ex, where $x \in \mathbf{G}$, is called the set of VERB PHRASES of language \mathbf{L}_1 and shall be marked as \mathbf{VP}_1 . Ex is read as 'is an x'; Ex is read as 'is not an x'. Now we shall define (by induction) the terms PATTERN, SENTENCE and FORMULA (of language \mathbf{L}_1):

If $x \in \mathbf{G}$ and $y \in \mathbf{VP}_1$, then xy is a pattern. If $x \in \mathbf{QP}_1$ and $y \in \mathbf{VP}_1$, then xy is a sentence. If \mathbf{A} is a sentence, then $\sim A$ (read as 'it is not true that A') is also a sentence. Sentences and patterns are jointly called FORMULAE; a set of formulae of language \mathbf{L}_1 shall be marked as \mathbf{For}_1 . Elements of the set $\mathbf{For}_1 \cup \mathbf{NP}_1 \cup \mathbf{VP}_1 \cup \{E, \overline{E}, K, \sim\}$ are called CORRECTLY BUILT EXPRESSIONS.

EXAMPLES. (a) PATTERNS: $g_i Eg_j$, $g_i Eg_i$, $g_i \bar{E}g_j$, $g_i \bar{E}g_i$, where $i, j \leq n$. (b) SENTENCES: $Kg_i Eg_j$, $Kg_i \bar{E}g_j$, $Kg_i \bar{E}g_i$, $\sim Kg_i Eg_j$, etc. (c) INCORRECTLY BUILT EXPRESSIONS: $g_i E$, KEg_i , $Kg_i g_j Eg_i$, $\sim K\bar{E}$, $\sim g_i \bar{E}g_j$, $K \sim g_i Eg_j$, etc.

Categorical sentences in the standard syllogistics correspond to the following expressions of language L_1 :

sentence xay ('all x are y'/ 'every x is y') corresponds to sentence KxEysentence xey ('no x is y') corresponds to sentence KxEy sentence xiy ('some x are y') corresponds to sentence $\sim KxEy$ sentence xoy ('some x are not y') corresponds to sentence $\sim KxEy$.

EXAMPLE OF A REALISATION OF L_1

The vocabulary in our example shall be composed of the following expressions:

G =	{filozof, dramaturg}	
	[philosopher, playwright]	(general names)
	jest, nie jest [is, is not]	(copulas)
	każdy [all/every]	(quantifier)
	nieprawda, że [it is not true that]	(sentential operator, so called negation)

(In the examples quoted below, words are inflected according to the rules of Polish grammar.)¹

EXAMPLES. (a) PATTERNS: filozof jest dramaturgiem [a philosopher is a playwright]; filozof jest filozofem [a philosopher is a philosopher]. (b) SEN-TENCES: każdy dramaturg jest filozofem [every playwright is a philosopher]; nieprawda, że każdy dramaturg nie jest dramaturgiem [it is not true that every playwright is not a playwright]. (c) INCORRECTLY BUILT EXPRESSIONS: nieprawda, że dramaturg nie jest filozofem [it is not true that a playwright is not a philosopher]; każdy jest filozofem [every is a philosopher], nieprawda, że filozof jest [it is not true that a philosopher is].

INFLECTIONAL FORM OF L_1

In order to keep the expressions of language \mathbf{L}_1 in agreement with the rules of Polish grammar, we had to change the literal form of some formulae. Now we will show that it is possible to build a formal language in which no such changes are necessary. It will be called the INFLECTIONAL FORM OF \mathbf{L}_1 . Further in this text, however, we shall not build any inflectional forms of analysed languages, as they would have to be immensely complex, and

¹Translator's note: please note that Polish is an inflective language. To make the examples more clear for non-Polish speakers, corresponding phrases in English have been provided in square brackets, however, the English phrases should not be viewed as examples for the purpose of this article.

this complexity would not be justified by its value for scientific purposes. Let us just state the fact that a construction of this kind is indeed possible.

The vocabulary of the language in question has 2n+5 symbols:

Expressions g_i^1 , g_i^2 are called INFLECTED VARIANTS of the general name g_i ; K^1 and K^2 are variants of the quantifier. We introduce the following abbreviations:

$$\mathbf{G}_1 = \{g_i^1: 1 \leqslant i \leqslant n\}; \mathbf{G}_2 = \{g_i^2: 1 \leqslant i \leqslant n\}.$$

In this language, the inductive definition of a set of all formulae (including sentences) is as follows:

1. If $x \in \mathbf{G}_1$ and $y \in \mathbf{G}_2$, then the expressions xEy, yEx, xEy, yEx are formulae.

2. If $x \in \mathbf{G}_1$ and $y \in \mathbf{G}_2$, then the expressions $K^1 x E y$, $y E K^1 x$, $K^2 x \overline{E} y$, $y \overline{E} K^2 x$ are sentences.

3. If A is a sentence, then $\sim A$ is also a sentence.

EXAMPLE OF A REALISATION OF AN INFLECTIONAL FORM OF \mathbf{L}_1

The vocabulary in our example of realisation of an inflectional form of \mathbf{L}_1 shall be composed of the following expressions:

filozof¹, filozof², dramaturg¹, dramaturg² jest, nie jest każdy¹, każdy² nieprawda, że

The indexes mark various versions of the above words, as required by Polish grammar:

 $filozof^1 = \lceil filozof \rceil$

 $\begin{array}{ll} {\rm folozof}^2 &= \lceil {\rm filozofem} \rceil \\ {\rm dramaturg}^1 &= \lceil {\rm dramaturg} \rceil \\ {\rm dramaturg}^2 &= \lceil {\rm dramaturgiem} \rceil \\ {\rm ka\dot{z}dy}^1 &= \lceil {\rm ka\dot{z}dy} \rceil \ [{\rm all/every}] \\ {\rm ka\dot{z}dy}^2 &= \lceil {\rm \dot{z}aden} \rceil \ [{\rm no}]. \end{array}$

EXAMPLES. (a) FORMULAE: filozof jest dramaturgiem; dramaturgiem jest filozof [a philosopher is a playwright²]; każdy dramaturg jest dramaturgiem [every playwright is a playwright]; nieprawda, że nieprawda, że żaden filozof nie jest dramaturgiem; nieprawda, że nieprawda, że dramaturgiem nie jest żaden filozof [it is not true that it is not true that no philosopher is a playwright]. (b) INCORRECT EXPRESSIONS: filozof jest filozof [a philosopher_{NOM} is a philosopher_{NOM}]; każdy filozof nie jest dramaturgiem [every philosopher is not a playwright]; nieprawda, że dramaturgiem nie jest filozof [it is not true that a philosopher_{NOM} is not a playwright_{INSTR}]; nieprawda, że filozofem jest każdy [it is not true that every is a philosopher].

ADDING INDICATIVE PRONOUNS

The vocabulary of \mathbf{L}_2 is an extended version of the vocabulary of \mathbf{L}_1 , created by adding the following symbols:

 t_1, t_2, t_3, \ldots (indicative pronouns in unlimited quantity) \land, \lor, \rightarrow (sentential connectives)

The set of all indicative pronouns shall be marked as \mathbf{T} , i.e. $\mathbf{T} = \{t_1, t_2, ...\}$. The expression xy, where $x \in \mathbf{T}$ and $y \in \mathbf{G}$ shall be called an INDIVIDUAL NAME; a set of all individual names shall be marked as \mathbf{J} . Just as for \mathbf{L}_1 , we will provide the definitions of a QUANTIFIER PHRASE, NOUN PHRASE and VERB PHRASE of language \mathbf{L}_2 . Let as assume that:

$\mathbf{QP}_2 = \mathbf{QP}_1, \mathbf{VP}_2 = \mathbf{VP}_1, \mathbf{NP}_2 = \mathbf{NP}_1 \cup \mathbf{J}.$

²Translator's note: in Polish, both these phrases have the same meaning. The subject and the predicative can be placed on either side of the copula, yet the meaning remains the same because the inflection indicates which one is the subject and which one is the predicative (the predicative is in the instrumental case). Compare: *dramaturg jest filozofem* [a playwright is a philosopher].
The term pattern shall remain in its former meaning, but the definition of sentence will naturally change (as will the term formula). Just as earlier, the definitions of these terms shall be given in an inductive form:

If $x \in \mathbf{J}$ and $y \in \mathbf{VP}_2$, then xy is a sentence of \mathbf{L}_2 .

If A is a sentence in \mathbf{L}_1 , then A is also a sentence in \mathbf{L}_2 . If A and B are sentences of \mathbf{L}_1 , then the expressions $\sim A$, $(A \lor B)$, $(A \land B)$, $(A \rightarrow B)$ are also sentences of \mathbf{L}_2 . The last three expressions should be read, respectively: 'A or B', 'A and B', 'if A then B'.

An example of the realisation of L_2 can be a concrete language with the following vocabulary:

If there is only one indicative pronoun (e.g. only ten δsmy [this eight one]) and, in addition, it occurs only in one place, then the index added to this pronoun (in this case the numeral δsmy) can be omitted, i.e. we can say ten filozof jest dramaturgiem [this philosopher is a playwright] instead of ten δsmy filozof jest dramaturgiem. As it was the case with the inflective version of \mathbf{L}_1 , the quantifier in contexts with the word nie jest is rather read as *żaden* than każdy, i.e. e.g. the sequence of words każdy filozof nie jest dramaturgiem.³

EXAMPLES. (a) SENTENCES: ten pierwszy filozof jest dramaturgiem; (jeśli ten dramaturg nie jest filozofem, to żaden dramaturg nie jest filozofem); (ten pierwszy dramaturg nie jest folozofem i ten drugi dramaturg nie jest filo zofem); (jeśli (ten pierwszy filozof jest filozofem i nieprawda, że każdy filozof jest filozofem), to ten pierwszy filozof jest dramaturgiem). (b) INCORRECT EXPRESSIONS: ten każdy filozof jest dramaturgiem; każdy ten drugi filozof jest filozofem; filozof jest tym dramaturgiem; filozof jest dramaturgiem lub filozof nie jest dramaturgiem; etc.

³Translator's note: in cases such as this, double negation is required in Polish.

The very simple languages \mathbf{L}_1 and \mathbf{L}_2 are initial stages of the construction of language \mathbf{L} , which is our target. Apart from groups of terms, this language also includes proper nouns, i.e. individual names which are not formed by using indicative pronouns, e.g. Sokrates, Eurypides, and an internal general quantifier, expressed by words such as jakikolwiek [any] or dany [given]. Proper nouns make it possible to form sentences such as Sokrates jest filozofem [Socrates is a philosopher]; Jeśli Eurypides jest filozofem, to nieprawda, że żaden dramaturg nie jest filozofem [If Eurypides is a philospher, then it is not true that no playwright is a philosopher]. The internal quantifier allows for building sentences such as Jeśli jakikolwiek filozof jest dramaturgiem, to ten filozof nie jest filozofem [If any philosopher is a playwright, then this philosopher is not a philosopher].

The above example shows that introducing the quantifier *jakikolwiek* creates an additional problem — the possibility of an indicative pronoun appearing as an anaphora. This leads to the need to introduce a new group of terms to the language, as the possible occurrence of the symbols t_1, t_2, \ldots in a double role would create great technical difficulties in semantic analysis.

LANGUAGE \mathbf{L}

The vocabulary of language \mathbf{L} is composed of the following symbols:

g_1, g_2, \ldots, g_n — general names
a_1, a_2, \ldots, a_m — proper nouns
t_1, t_2, t_3, \ldots — indicative pronouns
o_1, o_2, o_3, \ldots — anaphoric pronouns
$K; J_1, J_2, J_3, \ldots$ — quantifiers
E, \bar{E} — copulas
$\wedge, \vee, \rightarrow, \sim$ — connectives
(,) — brackets

We introduce the following abbreviations: $\mathbf{G} = \{g_1, g_2, \ldots, g_n\}$, $\mathbf{NJ} = \{a_1, a_2, \ldots, a_m\}$, $\mathbf{T} = \{t_1, t_2, t_3, \ldots\}$. Any finite string of symbols from the vocabulary, including the empty string \emptyset , will be called an expression (of language **L**). A concatenation (combination) of expressions x and y will be marked as xy. We say that expression x OCCURS in expression y or that it IS A PART OF y, marking it as $x \in y$, when there exist expressions v and w, of which at least one is not empty, such that y = vxw. If A, x, y are expressions, then A[x|| y] means an expression created from A by replacing each instance of x with y; if x is not part of A, then A[x|| y] = A. Letters i, j,

k are variables across digits 1, 2, ..., n, letter l is a variable across digits 1, 2, ..., m, letters p, r, s are variables across the signs of all natural numbers digits 1, 2, 3, By **J** we mean a set of INDIVIDUAL NAMES, defined as $NJ \cup \{xy: x \in \mathbf{T} \text{ and } y \in \mathbf{G}\}$; therefore J is a set of proper nouns and names taking the form $t_r g_i$.

The set of SENTENCES of language \mathbf{L} is marked as \mathbf{ZD} and defined as the smallest set of expressions fulfilling the following criteria:

- 1. For all l and all j, $a_l Eg_j \in \mathbf{ZD}$ and $a_l Eg_j \in \mathbf{ZD}$;
- 2. For all $i, j, r, t_r g_i E g_j \in \mathbf{ZD}$ and $t_r g_i \overline{E} g_j \in \mathbf{ZD}$;
- 3. For all $i, j, Kg_i Eg_j \in \mathbf{ZD}$ and $Kg_i \overline{E}g_j \in \mathbf{ZD}$;
- 4. Let us assume that $A, B \in \mathbb{ZD}$ and that no expression $J_s g_i$ is contained both in A and B. Then $(A \wedge B) \in \mathbb{ZD}$, $(A \vee B) \in \mathbb{ZD}$, $(A \to B) \in \mathbb{ZD}$, $(A \to B) \in \mathbb{ZD}$, $\sim A \in \mathbb{ZD}$;
- 5. Let us assume that $t_r g_i \in A$, $A \in \mathbf{ZD}$, and at the same time $J_s g_j \notin A$. Then $(J_s g_j E g_k \rightarrow A[t_r g_i || o_s g_j]) \in \mathbf{ZD}$ and $(J_s g_j \overline{E} g_k \rightarrow A[t_r g_i || o_s g_j]) \in \mathbf{ZD}$;
- 6. Let us assume that $(B_1 \to B_2) \in \mathbb{ZD}$, $t_r g_i \in B_2$, $J_s g_j \notin (B_1 \to B_2)$. Further, let $A = J_s g_j E g_k$ or $A = J_s g_j \overline{E} g_k$. Then $((A \wedge B_1) \to B_2[t_r g_i \| o_s g_j]) \in \mathbb{ZD}$, $((A \wedge B_1[t_r g_i \| o_s g_j]) \to B_2[t_r g_i \| o_s g_j]) \in \mathbb{ZD}$, $((B_1 \wedge A) \to B_2[t_r g_i \| o_s g_j]) \in \mathbb{ZD}$

In order to make the content of this definition more clear, let us quote four examples of expressions which are not sentences:

- (a) $(J_1g_1Eg_2 \rightarrow o_1g_1Eg_3) \wedge (J_1g_1Eg_2 \rightarrow o_1g_1Eg_4)$ in this expression, J_1g_1 is repeated twice, and we can infer from the above definition that no J_rg_i phrase can be repeated in a sentence;
- (b) $(J_1g_1Eg_2 \rightarrow (J_2g_1Eg_3 \rightarrow o_2g_1Eg_4))$ no o_1g_1 phrase in the consequent;
- (c) $(J_1g_1Eg_2 \rightarrow (J_2g_1Eg_3 \rightarrow o_1g_1Eg_4))$ the consequent is not a sentence, which excludes the application of points 4 and 5 of the definition;
- (d) $((o_1g_1Eg_2 \wedge J_1g_1Eg_3) \rightarrow o_1g_1Eg_4)$ let us assume that this expression is a sentence; it was not formed under point 4, as its antecedent is not a sentence, thus it would have to be based on rule 6°, with $A = J_1g_1Eg_3$; but then $B_1 = o_1g_1Eg_2$ and for certain $r, j, B_2 = t_rg_jEg_4$; then, however $(B_1 \rightarrow B_2)$ is not a sentence, thus rule 6 also does not apply.

If a sentence does not contain the symbols $J_2, J_3, \ldots, o_2, o_3, \ldots, t_2, t_3, \ldots$, then if it contains J_1 and o_1 , we read them as *jakikolwiek* [any] and ten [this] respectively. The symbol J_i plays the role of a general quantifier where the symbol K cannot be used. The role of the 'internal' quantifier J_i is best explained with an example. The expression corresponding to sentences such as Każdy palący mężczyzna jest zagrożony rakiem [Every smoking man is threatened by cancer] is obviously not $K(xEy \rightarrow xEz)$, as this is not even a sentence, but $(J_1xEy \rightarrow o_1xEz)$. If in the latter expression we read x, y and z as mężczyzna, palący and zagrożony rakiem respectively, we will form the following sentence: Jeśli jakikolwiek mężczyzna jest palący, to ten mężczyzna jest zagrożony rakiem [If any man is a smoking man, then this man is threatened by cancer]. In the sentence $(J_1g_iEg_j \rightarrow o_rg_iEg_k)$ the individual content of the phrase o_rg_i defined by the occurrence of the internal quantifier J_rg_i before it. The phrase o_rg_i occurring in this kind of context is sometimes called an ANAPHORA.

An example of a sentence can be the following expression $((J_1g_1Eg_2 \land J_1g_2Eg_3) \rightarrow (o_1g_1Eg_3 \lor o_1g_2\bar{E}g_4))$, which we read according to the rules: 'if any g_1 is g_2 and any g_2 is g_3 , then this g_1 is g_3 or this g_2 is not g_4 .' This sentence is formed in the following way: according to rule 2°, $t_1g_1Eg_3$ and $t_1g_2\bar{E}g_4$ are sentences, but do not have a common element of the J_ix type, therefore, the alternative $(t_1g_1Eg_3 \lor t_1g_2\bar{E}g_4)$ is a sentence under rule 4°; this alternative does not contain J_1g_2 , thus under rule 5° we can replace t_1g_2 with o_1g_2 and place the phrase $J_1g_2Eg_3 \rightarrow (t_1g_1Eg_3 \lor o_1g_2\bar{E}g_4))$; as this sentence does not contain the phrase J_1g_1 , under rule 6° the following expression is also a sentence: $(J_1g_1Eg_2 \land J_1g_2Eg_3) \rightarrow (o_1g_1Eg_3 \lor o_1g_2\bar{E}g_4))$; in point 6° of the definition we place $B_1 = J_1g_2Eg_3$, $B_2 = (t_1g_1Eg_3 \lor o_1g_2\bar{E}g_4)$, $t_rg_i = t_1g_1, J_sg_j = J_1g_1, A = J_1g_1Eg_2$.

If $x \in \mathbf{J}$, $y \in \mathbf{G}$, then the expression xEy is called an ATOMIC SENTENCE, i.e. atomic sentences have the form $a_i Eg_i$ or $t_r g_i Eg_j$. The set of all atomic sentences of language L will be marked as **AT**.

III. SEMANTICS

In the conception presented herein, atomic sentences are the only expressions directly 'connected' with the reality. They are the only ones that have a purely empirical content and logic cannot discuss their truth value. Some of them express truth about the world that they were created to describe, others do not tell the truth about this world, and thus are false. We start with the assumption that the interpretation of a language is given when some true sentences have been selected among its atomic sentences. Thus, SEMANTICS is a certain subset \mathbf{S} of set \mathbf{AT} of atomic sentences. The set $\mathbf{AT-S}$ is marked as \mathbf{F} ; elements of \mathbf{F} are false atomic sentences. A given semantics \mathbf{S} defines the set of all true sentences of language \mathbf{L} , marked as \mathbf{S}^* , in the following way (in the formulae below, 'iff' is used as an abbreviation of 'if and only if'):

- **A** If $A \in AT$, then $A \in \mathbf{S}^*$ iff $A \in \mathbf{S}$;
- **B** If $x \in \mathbf{J}$, then $x \overline{E} g_i \in \mathbf{S}^*$ iff $x E g_i \notin \mathbf{S}$;
- **C** $Kg_iEg_j \in \mathbf{S}^*$ iff for any $x \in \mathbf{J}$, if $xEg_i \in \mathbf{S}$, then $xEg_j \in \mathbf{S}$; $Kg_i\bar{E}g_j \in \mathbf{S}^*$ iff for any $x \in \mathbf{J}$, if $xEg_i \in \mathbf{S}$, then $xEg_j \notin \mathbf{S}$;
- **D** Let us assume that A and B are sentences that do not contain a common occurrence of the phrase $J_s g_i$. Then $(A \land B) \in \mathbf{S^*}$ iff $A \in \mathbf{S^*}$ and $B \in \mathbf{S^*}$; $(A \lor B) \in \mathbf{S^*}$ iff $A \in \mathbf{S^*}$ or $B \in \mathbf{S^*}$; $(A \to B) \in \mathbf{S^*}$ iff $A \notin \mathbf{S^*}$ or $B \in \mathbf{S^*}$; $(A \to B) \in \mathbf{S^*}$ iff $A \notin \mathbf{S^*}$ or $B \in \mathbf{S^*}$; $\sim A \in \mathbf{S^*}$ iff $A \notin \mathbf{S^*}$;

E Let us assume that $t_r g_i \in A \in \mathbb{ZD}$ and $J_s g_j \notin A$. Then

 $(J_s g_j E g_k \to A[t_r g_i \parallel o_s g_j]) \in \mathbf{S}^*$ iff for any $x \in \mathbf{J}$, if $x E g_j \mathbf{S}$ and $x E g_k \in \mathbf{S}$, then $A[t_r g_i \parallel x] \in \mathbf{S}^*$; $(J_s g_j \overline{E} g_k \to A[t_r g_i \parallel o_s g_j]) \in \mathbf{S}^*$ iff for any $x \in \mathbf{J}$, if $x E g_j \mathbf{S}$ and $x E g_k \in \mathbf{S}$, then $A[t_r g_i \parallel x] \notin \mathbf{S}^*$;

F Let us assume that $(B_1 \to B_2) \in \mathbf{ZD}$, $t_r g_i \in B_2$, $J_s g_j \notin (B_1 \to B_2)$. Then $((J_s g_j E g_k \wedge B_1) \to B_2[t_r g_i \| o_s g_j]) \in \mathbf{S}^*$ iff $((B_1 \wedge J_s g_j E g_k) \to B_2[t_r g_i \| o_s g_j]) \in \mathbf{S}^*$ iff for any $x \in \mathbf{J}$, if $x E g_j \in \mathbf{S}$ and $x E g_k \in \mathbf{S}$ and $B_1 \in \mathbf{S}^*$, then $B_2[t_r g_i \| x] \in \mathbf{S}^*$;

 $((J_s g_j \bar{E}g_k \wedge B_1) \rightarrow B_2[t_r g_i \parallel o_s g_j]) \in \mathbf{S}^* \text{ iff } ((B_1 \wedge J_s g_j \bar{E}g_k) \rightarrow B_2[t_r g_i \parallel o_s g_j]) \in \mathbf{S}^* \text{ iff for any } x \in \mathbf{J}, \text{ if } xEg_j \in \mathbf{S} \text{ and } xEg_k \notin \mathbf{S} \text{ and } B_1 \in \mathbf{S}^*, \text{ then } B_2[t_r g_i \parallel x] \in \mathbf{S}^*;$

 $((J_s g_j E g_k \wedge B_1 [t_r g_i \parallel o_s g_j]) \rightarrow B_2(t_r g_i \parallel o_s g_j]) \in \mathbf{S}^*$ iff for any $x \in \mathbf{J}$, if $xEg_j \in \mathbf{S}$ and $xEg_k \in \mathbf{S}$, then $(B_1 \rightarrow B_2) [t_r g_i \parallel x] \in \mathbf{S}^*$;

 $((J_s g_j \overline{E}g_k \wedge B_1 [t_r g_i || o_s g_j]) \rightarrow B_2(t_r g_i || o_s g_j]) \in \mathbf{S}^*$ iff for any $x \in \mathbf{J}$, if $xEg_j \in \mathbf{S}$ and $xEg_k \notin \mathbf{S}$, then $(B_1 \rightarrow B_2) [t_r g_i || x] \in \mathbf{S}^*$.

The set $\mathbf{ZD} - \mathbf{S}^*$ is marked as \mathbf{F}^* ; \mathbf{F}^* is a set of false sentences of language \mathbf{L} with interpretation (semantics) \mathbf{S} . As a consequence of the adopted definitions $\mathbf{ZD} \equiv \mathbf{S}^* \cup \mathbf{F}^*$, according to which each sentence is either true of false. We could call this equivalence an ASSUMPTION OF BIVALENCE. There is, however, no reason not to consider also those semantic theories which do not include this assumption. One of the possible unorthodox ways would be as follows: SEMANTICS is any pair (\mathbf{S}, \mathbf{F}) where $\mathbf{S} \subseteq \mathbf{AT}, \mathbf{F} \supseteq \mathbf{AT}$ and $\mathbf{S} \cap \mathbf{F} = \emptyset$, without requiring that $\mathbf{S} \cup \mathbf{F} = \mathbf{AT}$. We would then have to modify the definition of a set of true sentences, and the new definition would have to provide for the construction of two disjunctive sets, \mathbf{S}^* and \mathbf{F}^* . An intuitive basis for this assumption could be the observation that in real languages we can empirically establish the truth value of only some atomic sentences, while it would be impossible to do it empirically with some other sentences.

In concrete realisations of language \mathbf{L} the possible semantics are not all equally applicable. When we use a language, it is important to us which atomic sentences are considered true; we distinguish one of the possible semantics as the 'right' one. For example, in a language containing the proper nouns *Sokrates* and *Eurypides* and the general names *filozof* and *dramaturg*, the right semantics would have to cover the sentences *Sokrates jest filozofem* [Socrates is a philosopher] and *Eurypides jest dramatugiem* [Eurypides is a playwright], as in our concrete world they are simply true, and it could not include sentences such as *Eurypides jest filozofem* [Eurypides is a philosopher]. If one of the possible semantics of language \mathbf{L} is distinguished as the right one, the language is considered interpreted; formally: an INTERPRETED LANGUAGE is a pair (\mathbf{L} , \mathbf{S}), where \mathbf{S} is a semantics for \mathbf{L} .

Not all expressions of the set S^* , i.e. not all true sentences, are of equal interest to a logician. As opposed to a sociologist, physicist, historian, etc., a logician is interested mainly in those sentences of which the truth value is a non-variable of interpretation that is those which are true in any semantics. The existence of such sentences is the most fundamental characteristic distinguishing human languages from other communication systems. No reasoning would be possible without them.

The sentences which remain true regardless of the selected semantics are called TAUTOLOGIES; a set of all tautologies will be marked as **TAUT**. If the expressions $A_1, A_2, (A_1 \rightarrow A_2)$ are sentences, then we say that sentence A_2 IS A CONSEQUENCE of sentence A_1 , if $(A_1 \rightarrow A_2) \in$ **TAUT**. An example of a tautology of a given realisation of language **L** can be the following sentence: (Jeśli każdy dramaturg jest filozofem, to (jeśli Eurypides jest dramaturgiem, to Euripides jest filozofem)) [(If every playwright is a philosopher, then (if Eurypides is a playwright, then Euripides is a philosopher))]. Thus, the sentence Każdy dramaturg jest filozofem [Every playwright is a philosopher.] implies Jeśli Eurypides jest dramaturgiem, to Euripides jest filozofem [If Eurypides is a playwright, then Euripides is a philosopher].

The set **TAUT** is decidable, i.e. there exists an effective procedure (algorithm) which allows us to decide, in a finite number of steps, whether any selected sentence of language **L** is a tautology. It can be proved by reconstructing the set **ZD** in a set of formulae of language **M** of monadic predicate calculus and using the theorem that the set of laws of this calculus is decidable. The proof of decidability of **TAUT** will be only shortly outlined below, without uninteresting technicalities.

LOGIC OF MONADIC PREDICATES

Language ${\bf M}$ of this logic has a vocabulary composed of the following symbols:

The set of all variables shall be marked as \mathbf{ZM} , the set of all constants as \mathbf{ST} . The set of formulae of language \mathbf{M} , marked as \mathbf{FOR}_M , is defined inductively: (i) if $x \in \mathbf{ZM} \cup \mathbf{ST}$, then $Q_i(x) \in \mathbf{FOR}_M$,(ii) if $A, B \in$ \mathbf{FOR}_M , then $(A \wedge B), (A \vee B), (A \to B), \sim A \in \mathbf{FOR}_M$, (iii) if $A \in$ \mathbf{FOR}_M , then $\forall x_i^r A \in \mathbf{FOR}_M$. If A is a formula of language \mathbf{M} and $x, y \in$ $\mathbf{ZM} \cup \mathbf{ST}$, then A[x|| y] means the result of replacement of every occurrence of x in formula A by y.

A MODEL for language **M** is any family $\mathbf{R} = \{U_1, U_2, \ldots, U_n\}$ of subsets of **ST**, such that $\cup \mathbf{R} = \mathbf{ST}$. An INTERPRETATION of language **M** in model **R** is any function *I* from the set **ZM** OVER **ST**, i.e. *I* is an interpretation when $I: \mathbf{ZM} \to \mathbf{ST}$ and every constant is an image of a certain variable. For some interpretations *I* and some formulae *A*, we will say that *I* FULFILS *A*, which we note as $I \models A$. The definition of the fulfilment is an inductive one:

$$\mathbf{I}^{\circ}$$
 $I \models Q_i(x_s^j)$ iff $I(x_i^s) \in U_i$; if $x \in \mathbf{ST}$, then $I \models Q_i(x)$ iff $x \in U_i$;

 $\mathbf{II}^{\circ} \qquad I \models (A \land B) \text{ iff } I \models A \text{ and } I \models B;$ $I \models (A \lor B) \text{ iff } I \models A \text{ or } I \models B;$ $I \models (A \rightarrow B) \text{ iff, if } I \models A, \text{ then } I \models B;$ $I \models \sim A \text{ iff it is not true that } I \models A;$

III°
$$I \models \forall x_i^s A \text{ iff for any } x \in \mathbf{ST}, I \models A[x_i^s \parallel x].$$

Formula A is a TAUTOLOGY OF MONADIC PREDICATE CALCULUS, if for any model **R** and for any interpretation I of language **M** in this model formula A is fulfilled by I. A set of monadic tautologies is marked as \mathbf{TAUT}_M . (The definitions of model and fulfilling, and consequently also of a tautology of language **M** are provided here in an untypical form, to make it easier to prove the theorems quoted below).

DECIDABILITY THEOREM

We shall now define a certain function f, which assigns a special formula of language **M** to every sentence of language **L**:

$$\mathbf{a}^{\circ} \ f(a_{l}Eg_{i}) = Q_{i}(a_{l}); \ f(a_{l}\bar{E}g_{i}) = \sim Q_{i}(a_{l}); \ f(t_{r}g_{i}Eg_{j}) = Q_{j}(b_{i}^{r}); \ f(t_{r}g_{i}\bar{E}g_{j}) = Q_{j}(b_{i}^{r});$$

$$\mathbf{b}^{\circ} \ f(Kg_i Eg_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to \sim Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to \sim Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)); f(Kg_i \bar{E}g_j) = \forall x_1^1 \ (Q_i(x_1^1) \to Q_j(x_1^1)$$

- \mathbf{c}° If A, B are sentences that do not contain a common occurrence of the phrase $J_s g_i$, then $f(A \wedge B) = f(A) \wedge f(B)$; $f(A \vee B) = f(A) \vee f(B)$; $f(A \to B) = f(A) \to f(B)$; $f(\sim A) = \sim f(A)$;
- $\mathbf{d}^{\circ} \text{ If } t_{r}g_{i} \in A \in \mathbf{ZD} \text{ and } J_{s}g_{j} \notin A, \text{ then } f(J_{s}g_{j}Eg_{k} \to A[t_{r}g_{i} \parallel o_{s}g_{j}]) = \forall x_{j}^{s} \\ ((Q_{j}(x_{j}^{s}) \land Q_{k}(x_{j}^{s})) \to f(A) \ [b_{i}^{r} \parallel x_{j}^{s}]); \\ f(J_{s}g_{j}\bar{E}g_{k} \to A[t_{r}g_{i} \parallel o_{s}g_{j}]) = \forall x_{j}^{s} \ ((Q_{j}(x_{j}^{s}) \land \sim Q_{k}(x_{j}^{s})) \to f(A) \\ [b_{i}^{r} \parallel x_{j}^{s}]); \end{cases}$

$$\begin{aligned} \mathbf{e}^{\circ} & \text{If } (B_{1} \rightarrow B_{2}) \in \mathbf{ZD}, \ t_{r}g_{i} \in B_{2}, \ J_{s}g_{j} \notin (B_{1} \rightarrow B_{2}), \ \text{then } f((J_{s}g_{j}Eg_{k} \land B_{1}) \rightarrow B_{2}[t_{r}g_{i} \parallel o_{s}g_{j}]) = f((B_{1} \land J_{s}g_{j}Eg_{k}) \rightarrow B_{2}[t_{r}g_{i} \parallel o_{s}g_{j}]) = \forall x_{j}^{s} \\ & (((Q_{j}(x_{j}^{s}) \land Q_{k}(x_{j}^{s})) \land f(B_{1})) \rightarrow f(B_{2}) \ [b_{i}^{r} \parallel x_{j}^{s}]); \\ & f((J_{s}g_{j}Eg_{k} \land B_{1}) \rightarrow B_{2}[t_{r}g_{i} \parallel o_{s}g_{j}]) = f((B_{1} \land J_{s}g_{j}Eg_{k}) \rightarrow B_{2}[t_{r}g_{i} \\ & \parallel o_{s}g_{j}]) = \forall x_{j}^{s} \ (((Q_{j}(x_{j}^{s}) \land \sim Q_{k}(x_{j}^{s})) \land f(B_{1})) \rightarrow f(B_{2}) \ [b_{i}^{r} \parallel x_{j}^{s}]); \\ & f((J_{s}g_{j}Eg_{k} \land B_{1}[t_{r}g_{i} \parallel o_{s}g_{j}]) \rightarrow B_{2}[t_{r}g_{i} \parallel o_{s}g_{j}]) = \forall x_{j}^{s} \ ((Q_{j}(x_{j}^{s}) \land Q_{k}(x_{j}^{s})) \rightarrow f(B_{1} \rightarrow B_{2}) \ [b_{i}^{r} \parallel x_{j}^{s}]); \end{aligned}$$

$$\begin{array}{l} f((J_s g_j Eg_k \wedge B_1[t_r g_i \parallel o_s g_j]) \to B_2[t_r g_i \parallel o_s g_j]) = \forall x_j^s \ ((Q_j(x_j^s) \wedge a_j)) \to f(B_1 \to B_2) \ [b_i^r \parallel x_j^s]); \end{array}$$

The consequence of these definitions is the following

LEMMA: (a) For every interpretation I there exists a semantics S_I , such that for any sentence A of language \mathbf{L}

$$A \in S_I^*$$
 iff $I \models f(A)$.

(b) For every semantics **S** there exists an interpretation I_S , such that for any sentence A of language **L**

$$I_S \models f(A) \text{ iff } A \in \mathbf{S}^*.$$

From the lemma we conclude that

THEOREM: For any sentence A of language \mathbf{L} ,

 $A \in \mathbf{TAUT} \text{ iff } f(A) \in \mathbf{TAUT}_M.$

The decidability of the set of tautologies of language L can now be easily inferred from the above theorem and from the known fact that the set \mathbf{TAUT}_M is decidable.

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Wiktor Kołwzan SYMBOLISM, ARCHETYPAL MORPHOLOGIES, AND INFORMATION

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1. Elementary catastrophe theory and linguistics

Links between linguistics and the elementary catastrophe theory (ECT) have been mentioned over the course of the analysis of human biological processes from the perspective of the dynamic theory of morphogenesis (Kołwzan 1984). In the present paper, we will draw attention to the origin of language and the relation between ECT and the linguistic issues considered in semiotics (Pelc 1982) and psycholinguistics (Leontiev 1969). We will focus on ways the human brain processes linguistic information, on linguistic units.¹

1.1. The origin of language

There is a variety of views on the origin of language, both in linguistics and psychology. A discussion on these approaches falls out of the scope of this paper. We will confine ourselves to setting out the account offered by the elementary theory of catastrophes.

According to ECT, the origin of language can be reduced to the general problem of the correlation between language and the external world: the fact that our language provides a relatively adequate picture of the world means that structurally – implicitly – it is a kind of Physics and a kind of Biology. It is *Physics* because the structure of each elementary sentence is isomorphic (isological) to the structure of a broadly understood phenomenological intermittency occurring in spacetime. Furthermore, this structure is

 $^{^{1}}$ The article elaborates on the idea of qualitative representation of human informational processes presented in (Kołwzan 1984) and (Kołwzan, Święcki 1969).

the bearer of language. On the other hand, our language is *Biology*, because every specific concept is isomorphic to a living thing.

In the case of animals, the functional fields associated with essential biological activities (eating, sleeping...) received a mental representation at very early stages, since they significantly affect the image of the body in the subsystem of the nervous system responsible for those activities. Thus we may surmise that several important elements of the animal world acquired a structurally stable image in the nervous system of animals. The *logos* of living things is a universal model for *concept* formation. Stability of these *logos* is, in itself, based on the possibility of regulatory reflexes. Thus mechanisms of regulation are a necessary element in the process of forming those concepts, since each dynamic structure with a high structural stability inevitably contains a corrective intermittence, a catastrophe of regulation. This fact takes place within the qualitative dynamic, and the *logos* of living things must be compatible with this dynamic.

In comparison to animal languages, our language seems to have a double origin. On the one hand, it serves to ritualize a number of functional fields of a genetic origin and, on the other - to notify others about a (new) phenomenon, a danger which might affect the behaviour of an individual or a social group (Thom 1968).

It seems plausible that human language arose for the sake of the second kind of message. Thus it stemmed from the need for informing others about changes in the external environment – about phenomenological 'catastrophes'. Hence the basic structure of a message consists of three elements which make up the so-called Harris's (1962) structure, SAO, where: S – subject, A – action (verb), O – object with the direction of action $S \rightarrow O$. At the textual level, A can appear in a neutralized form, that is, it can be symmetric. Yet the real processes always follow the order S < A < O.

Thus noun (the logos of objects) and verb (the dynamic of a noun²) con-

²It is the impact range of a noun. It comprises types of relations holding between nouns. According to Thom, the *logos* of a verb is hierarchically higher than the *logos* of a noun. *Logos* of a verb organizes the noun's conflicts. This kind of analysis of the origin of language indicates that the grammatical category as a linguistic concept has a universal linguistic form. So the distinction between noun and verb would also be universal (Thom 1968). We should ask, however, about the nature of other grammatical categories and grammatical rules. We know, for instance, that in many languages SAO's status is very stable, while in others it is not, e.g. in Slavic languages. A problem arises as to which types of information are universal and which are merely local. This bears on constructing a correct grammar of a given language (the grammar of the internal semantic code – cf. below, section 5) not only with a cognitive purpose in

stitute the fundamental archetypes (templates) for linguistic structures which describe spatiotemporal processes. Thom distinguished sixteen fundamental archetypes (Thom 1970: 226–248).

1.2. Symbolism and the origin of signs

René Thom (1973a: 85–106) states that it is customary to regard conceptual thinking, symbol usage, as the crowning achievement of human capacities. Most philosophical systems account for this accomplishment by stipulating a sort of *facultas signatrix* accessible to human beings alone, as opposed to animals. The inventor of ECT takes the opposite stance. The emergence, in the course of evolution, of *rational thinking* within the first men, associated with the use of language, is not as sudden an intermittence as some philosophers tend to think, although the animal–man transition made for a major qualitative transformation. This transformation, however, (probably) amounts not only to a catastrophic innovation in the brain structure but also to a modification of the stages of individual development in view of the presence of a social environment. *Symbolism* must be understood as a certain hierarchical sign structure. One of the most interesting classifications of signs was offered by Peirce. According to him, signs can be divided into:

1) icons – i.e. images, which are more or less adequate graphical representations of objects,

2) *indexes* – which are objects or beings connected with the symbolized object and entailed by its existence,

3) *symbols* – this role can be played by any form whose relation to the signified object is a result of a social convention.

Unravelling the secret of human symbolism depends, to a significant extent, on a theoretical account of archetypal forms. These forms serve two important functions: one is the *physical meaning*, the other – the *biological meaning*. Physical meaning consists in the ability to resist the *communication noise*, while the biological meaning can be described as form's ability to produce other forms, important from the biological point of view. Biologically meaningful forms are particularly easy to recognize and are classified within the semantic field of the observer (a human being or an animal). Although the *form of a sign* cannot stray far from its *motivation*, a theory of sign cannot be based simply on the physical meaning of the form of message, since the *meaningful* character of the form is always associated with a certain morphological instability which enables – during a transmission – the creation of a complex of simpler forms. The resulting complex is a *development*, as it

mind but also with a practical one, e.g. that of devising a theory of teaching foreign languages or that of building information search systems.

were, of the initial unstable form.³ Thus the principal biological imperative of an animal is to recognize prey and predators – hence the higher sensitivity of its sense organs to these typical forms.

The above viewpoint persuades Thom to claim that the main source of symbolism (starting with animals) should be sought in basic regulatory mechanisms of an organism and society. He is inclined to defend the view that the more *neutral* the message, the more amenable it is to imperatives of the physical meaning – the more salient is the structure of the archetypal origin. If the message is *biased*, if it immediately corresponds to an urgent biological or social necessity, then it is morphologically unstable.⁴

Thus a linguistic sign is of a biological origin. It stemmed from the need for preserving an organism in a stable state.

Connections of human symbolism with ECT open up an avenue for research on the semantics of language (morphology of physical and biological meaning). This is tantamount to the possibility of constructing a calculus of forms, i.e. a general semiotics.⁵

2. Information and archetypal forms

Mathematical modelling of fundamental life processes include such mathematical disciplines as *set theory*, *algebraic topology*, *category theory*, *algorithm theory*. In (Kołwzan 1984) we presented several possible methods of employing the above disciplines to construct qualitative mathematical models. Conclusions gleaned from the *mathematical* 'behaviour' of these models can be particularly fruitful for some sciences. However, excessive heterogeneity of these theories could be regarded as their shortcoming.

The aim of the general theory of catastrophes is to find out methods capable of synthesizing these various mathematical models and theories. This will be impossible, however, until mathematicians have solved numerous theoretically and technically difficult problems of a mathematical nature, which underlie ECT. The mathematical theory of semantic information, expressed in the language of geometry, may prove particularly interesting, since the existing mathematical model of the notion of information, offered by information theory, is relatively modest, in the qualitative aspect.

A model of any communication process in the most general form, which

³Apparently, this is the way in which a mother tongue develops in a child.

⁴Symptoms of this fact can be observed in syntactical structures (advertisements, poetry, etc.) in which grammatical rules are broken. It also sets up a natural hierarchy of syntactic structures.

 $^{^5{\}rm For}$ interesting results of applying ECT to the description of natural language semantics, see Wildgen 1992.

takes into account the nature of the transferred information, can be framed as follows:

$$y = T(F(x,r), x, r),$$

where: x – the state vector representing the signal sent by the source, r – noise, $x' = (F(x, r) - \text{input} \text{ for the communication channel, composed of the signal and the noise, <math>y$ – vector signal transferred through the channel to the receiver of the information.

The analytic issue, which arises here, is of great concern. Given a certain y, we want to define – as precisely as possible – the *nature* of x, the distribution of r, the form of F(x, r) and the structure of T (Bellman 1961: 289). A similar account has also been adopted by Jumarie (1976: 393–414).

Note, however, that the above formula presents the communication process only from the quantitative perspective, whereas every act of communication involves some *content*. This is why defining the nature of a signal x in the dimension of content is difficult. There is no determinate *combinatorics* (composition) of signals with respect to the contents carried by them. The catastrophe theory only began to conduct research in this direction. This combinatorics, however, is well specified by the mechanisms of the human brain, since each (fairly simple) event in the real world can be described by a human being by means of a finite number of words.

Nevertheless, we would like to have a formal measurement method for the semantic dimension of information. These expectations have not been met by any logico-semantic conception of information theory, albeit each of them assumes that we can speak of semantic information only when we deal with the process of *distinguishing* and *separating* objects. These are the main qualitative attributes of information.

Accordingly, the problem of meaning boils down, in a sense, to distinguishing and identifying objects. Human ability to differentiate and separate out objects formed the basis for *denoting* them. It is worth considering, therefore, what sparked off the emergence of sign,⁶ i.e. how it happened that various *forms* became a value *meaningful* to human beings. Furthermore, it immediately leaps to mind that we should consider the possibility of creating qualitatively different – from the existing ones – *methods of measuring meaning*. So what should *the information theory* look like? Thom postulates

 $^{^{6}}$ In the previous section, we assumed that the emergence of sign was brought about by the need to simulate real phenomena and by the presence of social environment in the life of each individual. It is hard to tell, however – apart from conjectures – what kind of forces lead to the emergence of sign.

that it should be a halfway house between semantics and semiotics, something like the thermodynamics of forms – that it should aim at a rigorously morphological analysis of forms of communication (Thom 1973b; reprinted in 1983a).

At present, the word "information" is used in an ambiguous manner in science. All semantic subtleties of employing this key conceptual category depend on the motivations of its users. Still, we wish that science should be able to establish a way of understanding this term that could satisfy all, or at least most, linguists, since it is the semantic problems associated with this notion that currently take centre stage. Thom puts forward a solution for the problem of information in the light of archetypal morphologies associated with elementary catastrophes (Thom 1973b). On this account, one can provide a general schema (graph) of interaction for a typical situation which we encounter in a process of linguistic communication. It envisages a receiver X of the information, a transmitter Y, a message I, i.e. the information Xlooks for, and X's action b performed after receiving the information from Y. Thus we have two agents, a question -d, a piece of information -I, and an action -b. This situation can be illustrated with the following geometrical morphology which resembles archetypal morphologies but is more complex – see Figure 1 (cf. Kołwzan, Święcki 1983):



Figure 1: Geometrical schema of information morphology $G = \langle X, Y, d, I \rangle$

Still, this morphology is not an archetype – due to its complexity. It can be analysed into simple, i.e. archetypal, morphologies depending on the character of the *information* (the sense of its use). If the information consists in an answer to a specific question, then the above graph (Figure 1) is reduced to an archetypal morphology, so-called *cut* (Figure 2):⁷

Information can be considered with regard to transmission. In this case there is an additional agent – the medium of transmission. Such a situation

⁷As an example, consider the legal sense of information usage: X is a judge, d – a question, Y – a witness or a defendant, I – information obtained from Y (forced out of Y), One can interpret a scientific experiment in a similar way, except that, in order to obtain the appropriate information I from the object Y, one must have a suitable measuring apparatus, i.e. a question d (a scientific method).



Figure 2: Information as the morphology of *cut*.

is represented by the following morphology of transmission (Figure 3):



Figure 3: Morphology of *transmission*.

It is, as Thom rightly points out, a situation typical of mass media. It lacks *action* and *question*.

A typical example of *information* can be found in all kinds of advertising techniques. It is a case of open misuse in the sense of information, since it amounts to 'catching' customers. Thus this sort of sense of information can be assigned to the archetypal morphology of *catching* (see: Figure 4).



Figure 4: Morphology of *catching*.

One can analyse a lot of other senses of the use of the common word "information."

3. Information in the sense of the Shannon–Weaver model

The aim of the information theory according to the Shannon–Weaver model, is to compare the morphology of the received message with the morphology of the transmitted message. Morphology of transmission is also

a typical example of information used in the technical sense. From graph G (Figure 1) we take X, Y, I, and, in addition, we have a transmission channel -m (Figure 3). Accordingly, the term "information" is sometimes improperly used in biology, since here it is understood in a technical sense (cf. Smalgauzen 1966), while biology deals, in general, with the so-called 'genetic information' contained in DNA. Thus information in the biological sense should be understood as a sort of agenda, i.e. a programme of development of a given cell, organ, or a whole organism – rather than a *message*. Multiple theorists of biology, with an eve to applying information theory to their discipline, came to regard any natural morphology as a message which is addressed to the observer and originates from an unknown source. In such an account we may find traces of the old idea according to which God speaks to us through the phenomena of this world, and it is up to us to decode the language of these phenomena (Thom 1973b). Such a view raises difficult ontological problems. In such a situation one should renounce the notion of sign, since in interpreting this idea one would be forced to admit that each *natural form* is a message from God.

Consequently, the notion of information must involve two ordered pairs: questioner - answerer (which conveys the information to the interrogator) and question - action (the gain from information). Otherwise, deploying this term (when at least one element is missing) may prove to be of little use. On the other hand, however, the complexity of the graph G (Figure 1) suggests that it is difficult to provide a complete description of all possible realizations of a given piece of information. For that, we would need a complete semantics.

In some cases, the information is conveyed verbally, but in many other cases, e.g. in the case of *genetic information*, the meaningful content is too complex to be expressed verbally. For we are dealing here with a (metabolic or geometric) *form*, of a geometric item which is the organism as a whole. Although the Weaver–Shannon model allows for the assigning of a non-negative number, i.e. the quantum of information, to a message, it does not depend on the *meaningful* content of the message.

4. Information as form

All accounts offered by semantic information theories (Carnap's and Bar Hillel's, Kolmogorov's, Vojšvilla's, Hintikka's, and other) have a common trait, namely, they employ – directly or indirectly (Vojšvilla's theory) – logarithmic probability functions. This convergence of opinion with respect to the role of *probability* function in the transmission of messages allowed Thom to put forward a semantic information theory which regards *information*

as a *form* (of an object). Thom pointed out that in each morphology of a linguistic message, as well as in artificial forms, there is always an element of a certain (dynamic) instability. In the case of artificial forms he makes them less probable than in the case of natural morphologies. This yields a probabilistic definition of information. Thus the realization of an event with probability $0 \leq p \leq 1$ marks the increase of information by:

$$I = -k \cdot \log p$$

This relation involves deep topological-algebraic correlations regarding the *form* of an event. The point of probability, therefore, is to give us control over a situation of dynamic instability, practical indeterminism. Those who are fascinated by axiomatization of every formal theory see nothing else here but a definition of information in terms of probability. Yet the dependence of information on probability marks a correlation between the singularity of initial conditions of an unstable process and the topological complexity of the output situation. Thus, in fact, we are talking about assigning to this singularity (this improbability) a number specifying the initial instability of information. And so *information is understood here as an object of geometric nature, a nature which brings into relief the complexity of the output state* (Thom 1973b). This yields a fairly precise expression of connections between information and causality.⁸

One might say that the concept of information, in its own right, implies the possibility of *understanding* a certain process (event). This is why one may postulate creating an (semantic) information theory such that the very *act of cognition*, i.e. of understanding a given event, would be a consequence of that theory (Thom 1973a). Accordingly, some believe that the existing formal theories are something external in relation to the material contents of the disciplines to which they are applied, since formulas of these theories are *interpreted* in the framework of those disciplines by means of *added* semantic rules (Bunge 1959: 112).

⁸It can be illustrated with some examples. When the receiver of information X does not yet have access to the desired information, her mental state can be compared to the following situation: if we put a pencil on its head, we can say that this position on a plane *encodes* a circle with a centre at O and a radius equal to the length of the pencil. Each point of the circumference corresponds to one of the stable output situations which can take place in this initially unstable situation. The same happens to the mind of information-receiver. After obtaining the desired information, the mental state moves from an unstable situation to a steady one (locally, since it might be in need of some further information; the receiver's mental state shifts from an unstable local maximum to a stable local minimum).

The force of the form of objects is particularly salient in human thought and language. The structure of human symbolism is shaped by the existence of *physical*, *biological*, and very tenuous *symbolic* (sign-) *forms*

5. Information theory and semiotics

The classical Shannon–Weaver information theory as well as logicosemantic theories of information are examples of algorithmic theories. In particular, the former theory allows us to calculate the complexity of a system, that is, the degree to which it diverges from the state of total chaos. Such an algorithm can be provided for one-dimensional structures, i.e. for signal sequences. Yet, in addition, we would like to have an algorithm for composing multidimensional structures. Relatively simple processes, whose dynamic can be replaced with verbs, can be characterized by means of archetypal forms. This paves the way to a qualitative investigation into the phenomenon of information. Algorithmic representation of compound processes involving a number of structural elements greater than four, or of *nongradient* processes (in the mathematical sense), is almost impossible. For there is no general catastrophe theory; and so we do not know an algorithm for algebraic composition of multidimensional forms. In other words, there is no calculus of forms. Still, our analysis of the term "information" encourages us to consider an analysis of the notion of the *communicational situation* of a human being, which is represented by a natural language.

Language, as a system of signs, should somehow represent the semantic content of processes in the form of semiotic syntactic structures. Of course, such a representation should have a *functional* expression. It should preserve the structure of the represented process, and the semiotic syntactic structures should be construed in the same way, regardless of the particular natural languages. A question arises, therefore, about the connections between the semantic content of a message and its semiotic structure. In order to answer it, one must appeal to the origin and structure of the human symbolism. All this, in turn, is required if we intend to put forward a hypothetical schema of information-processing by the human brain.

As we have already mentioned, Peirce distinguishes – in the structure of human symbolism – icons, indexes, and symbols (arbitrary signs). The division is very adequate and methodologically fertile. Thom (1973a) associated each group of signs with a suitable space: icons with the physical space, indexes with the biological space, and symbols – with the semantic space.

The core of this correspondence is simple.⁹ It is enough to notice that in

 $^{^{9}{\}rm The}$ simplicity, as Sebeok (1976) points out, stems from the fact that both Peirce and Thom are gifted with rich imagination and represent a similar style of thinking.

the physical world we encounter only icons (e.g. an image of a tree in water), in the living world – we deal with indexes, and in the world of symbols – and only there – with conventional signs as well. These spaces are structurally stable and are marked by hierarchical correlations. Such an account suggests that the development of symbolic signs went from (physically) simple signs to more complex ones.¹⁰ It was also accompanied by the emergence of ways of informing and information processing. Thus it gave rise to three distinct *qualitative* types of *information*.

This perspective, in turn, entails the necessity of a closer analysis of the structure of human language. It can be characterized as a three-level symbolic system (a stratificational model): physical space corresponds to the phonetic level, biological space – to the syntactic level, and semantic space – to the semantic level. Each level, in turn, consists of the paradigmatic plane (units of a given level together with differentiating opposite properties) and the syntagmatic plane (rules for combining units into higher-level units) (Kołwzan, Święcki 1983). By virtue of these planes, each element of a given level can be analysed into units, which are elements of a lower level.

Units of the semantic level are Thom's archetypes, whose interrelations constitute the internal semantic code (ISC) of a human being. It can be assumed that these archetypes make up the paradigmatic plane of this level of language, while the syntagmatic plane would amount to the postulated calculus of forms.

Archetypal morphologies are divided into at most four agents – expressed by suitable syntactic forms (surface structures); otherwise a given syntactic form must be analysed in several forms, each containing a number of agents which satisfies the requirement of complexity of particular archetypes. Units of the phonetic level are phonemes constituting speech.

At this point, we would need a good external *representation* of ISC, semiotically understood, interpreted in the same way in any language. Thus it is tempting to specify conditions which must be fulfilled by a semiotic representation of ISC, which simulates materially (with respect to content)

¹⁰In more recent works, Thom elaborates on the issue of the origin of signs, their connection with space, and the genesis of language. He admits, however, that these discussions are speculative in character, especially with respect to the origin of language (Thom 1983b). Thom's position also shifted with regard to the account of meaning formation. The physically meaningful form and the biologically meaningful form have been modified. He introduces the notion of *salient form* (*la forme saillante*), which is distinguishable against a given *background* (*le fond*). Such salient forms can acquire a physical or biological meaning, which mark *being pregnant* (*la pregnance*) with consequences stemming from the existence of *saillance* (Thom 1980, 1982).

concrete, spatiotemporal *macrosituations*. It should be independent from the phonic matter of the users of a given natural language. Thus it should be a record of the *pure sense*.

We can assume that each human being perceives the world in a homogeneous way. Then the semiotic record of a given piece of information should be equally understood by a given human being regardless of the language she speaks. It should contain the list of archetypal morphologies, the agent structure of these morphologies, and the rules of composition corresponding to the calculus of forms obtaining in the ISC.

Among all the attempts to invent such a code, the most promising one is the theory of universal semantic code (USC) put forward by Martynov (1974, 1977). The central idea of this account is quite simple. The starting-point is the string analysis of natural-language messages, initiated by Harris (1962). It consists of examining the possibilities of a natural extension of a simple semiotic string SAO. Such an analysis allows us to establish two possible ways of expanding the string SAO: (i) by adding 'second' subjects and objects: $S_1S_2AO_2O_1 - S_1$ by means of the instrument S_2 delivers the object O_2 to the object O_1 ; (ii) by adding SA to the left side of SAO: $S_1A_1S_2A_2O_1$ $- S_1$ makes S_2 act on O_1 .¹¹

The list of archetypes has been translated into semiotic strings representing USC. This translation will not be repeated here (see Kołwzan, Święcki 1983), yet, for the sake of illustration, let us give an example from the list of translations: morphology of transmission corresponds to the semiotic structure $S_1S_2AO_2O_1$, where:

$$S_1 = Y, S_2 = m, O_1 = X, and O_2 = I$$

6. The notion of natural semiotic triangle

Although we have not quoted the full list of archetypal forms into corresponding semiotic strings, it is necessary to explain what this translation amounts to. In order to do so, one must first invoke some specific results, obtained during the course of considering issues connected with semantic information and information processing by the human brain. The list of translations is based, in a nutshell, on the opposition between continuity (archetypes) and discreteness (semiotic strings) and amounts to comparing the number of agents which take part in a given process. But what was the motivation for selecting this simple principle as the basis for translation?

¹¹Optional dashes over S_1, S_2 , O_1 , or O_2 mean that a given agent does not play an active role in the action, e.g. $\bar{S}_1 S_2 A O_1$ means that the instrument S_2 was used to act on O_1 . S_1 is an indefinite subject of the action.

Research conducted by Rashevsky in the field of mathematical and general biology allowed him to formulate a postulate, important for biology as a whole, that *each organism in its own right is a system of mappings*, and to prove that each organism involves mappings of the many-to-one type. This type of mapping is instantiated by so-called *biological epimorphism* (Rashevsky 1960).

Does this mathematically expressed principle have an experimental justification with respect to information processing by the human brain? The point is that neurobiologists are in agreement as to the difference between animal and human brain structures. It amounts to the asymmetry between the left and right hemisphere of the human brain (Ivanov 1978). Anatomically, this asymmetry manifests itself in the domination of one hemisphere over the other. The brain of an animal is almost perfectly symmetric in this regard.¹²

Experimental data allowed us to provide a division of functions of both hemispheres. It has been established, inter alia, that the right hemisphere is responsible for continuous processes. It maps images of a concrete nature – here and now – and is responsible for spatiotemporal orientation. Generally speaking, it is a geometrical hemisphere. By contrast, the left hemisphere is responsible for discrete properties, logical functions (yes and no), operates on abstract mental images. Its injury tends to result in speech disorders. It is a typically algebraic hemisphere. Thus it contains innate generative mechanisms, which are responsible, especially in children, for the development of grammar of the mother tongue.¹³

We can infer from the above data that the human brain has access to the rules for translating archetypal forms into discrete ones, and vice versa, since one of the characteristic features of human language (mind) is that a human being is capable of reproducing (simulating) meaningful forms which are spatially and temporally distant.

The phenomenon of cerebral asymmetry suggests that the arbitrary sign is also analysable in the right-hemisphere part, i.e. *signifié*, and the left-hemisphere part, *signifiant*. However, as shown by respective research, human beings do not inherit concrete contents, so it becomes fairly clear

 $^{^{12}}$ It has been proved experimentally that severing the corpus callosum connecting human cerebral hemispheres brings about the existence of, as it were, two independent brains; which has not been observed in animals.

¹³It should come as no surprise, therefore, that Chomsky endorsed the conception of innate ideas (Chomsky 1965). One may cast doubt on many arguments put forward by Chomsky and the advocates of his generative-transformational theory of language. One of the most plausible critiques of Chomsky's theory has been mounted by Pazuchin (1977). Yet there is no denying that the theory is scientifically reasonable.

why the highest sign in the hierarchy of symbolism is arbitrary in character. On the other hand, the fact that it belongs to the right hemisphere confirms Thom's hypothesis that no sign-form can stray far from the motivation which brought about its usage. This motivation can be reduced, in general terms, to the necessity of existence of the *signifié* part of the sign, which in turn is closely associated with the spatiotemporal position of the referent, representing its physical, biological, or symbolic form (Thom 1973a).¹⁴ And so the arbitrariness of a sign is limited. Otherwise, we would deal with an infinite number of archetypal morphologies and an infinite number of signs. In such a situation communication would be hopelessly complicated.

The requirement of a finite number of archetypes is an important indication that both the set of macrosituations and the sign structure of language should contain certain types of relation. They have been pinpointed in the

At the same time, it is assumed that the logical description of natural language can express its syntactic structures (logically extremely complicated) but that *semantic* rules are unknown. Thus the description cannot be complete, since semantics of natural language should be associated not only with the left hemisphere but also with the right one, which is responsible for the *shape* (form) of objects. The right hemisphere can embrace rules for composing semantic units representing the continuous aspect of the world – either internal (concepts) or external (processes, macrosituations). The continuous world cannot be enumerated, since its objects are not sharply separated, their boundaries overlap each other (Thom 1972: 68–82). This is the reason why it is difficult to unambiguously assign objects to linguistic signs. Sets of objects are not divided into *classes*, of *abstraction*. Rather, they form classes defined by the relation of tolerance, which in the case of human beings, as suggested by Zeeman (1965: 277– 292), is an innate relation. It should have its place in the semantic information theory. In terms of this relation, it is much easier to account for the process of forgetting (in humans) than by means of so-called *information* (bit) loss. If events are reflexive and symmetric, then what is earlier merges with what is later (Zeeman, Buneman 1970: 134-144).

¹⁴We can also speak of right- and left-hemisphere information. Due to the abstract (algebraic) nature of the left hemisphere it was possible to set out formal theories, especially a quantitative information theory and logico-semantic information theory. Yet they are unable to fully evaluate the content of messages. In these frameworks, *subjects* represent the conceptual category of *noun*, *predicates* – of *verb*. Neuropsychological data help explain why giving a complete picture of the structure of natural language within logical accounts is impossible. Logical constructions of natural languages presuppose that each natural language can be reduced to a *logical language*, in which we distinguish *n* subjects, predicates, and introduce logical operators. Statements are assigned a truth-value (truth, falsity, or some other value depending on the assumed model of logical theory) and are accompanied by *rules* for deriving true statements (operators of logical consequences). In addition, there is a distinguished set of true statements, called the *set of axioms*.

framework of systems theory. In the course of exploring general aspects of the organization of matter, it has been observed that certain forms of system organization are invariable. They recur in various phenomena and processes. It is, as it were, a constant (stable) attribute of matter. Similarly to what Rosen and Rashevsky did in the case of laws of biology, we can speak of the need to examine similarities between connections, organization, etc. of objects – rather than investigating the particular (singular) objects themselves. In reference to natural systems, such as language, two kinds of relation have been distinguished – *systemic* and *linear*. The distinction stems from the fact that the human mind has the property of, so to speak, resonating – coordinating the behaviour of its own subsystems with functions connecting its own behaviour with behaviours of other systems, e.g. receiving and understanding external stimuli by adapting the behaviour of its own subsystems.

A set which consists of subsystems is called a *collective* (Martynov 1974: 91 and *passim*). Such sets are formed by virtue of the contact of their elements (e.g. an arm is in contact with a shoulder joint). So they are defined by the relation of symmetry. The relation of contact is called a *linear* relation or a *collision*. In addition, we distinguish sets formed by virtue of resemblance, i.e. the *relation of tolerance*. These relations are dubbed *systemic*. A division of a system into subsystems according to a linear relation yields a set of subsystems which lacks some properties of a given natural system, e.g. if we divide a table into legs, top, and other parts, we will only get a set of elements whose function in the system 'table' is different from their function in the collective set. By contrast, the resemblance relation preserves all properties of the system: the division into *functional systems* is a systemic division(respiratory system and others). Each system is relatively autonomous and can function 'separately'. It is not possible to replace systemic relations with linear ones. They are complementary.

In language, they are represented by planes – *paradigmatic* and *syntagmatic*. Thanks to these two planes, there are statements of an identical syntactic form but of a different content:

$$\begin{pmatrix} A \ child \\ A \ doll \end{pmatrix} \begin{pmatrix} sits \\ stands \end{pmatrix} \begin{pmatrix} in \\ on \end{pmatrix} \begin{pmatrix} the \ chair \\ the \ table \end{pmatrix}$$

Elements in brackets stand in paradigmatic relations, while combinations such as $\dots sits in \dots -$ in syntagmatic relations.

In the general systems theory, information is defined as the environmental influence, which elicits a suitable reaction from the corresponding system. Energomatter amounts to powering a system, which is not a very precise notion (Laszlo 1975).¹⁵ Święcki (1981) understands information as the environmental influence on the system's systemic relations and energomatter – as the environmental impact on its linear relations. This is in accordance with Thom's idea, according to which information is a geometrical form reflecting the mutual influence of natural systems, i.e. the *logos* of the whole structure.

It turns out that this division corresponds to the distinction between the right- and left-hemisphere perception of the world. However, the righthemisphere way of perceiving the world is more closely related to the phenomenon of information in the aspect of content, while the left-hemisphere world-view is closer to representation of the information, so the left hemisphere has a stronger connection to language. On the semiotic plane it can be USC, while ISC represents the content of USC-strings, i.e. information.

Thus we have arrived at the connection between the language of information and the sign, that is, to the classical notion of the semiotic triangle, introduced by Ogden and Richards (1923) and others. Figure 5 presents the graphical form of this triangle.



Figure 5: The semiotic triangle

 $^{^{15}\}mathrm{Cf.}$ e.g. Miller's (1969) view on energomatter.

Sig. refers to dfm, while dfs symbolizes and denotes (represents or stands for) dfm. The broken line between dfs and dfm marks the arbitrariness of a sign.

Semiotic triangles appear in science in various versions. Yet, in fact, they express the same idea. They connect the human mind with the external world R_1 via a sign, i.e. the world R_2 (Martynov 1978: 223).¹⁶

The triangular diagram has been undermined by Mel'nikov (1988). He observed that, in addition to the mental image of an object, there must also be a mental image of a sign. Such a schema of information processing is directly linked to the division of the brain into the right hemisphere (the image of the referent) and the left one (the image of the sign). Furthermore, both kinds of image have three levels, both in the case of perception of the external world R_1 and of the world of signs, R_2 (see Figure 7). The schema of information processing by the human brain, according to Mel'nikov, should be represented by a pentagon instead of a triangle – see Figure 6:



Figure 6: Pentagonal diagram of human information processing.

¹⁶Note that semiotic triangles emerged over the course of formal considerations about natural language and the language of logic, thus they should be transformed into a natural form, corresponding to scientific knowledge regarding the ways of information processing by the human brain. Apart from semiotic triangles, there is also a semiotic square, introduced by Greimas (1987). Petitot (1983) and Thom (1983c) analysed this square in the light of ECT.

Legend:

- -- 1–5 levels of information processing
- unbroken arrows the direction of information processing
- broken arrows means that there is an arbitrary relation between the sign and the referent

From the perspective of linguistic communication, particular levels of Figure 6 should be interpreted in the following way:

- 1. the level of referents- physical carriers, non-communicational units;
- 2. the level of senses refers to the sense of usage of a given unit; these are both concrete thought-units, e.g. a running man, and imagined or abstract thought-units, e.g. generalized image of a running man;
- 3. the level of meanings of signs mental (psychological) communicational linguistic units;
- 4. the level of images of signs (morphems) these are communicational images of meaningful units, e.g. an image of the word *cat*;
- 5. the level of speech signs physical communicational units of speech, concrete messages.

The diagram in Figure 7 shows that particular levels are connected with each other in the following way: (1)-(2), (2)-(3), (3)-(4), (4)-(5), and (1)-(5).

Mel'nikov's critical remarks about the semiotic triangle allowed Święcki to introduce the notion of a natural semiotic triangle (Święcki 1981) – see Figure 7:

The natural semiotic triangle illustrates the transformation of continuous processes into a discrete sign form.

Conclusion

Admittedly, the present attempt at a qualitative analysis of human informational processes is marked, in many places, by excessive liberty of judgements. Nevertheless, it seems that the issue of qualitative analysis of these scientifically significant processes grows increasingly important. Thus it is worth analysing in a more conceptual, as opposed to formal, fashion. In fact, attempts at conceptual analysis have already been made before (Schank



Figure 7: The natural semiotic triangle.

1975). This kind of analysis not only brings practical scientific benefits, which are exploited in the Artificial Intelligence project, but also contributes to science in purely cognitive and philosophical terms.

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Adam Drozdek SENTENCES AND PROPOSITIONS

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The question of sentence meaning has been a part of epistemological and logical reflection since its beginning. In ancient times, two approaches towards this matter emerged: a view that the meaning of a sentence is a function of the meaning of its components and a view that the meaning of a sentence is independent of the meaning of its components. The first view, expressed by Aristotle, is much more widespread than the second one, which was proposed by the Sceptics.

The views of William Ockham follow the Aristotelean tradition in this respect; his *Summa Logicae* begins with a discussion on names and subsequently tackles the analysis of sentences. Basing on a suggestion by Boethius, Ockham divides terms and sentences into written, spoken and mental ones, "only existing in the mind." Words are signs attributed to concepts or thoughts (*intentiones*) and only having specified what a given concept means can the meaning of the word attributed to it be defined, whereby the meaning of the word is identical with the meaning of the concept. As far as sentences are concerned, then – similar to terms – mental sentences (*propositiones mentales*) occupy the first position in the order of emergence: such a sentence "belongsto no particular spoken language. But it also happens that people frequently form internal propositions/sentences which, because of the defect of their language, they do not know how to express externally. The parts of such mental propositions/sentences are called concepts, intentions, likenesses, and 'intellects" (Ockham 1974: 774).

Sceptics began to treat sentence meaning as an indivisible whole which can be referred to as a proposition (aksioma). Sextus Empiricus claims, contrary to the Stoics, that only material things can be divided, while a

proposition is something nonmaterial (asomaton – Adv. Math. I, 38), thus, propositions cannot be complex (Adv. Math. VIII, 79). This view also found proponents in the Middle Ages – for example, Peter of Spain writes in his Summaries of Logic that a "sentence [propositio] is an expression which means truth or falsehood" ($\S1.07.$) – but it was best expressed in the works of Frege. On the one hand, he speaks of the sense (Sinn) and reference (*Bedeutung*) (also translated as meaning) of names (which corresponds to the distinction between connotation and denotation proposed by Mill), on the other hand – of the sense and reference of sentences. He mentions this question in his work Function and Concept and discusses it at length in OnSense and Reference. Frege says that a sentence contains a certain thought (Gedanke) which constitutes its sense; this thought is not "the subjective performance of thinking but its objective content, which is capable of being the common property of several thinkers ;" the reference of a sentence is its truth value, understood as "the circumstance that it is true or false." Frege refers to one of these values as the True (das Wahre), to the other as the False (das Falsche), whereby, in the author's opinion, "these two objects are recognized, if only implicitly, by everybody who judges something to be true." It is worth noting that the proposition and truth value are distinguished from the judgment (Urteil) which consists not in the assertion of a proposition, but in the recognition of its truthfulness, in the move from a thought to its truth value (Frege 1952: 28, 62, 63, 65).

All of Frege's views were assumed by Łukasiewicz. In his 1920 article, "Two-valued logic," we read that truth is "not a true proposition/sentence but an object denoted by a true proposition/sentence." The same applies to falsity (Łukasiewicz 1970: 89). Church also makes references to Frege. He distinguishes sense from reference, whereby sense is "that which is grasped when we understand the sentence, or that which two sentences of different languages must have in common in order to be correct translations each of the other." One can grasp the sense without knowing the truth value of a sentence, the truth value being the reference of the sentence. It is an "abstract object of the same general category as a class, a number, or a function." This opinion is allegedly supported by the fact that the proposition is "relatively simple, natural and possessing explaining capacity." Moreover, Church speaks of "the tendency to minimize the category of syncategorematic notations – i.e. notations to which no meaning at all is ascribed in isolation but which may combine with one or more meaningful expressions to form a meaningful expression" (Church 1956: 25-26; 1951: 101).

This view seems difficult to accept from the philosophical point of view.

Firstly, it is treated instrumentally when the arguments of simplicity and naturality are used; secondly, although the authors say nothing of the nature of the two denoted objects, the True and the False, it is very difficult to treat them as something different than some entities of the Platonic type. Thirdly, sentences are reduced to the category of names, so is it difficult to ask whether a sentence is true. A sentence, in this approach, is not true, but it signifies the True, which obviously is not the same. Here we should cite an argument given by Baylis, who states that in the case of names (*sensu stricto*), the equivalent of truth value is being empty or not. We would not say, however, that the name "table" denotates emptiness or non-emptiness (Baylis 1948: 470).

Frege's considerations, albeit unsatisfactory from the philosophical point of view, are of great significance for logic. After all, the classical model (matrix) of propositional calculus is the two-valued model, the universe of which comprises two values: 0 and 1. Logicians, however, do not ponder the ontological status of these values. Nevertheless, the models of theories built on the propositional calculus, e.g. the predicate calculus or set theory, are completely different and correspond to the spirit of Aristotle's views; namely, the meaning of the whole sentence is treated as a function of the meanings of its components, whereby logical constants are syncategorematic expressions.

Clarence I. Lewis also speaks according to the Sceptic spirit. He says that a proposition is a term which may signify a state of affairs, but he also maintains that it is the assertable content of a sentence which may signify this state.¹ The state of affairs is the meaning of the proposition and not its reference (denotation). The denotation is the "total state of affairs we call a world." The given state of affairs signified by a proposition is only an important property which the world has to possess in order to be denoted by a given proposition. "A sentence asserting a proposition attributes this state of affairs ... to the whole world. Thus all true propositions have the same extension, namely, this actual world; and all false propositions ... zero-extension" (Lewis 1944: 241-242).

This is a very interesting proposal, as the trap of Platonism is avoided. However, the use of the term "truth" is quite unnatural when ascribed to terms when propositions are considered to be terms. The author's intention, as was the case with Frege, is to maintain the distinction between connotation

¹According to Church, this is not a confusion of the two meanings of the word "proposition," but the result of the unusual use of the word "content," see his review of the article by Lewis – Church 1944: 29.

and denotation, including those for propositions. Hence the necessity to treat proposition as a term, which, in my opinion, is a superfluous measure. Only names can signify and denote (in fact, not all names, as proper names can only denote), while propositions can only signify. Thus, a proposition is true if, and only if, the state of affairs described by it actually takes place (if the meaning is being realised). Apart from that, Lewis' view on the relationship between the sentence and the proposition is unclear. If a sentence asserts a proposition, the question about the nature of the proposition arises. On the other hand, proposition is a term which, in turn, is an assertion naming a thing (Lewis 1944: 237). If it is an assertion, then why do we need a sentence asserting it?

Apart from the division of views on the relationship of a sentence and its reference into those which recognise or do not recognise the dependence of sentence meaning from the meaning of its components, these views can also be divided in respect to the nature of sentence meaning. This meaning has been interpreted from a realistic, psychologistic, linguistic, or materialist point of view. Frequently it is simply stated that the meaning of a sentence is a proposition and no analysis of its nature is proposed (this is usually the case in logic textbooks).

Carnap interprets propositions in a realistic manner; he perceives them as "something objective that may or may not be exemplified in nature" and not as "a linguistic expression nor ... a subjective, mental occurrence" (Carnap 1956: 27). This interpretation could also be ascribed to Baylis, although it is not easy to clearly pinpoint his views. He says that a proposition is "an abstract meaning or possible abstract state of affairs which we might well believe, doubt or disbelieve." Saying that propositions exist, he only wants to state that they have "no mutually incompatible characters" and that "they can be conceived or thought at different times and by different individuals." On the other hand, the relationship between a true proposition and a fact, that is, "a concrete occurrence, an event, or a state of affairs," is a characterisation relation, a converse of the exemplification relation, usually referred to with the term " ϵ " (Baylis 1948: 464, 462, 460). Thus, a (true) proposition is simply a set of facts, or a certain entity on the level of empirical reality. This is also a materialist interpretation, which I would like to understand as a view which identifies propositions with facts (or sets of facts). Curt J. Ducasse (1944) and Arthur Pap (1958: 201, 435) were also proponents of this view.

The psychologistic approach can be found in the works of Pavel Popov. According to him, "proposition is how we call a thought of an object," a thought which reflects the reality asserted by a sentence (Popov 1957: 3). For Adam Schaff, proposition is "somebody's thinking that it is certainly so and so," although at the same time "speaking of true or false propositions, we actually speak of a property or a function of highly organised matter" (Schaff 1959: 27). Thus, attempting to narrow down his definition, the author came up with a term which is too broad, as highly organised matter can perform many functions, and the term does not suggest clearly which of them is true.

The proponents of the discussed approach also include Tavanec. According to him, proposition is

not a factual state of affairs, but an ideal image (a reflection) of the factual state of affairs. But it is also not a sentence. All these elements are related respectively: between a sentence and a proposition there exists a relation of assertion; between a fact and a sentence, a relation of denotation, between a proposition and a fact, the relation of reflection. We can only speak of the truthfulness of a sentence when its meaning, i.e., the proposition, adequately reflects the fact.(Tavanec 1962: 149, see also: Tavanec 1962: 151)

It is unclear what the "ideal image" actually is. Tavanec, a Marxist, could hardly agree that it is an entity of the Platonic type. Then, it is the result of a mental act. This result, however, does not have to be something different than a sentence, as a sentence does not necessarily have to be something written to be considered a sentence. A sentence is also a certain sequence of sounds, images, or, say, knots. But is a thought a sentence? The essence of thinking has not been fully understood so far, although it is presumed that thinking consists in the processing of information, that is, of content encoded in observations, ideas and concepts, where concepts are the most important for human thinking. Concepts are defined as "thoughts which reflect characteristics common for a class of objects or occurrences." The difference between thoughts and words (linguistic symbols) is also strongly emphasised. One can conclude from the explanations that the language is treated simply as natural language, for the issue is the difficulty of translation "from the conceptual code to the Polish, German or Russian language" (Kozielecki 1976: 352, 358).

In my opinion this conceptual code is also a language, albeit a special kind of language. Neither its elements nor its structuring and processing rules are known. However, we are not able to decode many extinct languages,
which is not a reason to question their language status or to state that their sentences are neither true nor false. It is also unjustified to refer to the impossibility to translate the conceptual code into natural languages, as ethnic languages pose the same problem: Maurice Swadesh tried to compose a list of 100 frequently used words of corresponding meaning in most languages of the world. Almost immediately, sharp criticism was voiced against this proposal. It appears that it is impossible to find even 100 words which have an identical meaning in different languages (Wierzbicka 1965: 166–167). Therefore, I think that language consists of thoughts, whether we call it a conceptual code or the language of ideal images; a language which can only for pragmatic reasons be distinguished from the natural language or, for instance, programming language. Only in this sense does a difference occur between a sentence and a proposition, or a concept and a term, as – from the theoretical point of view – a sentence is a proposition and a concept is a term. That is why it would be as justified to say that sentences reflect facts and not only propositions, and that between the sentences a translation relation occurs. A sentence does not assert a proposition; it can at most assert the same as the proposition. Only in this sense are propositions true or false.²

I would like to call such a view linguistic. Its proponents include Arthur N. Prior (who writes that "propositions are identical only when they have the same form as well as express the same fact;" he gives examples of sentences and refers to them as "propositions") (Prior 1948: 62), Gilbert Ryle (who says that we only have facts and symbols, while sentences are a particular type of proposition, namely, they are "verbal propositions" (also maps, diagrams, images etc. can be propositions) (Ryle 1930: 124–125), and perhaps Alfred J. Ayer. He writes that a proposition can be considered a class of sentences which have the same "intentional meaning for anyone who understands them. Thus, sentences I am ill, Ich bin krank, Je suis malade are all elements of the proposition 'I am ill"' (Ayer 1949: 88). We could attempt a similar interpretation of his saying that we use the word "proposition," and not "sentence," if we are not interested in the particular form of an expression or the language in which it is uttered, but in its meaning. Thus, should we consider proposition a linguistic entity, it becomes problematic to define the meaning of the sentence (or of the proposition). What is this meaning?

 $^{^{2}}$ Schaff, on the one hand, distinguishes the sentence from the proposition, and on the other, recognises the existence of "an indivisible unity of language and thinking". However, he proposes the term "proposition sentence" for objects which are true or false (1959: 18).

Ayer writes elsewhere that it is exactly the proposition: and so sentences mean propositions and at the same time they express statements. However, there is only a slight difference between meaning and expressing, as the term "proposition" "was reserved for what is expressed by sentences which are literally meaningful." What follows is that propositions are a particular kind of statement. What is more, all these definitions are conventional; the above should not be confused with a statement which refers to an empirical fact (Ayer 1949: 8–9). Thus, as far as facts are mainly concerned, the division into sentences, proposition and statements is actually superfluous – why speak of sentence expressing a statement which in turn describes a fact. Further it is suggested that there exist statements which are not propositions – i.e. which are "literally meaningful." The essence of such meaning is, however, completely unclear.

Russell, at some point, also understands proposition as "the class of all sentences having the same meaning as a given sentence" and says that a proposition is the meaning of a sentence (Russell 1948: 166, 176), or – as he elsewhere explains the views presented in this work – "that which is common between sentences in different languages which all say the same thing" (Russell 1959: 182). Book after book, Russell changed his philosophical views quite significantly. And so, as far as the matter in question is concerned, he once says that proposition is "a form of words which expresses what is either true or false" (Russell 1919: 155), and elsewhere that proposition does not consist of words (unless it is a linguistic proposition), but rather entities indicated by words (Russell 1903: 47).

Stuart Hampshire criticises the opinion that propositions exist as entities separate from sentences, "for if it is possible to assert the existence of something of a certain kind, it must be in principle possible to ask and answer the question, how many things of this kind exist?" Moreover, it is natural to presume that propositions are either simple or complex. But then, their complexity would only consist in the complexity of sentences. Apart from that, the criterion of the identity of propositions is lacking (Hampshire 1940: 22–24).

To sum up, my opinion is that sentences have no denotation (reference); ascribing denotation to sentences has its origin in treating sentences as names and thus attributing to them a distinction used in the analysis of the meaning of names, namely, the distinction between denotation and connotation. As far as the nature of propositions is concerned, they are certain kinds of sentences and elements of a certain kind of language. Propositions are sometimes reduced to facts (in the materialist approach), however, it seems more adequate to reduce propositions to sentences. This allows us to respect the tradition according to which we can also state about propositions – not only about sentences – that they are true.

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Cezar Piernikarski 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^1 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) indicate² something else. Following Pelc's

¹Pelc (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.

²Pelc 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. 3

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

³In 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,⁴ 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" (signifie), 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.⁵ For example, the signifiers <house>, <white>, <leprechaun>, , are significative (they have significates) because they correspond to concepts.⁶ 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),⁷ both at the level of signifiers (<John writes (reads) a letter>) and that of significates ((John writes (reads) a letter).⁸ 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

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

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

⁶Or, in Mill's terminology, they have connotation.

⁷Relational 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).

⁸All types of brackets will be explained in detail below.

point of total annihilation.⁹ And yet no sign can function without an internal (mental) association between the signifier-concept and the referent-concept.¹⁰ One could partially reverse the problem and ask what is involved in the interpretation¹¹ of a sign (= signifier) in each use¹² 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 signifierconcept 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

⁹This 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.

¹⁰For now, I set aside the so-called empty names.

¹¹The 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.

¹²The 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.¹³ 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 (x) and (y), and it is on this basis that we establish or specify the value of the apposite relator (operator, functor) (R). This is not to say that we *infer* the meaning of SR <x> and <y> — it is given automatically. Rather, we infer the value of the relation between the meanings (x) and (y).

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

¹³Pelc (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 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.¹⁴

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).¹⁵ Furthermore, transmission of sign information only has one direction: signifier \rightarrow significate, without the possibility to replace one with the other. But since we can infer the cause from the effect

¹⁴We 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).

¹⁵With 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 phenomenonvehicle 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 as 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:¹⁶



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

¹⁶For 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 $S \rightarrow r$ $\dots s \rightarrow R$,¹⁷ 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) <le>can distinguish, <number of signifiers

 $^{^{17}\}mathrm{Cf.}$ 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'¹⁸ 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.¹⁹ In this

 $^{^{18}}$ 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 signifierconcept 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.

¹⁹This 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.²⁰ 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.²¹

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).²² 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 $^{\text{ouse}}$ and its reflection in the mind(ISR) as $^{\text{ouse}}$, then they stand in a relation which can be framed as follows:

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

Sound tokens { $^{\text{house}_1}$, $^{\text{house}_2}$, ..., $^{\text{house}_n}$ } produce in our minds a reflection of the class of sounds, $^{\text{house}}$, which allows us to recognize any token $^{\text{house}_i}$. 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

 $^{^{20}}$ 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.

²¹Few 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.

²²Of 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 'house', and its reflection (IST), which we mark as (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 (">a<", ")a("), indicate objects, while the reverse signs ("<a>", "(a)") 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.²³ 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

²³Presumably, 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:

$$\begin{vmatrix} ^{>}house_{1}^{<} \\ ^{>}house_{2}^{<} \\ \cdots \\ ^{>}house_{n}^{<} \end{vmatrix} \leftrightarrow {}^{<}house^{>} \Leftrightarrow {}^{(}house^{)} \leftrightarrow \begin{cases} ^{)}house_{a}^{(} \\ ^{)}house_{b}^{(} \\ \cdots \\ ^{)}house_{b}^{(} \\ \cdots \\ ^{)}house_{c}^{(} \\ c \\ \end{cases}$$

Figure 2. Four planes of sign.²⁴

The sign " \Leftrightarrow " denotes the feedback between the concept of the word, <house>, and the concept of the object, (house).²⁵ 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.

²⁴The 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.

²⁵So 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.²⁶



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.

 $^{^{26}\}mathrm{A}$ 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.²⁷ 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 s 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),²⁸

²⁸A 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.

 $^{^{27}}$ 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.

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 Rholds 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 Hejlmslev'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.²⁹ Neither the textual fragment [>]house[<] nor its reflection [<]house[>] mean anything in their own right — rather, <house> is just linked to the reflection (concept) (house), and so we can say — albeit imprecisely— that >house[<], or <house[>], means (house) (or refers to)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 ${}^{<}a^{>}$ and ${}^{(a)}$.

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

²⁹One 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:

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

that is, employing IST $({}^{(a)})$ to the exclusion of EST $({}^{<a^{>}})$, but not without ESR $({}^{>a^{<}})$. 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 ${}^{>}A^{<} \leftrightarrow {}^{<a^{>}} \Leftrightarrow {}^{(a)}$; note that the lack of (A) might stem from the *lack* of a designatum, as is the case with the lack of the denotatum)leprechaun⁽.



Figure 5. The unacceptable schema of a sign without a denotatum.³⁰

³⁰A schema of a threefold sign (without a denotatum) is illustrated by Figure 5. Yet it is unacceptable, since ^(leprechaun), ^(werewolf), 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 ⁾A⁽ for \emptyset , the schema will apply to a situation in which MR (or MS) had 'access' to an actually existing denotatum. In Figure 5, [>]A[<], [<]a[>], and ^(a) can be replaced with [>]D[<], [<]d[>], and ^(d), respectively, if ^(a) only has a descriptive name (a broadly understood definition) instead of a 'single' one; \emptyset can be replaced with ⁾D⁽, 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 'rembəu drınks 'wo: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 ${}^{>}A^{<} \leftrightarrow {}^{<}a^{>} \Leftrightarrow {}^{(a)}$ should not be confused with theories of threefold signs,³¹ 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. ${}^{<a} \Rightarrow {}^{(a)}$ in the minds of MS and MR, but ${}^{<a}$ must stand in the above-discussed relations to ${}^{>a}{}^{<}$, i.e. ${}^{>a}{}^{<} \leftrightarrow {}^{<a}{}^{>}$. If ${}^{<a}{}^{>}$ could not be 'revealed' (actualized), there would be no communication.³² The relation ${}^{(a)} \leftrightarrow {}^{>a}{}^{(a)}$, 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 ${}^{>a}{}^{<} \leftrightarrow {}^{<a}{}^{>} \Leftrightarrow {}^{(a)}$ in a sign system without there being a relation ${}^{(a)} \leftrightarrow {}^{>a}{}^{(}$, as is the case with the sign *leprechaun*.

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

 $^{^{31}{\}rm Such}$ notions have survived since the time of Plato up to this day, cf. Lyons 1975: § 9.2.1; cf. above, n. 26.

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

type ${}^{>}A^{<} \leftrightarrow {}^{<}a^{>}$, 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 ^(a) is just a mapping of a fragment of reality, ⁾a^{(,33} 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 ⁾a_i⁽ with properties contained in the content ^(a) expressed by means of [>]a_j[<] \leftrightarrow [<]a[>]. For example, I see ⁾a house on the hill⁽, utter [>] haus pn ∂_{2} hil[<], 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, ${}^{>}A^{<} \leftrightarrow {}^{<}a^{>} \Leftrightarrow {}^{(a)} \leftrightarrow {}^{)}A^{(}$, 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. ${}^{)}scissors^{(}$ via the reflection (scissors) linked to the reflection (hairdressing salon) refers to)a hairdressing salon⁽. In order to avoid confusion and emphasize the symbolic character (SR) of ${}^{)}scissors^{(}$, below we put this expression in quotation marks. The

³³It is, so to speak, a topographic chart of reality.

model of this type of sign would look as follows:

")scissors (" \leftrightarrow "(scissors)" \Leftrightarrow (haird ressing salon) \leftrightarrow) a hairdressing salon(

Without the feedback "(scissors)" \Leftrightarrow (hairdressing salon) the object ")scissors(" fails to serve as a sign.³⁴

The above analysis of sign in the case of isolated signifiers and objectsignificates would strongly suggest that, contrary to existing views, isolated signs are possible.³⁵ 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 sing 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

³⁴Let 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 "¿¡" is, as it were, replaced with ") (", i.e. a use of an object in the role of SR.

 $^{^{35}}$ 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 nonsubstantial.³⁶ 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

³⁶We 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 Hejelmslev's works — that a 'simple'³⁷ 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^{> 38} identical with the phoneme /a/?

It seems that the linguistic structure of the phoneme /a/ in a given language differs from $\langle a \rangle$ regarded as the complex of all properties shared by the set of sounds $\rangle a_1 \langle , \rangle a_2 \langle , \ldots , \rangle a_n \langle .$ Properties of the phoneme /a/ differ from the properties of the class of sounds $\langle a \rangle$. They are either weakened (reduced) or reinforced (brought out) with respect to the characteristics of $\langle a \rangle$. Yet the reinforcement cannot go beyond the scope of the properties common to $\langle a \rangle$. The point is that a barely perceivable property may be brought into sharp relief. For instance, differentiation within the sequence $\langle c/:/\check{c}/:/\acute{c}/$ in the Polish language, especially when it comes to the differences between $/\check{c}/$ and $/\acute{c}/$, 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.³⁹

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 =

 $^{^{37}}$ I.e. based on sense perception alone.

³⁹Another 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), $|\mathbf{f}| = \mathbf{a}$ feature of reality. Actually, however, it amounts to four elements, since semantic properties " $|\mathbf{f}|$ " are part of the linguistic meaning "p",⁴⁰ and the features of reality $|\mathbf{f}|$ are part of (a fragment of) W.⁴¹ 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 >table₁<, >table₂<, \ldots , >table_n<. Now let us pose the following questions: are they part of the linguistic meaning (table)? 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 (table) is phonologically assigned a reflection of the name [<]table[>]. 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 [<]ława[>] in Polish due to its shape similar to a bench [lawka] can also be called >table< 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.

 $^{^{40}}$ In a similar vein, I have distinguished a semantic structure (SS) in the content of expression (Piernikarski 1978: 167—177).

⁴¹There 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.⁴² The reflection (table), left in our minds by n tokens of 'table(, was assigned a reflection of the corresponding name — . 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.⁴³ 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.⁴⁴ 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

 $^{^{42}\}mathrm{In}$ accordance with the actual state of affairs — independently of the linguistic meaning.

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

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

opposite direction], and omijac [to get past a stationary vehicle]. But again, this does not mean that in the language of the traffic code wyprzedzac 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*,⁴⁵ 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.⁴⁶ 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 *relaxs* [*relaxation*] (to the Polish language), whose semantic scope differs from semantic scopes of *odpoczunek* [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 names⁴⁷ might

 $^{^{45}}$ This does not rule out concepts such as ^(kitty), which, in addition to the meaning ^(cat), expresses an emotional attitude to the referent ⁾cat⁽.

⁴⁶The 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).

⁴⁷This 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;⁴⁸ 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.⁴⁹ 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.⁵⁰ 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.⁵¹

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

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

⁴⁸Boundaries 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.

 $^{^{49}}$ This account is also applied to the opposition activum—passivum, e.g. John wrote a book — A book was written by John.

 $^{^{50}{\}rm We}$ elaborate on this topic in our semantic syntax (in preparation), where we speak shared 'topographical' meanings, as opposed to 'perspectival' meanings.

⁵¹On 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 *popelnić powieść* [to *perpetrate a novel*], where *popelnić*, 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)?⁵²

The problem is brought to even sharper relief once we consider particular grammatical categories within a given NC,⁵³ 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 <a cusative>. 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 $\langle >A^<, <a>, (a), >A(\rangle$ 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 $\langle x \rangle$ is not to be equated with the phoneme $\langle x/; (2) \rangle$ 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 $\rangle x^{<}$ takes place before $\rangle y^{<}$ or after $\rangle y^{<}$; (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

 $^{^{52}}$ 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.

 $^{^{53}}$ 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 accusative⁵⁴ — have a variety of actualizations.⁵⁵

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.

 $^{^{54}{\}rm Concepts}$ such as "accusative" belong to the metal anguage but are respected by language users whether or not they realize the existence of these concepts.

⁵⁵In the Polish language these are: $-\emptyset$ (null morpheme), $-a, -\varrho, \ldots, -y, -\delta w$. 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.⁵⁶ 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,⁵⁷, 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 $\langle a_1 \rangle, \langle a_2 \rangle, \ldots, \langle a_n \rangle$) 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 ^(a), regarded as an epistemological concept, and the corresponding linguistic meaning ^(a) (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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 $^{^{56}\}mathrm{In}$ 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.

⁵⁷Text is occasionally described as a product of speech and thought.

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Jacek Juliusz Jadacki ON CONDITIONAL SENTENCES

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I. Controversies about conditional sentences

At the beginning of the 20th century it was a common view — expressed by e.g. W. Biegański (1903: 184, 1912: 281) — that the conditional sentence asserts, i.e. expresses (!), a succession or co-existence (in time or space) of states of things to which the antecedent and consequent clauses refer to, but does not assert (express) anything about each of these states of things separately. The introduction of LOGICAL MATERIAL IMPLICATION made its relation to the conditional sentence of common speech widespread — in fact, as J. Łukasiewicz (1934: 182-138) states, this issue was allegedly known in ancient times; it seems that the first Pole to notice the so called PARADOX OF IMPLICATION was T. Kotarbiński (1929: 168). The issue of this relation at once caused two opposite approaches to emerge. According to the one whose most prominent defender was R. Ingarden (1936), MATERIAL IMPLICATION is so semantically distant from the conditional sentence that the latter by no means can be reduced to it. According to the other approach, which was fully developed by K. Ajdukiewicz (1936), MATERIAL IMPLICATION and common speech conditional sentences have the same truth conditions, and the mentioned PARADOX can be eliminated by introducing the distinction: asserting — expressing, which became easier thanks to the earlier progress made by M. Ossowska (1928, 1931) in the area of ANALYSIS OF EXPRESSIVE FUNCTION of utterances.

Interruption of scientific life in Poland — in the form of destructive war, CULTURAL BARBARISM OF INVADERS, and later GROTESQUE POLITICAL RIGORS — unfortunately, meant that it was necessary to repeatedly return to the origins of the controversy. First, the two past solutions were brought back in an extended form but without essential changes: Ingarden (1949) and Ajdukiewicz (1956b). Soon after — not to mention descriptive contributions of L. Borkowski (1964) and J. Kotarbińska (1964) — two new voices appeared: that of Z. Czerwiński (1958) and a little bit later of E. Grodziński (1969a, b). The latter (it seems to me unsuccessfully) aimed at proving that a sentence of the form "If p, then q" (where p and q are sentences) is a (METAlinguistic) sentence about sentences p and q — namely a sentence asserting a relation between LOGICAL values of these sentences (Grodziński 1969a: 64) — and moreover that if the sentence is true, then it expresses a correct (infallible) inference (Grodziński 1969a: 60). Whereas Czerwiński (it seems effectively) attempted to cast doubt on Ajdukiewicz's ANALYSIS OF SEMANTIC FUNCTION of assertion which is characteristic of conditional sentences. He indicated that:

1. the notion of "assertion" is vague in Ajdukiewicz (Czerwiński 1958: 265);

2. within the solution presented by Ajdukiewicz it is possible to assume that if two sentences assert the same thing, then both of them are LOGICALLY equivalent (Czerwiński 1958: 265);

3. a common conditional sentence does not assert the same thing as LOGICAL MATERIAL IMPLICATION, for in common speech there may be conditional sentences which are not true, but which become true when the connective is changed into the FUNCTOR OF LOGICAL IMPLICATION (Czerwiński 1958: 265-266); an example of this is the sentence *If Kopernik had a son, Kopernik was not a father* and any sentence whose antecedent excludes the consequent (Czerwiński 1958: 266-267);

4. a common conditional sentence is true if there is a true FORMAL IMPLICATION which with appropriate substitution can give the sentence (Czerwiński 1958: 269).

After Ajdukiewicz's death, the main advocate of his solution to the PARADOX OF IMPLICATION was B. Stanosz (1976, 1985). J. Kmita (1966) and L. Nowak (1970) made progress in analyzing the EXPRESSIVE FUNCTION of utterance, while Z. Kraszewski (1972) made an attempt to make the notion of "content connection" — that is the key notion of the opposite approach more precisely. Also, J. Pelc (1982a-c) took a unique stance. First of all, he gave admissibility conditions, that is conditions for both truth and correct use of the conditional sentence, but — similarly to I. Dambska (1938: 248-250) — FORMULATED IN A PRAGMATICALLY ORIENTED VERSION. According to Pelc, language users regard the conditional sentence as admissible when:

1. they are convinced (they "perceive") that there is a content connection between the antecedent and the consequent;

2. are not convinced that the component clauses are not true;

3. are not convinced ("sure") that the component clauses are true;

4. are convinced that there is (they "look for") a conditional connection ("conditional bond") between the content of the antecedent ("subordinate clause") and the content of the consequent ("main clause") (Pelc 1982c: 264, 268).

Secondly, as can be seen above, Pelc included among the conditions not only the conviction that there is a substantial bond ("content connection") between states of things asserted in the antecedent and the consequent, but also the conviction ("feeling") that there is a relationship of consequence between the antecedent and the consequent ("conditional connection") which, it seems, is founded on the former conviction.

The work by A. Bogusławski (1986) should be regarded as an approach ANTAGONISTIC to Ajdukiewicz's approach. It is a sort of supplement to the work which was written a quarter of a century earlier by Z. Czerwiński. Bogusławski cast doubt on another essential keystone of Ajdukiewicz's solution: the results of Ajdukiewicz's ANALYSIS OF PRAGMATIC FUNCTION of expression which is performed by conditional sentences. If Bogusławski's CRITICISM were completely legitimate, Ajdukiewicz's approach could not be maintained even at the cost of far-reaching changes.

Below I shall try to prove that, at least in the part concerning the issue of expressing, Ajdukiewicz's solution can be defended.

II. Bogusławski's views

1. Reconstruction of Ajdukiewicz's attitude

According to Bogusławski, Ajdukiewicz's attitude on expressing and asserting is as follows:

A1. "Expressing" means the same as "reference [of sentences] to [mental states]." "The relation [of expressing in Ajdukiewicz]" — writes Bogusławski — "concerns the mental state of the speaker" (Bogusławski 1986: 221).

A2. "Asserting" means the same as "reference [of sentences] to [extramental states.]"

"According to Ajdukiewicz] it would be wrong to say "the speaker asserted that S", where S could be substituted with the factual mental state of the speaker" (Bogusławski 1986: 222).

A3. Extensions of the names "what is expressed by the given sentence" and "what is asserted by the same sentence" are mutually exclusive (more precisely: are opposite).

"Ajdukiewicz radically opposes what conditional sentences «assert» with what they «express»" (Bogusławski 1986: 215). "What Ajdukiewicz's considerations are about is OPPOSING what is asserted with what is expressed" (Bogusławski 1986: 221).

A4. Extensions of the names "expressing" and "asserting" are mutually exclusive (are opposite).

"[Ajdukiewicz introduces] a distinction of two «semiotic functions» of expressions" (Bogusławski 1986: 215): "semiotic distinction «asserting» — «expressing»" (Bogusławski 1986: 217). "In his work the opposition «asserting» and «expressing» has been drawn" (Bogusławski 1986: 223).

A5. Both A3 and A4 result from adopting both A1 and A2.

"In order to [...] distinguish the SPECIFIC relation [of expressing, which is opposite to asserting, and to distinguish what is expressed from what is asserted, Ajdukiewicz gives unique characteristics [of these relations]" (Bogusławski 1986: 221).

A6. Every (affirmative) sentence p expresses (what the sentence asserts):

a. the speaker knows that p.

"Ajdukiewicz includes among his expressed «elements» [...] the knowledge of the speaker that it is such and such [...]. This property is characteristic of ALL affirmative sentences alike" (Bogusławski 1986: 222). "Ajdukiewicz claims that the affirmative sentence «expresses» a conviction or judgment of the speaker that a particular state of things occurs" (Bogusławski 1986: 222, note 14). In the matter of conditional sentences — according to Bogusławski — Ajdukiewicz has the following attitude:

A7. The distinction: "expressing" and "asserting" makes it possible to satisfactorily explain different (but all?) ways of using sentences — especially conditional sentences.

"The distinction of two «semiotic functions» of expressions [...] is supposed to be fundamental in Ajdukiewicz's conception as regards interpreting language signs. Ajdukiewicz shows how to deal with [this] conceptual apparatus by using the example of certain troublesome phenomena in the domain of conditional sentences" (Bogusławski 1986: 215).

A8. Every conditional sentence of the form "If p, then q" asserts exactly what (is asserted by) the material implication " $p \rightarrow q$ ".

"[Ajdukiewicz] identifies [the proper semantic content of the basic conditional sentence] with truth properties of the logical connective \rightarrow " (Bogusławski 1986: 215), that is "with the content of material implication matrix" (Bogusławski 1986: 224).

A9. Every conditional sentence of the form "If p, then q" expresses (i.a., what the following sentences together assert):

a. the speaker does not know if p, and does not know if q;

b. the speaker is ready to infer sentence 'q' from sentence 'p'.

"According to Ajdukiewicz the speaker's non-knowledge is «expressed» and not «asserted» in basic conditional sentences" (Bogusławski 1986: 221). "Ajdukiewicz sees [...] the readiness [to accept the consequent as true immediately after adopting that the antecedent is true] of one more mental state which is «expressed» by the conditional sentence, except for the speaker's non-knowledge about the logical value of p and q" (Bogusławski 1986: 222).

2. Assessment of Ajdukiewicz's attitude

Having presented Ajdukiewicz's views in such a way — in the part concerning conditional sentences called "the reductionist approach" (Bogusławski 1986: 224) — Bogusławski comments them as follows:

AB1. There are sentences which express and assert the same thing. "There are sentences which correspond to Ajdukiewicz's definition of «expressing», but which certainly deserve to be regarded as «what is asserted» [...]; cf. the affirmative sentence [of the type] *I think he is sick*" (Bogusławski 1986: 221).

AB2. There is a property which is characteristic of both expressing and asserting.

"What «expressing» and «asserting» share [...] is [...] the feature of conventionality" (Bogusławski 1986: 221).

AB3. A3 and A4 are wrong.

"In fact [Ajdukiewicz] does [not] distinguish [...] the relation [of expressing as different from that of asserting" (Bogusławski 1986: 221). "[Ajdukiewicz's] characteristics of «expressing» [does not determine] adequately [...] [the border] between [...] domains [...] of what is asserted, and what is expressed" (Bogusławski 1986: 221).

AB4. AB3 results from AB1 and AB2.

AB5. A5 is wrong.

"In order to really distinguish [expressing and asserting], Ajdukiewicz's characteristics should be supplemented" (Bogusławski 1986: 221).

AB6. A correct distinction of notions of "expressing" and "asserting" requires that:

- a. the counterdomain of the relation of expressing or the relation of asserting respectively is homogeneous;
- b. "expressing" and "asserting" have clear and "absolute" content.

AB7. Condition AB6 is not met by A1 and A2.

"Ajdukiewicz's category of «expressing» [...] is internally heterogeneous" (Bogusławski 1986: 217). "Ajdukiewicz's notion of «expressing» is an unclear disjunction of heterogeneous and quite vaguely indicated situations in which real language conventions are confused with inference relations" (Bogusławski 1986: 223); "Ajdukiewicz's conception [...] [confuses] phenomena which belong to fundamentally different categories or areas" (Bogusławski 1986: 217). "In Ajdukiewicz's view «expressing» is based on a special group of ARGUMENTS, but not a truly relational character [...]" (Bogusławski 1986: 222).

AB8. A1 and A2 are incorrect.

AB9. AB8 results from AB6 and AB7.

AB10. A6 is wrong.

AB11. AB10 results from B8 (see below).

AB12. A7 is wrong.

"Ajdukiewicz's category of «expressing» is *ad hoc* in nature" (Bogusławski 1986: 217); "is an *ad hoc* notion (in relation to the system of purely relational notions)" (Bogusławski 1986: 222).

AB13. AB12 results from B1 and B2 (see below).

AB14. A8 is wrong.

AB15. AB14 results from B3, B4 and B6 (see below).

AB16. A9 is wrong.

AB17. AB16 results from B5 and B7 (see below).

3. Presenting my own solution

And here follows the fundamental core of Bogusławski's solution:

- B1. What is regarded as improper is:
- i. uttering both the conditional sentence of the form "If p, then q" and the negation of the sentence:
- a. I do not know if p, and I do not know if q;
- ii. uttering the conditional sentence of the form "If p, then q" in which p is the sentence of the form "I know that r."

"The sentence [...] If the front door is closed, you will go across the courtyard [...] [in the case when we know] that the front door is closed [...] may be a bad joke at the most" (Bogusławski 1986: 220). "Sentences of the type [...] If I know who he is, I will tell you are deviant" (Bogusławski 1986: 220).

B2. In order to explain B1 it is necessary (and sufficient?) to introduce the notion of "saying" and differentiate what is said directly and what is said indirectly.

"It seems sufficiently clear that our notion [of cognitive convention] conveniently encompasses various elements of content [...], ALL interpretative aspects [of basic conditional sentences], [...] with the stipulation that *sayables* in the sentence may be characterized structurally either in a rhematic way [RHEMATIC DICTUM], or in a thematic way [THEMATIC DICTUM]" (Bogusławski 1986: 217 and 218).

B3. Every basic conditional sentence of the form "If p, then q" directly states that:

a. there is a connection between that p and that q.

"What is the rhematic component [...] in the semantic structure [...] of the basic conditional sentence [...] is the «dynamic connection» which occurs between the antecedent and the consequent" (Bogusławski 1986: 216 and 217).

B4. Some basic conditional sentences of the form "If p, then q" directly state what is stated directly by the IDEAL (strict) IMPLICATION " $p \Rightarrow q$ ", that is it is impossible that p and at the same time it is not true that q. "I am inclined [...] to adopt [...] the definition [of the content of the basic conditional sentence] which is based on the notion of contradiction, and which, in a certain sense, is close to Lewis's definition of strict implication, but is not identical" (Bogusławski 1986: 216).

B5. Every basic conditional sentence of the form "If p, then q" indirectly states that:

a. the speaker does not know if p, nor if q (= aA9).

"[This, that] the speaker [...] [does not know] the logical value of the antecedent and the consequent" (Bogusławski 1986: 217) "[has] the status of thematic sayable" (Bogusławski 1986: 217). "The speaker's non-knowledge [...] should be included in [...] the category of «what can be said» [by the basic conditional sentence]" (Bogusławski 1986: 217), as its "THEMATIC DICTUM" (Bogusławski 1986: 220), "[semantic] convention" (Bogusławski 1986: 223). B6. No basic conditional sentence of the form "If p, then q" asserts exactly what is asserted by the MATERIAL (i.e. loose) IMPLICATION " $p \rightarrow q$." "I stand on the side of those who reject treating conditional sentences and material implication equally $[\ldots]$ in whatever sense or mood" (Bogusławski 1986: 216).

B7. Each (proper) utterance of the basic conditional sentence of the form "If p, then q" results in:

a. the speaker is ready to infer sentence 'q' from sentence 'p' (= bA9).

"The speaker's readiness [to] infer 'q' from 'p' is itself something that is inferred (from the assumption that the speaker seriously and fully consciously links [...] [the basic conditional sentence] with assertion" (Bogusławski 1986: 223), a "is [...] by no means linked to *if*" (Bogusławski 1986: 223). It is only "an inference relation" (Bogusławski 1986: 223).

B8. No (affirmative) sentence p states (neither directly, nor indirectly):

a. the speaker knows that p (= aA6).

"The speaker's knowledge which concerns the content of the affirmative sentence is not at the same level as the knowledge which concerns cognitive differences $[\ldots]$ " (Bogusławski 1986: 222).

III Remarks on Bogusławski's views

1. Stipulations to Bogusławski's attitude

I would like to consider the following stipulations to Bogusławski's attitude:

BJ1. What results from AB1 is AB3, but AB1 is wrong — if CON-JUNCTION SEQUENCES of the form "I do not know if p. But if p, then q" are omitted. Anyway, a sentence of the form "I think that p" asserts that the speaker thinks that p, but does not express that the speaker thinks that p. What it expresses, however, is the speaker's conviction — hereafter I shall use the term: "utterer" — that the utterer thinks that p. Respectively, a sentence of the form "I thought that p" expresses the conviction that (once, in the past) the utterer thought that p. Here, I do not take into consideration such an understanding of Bogusławski's claim which would concern only that there are states which can be both asserted and expressed (in particular by different sentences). That the utterer thinks (i.e. has a conviction) that p — which is asserted by the sentence "I think that p" — is expressed e.g. by the sentence 'p.' It does not, however, justify AB3, although it is obviously enough to reject A2.

BJ2. AB2 is true, but AB3 does not result from AB2. If having no shared property by objects which belong to the extensions of two names was a necessary condition for extensional disjunction of these names, then two names would never be disjunctive.

BJ3. What follows from BJ1 and BJ2 is that AB3 remains unjustified in Bogusławski's attitude. I myself would be inclined to accept A3. The view on the disjunction of "expressing" and "asserting" can already be found in Ossowska (1928: 124).

BJ4. AB8 results from AB5, but AB5 is wrong. The other thing is that A2 seems not to be Ajdukiewicz's view at all. He states: The sentence *Paris is situated in Europe* uttered now by a person P states an objective state of things [...], and it expresses the speaker's conviction that what is stated by the sentence is the case [...]. In order to learn from an utterance about the STATE OF AFFAIRS [emphasis mine — JJJ] referred to, it is necessary to believe that the uttered sentence is true; in order to learn from an utterance what subjective state of the speaker it expresses it is sufficient to hear and to understand it [...]" (Ajdukiewicz 1956a: 141-142; emphasis mine — JJJ). In my opinion this passage allows us to accept that what is expressed by a sentence is a subjective state of things; it does not allow us, however, to fully accept that what is asserted are an exclusively extrasubjective (i.e. OBJECTIVE) states of affairs.

BJ5. AB9 is true, but AB6 is wrong. In order to distinguish the notions of "expressing" and "asserting" it is sufficient to prove that the relations of expressing and asserting have different fields.

BJ6. What results from BJ5 is that AB8 is unjustified.

BJ7. B8 is true, but AB11 is wrong. The conviction that p — is not asserted by the sentence of the form 'p'. However, it is not an obstacle to accept that the conviction is expressed by the sentence.

BJ8. What results from BJ7 is that AB10 is unjustified.

BJ9. AB13 is true, but B2 is wrong. In order to explain B1 it is sufficient (and necessary) to distinguish: "expressing" — "asserting."

i. The sentence

- (9) Yes, if the front door is closed, you will go across the courtyard expresses (among other things) the (utterer's) non-knowledge if the front door is closed; thus if (e.g.) the utterer knows that the front door is closed, then (uttering) (9) is improper. This is even clearer in the case of the sentence
- (4) If John visited Sacramento, which I know he did, then he murdered Peter, which asserts (among other things) the (utterer's) knowledge that John visited Sacramento, and which expresses (among other things) the (utterer's) non-knowledge if John did. In the case when the speaker knows that John visited Sacramento, (uttering) (4) is improper; while if the utterer does not know if John did — (4) is not true.
- ii. The sentence
- (10) If I know who he is, I will tell you

expresses (among other things) the (utterer's) non-knowledge if the utterer knows who somebody else is; thus if the utterer knows if the utterer knows who somebody else is, then uttering (10) is improper. Now, if it is not possible that the utterer does not know what the utterer knows, then no sentence which expresses non-knowledge about own knowledge cannot be proper (properly uttered).

It is worth noticing here that, firstly, Bogusławski also does not call all sentences which state something that does not take place "false sentences" Namely, he writes: "Sentence (9) [in the described circumstances is used inappropriately and] may be a bad joke at the most [...], [and] sentences such as type (10) are DEVIANT" (Bogusławski 1986: 220; emphasis mine — JJJ). Moreover, he admits that an analysis of sentences of type (4) "causes some difficulties but it seems that these difficulties can be eliminated by means of additional explanations" (Bogusławski 1986: 220). I think that in fact the distinction: asserting and expressing — completely removes these difficulties. Secondly, Bogusławski differentiates, besides indirect and direct speaking, a third way of informing. According to Bogusławski, "in the sentence [...] John is bald obviously assumes that John's body consists of, i.a., the head [...]" (Bogusławski 1986: 218; emphasis mine — JJJ).

BJ10. What results from BJ9 is that AB12 is unjustified.

BJ11. AB15 is true, but B6 is wrong. I share Kotarbiński's view — although without his stipulations (Kotarbiński 1929: 168-169) — that conditional sentences of the type:

If he keeps his word, I will grow hair on my palm (i.e. If he keeps his word, pigs might fly) asserts (in Kotarbiński's words: "talks, i.a., about", "probably states"), that the former (i.e. that he keeps his word) will not take place without the latter (i.e. that I will grow hair on my palm), that is exactly what is stated by MATERIAL IMPLICATION: He will keep his word $\rightarrow I$ will grow hair on my palm

Ad usum exempli I obviously assume that the quoted sentence is a basic conditional sentence (sometimes it is a sentence equivalent: If he kept his word, then I would grow hair on my palm). Here follow examples of this type of conditional sentences quoted from works of the best Polish writers:

Dźwięk słów wybornych uszy tylko pieści, Jeśli z nich zdatna nauka nie płynie. (The sound of excellent words only caresses the ears, If the words are not accompanied by suitable learning.) Ignacy Krasicki, *Myszeidos (Mouseiad)*

Jeśli nas dzisiaj zawiodą nadzieje, Szczęślliwsze jutro może wynagrodzi. (If hopes fail us today, Perhaps a happier tomorrow will compensate it) Adam Mickiewicz, *Grażyna*

Jeśli dziewczęta malin nie dostaną, To nazbierają jagodek. (If girls do not reach raspberries, Then they will pick blueberries.) Juliusz Słowacki, *Balladyna*

BJ12. What results from BJ11 is that AB20 is not justified.

BJ13. AB17 is true, but B5 and B7 are false. Firstly, that the utterer does not know if p, and does not know if q (= aB5), is expressed by the basic conditional sentence of the form "If p, then q" (cf. below, J15). Secondly, the basic conditional sentence of the form "If p, then q" asserts: what is related to p is q (cf. below, J12). Thus, it expresses (i.a.) the (utterer's) conviction that what is related to p is q. In turn: the utterer is not ready

to deduce the sentence 'q' from 'p' without the conviction that what is related to p is q; and then uttering a sentence of the form "If p, then q" is improper. Hence since the basic conditional sentence of the form "If p, then q" expresses the (utterer's) conviction of that what is related to p is q, it also expresses the (utterer's) readiness to deduce the sentence 'q' from the sentence 'p'. N.B. I do not know why expressing this readiness is called by Grodziński "wnioskowanie" (deduction) (1969b: 133). This readiness CAN BE in fact INFERRED from uttering (properly) the basic conditional sentence, by analogy to the (utterer's) non-knowledge concerning the logical value of elements of the sentence.

BJ14. What results from BJ13 is that AB16 is not justified.

2. General assessment of Bogusławski's views

Grasping some details of Bogusławski's solution causes certain difficulties, especially to a non-linguist. For example the following is not completely clear to me.

B?1. What exactly underlies the TEST OF CONTRAST, NEGATION and REDUNDANCY (or the test of opposition, negation and surplus)? Why, say *bold* is contrasted with *long-haired* (cf. 1986: 218), and not, e.g., *hairy* or *mop-haired*?

B?2. What are the conditions for an independent method of establishing the properness or improperness of a given sentence (cf. 1986: 221)? In particular, what is wrong in assuming that absence of a certain mental state, and thus falsity of a sentence affirming this state, results in improperness of another sentence; for example the sentence:

Gdybym nie kochał śmiertelnej piękności [...], Byłbym się wyniósł nad głowy współbraci. (If I had never loved a mortal beauty [...], I would have raised above the heads of my comrades.) Zygmunt Krasiński, Serce mi pęka (My heart breaks)

is improper because the sentence: *Krasiński was convinced that he loved a mortal beauty* is false?

B?3. What is the domain and the codomain of the RELATION OF COGNITIVE CONVENTION (CONVENTIONAL COGNITIVE CORRELATION) and the RELATION OF COMMUNICATION ("saying") (cf. 1986: 215, 217-219)? Is it so that when the connection between both RELATIONS is discussed, then what is meant is that the RELATIONS are linked by the equality relation (e.g. X knows that — that is realizes that — y, when X says — or can say — 'y'), or that both of them have identical counterdomains (e.g. what is realized is the same to that what can be said by someone)? What are the implications of the issue for the THEORY OF SEMIOTIC FUNCTIONS?

B?4. What does it mean that a certain RELATIONAL CATEGORY (that is a concept of a certain relation, in particular: the "concept of expressing") as a concept based not on a RELATIONAL SPECIFICATION, hence DEFINED not purely RELATIONALLY (that is not through indicating the uniqueness, NATURE, appropriate relation?), but by means of a SPECIAL GROUP OF ARGUMENTS, TERMINAL SYMBOLS (that is through indicating the field of this relation?) is a result of the intersection of different CLASSIFICATIONS (cf. 1986: 222)?

Fortunately, the outlined difficulties concern — in my opinion — issues which are marginal and do not obscure the content of Bogusławski's main theorems, among which the following seem true to me: B1, B3, B4 and B8. Moreover, I share some of Bogusławski's general convictions, although I understand differently their value to the discussed problems.

JB1. Reading LOGICAL SYMBOLS by means of expressions of common language may sometimes be the source of alleged issues (which I expressed, i.a., in my paper published in 1980). Bogusławski straightforwardly writes: "[For example] the problem of [...] a reductionist approach to conditional sentences in a natural language would never exist if there were no custom to understand the logical arrow as if..., then..." (Bogusławski 1986: 224).

JB2. An advantage of a solution to a certain problem is its generality. The more general rights occur in the solution and the more general concepts, the better account of a given problem. Bogusławski also writes: "The possibility of generalization of a higher degree [should not be neglected]" (Bogusławski 1986: 217). It is interesting that both Bogusławski and Stanosz (1985: 70-71) express concern about extending the applicability of adopted general theorems, however Stanosz, similarly to me, postulates extending applicability of THESES OF LOGIC which contain truth connectives, while

Bogusławski postulates that expressing and asserting have the same SE-MANTIC FUNCTION, in the name of increasing the UNIVERSALITY OF THESES OF LINGUISTICS.

JB3. What is asserted by a given sentence, and what the sentence expresses — are the things about which the speaker learns from (uttering) the sentence. Therefore, what is useful is a general concept of "what the sentence communicates" (cf. J9 below) which encompasses the whole content of the sentence. For Bogusławski such a concept is the concept of "what the sentence says". Namely, Bogusławski writes: "Our concept captures various elements of content in a convenient way [...]; [it constitutes] a NON-DISJUNCTIVE formula which presents shared features of ALL interpretative aspects, which, as it seems, execute one general phenomenon [...]" (Bogusławski 1986: 218).

JB4. The subject content of sentences (all that is expressed by sentences) is not homogeneous. In my opinion it does not matter for the usefulness of the concept; according to Bogusławski it is the concept's shortcoming. Thus, Bogusławski writes: "[It is unfavourable to place] among «expressed elements» [...] two types of «subjective states» [...]" (Bogusławski 1986: 222).

JB5. Conditional sentences of common language fall into many types which differ from one another in meaning. Accepting one of them as the basic is a matter of convention. Bogusławski writes only that: "The initial step in analyzing conditional sentences [...] is a distinction of a few construction types" (Bogusławski 1986: 216). N.B. similar recommendations are present in Kotarbiński (1929: 168) and Ingarden (1949: 291).

IV. An outline of my own attitude

1. Informing

Bearing in mind restrictions discussed by A. Tarski (1933), I shall, for the sake of convenience, use 'X', 'Y', etc. for names of individuals X, Y, etc; and 'p', 'q', etc. for names of sentences: p, q, etc.

J1. The PRINCIPLE OF PRUDENCE.¹ If X is prudent, then if X rejects 'p', then it must not be accepted that p.

¹My principle of prudence is close to H.-P. Grice's principle of quality (1975).

J2. If it must not be accepted that p, then "p" is invalid or improper. What can be invalid (and improper) are affirmative sentences as well as interrogative sentences and imperative sentences. "An invalid affirmative sentence" is "a false (wrongly uttered) sentence"; "an invalid interrogative sentence" is "an unauthorized (wrongly posed) sentence"; finally, "an invalid imperative sentence" is "an inappropriate (wrongly given) sentence."

J3. If 'p' is valid, then if 'p' asserts that q, then q. As it has already been emphasized — I think in recent times most forcefully by Pelc (cf. 1982: 227-233, 260-273) — strictly speaking it should not be said that 'p' asserts (e.g.) that q, but X's utterance (the sentence uttered by X): p. Similarly, sentences affirming that 'p' affirms that q, and assumes that q, and expresses that q.

J4. If 'p' asserts that q, and 'q' is identical to 'p', then 'p' asserts that q.

J5. Every 'p' asserts that p.

J6. If 'p' asserts that q, and 'q' is different than 'p', then 'p' assumes that $q.^2$

J7. If 'p' is proper, then if 'p' expresses that q, then q.

N.B. Ajdukiewicz makes a mistake when he claims that if the subject state expressed in a sentence exists, then the sentence is used properly (1956b: 257). According to Ajdukiewicz, the ALTERNATIVE expresses our knowledge that one clause of the ALTERNATIVE is true, and non-knowledge about which clause is true. If Ajdukiewicz's theorem about proper use of sentences were to be accepted, then knowing that one clause of a certain ALTERNATIVE is true, but not knowing which, and uttering the alternative, we would use the alternative properly, REGARDLESS whether we were ready or not to deduce — by negating one clause of the ALTERNATIVE — the other clause. In order to avoid such a consequence, the relationship which is meant should be presented in the form of J7. The same concerns ASSUMING (cf. J6).

J8. If 'p' asserts that q, then 'p' expresses the conviction that q.

J9. If 'p' asserts that q, or if 'p' expresses that q, then 'p' communicates that q.

 $^{^{2}}$ The distinction between assuming and asserting introduced here is similar to I. Dąmbska's distinction of implicit and explicit expressing (1938: 256).

As can be seen, for the time being, I am in favor of distinguishing between SEMANTIC and PRAGMATIC FUNCTIONS. I believe that as long as the EPIS-TEMOLOGICAL DUALISM is not overcome, juxtaposing what is asserted and what is expressed (inter-subjectively inaccessible) is justified.

J10. The PRINCIPLE OF INTELLIGIBILITY. If X understands 'p' then X knows the content of 'p', i.e. X knows what is the set of states of things which 'p' communicates.

2. Conditional sentences

J11. There are various types of conditional sentences which are mutually irreducible (cf. Table 1).

I realize that, on the one hand, some types of conditional sentences are sometimes uttered by means of different connectives, or even without them; on the other hand — the same connectives are used in conditional sentences of various types. Thus, I use here i.a. the set of connectives compiled by A. Łojasiewicz (1981) — instead of "Always when p, then q" one says: "Whenever p, then q", "Whenever p, always q", "Whatever the number of p, the same number of q". Instead of "As p, then q" one says: "p, and therefore q" "p, and thus q", "p, and hence q", "p, and so q", "p, so q", "p, therefore q", "p, thus q", "p, in that case q", "p, consequently q", "p, and in this connection q", "Because p, then q", "q because p", "q for p", "q because of p", "q thanks to p", "q since p", "q as a consequence of p", "q in the case of p", "q consequently of p", "q as a p", "p as a reason of q" or "p as a cause of q". The same content as the sentence "If p, then q" sometimes have the following utterances: "As p, q", "As soon as p, then q", "When p, then q", "Provided that p, then q", "q, as p", finally, "q, on condition that p". The close synonyms of "When-hypothetically p, then-hypothetically q" are sometimes: "As-soon-as-hypothetically p, then-hypothetically q" and "If-hypothetically p, then-hypothetically q". Finally, instead of "Even-if- hypothetically p, thenhypothetically (it is not true that) q" one says: "(It is not true that) q, even if p", "(It is not true that) q, even as soon as p", "(It is not true that) q, even if p", "(It is not true that) q, even provided that p" and "(It is not true that) q, even though p". For simplicity, however, I have grouped mutually unambiguously selected connectives according to particular types of conditional sentences.

Types of conditional sentences:

A. common (NATURAL IMPLICATIONS);

1. general (NATURAL IMPLICATIONS): "Always when p, then q" ('p' and 'q' are open sentences); for example:

Jeśli [ktoś] będzie poczciwy, pod moskiewskim rządem Spotka się niezawodnie z kibitką i sądem. (If [someone] under Moscow's rule is kindly They shall encounter a kibitka and judgment unfailingly) Adam Mickiewicz, *Dziady (The Forfathers' Eve)*

- 2. single (INDIVIDUAL IMPLICATIONS): "(Even) if p, then (it is not true that) q" ("p" and "q" are closed sentences);
- a. distinguishing (DIFFERENTIATING IMPLICATIONS): "If p, then q";
 - i. factual (REAL IMPLICATIONS): "As p, then q" ("p" and "q" are in any GRAMMATICAL tense); for example:

Wolny [jest], bo nic mu nie ciąży na świecie. (He [is] free, because nothing in the world burdens him.) Maria Konopnicka, *Wolny najmita* (*The Free Day-Labourer*)

ii. possible (POTENTIAL IMPLICATIONS): "If p, then q" ("p" and "q" are in any GRAMMATICAL tense); for example:

Jeśli mieć mogę wieszczy ogień w łonie, Nigdy on w dymy pochlebne nie spłonie. (If I may have bard-like fire in my bosom, It will never burn like complimentary smoke.) Kazimierz Brodziński, *Niech o mnie...*(*About me let...*)

iii. non-factual (IRREAL IMPLICATIONS): "If-hypothetically p, thenhypothetically q" ('p' and 'q' are in the past tense); for example:

> Gdyby zwyczaj był taki, żeby przy muzyce Tańcem biec do kościoła wolno przez ulice, Więcej na nabożeństwie byłoby w kościele, Bo siła dudę lubi, a pacierz niewiele. (If it was customarily allowed to run to church

along streets in dance accompanied by music, More would attend the service in church, Because the force likes duda, but not prayer.) Mateusz I. Kuligowski, *Demokryt śmieszny (Humorous Democritus)*

b. accepting (APROBATIVE IMPLICATIONS) — factual, possible, or non-factual: "Even if p, then q"; for example:

Gdyby nawet sprawa twoja [żołnierzu] była przegraną — ona [poezja polska] ci wiary dochowa. (Even if your case [soldier] was lost — she [the Polish poetry] will be faithful to you.) Stanisław Żeromski, *Sen o szpadzie (Dream about the spade*)

c. rejecting (REPULSIVE IMPLICATIONS) — factual, possible, or non-factual: "Even if p, then it is not true that q"; for example:

Nie przeminieć, co minęło, Nie wydrzeć z pamięci; Choćby człowiek rad zapomnieć, Wraca mimo chęci. (Not to pass what has passed, Not to tear from memory; Even though one would be glad to forget, It comes despite the will.) Teofil Lenartowicz, *Bitwa racławicka (The Racławice battle)*

B. scientific (LOGICAL IMPLICATIONS);

1. loose (material implication): " $p \rightarrow q$ "; for example:

Jeśli nas nie wystraszą, to pewnie zaplują. (If they do not scare us, then probably they will spit us over) Wacław Potocki, *Wojna chocimska* (*The Chocim War*)

2. strict (IDEAL IMPLICATIONS): " $p \Rightarrow q$ "; for example:

Jeśli cię nie wspomogą te śrzodki, nie zgubią. (If the measures do not support you, they will not be your undoing.) Franciszek Zabłocki, Oddalenie się z Warszawy literata (A Man of Letters Leaving Warsaw)

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Conditional sentences — and certainly real and possible sentences — may sometimes be affirmative sentences, but also questions and orders. Here are the following examples:

Czymże są zamki, czym warowne grody, Jeśli nie mogą od hańby zasłonić Ducha wolności i synów swobody? (What are castles, what are fortified strongholds, If they cannot shield against shame The spirit of liberty and sons of freedom) Ryszard Berwiński, *Mysza wieża (Mouse Tower)*

Jeśli nie grzeszysz, jako mi powiadasz, Czemu się, miła, tak często spowiadasz? (If you do not sin, as you say, Why do you, dear, confess so often?) Jan Kochanowski, *Na nabożną (On a Pious Woman)*

Jeśli kto władzę cierpi, nie mów, że jej słucha. (If one suffers authority, do not say he listens to the authority) Adam Mickiewicz, *Dziady* (*The Forfathers' Eve*)

Jeśli nie chcesz mojej zguby, Krokodyla daj mi luby. (If you do not desire my doom, Darling, give me a crocodile.) Aleksander Fredro, Zemsta (Revenge)

Remarks on conditional sentences of this type are present in Dambska (1938: 260-267).

Below I shall focus only on analyzing affirmative conditional sentences.

J12. The conditional sentence of the form "If p, then q" assumes (i.a.) that what is connected with p, is q.

If it is obvious that there is no such bond, then the appropriate conditional sentence is — to use Ingarden's words — "utter nonsense" (Ingarden 1936: 266).

J13. The bond, whose occurrence is assumed by (possible) conditional sentences, may be of various types (see fig. 2).

Types of bonds:

1. the symptomatic bond; for example:

Jeszcze Polska nie umarła, Kiedy my żyjemy. (Poland has not yet perished, as long as we are alive.) Józef Wybicki, *Pieśń Legionów (Song of the Polish Legions)*

Jeźli żebym cię dociekł, suszę myśl daremno — Lub ja tępo pojmuję, lub ty piszesz ciemno. (In order to understand you, I dry my thought in vain — Either I am dull in comprehension, or you write vaguely.) Franciszek Dmochowski, *Do ... Stanisława Augusta (To* ... *Stanisław August*)

Spełniłbym swoje życie, Tylko gdybym się zdobył na publiczną spowiedź. (I would fulfil my life, Only if I made an effort of public confession.) Czesław Miłosz, Zadanie (The Task)

Jeśli niebo się zaciągnęło, to nadszedł niż.³ (If the sky has darkened, low-pressure zone is present.)

What is asserted in the last example is: darkening of the sky REQUIRES a low-pressure zone to be present. Here, in my opinion, also belong sentences of the form "If I am right, then q," which Bogusławski does not regard, it seems unfairly, as basic conditional sentences. N.B. only in the case of the sentence of the form "If p, then q" which asserts the symptomatic bond, I would be inclined to say that q is a necessary condition for p.

Also, Z. Ziembiński (1974: 87) claims that a conditional sentence sometimes asserts the indication bond.

 $^{^{3}}$ Here and below I indicate only what is asserted by the example sentences of my own creation. I hope that doing the same for the remaining examples will not be so much simpler as more rewarding.

2. the co-existence bond; for example:

I jeźli Piotr był wielki, on krok ma nad Piotrem, Tamten brody ciął ludzkie — ten głowy tnie ludzi. (And if Peter was great, he is one step ahead of Peter, That one cut men's beard — this one cuts men's heads.) Stefan Garczyński, *Wacława dzieje* (*Wacław's Course of Life*)

Jeśliś ty tedy dureń, dobrzeć z tym, że żona przynajmniej mądra.

(If you are a fool, it is good that at least your wife is wise.) Jan A. Żydowski, *Gorzka wolność młodzieńska* (*Bitter Youthful Freedom*)

Gdybym był sobie królem, byłbym sprawiedliwym. (If I were a king, I would be fair.) Tomasz K. Węgierski, *Organy* (*Organs*)

If he broke his oath, the sky will darken.

The last sentence asserts: breaking the oath is ACCOMPANIED by the darkening of the sky.

That a conditional sentence sometimes asserts the co-existence bond ("the bond of permanent co-existence", "the structural relation", "temporal consequence or spatial arrangement") is claimed in Biegański (1903: 184), Ingarden (1949: 273, 303), Ziembiński (1959: 87), Wolter & Lipczyńska (1973: 98).

3. the generic bond; for example:

Kiedy spojrzysz na ziemię strwożoną
I ujrzysz szary o świtaniu świat
I na nim blasku łunę zamrożoną:
To nie ślad walki; to [widzisz] twej pieśni ślad.
(When you look at the frightened ground
And you see the grey world at dawn
And the glow of brightness frozen on the world:
It is not a trace of fight, it is the trace of your song [that you see].)
Jarosław Iwaszkiewicz, Ciemne ścieżki (Dark Paths)

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Ludziom zdaje się, że [jeśli] kto gardzi ich przesądem, ten nimi samymi pogardza. (People think that [if] one despises their superstitions, one despises them as well.) Edmund Chojecki, *Alkhadar*

Gdyby ludzie nagle przestali kłamać, byłaby to największa i najpłodniejsza w skutki rewolucja. (If people stopped lying all of a sudden, it would be the biggest and the most seminal revolution.) Aleksander Świętochowski, *Twinko*

Jeśli nieprędko wrócił, to złamał przyrzeczenie. (If it was a long time before he came back, he broke the oath.)

The last sentence assumes that a long time before the return CONSTI-TUTES breaking the oath.

That a conditional sentence sometimes asserts the generic bond (the relation resulting from the mere sense of words) is admitted in Dambska (1938: 249) and Ziembiński (1959: 87).

4. the sign bond; for example:

Ogromna zabrzmiała Trąba; i w głośne bębny uderzono, Zaczem się wojsku ruszyć rozkazano. (A huge horn Sounded; and loud drums were struck, Before the army was ordered to move.) Piotr Kochanowski, *Gofred*

Jeśli, jak słyszę, przybyli posłowie, Znać, żem na jego nie zwiedziony słowie. (If, as I hear, envoys have come, It is a sign that his word did not fail me.) Adam Mickiewicz, *Grażyna*

Byłabym poczwarą, Niegodną twej ręki, ale piekła, Gdybym się matki kochanej wyrzekła. (I would be hideous Not worthy of your hand, but hell, If I disowned my beloved mother.) Juliusz Słowacki, *Balladyna*

If he sent the letter, it will be a long time before he comes back.

The last sentence asserts that sending the letter is a SIGNIFIES that a long time will pass before the return.

That a conditional sentence sometimes asserts the sign bond ("that a certain circumstance is a symbol of another one") is expressed in Czerwiński (1958: 269).

5. the consequence bond; for example:

Żaden pług polski cudzej nie pruł ziemi, Więc poczytani bedziem jak złodzieje. (No Polish plough has ever turned over somebody else's soil, Thus we will be considered thieves.) Cyprian K. Norwid, *Klątwy* (*Courses*)

Jeżeli mi taką [drugą dziewkę w Rzeczypospolitej] pokażesz, pozwolę ci się nazwać szołdrą (If you show me another such [wench in Rzeczpospolita], I will let you call me a pig) Henryk Sienkiewicz, Ogniem i mieczem (With Fire and Sword)

Gdybym był rybą w Ukajali, To oczywiście wciąż bym śpiewał. (If I were a fish in the Ukajali, I would obviously still be singing.) Konstanty I. Gałczyński, *Ciche marzenie (Silent Dream*)

If the moisture maintains for some time, he will send the letter.

The last example assumes: maintaining the moisture for some time will RESULT in sending the letter.

That a conditional sentence sometimes asserts the consequence bond (certain resolutions, a thetic relation resulting from someone's resolution, normative connection) is claimed in Czerwiński (1958: 269), Ziembiński (1959: 87), Wolter & Lipczyńska (1973: 98). What also belongs to this category are: orders, bans, promises and conditional threats.

6. the cause bond; for example:

Skoro go [dzban z winem] nachylisz, chłód na cię wypłynie. (As you tilt it [a jug with wine], chill will surround you.) Hieronim Morsztyn, *Krótkie zalecenie wina* (A Short Recommendation of Wine)

Gdy zginie prawo, wolność, zginiesz i ty. (When law, liberty dies, you will die as well.) Krzysztof Opaliński, *Satyry (Satires)*

Ucieczka w tym schronieniu daremną byłaby, Gdyby Boska Opatrzność nie była nad nami. (The escape in this shelter would be useless, If the Divine Providence were not with us.) Józef A. Załuski, *Przypadki...w Kałudze (Happenings...in* Kaługa)

If it was raining, the moisture will be maintained for some time.

The latter example asserts: raining CAUSES maintaining the moisture for some time. N.B. only in the case of assuming the cause bond in a conditional sentence, I would be inclined to say that the state of affairs affirmed by the antecedent of this sentence is the sufficient condition for the state of affairs affirmed by the consequent.

That a conditional sentence sometimes asserts the cause bond is admitted in: Borkowski (1964: 11), Grodziński (1969b: 133), Kraszewski (1971: 118), Ziembiński (1959: 87), Wolter & Lipczyńska (1973: 98).

7. the indispensable bond; for example:

Skoro która [żaba] wypływała,
Kamieniem w łeb dostawała.
(As any [frog] emerged,
It was hit with a stone.)
Ignacy Krasicki, Dzieci i żaby (Children and frogs)

Gdy siły są dostatecznie wielkie, społeczeństwo pozbywa się szkodliwych pierwiastków. (When strength is sufficiently great, the society frees itself from harmful elements.) Bolesław Prus, *Nasze grzechy* (*Our sins*)

Gdyby ci rodacy Co za ciebie giną, Wzięli się do pracy I po garstce ziemi Z Ojczyzny zabrali, Już by dłońmi swemi Polskę usypali. (If the compatriots Who die for you, Got down to work And a handful of soil Brought from the Motherland, They would already have built Poland With their hands.) Wincenty Pol, Śpiew z mogiły (The Song from the Grave)

If a low-pressure zone is present, rain will fall.

In the latter example it is assumed that the presence of a low-pressure zone MAKES IT POSSIBLE for rain to fall. N.B. only in this type of conditional sentence which are about the state of affairs to which the antecedent refers, I would say that the indispensable condition is (occurring of) the state of affairs which is affirmed by the consequent.

That a conditional sentence sometimes asserts the indispensable bond is allowed by Dambska (1938: 249).

Most of these variants of bonds are discussed in Kotarbiński (1929: 168-169).

It is clear that — contrary to Ajdukiewicz⁴ — by accepting the occurrence of bonds of a certain type as a component of the subject content of the distinguishing of conditional sentences (that is as a component of the set of states of affairs asserted by the sentence), I do not accept as true (common) conditional sentences of the type *If the moon is a disc of cheese, I will die on the date of an even number*, because the states of things affirmed by the antecedent and the consequent of such sentences are not mutually connected in the way indicated above. N.B. also, contrary to Ajdukiewicz I do not think that it is an INTUITIVE PROCEDURE to deduce a sentence of the form 'p or q' and an alternative sentence with the LOGICAL FUNCTOR OF ALTERNATIVE of the form " $p \lor q$ " from the consent to equivalence; it needs to be remembered that the common connective "or" is USED in both: LOGICAL ALTERNATIVE and LOGICAL DISJUNCTION.

A fierce advocate of Ajdukiewicz's approach, Stanosz, refers to the view that the source of not accepting as true the conditional sentences of the form "If p, then q" may be due to a lack of connection between p and q, as follows: In order for [...] the view to deserve to be called a solution to the problem of the truth conditions of a conditional, the notion of the content bond, which is to link components of a true conditional, needs to be made precise. [...] Whereas all proposed definitions of the notion are clearly inadequate: at most they correspond only to certain specific senses of the connective if..., then... (Stanosz 1985: 75).

I cannot agree that an ALTERNATIVE FORMAL DEFINITION is INADE-QUATE, since the *definiendum* (or *explicandum*) IS actually ambiguous. Also, I cannot accept that in the case of such sentences as the conditional sentence:

If John receives his passport, he will leave the country.

— "the notion of the content bond between the components of accepted conditionals [...] escapes any attempts of explication (Stanosz 1985: 75)". It is true that there is no causality relation, but there IS a relation which I called "the cause bond" above. Contrary to Stanosz, I believe that the consequent of this sentence results from the antecedent, namely it is its ENTHYMEMATIC CONSEQUENCE on the basis of e.g. such "commonly known

⁴Also W.V.O. Quine's views are contrary to Ajdukiewicz's views. It seems that Ajdukiewicz (1956b: 254) rejected Quine's solution too hastily, as he neglected the following condition imposed on "worthy uttering" of the conditional sentence in the solution: "Thus only those conditionals are worth affirming which follow from some manner of relevance between antecedent and consequent — some manner of law, perhaps, connecting the matters which these two component statements describe. Such connection underlies the useful application of the truth-functional conditional without participating in the meaning of that notion." (Quine 1979: 17).

truth": "If somebody does not receive his PASSPORT, he will not (LEGALLY) leave the country, even if he is willing to. John is willing to leave the country, thus..." Another thing is that the ENTAILMENT itself is by no means asserted by the conditional sentence above. Thus, those (e.g. Grodziński 1969a: 64, Wolter & Lipczyńska 1973: 98) who claim that the sentence of the form "If p, then q" asserts that the sentence 'p' results in sentence 'q' are wrong. Indeed, if a sentence of the form "If p, then q" is true — that is asserts i.a. that p (the state of things affirmed by 'p') is linked to q (the state of things affirmed by 'p') — then, obviously, the antecedent results in the consequent.

N.B. what proves that the conditional sentence of the type *If he comes, I will chide him* assumes something more than MATERIAL IMPLICATION is that reversing the negated components in this case is unacceptable. The sentence *If I do not chide him, he will not come* has a completely different subject content than the initial sentence; namely it assumes that not chiding will result in somebody's not coming.

J14. The material implication " $p \to q$ " assumes (i.a.) that there is no 'p' without 'q'.

J15. What results from each conditional sentence of the form "If p, then q" is the material implication " $p \rightarrow q$ ".

A similar claim may be found in Czerwiński (1958: 269, 271)⁵. Similarly to Stanosz I think that the possibility of using LOGIC — in this case PROPOSI-TIONAL LOGIC — to analyze common language has a significant advantage for a theory (Stanosz 1985: 70-71). However, I am satisfied with the approach in which LOGICAL THESES may serve as auxiliary NEGATIVE CRITERIA in discovering truth. And this is actually the solution to the issue of conditional sentences I have adopted.

J16. The conditional sentence of the form "If p, then q" expresses (i.a.):

a. the non-knowledge (of the utterer) if p;

⁵Perhaps this is what W.V.O Quine had in mind when he wrote: "Indeed, since usage conforms to the third line of the table, and usage lapses as soon as a case is precisely located elsewhere in the table, there is no clear conflict between the table and the indicative conditional of ordinary usage" (Quine 1979: 17). "The case is analogous to that of conditional statements: discovery of the falsity of the antecedent of a conditional in the indicative mood seems from the standpoint of ordinary usage to dispose of the question of the truth value of the conditional without answering it" (Quine 1953: 165). However, it is likely that what he meant was a stronger independence of the conditional sentence and MATERIAL IMPLICATION, since he thinks that with other values ordinary conditional sentences are "idle or senseless" (Quine 1979: 17).

N.B. the non-knowledge if p is also expressed by the question "p?". Initially, the potential of the expression "jeśli p..." (if p...) to ask questions was more visible in Polish; etymologically, the connective "jeśli" (if) originated from the question-form "jest-li to, że" (is it so that). In 18th century the word "jeśli" (if) was still used as an alternative to "czy" (auxiliary BE, DO, HAVE, ...). Cf. for example:

A przecie człowiek nie ma w tym pewności, Jeśli [= czy] niełaski godzien, czy miłości. (But a man cannot be sure, If he is worthy of disgrace or love.) (Stanisław H. Lubomirski, *Ecclesiastes...*)

ROMANTIC POETS often put a question mark after the antecedent. Cf. for example:

Jeśli usłyszą ludy, że lew ryczy? żyje? Ludy przypomną, żem ja winien żyć w koronie. (When people hear that the lion roars? is alive? People will recall that I ought to have the crown.) Juliusz Słowacki, *Kordian*)

b. the non-knowledge (of the utterer) if q;

c. the readiness (of the utterer) to infer the sentence 'q' from the sentence 'p' (cf. fig. 3). N.B. this latter readiness is directly indicated by the word "then".

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"Despite the fact that many works were devoted to conditional sentences, their characteristics have not yet been completely achieved in an entirely satisfactory manner [...]" (Bogusławski 1986: 215). Moreover I am deeply convinced that nothing helps to reach the ultimate solution as much as a common exchange of views. I was once invited by Bogusławski to such a *danse polemique*, and I would like to express the hope^{*} that my pass (resignation) will not be followed by a response à *la Edviser*:

^{*}Here, for the sake of clarity, I should write: ASSERT...

Mój panie, ja nie tańczę z nikim, Kto ma tak niski czyn.* (My dear Sir, I do not dance with anybody, Who is of such low rank.) Adam Mickiewicz, *Dziady* (*The Forfathers' Eve*)

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1. Some components of the content of conditional sentences of various types

Types of conditional sentences		EXTENSION, that is (i.a.) the object content		CONTENT, that is (i.a.) the subject content	
Always when p , then q		the bond of the fact that q with the fact that p			
As p , then q			 the fact that p the fact that q 		
If p , then q	If p , then perhaps q	the bond of the fact that q with	the fact that q is less probable than the fact that p	 the non-knowledge if p the non-knowledge if q 	
	If p , then also q		the fact that q is as probable as the fact that p		
	If p , then even more q	that q	the fact that q is more probable than the fact that p		
As-hypothetically p , then- hypothetically q		-	 the fact that it is not true that p the fact that it is not true that q 		
Even as p , then q		the lack of a bond of the fact that q with the fact that p	 the fact that p the fact that q 		
Even if p , then q			the fact that q	the non-knowledge if \boldsymbol{p}	
Even as-hypothetically p , then-hypothetically q			 the fact that it is not true that p the fact that q 		

 $^{*}\mathrm{It}$ is a general conditional sentence...

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Even as p , it is not true that q		 the fact that p the fact that it is not true that q 	
Even if p , then it is not true that q	no bond between p and q	the fact that it is not true that q	the non-knowledge if p
Even if hypothetically p , then it is not true that q		 the fact that it is not true that p the fact that it is not true that q 	
$p \rightarrow q$	the fact that it is not true that $(p \text{ and it is not true}$ that $q)$		-
$p \Rightarrow q$	the fact that it is not possible that $(p \text{ and it is not true}$ that $q)$		-

Remark 1. According to Ajdukiewicz, the factual conditional sentence "As p, then q" - which he calls "inferential utterance" (Ajdukiewicz 1936: 263) — also expresses a fulfilled inference, except for the knowledge that pand that q.

Remark 2. According to Ajdukiewicz, the potential conditional sentence "If p, then q" — which he calls in accordance with common convention "factual conditional sentence" (Ajdukiewicz 1936: 262) — expresses the nonknowledge that 'p' is not true, but does not express the non-knowledge that 'p' is true.⁶ The non-knowledge whether 'p' is not true or true, is expressed by the so called possible conditional sentence — of the form "If-hypothetically p, then-hypothetically q". It does not seem convincing to me.

Remark 3. What is assumed by the non-factual conditional sentence "When-hypothetically p, then q" is sometimes directly affirmed before or after the sentence. Cf. for example:

Nie jestem bocian, lecz gdybym nim była, Polskę [bym] z zalęgłych gadów wyczyściła. (I am not a stork, but if I were, I would clean Poland of hatched reptiles) Elżbieta Drużbacka, *Punkta...* (*Points...*)

Gdyby rannym słonkiem wzlecieć mi skowronkiem, Gdyby jaskółeczką bujać mi po niebie!

⁶In W.V.O. Quine the matter is not clear. Sometimes he claims that conditional sentences of this type are used when the speaker "is ordinarily uncertain as to the truth values of both antecedent and consequent" (Quine, 1979: 17).

Gdyby rybką w rzece — płynąć tu po ciebie. [...] Ani ja w Wisełce pląsająca rybka, Ani ja skowronek, ni jaskółka chybka. (If in the morning sun I flew like a lark, If in the sky I floated like a swallow! If like a fish in a river I swam here for you, [...] I am neither a frolicking fish in the dear Vistula, Neither a lark, nor a nimble swallow.) (Włodzimierz Wolski, *Halka*)

2. Types of bonds assumed by conditional sentences



Remark. The presented division into innate (NATURAL) bonds and constituted (CONVENTIONAL) bonds should be accompanied by lengthy explanations, which cannot be added here. For more details refer to Pelc (1982a).

С	Components of extensions					
		 the fact that p the fact that q 	 the fact that p the fact that it is not true that q 	 the fact that it is not true p the fact that q 	 the fact that it is not true that p the fact that it is not true that it is not true that q 	Neither the value of p , nor the value of q' is asserted
·	the bond between p and q	As p , then q	?	Although it is not true that p , still q	When hypothet- ically p , then hypo- thetically q	If p , then q
	the lack of bond of the fact that p with the fact that q	Because not p , (then) q	p, and still it is not true that q	?	Even when hypothet- ically p , then hypo- thetically it is not true that q	It is not true that of p , then q
Neither the bond, nor the lack of bond is asserted		$p ext{ and } q$	Indeed p , but it is not true that q	It is not true that p , but indeed q	It is nei- ther not true that p, nor it is not true that q	?

3. A comparison of extensions of some sentences

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Jerzy Pelc IF, THEN

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1. THE CONDITIONAL AND THE IMPLICATION

Interest in the conditional seems to have begun in the Megarian School. Diodorus defined it as IMPOSSIBLE to have a true antecedent and a false consequent, either now or in the past, whereas Philo of Megara (4th c. B.C.) defined it as true, if and only if it is not the case that its antecedent is true and its consequent is false (Kotarbiński 1957: 50); this definition was accepted by the Stoics as well. These two models: the STRICT IMPLICATION and the MATERIAL IMPLICATION, were complemented with others in the same period. The definition that the consequent of a conditional is potentially enclosed in the antecedent, seems parallel to the first rather than the second of those definitions; Philo's conception of material implication is referenced by the observation that a conditional is fulfilled only when a negation of the consequent is incompatible with the antecedent. As it was usual at that time, at stake were sentences of a language of thought, *lingua mentalis*, which was composed of meanings, not words.

For a long time, Philo's position was the one accepted in logic by making use of the concepts of the material and FORMAL implication. They are present in, among others, the works of Frege (Frege 1879) and Peirce (1931– 35: 3.441). Later, however, the former began to consider the conditional's divergences from the material implication model (Frege 1892). The latter held that a conditional, as a rule, was preceded by a general quantifier, whose scope varied depending on the context, e.g. for "each moment in time" or "for each potentiality." This may be viewed as the harbinger of the pragmatic concepts of *index* (in D. Scott's terminology: *point of reference*), which were introduced by Richard Montague with the aim of analysing intensional expressions.

The debate concerning the concepts of material and strict implication has been unfolding since Antiquity, when the prototypes of those concepts appeared, and it is still ongoing today. In the perception of the majority of natural language users, the colloquial conditional, as a rule, does not yield to the veracity characterisation assumed for the material implication; this phenomenon is called the IMPLICATION PARADOX. An attempt to waive it is visible in, among others, the return to Diodorus' conception evident in C. I. Lewis' concept of strict implication (Lewis 1932), defined as *it is not possible that p and at the same time not q*, in the framework of his system of modal logic S_2 , and also in Ackermann's approach to strict implication; in fact, Ackerman does not consider the so-called paradoxes of strict implication to be theses (Ackermann 1956).

The issue of the mutual relations between the concept of the conditional on the one hand, and the concepts of the material, formal and strict implications on the other hand, have been investigated in hundreds of essays and books, and specialist literature pertaining to this issue is still expanding (Harper, Stalnaker, Pearce 1981) and contains many pertinent observations.

First of all, it has been noted that in addition to the conditional if p, then q, the natural language contains also other formulas, which fulfil the same or similar semantic, or semantic and pragmatic functions.

This is done by, firstly, other conjunctions, for instance: *if*, *supposing*, *since*, *unless*, *provided*, *when*, *as soon as*, *seeing that*, *in consequence*, *as a result*, *on account*. In some languages, conditionals with a verb in the conditional mood have special conjunctions. We are all aware that in the English language the same conjunction: *if*, *then* appears in both types of the conditional. Interestingly, when a computer was told to make a selection of 325 examples of sentences with *if*, *then*, it turned out that 295 of them, that is to say 91%, were conditional sentences in the indicative mood (Cooper 1968: 296).

Secondly, instead of *if*, *then*, we find predicates, such as *implies*, *results in*, *follows*, *ensues*, *entails*), the difference being that these refer to sentences and hence they are combined with the names of sentences and not, like conjunctions, with sentences (Kotarbiński 1961; Łukasiewicz 1958).

Thirdly, the role of conditionals is fulfilled by such expressions or sentence equivalents as: let's assume that p, in which case q, having assumed that p, we see that q, I must p, or else q; he will work well if encouraged; in case of rain, p); in the event of fire, p); in your position, p) (Cooper 1968: 295; Downing 1974: 86).

The possibility of paraphrasing the conditional *if p, then q* in so very many ways is associated with the diversity of meanings ascribed to the conjunction *if, then*, which has been noted by many authors (Belnap 1975: 164; Borkowski 1964: 11; Czerwiński 1958: 265–271; Downing 1974: 85–86; Ingarden 1972: 260, 272; Kotarbiński 1961: 168; Myhill 1975: 183; Ziembiński 1963: 85). Thus, the conditional *if p, then q* is uttered, among others, with a view to

(a) the CAUSAL CONNECTION, e.g. *If you eat too much carbohydrates, (then) you will get fat;* or

(b) the SIGN CONNECTION, e.g. If he has a rash, (then) he has scarlet fever, If the flags are down at half mast, (then) the monarch has died; or

(c) the THETIC CONNECTION, which emerges as a result of a decision or constitution, e.g. *If you are late for the bus, (then) take a taxi*; or

(d) special cases of the UNIVERSAL CONNECTION, to which refers the FOR-MAL IMPLICATION $\prod_{x} (f(x) \supset g(x))$, etc.

A precise enumeration of the meanings of *if*, *then*, and indirectly of the connections between the p and the q, i.e. between events or states of affairs to which refer, respectively, the subordinate conditional clause "p," i.e. the antecedent of the conditional, and the main clause "q," i.e. its consequent, is not what we have in mind here. It will suffice for us to realise that, considering the diversity of meanings ascribed to the conjunction *if*, *then*, it would be very surprising indeed if all conditionals without exception could be subsumed to the formula of the extensional material implication or, again all without exception, to the formula of the strict implication.

On the other hand, the noticeable diversity of meanings of *if*, then explains why so many discordant views on the semiotic, i.e. syntactic, semantic and pragmatic, qualities of the conditional are in evidence. For instance – to cite Ingarden (1972: 260, 272–278) – some see the conditional as a set of sentences, others as a single compound sentence. Some assume that it expresses a judgment in the psychological sense or a judgment in the logical sense; others argue that it does not express the act of judging but of, for instance, reasoning. According to some, it is a sentence which "states a connection" (with the meaning of these terms usually left unexplained) between two states of affairs mentioned in the antecedent and the consequent; others hold that it is a sentence that states a connection between sentences; still others say that it does not state a connection either between states of affairs or between sentences, but only states that which is mentioned in the

consequent, and even this not categorically, but conditionally.

Very few are adamant that there are no semiotic differences between the conditional in a natural language and the material implication. The fault line between the opinions runs elsewhere. Some argue that there are DIFFERENCES, yes, but only PRAGMATIC ones; others assert that those differences are BOTH SEMANTIC AND PRAGMATIC. The latter approach seems to be better justified.

Representative of the first approach is the view expressed by Ajdukiewicz in 1956 (1965: 248–265) that the conditional and the material implication STATE the same, i.e. that the state of affairs stated by the antecedent "p" and the state of affairs stated by the negation of the consequent, i.e. " \sim q," do not occur simultaneously. The difference between them lies only in the fact that the conditional EXPRESSES something else than the material implication; more precisely: the real conditional expresses the speaker's readiness to deduce q from p and his lack of knowledge as to the truth-value false of p and the truth of q. The justification of this view is based on the assumption that the colloquial *if*, *then* is equal to the statement *not* p *or* q, and of the argument that, for that alternative sentence to be true, it is enough for at least one of its components to be true.

The criticism of this approach is based on the assumption that if two sentences state the same thing, they have the same truth-value, and on pointing to such conditionals as

If Copernicus had a son, then he was not a father.

Being contradictory, they are false, while the respective material implication is true because it has a false antecedent and a true consequent. Thus, at least some conditionals, although bizarre and probably rarely encountered in colloquial speech, are subject to different truth conditions than the material implication (Czerwiński 1958: 265–271).

Over the course of the last fifty years, many scholars have warned against identifying the conditional and the material implication in terms of semantics.

For instance, Quine (1955: 16–18, 32–33) – having declared himself (correctly, in my opinion) against the conjunction *if*, *then* of the real conditional being identified with the conjunction of a conditional with a predicate in the conditional mood, which in English sounds identical: *if*, *then* – notes that the table of truth-values of the material implication does not fit a real conditional in which there is no content-related connection between

the compounding sentences or, in addition, the antecedent, or both the antecedent and the consequent, are blatantly false. Such a conditional seems to be not so much false but, as Quine puts it, nonsensical. The conditional agrees with the table of truth-values of the material implication only when the antecedent is true and the consequent is false. In other cases, the table determines truth-values of nonexistent sentences, i.e. conditionals which do not occur in colloquial speech at all. "Thus, only those conditionals are worth affirming which follow from some manner of relevance between antecedent and consequent, some manner of law, perhaps, connecting the matters which those two component statements describe," observes Quine (1955: 17). He also proposes (1955: 32–33) the option of considering *implies* as fulfilling the functions of, at the same time, a predicate connecting names and a conjunction connecting sentences as a way to obviate the difference between the material implication and other types of implication on the one hand, and the various types of conditional on the other hand. In this case, the relation of implication would serve to construct non-extensional units consisting of sentences alone – only sentences placed in quotation marks. This, however, would constitute an abuse of quotation marks. Hence, instead of this, Quine assumes (1960: 226) that a conditional with no quantifier which has a false antecedent is nether true nor false (G), as shown by the following table:

<i>p</i>	q	if p , then q		
1	1	1		
0	1	G		
0	0	G		
1	0	0		

The extended table, proposed by Cooper (1968: 305, 316), is supposed to embrace the reasonings that contain an unreal conditional in those places where the entire column consists of Gs:

if p, then q		9		
		q_1	0	G
	1	1	0	G
p	0	G	G	G
	G	1	0	G

We may agree that not all conditionals are equally divergent from the formula of the material implication, just as not all are equally close to the formula of the strict implication. Conditionals, in which we express our DECISIONS or constitute a SIGN CONNECTION: If the weather is nice tomorrow, I will go for an excursion; If I do not cancel my trip with a telegram, I will arrive on Thursday evening (Czerwiński 1958: 269–270), agree with the material implication insofar as they fulfill the condition $\sim (p \land \sim q)$ while not fulfilling the condition $\sim \diamond (p \land \sim q)$; this is done by conditionals resulting from the substitution of constant values in the place of variables in a certain true formal implication: $\prod_x (f(x) \supset g(x))$.

Yet this conformity of the conditional with the material implication relies at most on the fact that the logical inference from if p, then q is $p \supset q$, but not the other way round. In addition, as noted by Strawson (1952: 82–90) and Mitchell (1962: 61–68), $p \supset q$ is logically non-contradictory to $p \supset \sim q$, whereas if p, then q is contradictory to if p, then not q. What is more, $\sim p$ $\supset p$ is a non-contradictory formula, whereas *if not p, then p* is intrinsically contradictory (Mitchell 1962). Also, the transitiveness of the conditional and its being subject to contraposition are occasionally questioned, in contrast to the material and strict implication. Finally, it is pointed out (e.g. by Stalnaker, in Harper et al. 1981: 41–55) that the negation of a conditional which has a possible antecedent is equal to a conditional with the same antecedent and an opposing consequent. There is more: although [(if p, then q) and (if p, then q)]q, then r) and p, therefore r is a compulsory truth, not always [(if p, then q)]and (if q, then r)], therefore [if p, then r], and this is in contrast to the material implication (Dale 1974: 92). It is well known that the logical result of a negation of an implication is its antecedent, whereas this does not apply to the real conditional. Neither does the real conditional apply to the tautology:

$$[(p \land q) \supset r] \supset [(p \supset r) \lor (q \supset r)], [(p \supset q) \lor (\sim p \supset \sim q)] \supset [q/\sim q]$$

and $[q \lor (p \supset \sim q)] \supset [q/\sim q]$ (Gazdar 1979: 83–84). Finally, when the implication is regarded as identical with the conditional, it is impossible to explain why the words *only if* are used in order to perform a conversion $p \supset q$ (McCawley 1974: 632–635). Hence it is possible to observe that when colloquial reasonings are formalised by replacing *if*, then with an implication together with conjunction, disjunction and negation, non-intuitive results are often obtained (Cooper 1968: 300). It is even suggested that in the cases when a conditional sentence is used as a formulation of a material implication or a logical result, the conjunction *if*, then appears in an untypical role. This sentence is not equivalent to, or possible to infer from, the physical impossibility of the fact that p and at the same time not q (Downing

1975: 85), which weakens the option of interpreting a conditional as a material implication. What is, therefore, sometimes assumed is the infinite hierarchy of the concepts of implication as the inferences of the consequent from the antecedent according to the rules distinct from the given type of implication (Myhill 1975: 183). Some scholars assume that every "it implies" or "entails", i.e., "it logically results" can be replaced with a appropriately chosen conditional sentence, but it is not always possible to do it the other way round (Belnap 1975: 164). We see that non-standard implications, i.e. not only the strict implication, but also the constructivist, intuitionist and other ones, are increasingly widely used in multiple-valued logic.

One of the main directions in the analyses of the conditional undertaken over the last fifteen years is the theory based on the SEMANTICS OF POSSIBLE WORLDS. For instance, in 1968 Stalnaker (Harper et al. 1981: 41–55), as his starting point taking Ramsey's (1950) test for the assessment of the possibility of accepting hypothetical assumptions, assumed that the conditional is true in the real world, if and only if, its consequent turns out to be true in some other possible world, delineated by the antecedent. This possible world must possess, among others, two characteristics: (a) the consequent is true in it, (b) it differs from the real world as little as possible (Stalnaker in: Harper *et al.* 1981: 87-104). The concept of the possible world naturally focusses the attention on the unreal conditionals, i.e., the conditionals which express impossible condition (Chisholm 1946; Goodman 1955; Rescher 1964). Stalnaker is correct in assuming that the formal characteristics of the conditional function, together with the set of facts, are not enough in order to determine the truth-value of such a conditional; the pragmatic approach is indispensable.

Obviously, the stance which Stalnaker is assuming is that conditionals require a different analysis than material implication (Stalnaker in: Harper *et al.* 1981: 193–210). In this, he differs from Grice (Grice 1975), who defends the concept of material implication as useful in the analysis of the conditional while trying to solve the well-known paradoxes of implication. Yet both scholars understand that to limit themselves to semantic solutions, without taking the pragmatic ones into consideration, would deny the chance of achieving satisfactory results in the analysis.

Stalnaker's reflections refer to conditionals which express possible or probable conditions as well, whereas D. Lewis (in: Harper *et al.* 1981: 57–85) limits himself to conditionals with verbs in the conditional mood, focussing above all on the conditional with the word might in the consequent. Like Stalnaker, Lewis accepts the conception of a distance between the possible worlds. He arrives at different truth-conditions of the unreal conditional i.e., one expressing an improbable or impossible condition.

The concept of possible worlds directs the analysis of the conditional towards the examination of the issue of PROBABILITY, and especially the conditional belief (Stalnaker in: Harper *et al.* 1981: 97–128; Lewis, *ibid.*: 129–147). This is the second direction of the analysis. Lewis's investigations support Grice's view that material implication may be of use in the interpretation of the conditional in the indicative mode.

The third direction of the analysis of the concept of the conditional leads towards the DECISION THEORY (Gibbard, Harper in: Harper *et al.* 1981: 153–190).

The fourth area of investigation concerns reflections regarding the connections between the conditional in the conditional mode with the subjective ASSESSMENT OF OBJECTIVE CHANCE (Lewis, *ibid.*: 267–297) that considers the time factor (Frassen in: Harper *et al.* 1981: 323–340).

The analysis of the conditional is also aided by the investigation of the PRESUPPOSITIONS. For instance, it is assumed that the presuppositions of the conditional are presuppositions either as to the antecedent or as to the consequent, minus the presuppositions required by the consequent and logically resulting from the antecedent (Karttunen 1971 and 1973). Assuming those suppositions to be semantic, they could be interpreted as a hypothesis as to the relations between the truth-value of the entire conditional and the truth-values of its components. If, however, those presuppositions were pragmatic, they would be compatible with the truth-value approach to *if, then.* In this case, pragmatic presuppositions would rely on accepting that what is explicitly presupposed is, for the duration of the conversation, included into the scope of common assumptions shared by the speakers, and that it is the antecedent that contains such a presupposition (Stalnaker 1974: 210).

What intuitions can be found in the more recent and newer analyses of the concept of the conditional, undertaken from the standpoints of the semantics of possible worlds, the probability theory, the theory of decision or the theory of presupposition? In order to answer this, I shall refer, perversely, to Roman Ingarden's analyses published in Polish almost fifty years ago. This is because I think that the intuitions which lie at the foundation of that traditionalist approach are very similar to today's ones, and that, in addition, this approach has one serious advantage: the reflections refer almost exclusively to the concept of the so called real conditional, i.e., one expressing probable or possible conditions and not – as they often do today – mainly to the unreal conditional, i.e., one with improbable or impossible conditions; and the doubts of whether these two types of conditional can be described by a single theory are, in my opinion, well grounded. In addition, in Ingarden's considerations the apparatus of formal logic or probability theory does not overshadow the conditional itself, and hence there are no doubts whether the main issue at stake is the conditional, or perhaps the improvement of the conception of possible worlds, the probability theory, the theory of decision or the theory of presupposition.

Ingarden is interested in the conditional "judgement" If A is B, then C is D, seeing it as a coherent whole and not as a couple of judgements or statements. The function of the word *if* in the antecedent is as follows:

(a) it lifts the function of stating from the word *is* in the antecedent;

(b) it sustains, but also modifies the function of stating fulfilled by is, and the way in which it characterises the corresponding state of affairs, i.e. not categorically. This state of affairs (P), which corresponds to the antecedent A is B, is dependent on the state of affairs (Q), which is defined by the consequent C is D: the case, in which P would occur without Q, is ruled out;

(c) if in the antecedent indicates that something more is going to come after the antecedent.

The *then* in the consequent, in turn, indicates that Q occurs as "resultant" in the face of the dependence of P, and in addition the *then* together with the preceding *if* modify the meaning of *is* in the consequent, so that it differs from the *is* occurring in an independent categorical judgement A *is* B, the difference being as follows:

(a) existentially, the is in the consequent characterises the state of affairs Q as an existential complement to the state of affairs P;

(b) with regard to stating, the *is* in the consequent, i.e. in the statement C is D, ascribes the entity B to the entity C not straightforwardly and unconditionally, but in reference to the possible and not the actual occurrence of the state of affairs P. A conditional judgment as a whole fulfils the function of stating; its components do not. It states decisively that the state of affairs P (whose actual occurrence it does not determine) is existentially not independent in reference to Q, so that Q occurs with the occurrence of P. A conditional judgment is not the case that the state of affair P "desires" existential independence or that it does "desire" dependence, but not in reference to the state of affairs Q. Thus, the judgment: If New York is a port, then 5 is more than 3 is false, whereas If 3 is more than 5, then the soul of Socrates is blue is nonsensical, because it constitutes an existential

relativity of something which cannot occur (Ingarden 1972: 260–322).

2. THE CONDITIONAL VS. THE STATE OF AFFAIRS

Let us now consider to what state of affairs shall refer a given conditional used in such-and-such a way. It will be a gloss to the description of mainly the semantic aspect of conditionals.

We distinguish three types of states of affairs:

a) existing ones,

b) the conditionally non-existing ones, i.e. those which do not exist now, but used to exist once or will exist in the future;

c) absolutely non-existing ones, i.e. those which neither exist now nor existed in the past, and will never exist in the future.

We do not consider the expression: "a given conditional used in a given way refers to an absolutely non-existing state of affairs" to be tantamount to: "a given conditional is false." This is because the latter:

(i) according to some views, refers to the truth- conditions of the material implication;

(ii) according to some scholars, does not permit the relativisation of the conditional to such-and-such use;

(iii) is incompatible to the concept of a sentence referring to an absolutely non-existent state of affairs, i.e. in the cases when such a sentence as

Don Kichot hailed from La Mancha

is, from a certain point of view, considered to be true, whereas the sentence

Don Kichot hailed from Mexico

as false, or in the cases when the given conditional in a given use refers to an absolutely non-existing state of affairs, but we wish to qualify it as neither true nor false.

Trying to establish whether a given conditional as a whole refers, in a given use, to an existing state of affairs or an absolutely non-existing one, we must consider, separately, two issues:

(i) what is the truth-value of p and the truth- value of q as isolated simple sentences;

(ii) what is the character of the conditional connection which, in our opinion, occurs between the states of affairs P and Q, which correspond to, respectively, p and q.

In order to answer the second of the above questions, we usually attempt to determine three issues:

a) whether the conditional connection really occurs between P and Q in the given use of the conditional if p, then q, and if it does, then

b) whether it occurred in the past, or is occurring now, or will occur in the future, or whether this conditional connection is timeless;

c) what is the modality of this connection, i.e. whether in this case we are dealing with a condition which is real or unreal, actual or potential, possible or impossible, probable or improbable. Some of these modalities of the conditional connection are externalised in the grammatical moods of the conditional which, by the way, are different in the grammars of particular languages.

Let us now consider examples of the real conditional.

If John had free time yesterday, he was working in the garden. If John has free time now, he is working in the garden. If John has free time tomorrow, he will be working in the garden.

None of the above conditionals state whether John had, has or will have free time, or whether, respectively, he was, is or will be working in the garden. To what state of affairs does such conditional refer, then?

Let us begin with the conditional in the present tense. It refers to the following state of affairs: the conditional connection occurs between the fact that John has free time and the fact that he is working in the garden. The occurrence of this connection is an existing state of affairs every time that both the state of affairs referred to by the antecedent and the state of affairs referred to by the consequent exist at the given moment. In contrast, in the case of both p and q being false, or p being false and q being true, the connection is not severed, but at the given moment (the "now") the above-mentioned conditioning does not appear in any of them; in this sense, we might say that this conditional in the given use refers to a state of affairs which in the given circumstances is absolutely non-existing.

When p is true and q false, however, e.g. when John does have free time now, but he is not working in the garden, the conditional connection has been broken; this conditional therefore refers to an absolutely non-existing state of affairs, but in a different sense than above.

An example without the word *now* must be set apart as different from the above:

If John has free time, he works in the garden.

This sentence can be understood in two ways: that the condition under discussion always occurs or it happens sometimes.

In the first case, only when p is true and q is false the conditional as a whole refers to an absolutely non-existing state of affairs. On the other hand, when p and q are false, or when p is false and q true, it is impossible to state whether the entire conditional refers to an absolutely non-existing state of affairs or to a conditionally non-existing one.

In the second case, in turn, i.e. when the above conditional is interpreted as implicitly containing the addition "it is sometimes so," even if p is true and q is false, does not allow to determine whether the entire conditional refers to an absolutely non-existing state of affairs or to a conditionally non-existing one.

Real conditionals in the past or future tense in which p and q are true refer to a relatively non-existent state of affairs, and in all other cases – to an absolutely non-existing state of affairs. *Mutatis mutandis*, we may repeat here the observations made in reference to conditionals in the present tense with the addition of "it is sometimes so" or "it is always the case."

Let us consider a conditional in the probable mood.

If the train driver fainted and stopped pressing the pedal, the engine would automatically begin to slow down.

Every time p and q in such a conditional are true, and at the same time refer to an event concurrent with the moment at which this conditional is used, this conditional refers to an existing state of affairs. If both those events occurred in the past or both will occur in the future in reference to the moment in which this conditional is used, the entire conditional refers to a relatively non-existing state of affairs. In all the remaining combinations of the truth-values of the antecedent and the consequent this conditional refers to an absolutely non-existing state of affairs. This analysis, too, could be developed in a way analogous to the analysis of the real conditional in the present tense.

Finally, a few words about the unreal conditional, i.e., one with impossible, e.g.

If lead had smaller specific weight than wood, it would float on water.

If used correctly, e.g. when its antecedent is genuinely a false sentence, this type of conditional refers to an absolutely non-existing state of affairs.

On the other hand, a conditional in which the antecedent is false and the consequent is true, e.g.

If lead had smaller specific weight than wood, wood would float on water,

expresses an absolute assumption of an non-existing condition for a wellknown fact that wood floats on water; it therefore refers to a absolutely non-existing state of affairs.

It is however possible to overlook those seemingly unreal conditionals in which the antecedent is false, e.g.

If wood had smaller specific weight than lead, it would float on water,

or

If wood had smaller specific weight than lead, lead would float on water.

These are, in reality, real conditionals incorrectly used in the form of unreal conditionals.

A pragmatic issue which emerges at this point is the acceptability of making use of a conditional in these circumstances.

3. THE CONDITIONAL VS. THE SPEAKER

The following gloss refers to the speakers' attitude towards the conditional. But not towards every sentence *if* p, *then* q. This is not only because a conditional may be expressed by making use of conjunctions other than *if*, *then*. On the other hand, it is possible to formulate various compound sentences containing the conjunction *if*, *then*, which are conditionals only from the formal point of view, e.g.

If she did not manage to sway him, then what could others do.

or

Who would get tickets to that concert if not him.

or

He lost very much, if not all, on that deal.

Sentences similar to the above are not taken under consideration here. Neither do we extend our analysis to elliptical sentences, such as

If I remember correctly, you used to keep a hamster

or

If I may advise you, don't go out with her.

even though what we intend to say also refers indirectly to the latter.

When are we ready to use a conditional, i.e. either formulate it or accept that the speaker had the right to apply it in the given situation?

First of all, we require the conditional to have a conditional connection occurring (at least in our view) between its antecedent and its consequent. Hence, we shall consider unacceptable a conditional in which such a connection cannot be found. This refers to even those conditionals which consist of sentences which we unreservedly admit to be true. Whereas we consider the sentence:

If 16 is divisible by 4 with no remainder, it is also divisible by 2

to be used correctly from the point of view of pragmatics and to be true, the sentence:

If 16 is divisible by 4 with no remainder, insufficient air pressure in car tyres causes them to wear down more quickly

we shall consider to be bizarre and unacceptable, even though we are certain that both its antecedent and its consequent are true.

The second reason for our refusal to consider the conditional as correctly used is our conviction that its antecedent is false. Knowing that 12 is not divisible by 8 with no remainder, we do not feel at liberty to state the following conditional:

If 12 is divisible by 4 with no remainder, it is also divisible by 2

even though we notice the veracity of the consequent and we agree that there occurs a connection between the content of its antecedent and its consequent, even though this connection is not at all easy to define.

The supposition to make here is that the factor which prevents us from accepting the above conditional is the feeling that – in the face of the falsity of the antecedent, which we realise – in our view there is no conditional connection between that antecedent and the consequent. The content connection (both sentences concern the divisibility of numbers) and the subject connection (divisibility by 2, generally dependent on the divisibility by 8) are not accompanied by a conditional connection, or rather they are not accompanied by our feeling that a conditional connection was, or could be, realised. And perhaps it is this perception that the condition is impossible to realise prevents us from accepting the above conditional as allowable.

In the above case, what is at stake is not that the antecedent is false, but that WE ARE CONVINCED AS TO ITS FALSITY. It is well known, after all, that we often express our *nihil obstat* in reference to conditionals which genuinely have a false antecedent, only we do not realise that fact.

For example, the majority of philosophy students would not object to the sentence:

If Susanne K. Langer translated Cassirer's "An Essay on Man," she knew German,.

thinking (mistakenly) that Susanne K. Langer translated that book from German and (correctly) that the fact that she knew German can be inferred from the fact she made a translation from that language. By the way, Susanne K. Langer translated from German another book by Cassirer, i.e. *Language and Myth*, whereas *An Essay on Man* had been written in English in the first place.

What, in turn, is the impact of our belief that the conditional's consequent is false, with the concurrent lack of belief that its antecedent is false, on the assessment of the pragmatic allowableness of that conditional?

Let us imagine that someone is formulating a sentence:

If this light bulb is adapted to lower voltage than the present one, it blew out, at the same time seeing, or at least believing, that this light bulb has remained intact. This kind of language behaviour is considered an infringement of the pragmatic norm. We assume that since the speaker has qualified the consequent as false, it ought to be concluded that he had been working as to the kind of the conditional connection, and refrain from uttering the conditional altogether, or, on the basis of the *modus tollendo tollens* principle, he ought to have guessed that the antecedent was false as well, and hence should have formulated an unreal conditional.

What is, therefore, our attitude to a conditional in which the components are, in our view, related to one another content-wise, but in our opinion they are false? The answer depends on the type of conditional. An unreal one we shall accept without reservations; the application of a real conditional in those circumstances we shall qualify as an infringement of a certain pragmatic norm.

The above refers to, respectively, these two sentences:

If a whale were a fish, it would breathe through the gills.

and

If a whale is a fish, it breathes through the gills.

Not only our conviction that the components of the conditional are false prevents us from considering it to be used correctly. The same happens when, while looking for a content connection and the conditional connection between the antecedent and the consequent, we are concurrently subjectively certain that both those sentences are true, e.g.:

If Warsaw lies in Poland, it lies in Central Europe.

We are generally more ready to consider that the following statements are more natural:

Since Warsaw lies in Poland, it lies in Central Europe.

or

Warsaw lies in Poland, and hence in Central Europe.

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The fact that we prefer them to the conditional is an indicator that in a normal communicative situation we expect the conditional to provide us with some information, concerning, among others, the decrease of uncertainly as to the trueness of its components, especially the trueness of its consequent.

The conditional

If Warsaw lies in Poland, it lies in Central Europe

does not fulfil this function owing to our knowledge: after all, we are perfectly aware of Warsaw's location anyway. From this point of view, therefore, this conditional is used incorrectly in the sense that it is simply unnecessary.

But the same conditional may appear in a different role, for instance as a premise in a reasoning, for which the second premise is the sentence:

Warsaw lies in Poland,

and the third premise

Central Europe belongs to the circle of the Graeco-Roman culture.

Premises are sentences about whose trueness we are subjectively convinced. Hence the fact that in the conditional

If Warsaw lies in Poland, it lies in Central Europe.

used in this manner both the antecedent and the consequent are sentences in whose truth we believe does not undermine the correctness of using this conditional; in this case this conditional is, in fact, indispensable.

It seems that the analysis of a conditional, in which the antecedent is, in our opinion, a true sentence, but concurrently we are not convinced that the consequent is true, could proceed in the same direction.

We shall consider using such a conditional as to be pragmatically justified and correct when it constitutes an expression of an enthymematic reasoning according to the *modus ponens* scheme, as in the sentence:

If 1984 was a leap year, the consumption of electricity was larger in February of 1984 than in February of 1983.

If 1984 was a leap year assumes a dual role: (a) of a conditional clause, which constitutes a part of one of the premises, i.e. of the sentence:

If 1984 was a leap year, the consumption of electricity in February was larger than in non-leap year.

and concurrently (b) without the conjunction *if*, as the second premise,

The year 1984 was a leap year.

In these circumstances, the speaker's conviction as to the truth of the sentence

The year 1984 was a leap year,

i.e. the antecedent of the conditional, is requisite. At the most, it could be assumed that the sentence:

The consumption of electricity was larger in February of 1984 than in February of 1983, since 1984 was a leap year

would be more appropriate in these circumstances than the conditional.

When, however, the above conditional is not elliptical and does not serve as the expression of an enthymematic reasoning of this kind, the speaker's belief in the trueness of the antecedent lowers the pragmatic correctness of making use of that sentence.

Let us, in turn, look at a conditional in which our belief concerns the truth of the consequent and is not accompanied by our being convinced that the antecedent is true. For instance, a conditional referring to a person who received a state award

If he deserved it, he received a state award.

may be interpreted as one or the other:

(a) formulation of the component of the information in accordance with the second law of *reductio ad absurdum*, $q \equiv [(p \supset q) \land (\sim p \supset q)]$, i.e. the sentence:

If he deserved it, he got the state award, and if he did not deserve it, he also got the state award, and the other way round,

(b) or the non-elliptical conditional. In the first of the above cases, making use of the cited sentence seems appropriate from the pragmatic point of view, in the second its appropriateness is questionable.

The above observations are fragmentary, because they refer only to the real conditional in the Polish language, and omit the unreal and possible conditionals. Neither do they take under consideration the differences that can be noted when conditionals expressed in diverse ethnic languages are compared. Moreover, they do not contain an analysis of the allowability or pragmatic correctness of the use of a conditional by a speaker as contrasted with the qualification of the conditional by the recipient.

All this requires a separate, comprehensive and perceptive analysis.

The above observations are also sketchy. As it has already been mentioned, they constitute a small gloss to the investigation of the conditional and material implication. Another gloss of this kind is found in my book *Wstep do semiotyki* (*Introduction to Semiotics*, Pelc 1984: 267–280). Both then and now, my reflections on the subject of the conditional deviate from what Kazimierz Ajdukiewicz (1965: 248–265) wrote about it, but at the same time they refer to his observations regarding pragmatic aspects of using the conditional (which he expressed only in a footnote). They refer to his observations, but do not repeat them, as I attempted to develop some of them and modify others.

The sketch and fragmentary character of the current essay does not permit me to formulate the conclusions with due responsibility. The intentionally exaggerated sentences that would signal some issues and invite reflection on them would perhaps be more appropriate here. They are as follows:

Whereas in the case of implication what matters is its semantic side, in the case of the conditional it is the pragmatic side. — Do not ask whether a conditional is true or whether it consists of true or false sentences. From the standpoint of the admissibility of using the conditional, a different thing matters: whether its user considers the antecedent and the consequent to be true or false. — The content-related connection between the antecedent and the consequent has its equivalent in the subject connection between those events or states of affairs to which, respectively, the antecedent and the consequent of the conditional refer. — The conditional connection is a type of the subject connection; the conditional connection between events or states of affairs must be distinguished from the identically termed conditional connection between the antecedent and the consequent. — Neither the existence of the subject connection, nor, in particular, the existence of the conditional connection between the events or states of affairs is not indispensable in order for the conditional to be pragmatically allowable in the given conditions. — On the other hand, it is indispensable for the user of the conditional to perceive the existence of the subject connection and of a conditional connection between the antecedent and the consequent (for instance on the basis of his belief in the existence of a subject connection), and especially to perceive the existence of the conditional connection between the respective events or states of affairs. — The pragmatic admissibility of making use of a given conditional depends, among others, on the end to which the conditional was used in the given case, and especially on whether it constitutes a component of the reasoning or appears in an extra-inferential situation. In the extra-inferential situation, bearing in mind the pragmatic admissibility of using the real conditional, we require its user (a) to perceive the existence of a conditional connection between its antecedent and its consequent. (b) to not be convinced of the falsity nor certain of the truth of either of these components. In the case of the unreal conditional, we require its user (a) to be convinced of the falsity of the antecedent and the consequent, (b) to perceive the existence of a conditional connection between the negation of the antecedent and the negation of the consequent. — In the assessment of the pragmatic admissibility of a conditional, it is also essential to take into consideration its user's convictions as to the modality, especially as to possibility and impossibility, conditional connection, of the antecedent and consequent. — Convictions of the sender of a conditional regarding the existence of the conditional connection, the logical value of the conditional's components, and the modality of all these elements, may differ from the respective convictions of its recipient. — If an analysis of the pragmatic aspects of the conditional is to be correct, it requires that the points of view of both the sender and the recipient be taken into consideration.

Warsaw, November – December 1983 and May 1984

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Stanisław Dąbrowski ALEXANDER PIATIGORSKY AND YURI LOTMAN ON TEXT AND FUNCTION (AN EXAMINING ATTEMPT TO UNDERSTAND)

Originally published as "Aleksander Piatigorski i Jurij Lotman o tekście i funkcji (Sprawdzająca próba rozumienia)," Studia Semiotyczne 14–15 (1986), 309–326. Translated by Maria Kosowska.

In their article Text and Function (1975), A. Piatigorsky and Yu. Lotman address the issue of MUTUAL relationships between the concepts of text and function. They assume the understanding of the concept of text presented in another article by Piatigorsky (which will NOT be discussed here — see 1975: 114–129). Let it therefore be reminded that it was a non-analytic, globalising approach: "Every text... can be approached as a SINGLE SIGNAL" (115¹). A text is a quantum of signalisation, however, it is to be identified with a communication. Thus, to use the language of information theory, the "grain structure" of the message contained in a communication (Seidler 1965: 5-9) is not taken into account here, which should have resulted in the resignation on the concept of code, since the theory of codes is a theory of registering and transmitting messages by means of grain-structured signals. In such a non-analytic interpretation, even the usage of the notion "text" loses its etymological meaning (*textum* — fabric, texture, structure). Instead of saying that something is (or is not) a "text" of a given culture, it would have been enough to say that something is (or is not) an "object" of a given culture. After all, describing "text," Piatigorsky and Lotman emphasise its "capacity to perform as an ELEMENTARY concept" (100), i.e. one that is

¹Each number in brackets without any indication refers to a page in this book. The citations come from Ann Shukman's English translation of the article in question (Piatigorsky, Lotman 1978).

undividable, and they define text "for working purposes" as "a CONCRETE OBJECT having its own internal features which cannot be deduced from anything else apart from itself" (101). As seen by the authors, a linguistic expression is a "text" in the linguistic sense, while they use the term text to refer to a "text" in the cultural sense (101), but in my opinion it is rather a "text" in the SEMIOTIC-cultural sense, i.e. in the sense imposed by semioticians, present only in their "semiotic culture."

It should be remarked at this point that in this commentary, we will not be able to CONSTANTLY (continuously) adapt to the rising number of reservations and corrections (e.g. consequently use the term "object" instead of "text"), as it would impede on — from a certain point — the contact with the original article. It should be remembered, though, that our reservations accumulate and SHOULD be taken into account globally, even if then they seem... a noisy crowd. After all, they are a gradual, developing reaction to the crowd of flaws and ambiguities contained in the article.

For the issues discussed in the article, it is inaccurate to say that the text MUST "acquire a MATERIAL form in a certain system of signs ("acquisition")" (100), as the SYSTEM is only of importance where gradual encoding and decoding of information occurs, and not — as is the case here — the mere general recognition of the textuality of a message. It would be enough to mention the WAY (kind) of material fixation, as it CAN perform a text-creating function: for instance, writing something down can make it a text (102), but the same CAN be achieved by consolidating it in community memory (103) or by linguistic "supplementary supraorganisation," if we ascribe to these moments (or to some completely different moments!) the FUNCTION of cultural nobilitation and authoritativisation. Obviously, "liguistic supraorganisation on the utterance plan level" (102) was treated in a non-analytic manner, i.e. not as a way to complicate the content plan, but only as a global indicator of textuality (102). It was, however, intentional of us to mention the SYSTEM OF SIGNALS which comprises the system of texts (since texts function as ELEMENTARY concepts of the system of signals). One cannot describe the relationship of "text" and "function" without a third concept: "system." Here, "culture" is (as we may think at the beginning!) considered systemic, while function and text are intrasystemic concepts. The term "culture" is not, as a matter of fact, used consistently; at times its meaning is narrow, specialized, cross-sectional, determined by the authors here, "culture" is a given system of culture (101), a type of culture (105); sometimes, however, the meaning is colloquial, broad, "cross-social," as in the following sentence: "In most human cultures, these principles [i.e. various

systemic principles which constitute "cultures" in the narrow sense — S. D.] are interwoven" (108).

Władysław Tatarkiewicz wrote about Alfred North Whitehead in the following way:

Even a thinker so well trained in mathematics and natural science as Whitehead formulated no definite and clear statements in metaphysics. In his works, we find a sentence: "It is as true to say that God is permanent and the world fluent, as to say the opposite; to say that God is one and the world many, as to say the opposite; to say that, in comparison with the world, God is actual eminently, as to say the opposite; to say that God transcends the world, as, to say the opposite; to say that God creates the world, as to say the opposite." If this is the final conclusion, then — it must be agreed — it is neither definite, nor inviting to metaphysics" (Tatarkiewicz 1950, vol. 3: 449).²

Recognising the MOTIVES of Tatarkiewicz's discontent, let me say the same about Piatigorsky and Lotman: in their works, we find the opinion that culture can be treated either as a "totality of texts" or as a "totality of functions," but the statement is so unclear that it dissuades from culture semiotics (at least practised in this way). In addition, this alternative was not endowed by the authors with the symmetry we would have expected: that culture is either a functionalisation of text or a textualisation of function. The authors say a different thing: should we treat culture as a system of texts, then function is a certain kind (?) of METATEXT; should we treat culture as a system of functions, then text is a DERIVATIVE of function (101). The metatextuality of function is completely incomprehensible. If metalanguage is the "language" of language description and the "language" of scientific definitions (the so called algebra of logic — Ivić 1966: 181), if metalogic is the science of the "language" of logic (or more generally: the structure theory of logic — Czeżowski 1968: 22, Kowalewski 1959: 408), then metatext should (consequently) be a kind of "text" about a text. However, the text itself was defined once as an elementary signal, once as a culturally specified message, and once as a "concrete object." Function, on the other hand, cannot be accurately referred to with similar terms, thus, it cannot be

²It is an opinion similar to that of Immanuel Kant, who said that (because of the impossibility to prove experience) metaphysics is empty for the very reason that it can prove anything: that God exists or the opposite, that souls exist or the opposite, that the world is one or the opposite (Gilson 1968: 162). But, as we know, Piatigorsky and Lotman assume the logical equivalence of concepts, of which any given one can be treated primary, and a certain relativity of concepts being primary. See Lubański 1975: 59, 93—94.

said that function is a "signal" about a signal (= text), a "message" about a message (= text), or an "object" about (?) an object (= text). Moreover, the authors say (inconsistently and unclearly), that (101) the function seems (!) to them EITHER to be "a pure construct" (a research fallacy?) OR an instruction or a possibility of interpretation: "one [which one?! — S. D.] in the sense of which a given text may be interpreted," OR what is indicated or presumed by a text: "FUNCTION ... is one [thing] ... in relation to which ... features of a text can be examined as features of the FUNCTION" (could the *circulus in definiendo* be more obvious? — S. D.); OR, finally (100), a "mutual relationship [thus, also a relation! — S. D.] among the system [of signals? — S. D.], its realisation, and the addresser-addressee of the text." In similar cases, the scholastics would say: *Mutliplex est prius distinguendum* quam definiendum.

If function is a "social role," then it cannot be a "pure construct;" if it is a "relationship," then it is neither a "capacity to" (100), nor a "construct," ETC. In this simultaneous multidefinition, the functional, colloquial, personificating ("role," "capacity") sense of "function" was confused with the formal, mathematical, relational or correspondence-related one ("function is a mutual relationship"). There is no point in mentioning the "addresser-addressee of the TEXT" (100), as the article DOES NOT suggest that this factor has any theoretically significant justification when describing the functioning of SYSTEMS (thus, the last segment of the definition can be partially reduced). Likewise, it is pointless to mention the social factor ("the community which creates the text"), as here, "social" only has the meaning "cultural:" the "social role" of the text is its cultural role, and the "social functions of texts in a given culture" (110) are no more and no less than cultural or (more generally) signal functions (see 100). Thus, the sociological dimension of this semiological article is a pure illusion (I do not insist, however, that it must be so).

Indubitably, Piatogorski and Lotman tie two ideas together: that function is a "metatext" and that it allows (?) for the interpretation of a text. But does it really? It can be concluded from the descriptions that function (whatever it is) CREATES the text, makes a message a text, determines the "textuality" of the message etc. But then, we cannot speak logically of the "function of a text" (as it would be a pleonasm). There is no "function of the text." We could only speak of a function assigned to a MESSAGE which MAKES it a text. Unable to agree with the thesis about the metatextuality of function (100), one could ask whether "text" is not a metamessage according to this concept. Text is a functionalised message. There is no text without a function (which

would still be a cultural one), and vice versa: being textual equals being cultural (and functional). Here, the assumption arises that one of the terms is excessive, that (in this description) there is no difference between function and culture, or RATHER: that culture is a certain function; that varieties of function are equivalent to varieties of culture³ (do extracultural functions exist?). Having this reservation in mind, let us ask what the message gains thanks to its function (i.e. when it becomes a text). The authors' answers are as incoherent and metaphoric as was the case with the question about the function itself. The function makes a message a text, that is, it endows the message with (cultural) existence, (cultural) sense, (cultural) significance, (cultural) value, (cultural) dignity. In this list, one could (must?!) replace the word "cultural" with the word "functional," which will reveal the tautological nature of the authors' answers. "Textuality" means the same as "sense," "existence," "value," "significance." After all, the "written culture" is no more and no less than the functionality of the written message. Cultural = fulfilling a function = meaningful = respected = true. Indeed, these pseudosynonyms are too many.

"Nontext" is a message not fulfilling a function. There is no such thing as "written text" (contrary to 101), but there is a written message, WHICH (in a given culture) is a "text" or (in another) is not. It is pointless to speak of the "text point of view" determining the nature of "truth" (104), as this point of view is simply the "culture," which elevates some kinds of messages to the status of being "true," "textual," "meaningful." According to Piatigorsky and Lotman, the "truthfulness" (= "textuality") is determined by its function; thus, to introduce the concept of "point of view" (= "position") is to introduce new excessive synonyms and to SEEMINGLY develop the theory. An argument which supports my opinion is that the same authors speak of a point of view which is internal or external (to a given culture). The former is one determined by the given culture; it is related to its texts, although is not defined in respect of these texts (as it "defines" them). Likewise, the "value relationship" is the same as "cultural relationship," a relationship defined by the given culture.

It seems that (to reveal and reduce the crowd of synonyms) it must be assumed that culturality was also identified with authoritativeness. After all, the term "true," appearing in the article a couple of times, means here (in the given contexts) no more than "authoritative," demanding respect (or respected). This would have been a very limited (not to say: derailed)

³"The system of text meanings inherent in that culture" (106) means the same as "system [of the meanings] of a given culture."

understanding of "truthfulness."⁴ The authorities are not to be questioned here. The sentence "Truthfulness is assigned to a given text" (104) is — once again — a tautology (as a matter of fact, there are plenty of tautologies in the article and it is impossible to list them all), since the authors perceive the words "textual," "true," "functional," "valuable" as synonyms (I call this an overuse of pseudoequivalence). Since they escaped from DEFINING culture (and defined text only "for working purposes," which is a kind of theoretic dodge⁵), we also have to draw conclusions from the ways of use of the word "culture" about meanings which result from them.

I already mentioned that written "culture" is the same as "functionality" (= authoritativeness) of the written form of message. Symmetrically, "oral culture" is the "functionality" (= authoritativeness) of the oral form of message. But since authoritativeness is sometimes assigned with "supplementary supraorganisation" (to a proverb), with an oath (to a declaration), with personal prestige (to a declaration) or with a guarantee of witnesses (declaration) — should we therefore speak of a culture of "supplementary supraorganisation," a culture of oath, of personal prestige, of witnesses etc.? Such a conclusion could be drawn from the article. The "cultures" would then begin to multiply like Memmi's "sociologies" ("sociology of forcing an open door," "sociology of desire," "sociology of imagination," etc. — Memmi 1973: 80–103) and, TAKING INTO ACCOUNT the constant overlapping and connecting of the arguments of oath, dignity, and witness in social practice (!), and the fact that the "cultures" would start to form hardly definable hybrids, THEN, such an understanding of culture is subject to the same criticism (leading to confusion on the verge of absurdity) which Roger Trigg pointed against Kuhn's "paradigms" and S. E. Toulmin's and R. W. Beardsmore's

⁴Let me mention a remark by Piaget that in the case of little children unilateral respect (i.e. the power of authority) results in a situation where first moral values are a slavish following of the rule imposed, the spirit of which is not understood, but the letter of which is accepted. It is thus the transgression which allows the moral sphere to become autonomous and the rules of conduct to become a system (Piaget 1966: 43).

⁵Among others, Wittgenstein first considered words to be "images of meanings," but later perceived them as tools (hence his claim that one should examine the usage to find the meaning, to which phenomenologists ascribed objective existence; he identified meaning with the manner of use), which referred to the 13^{th} -century rationalist tradition, e.g. to Thomas Aquinas. Ayer considers this identification to be "a step of doubtful value." Since, for example, the analysis of the manner in which a THEOREM is used should not question the theorem itself, because the theorem and its analysis are placed on different levels (reductionism limits an expression about X down to an expression about non-X), then a similar reasoning can be applied on the level of TERMS. See Rosnerowa 1975, Trigg 1977.

"lifestyles" (Trigg 1977: 16, 26, 31—33, 64—65).

GIVEN the fact that the "point of view" is identical with the "function," and the function, as seen by Piatigorsky and Lotman, corresponds DIRECTLY to the culture (hence the monofunctionality of "culture" understood in this manner), THEN the expression "cultures with a hierarchy of points of view" (104) does not fit into their own theoretical plan, as it leads to the utterance: "cultures (1) with a hierarchy of cultures (2)," that is, to an equivocation fallacy (aequivocatio a casu) resulting from using the term "culture" both in the colloquial (1) and the definitive (2) meaning. This equivocation was already mentioned in another example. Correspondingly, the following sentence: "the same values (1) will occupy different places in the value (2) scales of these different types of culture" (105) is a hybrid of tautology ("cultural value scale" = "culturality," "culturedness" scale) and equivocation: the word "value" is used once in the colloquial (1) and once in the "semiotic" meaning (2). The authors should have said: the same QUALITIES will be perceived as values in some cultures and in some not (just as: the same messages will be considered "texts" by some cultures and by some not). Likewise, instead of saying: "the text is significant ("sanctified") because [?] it is a text" (105), it should have said: the message is a text, WHICH MEANS it is significant ("sanctified"), important etc. The following sentence is indeed a battology: "the text (1) is significant (2) because [?] it has a particular meaning (3) which determines its functional (4) value (5)." But, as we know, 1 = 2 = 3 = 4 = 5 (of course within the approximations resulting from the pseudosynonyms). To the series of synonyms, we should also add "semiotic meaningfulness," expressiveness, suggestiveness, "cultural function" (109), as in Chekhov's story the reason for Olga's bursting into tears at the incomprehensible word "dondezhe" was that she perceived it as religiously highly expressive ("significant," suggestive). Piatigorsky and Lotman will say: highly "semiotic" (106). It appears that the maximum semiotic "meaningfulness" equals zero linguistic meaningfulness.

Let me ask one more time: why force words to SIMULTANEOUSLY serve mutually exclusive meanings? In fact, it can be concluded from this semioticcultural approach that culture (or rather, the various "cultures") is a domain of "mysteriousness" and suspended COMPREHENSION which can only regain its rights outside of culture. Piatigorsky and Lotman claim that every culture has its own intracultural commentator (interpreter; 107). Is it again "comprehension" (i.e. specific comprehension, pseudo-comprehension) that is meant here? But COMPREHENSION would rather lead us OUT OF the culture (the domain of "suggestive" incomprehensibility); even the authors say that "the addressee is interested not only in the truthfulness ["cultural truthfulness" — S. D.] of the information, but also in the ["extracultural"? — S. D.] information itself" (107), and THAT is exactly why "together with the text necessarily arises the figure of its interpreter" (107). But should the interpreter hinder the interest in "the information itself," that is, to support the... incomprehensibility of the "text," in the same way as "ritualisation" does, acting openly at the pole of incomprehensibility? It seems to me just another variety of the one-sided understanding of culture. One can get the impression that the intense one-sidedness "shows up a latent tendency" (107), a polemic one. What according to the authors is characteristic for the functioning of mechanisms of all cultures refers actually only to (to use the cryptoterm) "Tibetan" cultures and its task is to serve THEIR "rational decoding" (107).

"Culture" is reduced here to the moment of authoritativeness (the same applies for the function), but it is a moment without any internal structure. One cannot speak of "the system" of a GIVEN (particular) "culture" in the NARROW sense. Systems can be only discussed on a supracultural level (e.g. oral culture vs written culture, manuscript culture vs print culture etc.), analogously to the saying that "railway signals, the red and the green one, create a system within which they are opposed to each other" (Milewski 1969: 10). But text and function create no "system" (of a "culture"?) in the way that green and red colours do in the railway signalling system.

The only way to diversify the stiff qualitative "text — nontext" alternative would have been to introduce a "quantitative" moment: the degree to which a message is marked with authoritativeness ("functionality"). It seems that instead of speaking of the "degree of text semiotic meaningfulness" it would have been enough to say "degree of textuality," degree of being a text (108). Depending on the degree of being marked, something is a text to a greater or lesser extent, e.g. it is valued more that a testimony is given as on oath than that the person who gives it is a dignitary (or vice versa); it is valued more that the testimony is supported by witnesses than it is given as on oath (or vice versa), etc. But then (as I have already mentioned), the cultures begin to overlap in a manner that can in no way play an ordering role. The sense of the term "culture" is here arbitrarily too narrow. We read: "the masses of linguistic messages circulating [!] in the community are perceived [!] as nontexts" (101). This means that there exists extracultural social circuits of linguistic messages, that is to say, it is possible to socially perceive things which do not exist culturally (because we also read that TEXTS "are THE SOLE ONES, from the point of view of

the given culture, TO EXIST," 101) and there exists some precultural "types of social self-organisation" (15). This would mean that a member of the community participates in innumerable "cultures" at the same time which could multiply on any level of specification. These remarks are enough to belie Piatigorsky and Lotman's opinion that according to THEIR approach, "culture is a synthetic concept" (101). In their approach, behind every function (more or less specific) lies a corresponding culture. The axiology of culture understood in this manner is an egocentric axiology on the verge of solipsism, a primitive axiology of a single sign which does not recognise the existence of only the positive values of others, but also of negative values as a whole (evil = lack of good). Within it, something that is different (= someone else's) is at the same time "evil" AND non-existing. It is the axiology of monolithic cultures. The concept of "text" is in this case, of course, a normative concept (the concept of message is neutrally descriptive), but it is incorrect and in fact senseless to claim that "texts ... are handed down as fixed norms" within a culture (103). But it is clear that the "culture" itself is a "norm," a gauge, a criterion (Lempicki 1966), and the "text" is what meets its conditions. To say: "written culture," "functionality of the written form of a message" and "the norm of the written form of a message" — is to say the exactly same thing. The concept of norm comprises several meanings: validity, authoritativeness, significance.

The preliminary alternative, either of the culture as a totality of texts or the culture as the totality of norms, could now be subject to reformulation. Its point is either to normalise texts or to textualise norms. To make use of the expression "material form" (102), which in the article is of no use, one could propose a formal (and thus primary) and material (and thus secondary) understanding of culture. Culture in the formal sense is a system of norms (if norm is a "culture" in the narrow sense), and in the material sense — a set of texts corresponding with the norm; that is to say, the norm creates culture, it is a necessary and a sufficient condition of culture. This proposal cannot be reversed, thus Tatarkiewicz's criticism does not apply to it. But it does not have a separate "culture" lying behind each norm and therefore speaking about a system of culture is in this case possible. For Piatigorsky and Lotman, the linguistic norm is subcultural (!), while for me it is one of the norms of culture, although my understanding of culture can in neither of the cases be identified with the colloquial one. It is easier to speak (or: it is more justified to speak) of a system of norms than of a (cultural) system of texts, although it could be assumed that a SYSTEM of norms must (can?) be in a way reflected in a SET of texts, which would be quite similar to an

expression in the article: "features of a text can be examined as features of the function" (101). One can also conclude from these remarks that the authors are wrong in their claim that, if we see culture as the "totality of functions" (= a system of norms!), then "text and function [= norm] can be ... investigated on one level" (100). The norm and everything that it SUBORDINATES (similar to: "function and everything that is DERIVED from it") cannot be discussed on the same level.

If somebody claims that "culture is the totality of texts" (105), they cannot maintain that the emergence of texts is a sign of the emergence of culture (105), but rather that the emergence of texts of a certain kind is AS MUCH the emergence of a given type of culture. For Piatigorsky and Lotman, the sentence "culture is the totality of texts" is not logically followed by "culture is a megatext." They assumed a signal-based, globalising understanding of "text" as a "fact" or "object" (not a structure) — and saying that culture is a text, they would ascribe the same non-analytic, monolithic character to the concept of culture. For somebody who perceives culture as a whole as a "semiological" text, it could neither have a structure nor be a system. The expression "structural code of the culture" could not apply to it (Piatigorsky and Lotman use it interchangeably with "cultural code system," 106). What is more:

- 1. Cultural function creates text. But if the culture itself is a text, then, WHAT is it created by, by which function? Who cannot answer this question should not speak of culture as a text.
- 2. If culture is a STRUCTURE (?) of texts (Piatigorsky and Lotman speak of a "structural code of the culture"), then it is the structural moment that constitutes it and not the textual one.
- 3. Who sees culture as a metatext (100) cannot see it as a megatext.

3a. It is worth mentioning that Piatigorsky and Lotman introduce another category: "text supracommunication" (107), which for them is a commentary to a "text" made illegible by "culturality" (!). Such a commentary should rather be referred to as "metatext," because: a) it IS a commentary to a "text," b) it is "subject to" a given culture, it "serves" the culture and is in this sense one of ITS "texts" (see p. 111: a remark about the negative attitude of counterculture to literary criticism expressing the views of the dominant culture), it could be maintained, though, that a norm of a culture is represented by its text and the addressee of it, while the commentary constitutes a metaculture: a second-level esotericism which comprises not only the explained object, but also the technique of the explanation. Not every member of a community can participate in a given "culture;" not every member of a given "culture" can be its commentator.

But according to the authors, does a separate "culture" really lie behind every "function" (= norm)? They seem not to even notice that they violate their own approach. For instance, "not every message is worthy of being written down, but everything written down takes on a particular cultural significance, becomes a text" (101). This sentence SEEMINGLY refers only to the issue of the textualising (= sacrifying, authoritising) "fixation." But the beginning of the sentence says something much more complex: apart from the "cultural" (ritual, technical?) significance of FIXATION, there also exists a substantial (moral, sacred?) one and it is RIGHT ("dignum et iustum est") that it be enclosed in the form of the fixation. Because, obviously, one has first to DISTINGUISH the CONCEPTS of graphicality and sacredness in order to the them together (e.g.) firmly and permanently (perhaps even identify them). But even "identifying" them, we have no doubt that it is the sacredness that ennobles the graphy and not vice versa; even if the nobility of the graphy has become to a certain extent "autonomous." As it seems, Piatigorsky and Lotman would have to interpret this (after revealing it) as an overlap of graphic and sacred "culture," but is it enough to speak of an overlap of graphic and sacred "function" (norm?, principle?). After all, they also introduce the SUBSTANTIAL (not only functional) understanding of "meaning," e.g. saying that in a "nonclosed culture" the text "has a particular [general linguistic! — S. D.] MEANING which determines its functional value" (105) — and they do so, albeit at the cost of the ambiguity of the word "meaning" [Polish: *sens* — sense; translator's note].

Also ambiguous are the words "meaning" [Polish *znaczenie* — meaning; translator's note] and "message" (106), as the authors speak of "textual" (and linguistic) "meaning," "general linguistic" (and cultural) "message," but they ALSO use both these words without the modifiers.

Another proof of the SEEMING consistency of Piatigorsky and Lotman's approach: it was said that in a "written culture," what is fixed graphically is "accepted as the SOLE ONE TO EXIST" (101), which can only mean: the SOLE ONE TO HAVE CULTURAL SIGNIFICANCE. But right after that, the authors say that what is written takes on a PARTICULAR CULTURAL SIGNIFICANCE. It follows, however, that what is written is not the sole one to have cultural significance, or that there exists at least precultural or extracultural significances.⁶ Analogously: "in relation to a nontext, a

 $^{^{6}}$ This is an absurdity resulting from being placed on the level of culture things that

text has SUPPLEMENTARY MEANING" (103); here, one could think that the extracultural meaning is basic, and the cultural one — supplementary. The linguistic dimension of the message, as well as that related to "everyday, practical purposes" (103),⁷ was pushed down to the subcultural level ("the pretext stage is the preculture stage;" 105). But it is obviously arbitrary to consider what is scientific, poetic, legal, religious, ethical, medical (etc.) as "cultural," but not what is linguistic ("everyday;" 106), because what is linguistic is allegedly "natural" (106). It cannot be assumed that culture is LIMITED TO "secondary modelling systems." As a matter of fact, the meaning designed this way ("culture" is "a given system of culture") is apparently too narrow for the authors themselves; they say, for instance, "IN THE SPHERE in which the utterance is received as a text" (104), although they should have said, "in the culture in which...," similar to: "in a preliterate culture..." (102). Correspondingly: "a poem is not received as a text for the definition of the scientific, religious, or legal POSITION..." (104), although, according to Piatigorsky and Lotman's concept, it would be appropriate to say "culture" instead of "position," because, if we avoid being consistent, 1. we make the impression that our own proposal is a burden to us, 2. we foster misunderstandings.

Piatigorsky and Lotman not only recognize the extracultural existence of "nontextual" message; they even speak of a "nonmessage." They see an example of it in Kosoy's views, who only saw in the cross "the meaning of the primary message — the weapon of execution" (106), or, to use the an expression coined by Antonina Kłosowska, "an interactional *residuum*" (1981: 607, footnote in the subject index). But then, it has to be said that 1. the word "meaning" was used here in the extracultural sense (Kosoy did not conform with Christian culture and its symbology); 2. "message" (= announcement, [Polish: *komunikat* — communication; translator's note]) is a synonym of "message" [Polish: *przekaz* — message; t. n.] and therefore the remark about nonmessage is pointless here; 3. the very concept of nonmessage (*conceptus infinitans*) is not, as it seems, effective in terms of cultural studies, because if we place the message outside culture, then were on Earth should we put the "nonmessage?"

The authors distinguish "linguistic semantics" (the linguistic meaning) from the "purely textual" one, while it would be enough to distinguish

which belongs to the level of one of the norms of culture.

⁷We hear a slightly deformed echo of Russian formalism (in Poland associated with Kridlov), which put a distinction between literature and writings of everyday, practical purposes.
meaning from significance (as historians do). The example that follows speaks for the point of my criticism, as a "written contract" is endowed with significance ("validity") depending on whether it is affirmed by oath or by a promise (etc.) (103-104).⁸ Indeed, by now I can see no reason to accept their proposals in terms of terminology and theory, but I can see an effective "urge to partial comprehensibility, ambiguity and polysemia" (107), which they define as a "typical process whereby ... texts become sacred" (106) and ritualised. In my opinion, Lotman followed a far more effective way of discussion (which, after all, evoked less reservations) in his article *The problem of meaning in secondary modelling systems* (published a year later, in 1977), where he used the configurational term of sign and not the synthetic term of signal.

The thesis according to which the criterion of culturality is reversible (103) is substantially correct and culturally important. It helps realise that although each culture holds self-glorifying axiological claims, from the point of view of cultural studies these claims become neutralised — analogously to religious studies. For example, Trigg says: "The affirmation of a particular religion as true is not the role of the philosophy of religion ... A philosopher (qua philosopher) cannot investigate the question of whether Christianity is true, but the question of whether it is something that may be true is of course a philosophical one" (Trigg 1977: 79). This thesis — let us also make a pragmatic digression — should be observed in the practice of cultural policies and protected from its mistakes which are culturally harmful. A similar role should be assigned to the considerations on "Tibetan" and developing cultures, as well as to the warning that a researcher must not impose the norms of his own culture on the investigated one.

Contrary to what Piatigorsky and Lotman say, I believe (strongly in line with my earlier reservations and counterproposals) that there is no "nonclosed" culture, as it is exactly the closure that allows us to separate (constitute) a culture (a system). After all, an open system is in a way a paradox.⁹ Retrospective and prospective cultures (104—105) have each their own type of limitation ("closure"). A retrospective culture sees the history of the world as an external space of "pilgrimage;" a prospective one perceives it as the womb from which it "emerges." The former is a culture of faith and

⁸Again, the difference is blurred between "semantics," "functionality," "significance" ("importance"), because of the so called "purely cultural semantics" = "cultural functionality" = "cultural significance." Not to mention that "functionality" = "culturality."

⁹Berfalanffy's thermodynamic explanation of the theory of open systems is considered questionable by Piaget (1967: 97).

a saved deposit (gift), a value existing "from the beginning" (absolutisation of the primeval experience); the latter is the culture of labour, working to achieve a value (absolutisation of historical experience). The former is conservative (preserving), the latter creative (generating). An intermediate type could be a hermeneutic culture, which is preserving through processing. It is rather the latter that is eschatological (that is, it expects to achieve fullness "at the end of time"). The former — seeing its fullness at the beginning — is rather a mythical, "edenic" culture which believes in the preservation of the primeval fullness of truth (e.g. Christianity) and not in its gradual loss. I do not think ANY culture perceives itself as degrading. An "edenic" culture would be a culture of MESSAGE (not of "text") and transmitting (= traditio), and an eschatological one — a culture of labour and action (= functio). The latter is not just "nonclosed." It EXPECTS its future closing, its "achieving the fullness of truth ... in the future" (105). It seems that only in retrospective cultures (not even in hermeneutic ones!) it is possible to receive a linguistic communication without comprehension but with full respect; the communication is then treated non-analytically as a "significant" non-complex object (108).

Sometimes the authors distinguish 1. monolithic cultures ("with one point of view common to all texts") and 2. hierarchical-paradigmatic cultures ("with a hierarchy of points of view, or with a complex paradigm of them;" 104); sometimes, in turn, they distinguish 3. paradigmatic cultures (with "a single hierarchy of texts with successive growth of text semiotic") and 4. syntagmatic ones ("a set of various types of texts which embrace various aspects of reality and have equal value position;" 108). Subsequently, the authors say that in most HUMAN CULTURES (5.) these two principles are complexly interwoven. Meanwhile, this overview shows that this (typological?) list is already "interwoven" and unclear. Is (3.) not an intermediate type between (1.) and (2.)? The only unquestionable thing is the polar diversity of types (1.) and (4.), although it is not said definitely whether (1.)is the pole of "closed" culture and (4.) that of "nonclosed" culture. But it is in relation to (4.) and (1.) that we should ask whether a culture without of its own paradigm is possible. It also comes to mind that culture understood as a system of norm could be referred to as "paradigmatic" and culture understood as a set of texts — "syntagmatic." And if this remark can play an ordering role, it becomes understandable why the authors' typology is so unclear:

a) too many categories were used as indicators in an inconsistent manner: text, semiotic meaningfulness, aspect, value, hierarchy, paradigm, syntagma, of which the first four can be treated as poorly hidden synonyms;

b) no choice was made between the "functional" and "textual" understanding of culture. In addition: just as the comment about the alternative "functionality OR textuality of culture" (100) lacked symmetry, so did the comment about the alternative "nonclosed OR closed culture" (105). As a matter of fact, both alternatives "are parallel" (104), so the lack of symmetry is perhaps just as "parallel." But another reason lies in the double naming and double meaning which is secretly (and simultaneously) conveyed. It would have been counter-symmetrical to say: in a closed culture (CC) the meaning results from the authority and in a nonclosed culture (NC), the authority from the meaning, thus, two terms would be enough. But Piatigorsky and Lotman introduce the term "meaning" for the NC and the term "significant (sanctified)" for the CC. They treat the MEANING itself as a synonym of authority, and so the basis of the distinction between NC and CC disappears.

It is time to present my general reservations. It seems that in the description of "culture," the "points of view" were confused: the internal with the external one, i.e. the intracultural with the intercultural (culturological?) one. This confusion (as well as the ambiguous — colloquial and definitive — use of the term "culture") results (artificially and falsely) in the paradox of the textuality of nontext (109). Let us take a closer look at what led to its emergence (108).

In a "highly semiotic culture"¹⁰ (i.e. one that is arbitrary, authoritative, thoughtless), "pure textual meanings" (i.e. the purely formal prestige of a "text" which does not require comprehension; its function) tend to intensify and subordinate, if not annihilate, the "linguistic meaning" (i.e. the substantial value of an utterance, its content). Such a culture (as a type) ONLY knows this state. But Piatigorsky and Lotman say that is EVERY "text," function and message war against each other, from which results : 1. in no historical situation can any "type" of culture ("a system of truths and values") achieve an absolute monopoly; 2. no message is subject to absolute "textualisation" (because one should rather say that in every MESSAGE, and not in every "text," "textuality" and message war against each other) or, perhaps, absolute ideologisation; 3. in relation to every dominant culture, "the opposite tendency also exists," i.e. a counterculture which questions the validity ("truthfulness and valuability") of the dominant ideology and establishes ITS OWN "texts" which (IN RELATION to the "texts" of the

¹⁰For examples of various meanings of the terms "semiotic" and "semantic," see: Rosnerowa 1975: 146, footnote 9; Reczek 1978: 440—441.

dominant culture) are countertexts (and only FOR the dominant culture they are nontexts).¹¹ To make use of an example cited by the authors: the teaching of Christ was a text for His followers, an anti-text IN RELATION TO the Pharisees, but FOR the Pharisees (and later FOR the Athenians) a nontext. Only a Pharisee (or an Athenian) — and not a theorist-semiologist could sensibly say that "nontexts fulfil the function of texts."¹² But it is also important to notice that the category of nontext (as that of counterculture) is not very fortunate (and the example of Christ's teaching makes it very clear), because it suggests a lack of inherent positive values of the opposition culture, which possesses so little autonomy that it needs another culture to question; it is negatively secondary. This suggestion is affirmed by the authors as they speak of "a secondary, inverted relationship" (108) and say that "nontexts fulfil the function of texts" (109).

It has to be remembered that they place "message" on the "subcultural" level (notwithstanding the type of the dominant culture). This might allow us to (consequently) think that a counterculture, establishing countertexts, also establishes its own counterideology (its own "semiotisation"), which tries to subordinate "subcultural," "general linguistic" meanings. But the authors' considerations lack decisiveness here:

1. It can be concluded from one sentence that for the counterculture "the value of the message is determined [only? — S. D.] by its truthfulness [? — S. D.] on the level of general linguistic semantic well-formedness and ordinary 'common sense'," which could mean that, if a dominant culture is pure ideologisation ("semiotisation"), a counterculture is pure substantiation ("semantisation," "natural" general linguisticness); then, the mentioning of "truthfulness," which before was identified with "semiotic meaningfulness," would not apply to counterculture.

2. However, in the subsequent sentence (for unknown reasons) we find the idea that the diversification (scaling) of "truthfulness" also exists in a counterculture, thus (?), "alongside the general linguistic meaning, we have to make do with some [what kind of? why? — S. D.] additional text meaning" (109). Given the claim that the counterculture resigns from the "supplementary supraorganisation" to choose "simplicity, uncontrivedness," it is not

¹¹Here, "Lenin's principle of two nations within each nation, two cultures within each culture" (Kuznecov 1977: 76) may be recalled, as well as the thesis (considered by Adorno as Freud's deepest culturological view) that civilisation gradually creates anticivilisation ("discontent in culture") and allows for its gradual establishment (Adorno 1978: 353—355).

 $^{^{12}}$ See e.g. Piagets remarks (1966: 61—62) on the differences in the attitude of younger and older children towards the "truthfulness" of newly introduced rules.

clear what (which socially recognisable moment) becomes a suprasemantic indicator of the new textuality.

Speaking of two "tendencies" constantly warring in every culture (that is, the dominant culture and the counterculture). Piatigorsky and Lotman use the term "culture" in the colloquial sense, as only the "tendencies" are cultures in the narrow, definitive sense. The sense becomes so narrow that we cease to distinguish "culture" from the stylisation of an utterance; the war of the dominant culture against the counterculture from a situational game of style, an example of which is the persiftage epistle of Ivan the Terrible to Bekbulatovich (the subtext of the "self-belittling formulas" is determined by the situation, that is, the actually despotic rule of the tsar). Nevertheless, the epistle does not create a "counterculture" (it does not fight despotism), but it presents within its scheme a mocking reversal of the roles of the ruler and the subject (an advnaton), where the one who mocks is the tsar. Therefore, it is not true that "the authority of the given text principle is undermined" (110); on the contrary, actually it cannot be undermined and is all the more intimidating. Thus, neither in the text nor (contrary to what Piatigorsky and Lotman maintain) in the subtext do we encounter pure "features of a general linguistic message," making their usage of the terms "subtext (general linguistic) meanings" and "subtext message" inaccurate. "The noncorrespondence of text and subtext information" (110) cannot be reduced to the noncorrespondence of text and message, of "semiotic meaningfulness" and semanticness; what follows is the collapse of the ordered eusynoptic table presented by the authors. Moreover, the misuse of the word "meaning" was taken further. In most cases, it was used in relation to the "textuality," sometimes to the "general linguistic meaning," but now we read: "the noncorrespondence of text (S_1) and subtext (S_2) information creates supplementary meanings (S_3) ." Indeed: "literary parody is constructed along analogous lines" (110). Before in the article, the authors said that the function transforms the message into a text (101), that is, it endows the message with cultural meaning. Now, we read the opposite: "the system of text meanings determines the social functions of texts in a given culture" (110). The reason I find this a glaring discrepancy is the (already discussed) failure to choose between the "functional" and the "textual" understanding of culture. Because of this discrepancy, the order of the table is completely disrupted, or more correctly: the idea behind the table reveals is clumsiness. What is more, the description lacks the necessary remark that the "discrepancies" revealed by the table are only possible in an intersystemic (intercultural) context, i.e. between VARIOUS systems

of which each has its own "text semantics" (whence this expression, since before "semantics" was opposed to text "semiotic meaningfulness"?), or (?) "cultural function" (of which another synonym is "pragmatic function").

And so we face the last task of our critical commentary, and perhaps the most difficult (and self-controlling) one: to analyse (and comment) as well as to discuss (and reinterpret) the table itself. Piatigorsky and Lotman continue to use a confusing multiplicity of terms, which leads them to inconsistency. The three vertical columns are once described as "relationships," once — as "levels," "meanings" or even "links" (100—111). Thus, it has to be said that:

1. It would be better to reserve the term "level" for the eight horizontal rows, to which the authors refer as "cases."

2. The terms "relationship" and "meaning" cannot be used interchangeably.

3. The THIRD column should be the column of FUNCTION. If the columns are referred to as "meanings," the function falls within "meanings" and the distinction between columns 2 and 3 is blurred (according to my assumption that it is merely a seeming one).

4. The authors created battological, peculiar terms, as "functional meaning" means exactly the same as "function" and "text meaning" means "textuality" (since "text" is a meaningful message); "the meaning of cultural value" (112) is a battological pleonasm. Either the expression "subtext meaning" is contradictory or the word "meaning" is used in a colloquial way without relation to its definition (thus, this word is ambiguous throughout its entire usage and it is not clear which of the meanings refers to the "meaning" columns).

5. Finally, the expression "subtext message" is either a pleonasm or (rather) an erroneous expression, both when the "subtext" (or better: context) is determined by the SITUATION of the message (as with Ivan's epistle) and when it comes to the alleged "subtextuality" of the message itself. (When a message is elevated to the status of text and becomes a significant message, one cannot say that the message is the subtext of the text. Would it make sense to say that in a culture of engravings in stone — see p. 102 — the NAME of a ruler engraved in a stone wall is the subtext of the fixation (engraving) itself?) So much just for the preliminary remarks, but we must still question the elements of the composition of the table.

Let us now discuss the authors' comments on each of the eight cases (in the same order as Piatigorsky and Lotman did).

Ad 1. The word "text" was used ambiguously; once colloquially, as in: "any one of a number of texts [= pieces!]," and once in the definitive

sense: "a language communication [= piece!] which, in order to become a text [= a significant message]..." Contrary to what the authors claim, what happens here is not a coincidence of message, text and function, but an overlap of the folk "culture" and the literary "culture" (a fairy tale is rendered "literary" — as we can interpret the unclear expression "particular [?] kind of expression"), just as it is possible for the sacred "culture" and the written "culture" to overlap (the revelation is documented in a book). It seems that "case" 1 can be explained in a different way: a fairy tale is a "text" (not only a message!) in folk "culture;" the supplementary "kind of expression" renders it a "text" in the literary "culture;" two "textualities" overlap at the crossing (or verge) of the "cultures," and what results is a kind of "supplementary supratextuality" or intensified textuality. But the table was meant to describe "cases" within a "system" and not those which are intersystematic. As a matter of fact, seven of the "cases" (apart from the eighth) are actually intersystematic (that is, intercultural), which shall be demonstrated.

Ad 8. Here we have... an accumulation of void: a non-functional non-textual nonmessage; a cultural, social, substantial zero! This "case" apparently results from the erroneous interpretation of Kosoy's opinion about the cross (106).

Ad 2. This "case" has been already discussed, since Piatigorsky and Lotman repeat it (extensively). Here we have to deal with the emergence of counterculture (C_2) as a response to the dominant culture (C_1) . For order's sake we shall introduce labels: $T_1 = \text{text of } C_1, T_2 = \text{text of } C_2$ and say that $T_2 = -T_1$, that is, C_2 values what is questioned in C_1 . The fallacy of the authors' commentary lies, among others, in the fact that following the opposition of style and genre (poetry — prose), the authors unjustifiably identify prose with a "general linguistic message" (although prose is characterised by a certain degree of artistry), with "truthfulness" as well as with accessibility — all in all, completely different notions. Bearing in mind that "semiotic meaning" is "textuality," we see how much of the comments consists of a pure accumulation of vocabulary, elaborate and vainly intricate. We read: "the removal of the text from the [previously -S. D.] usual norms of semiotic meaning $[T_1]$ and [?] its outward desemiotization are conditions for the high semiotic meaning of the text $[T_2!]$." Instead of "and," the authors should have said "or," as the previous "norm of semiotic meaning" referred to what is "outward" (e.g. the form of a poem). What is more, the "semiotic meaning" was already spoken of in relation to incomprehensibility (106), so it is again unjustified to speak of "high semiotic meaning" of T_2 ,

which should be "comprehensible" and directly obvious.

Let it be reminded that the object of the discussion is still an intercultural situation (the clash of C_2 and C_1), and therefore it does not seem necessary to use the terms "message" and "function" (the term "text" is enough): to put it simply, SOME "messages" are subject to textualisation in C_2 and OTHER in C_1 . A culture (here I agree with Piatigorsky and Lotman) only contains a "text" (whereby in each culture, a different moment determines the text), OR a "culturally" functionalised message (more briefly: a "culturised" message). It appears to be probable that column 2 is simply C_1 and column 3 is C_2 . Then we could say that in the first "CASE," the later culture tolerates the values of the earlier one, whereas in the second "CASE," C_2 rejects everything that belongs to C_1 .

Ad 3. Since we do not recognise any difference between columns 2 and 3, we shall neither recognise the difference between the "cases" 2 and 3, which according to the authors are "complementary." In my opinion, the sentence: "where $[= C_2!]$ the function of a text (T_2) can be fulfilled only by a message without text expression, ritualised texts (T_1) lose the capacity to fulfil this function" is: 1. excessively full of paradox as a result of the failure to distinguish the particular terms $(C_1, C_2; T_1, T_2)$; 2. only seemingly complex (which is my constant criticism), as it is pointless to speak of the "function of a TEXT" if it is the assignment of a function to a MESSAGE that makes it a text ("text" — according to Piatigorsky and Lotman's approach — is only present in culture as the fulfilment of function "upon" a message; so much for the "text semantics").

Ad 4. Since it is the assignment of a function to a message that makes it a text, then the lack of such a function can be identified with the lack of "texuality" of a message, which is the only thing expressed by "case" 4: cultural "nonexistence" ("semiotic meaninglessness") of a message (not of a "text," which is the author's erroneous claim).

Ad 5—8. "Cases" 5 to 8 should, according to the logic of the table and to the previous remark, refer to "nonmessages" (message is a general linguistic communication) and their (?) position regarding the culture. Meanwhile, the authors' commentary does not follow this logic: alongside the expression "general linguistic" it introduces the expressions "nonsense," "in another language," "incomprehensible," "silent (mental)," "insignificant" — which can be considered neither mutual synonyms nor substantially correct oppositions of "general linguisticness;" referring to "case" 6, the authors use the term "message," although the minus sign in the first column means "nonmessage," as in the second column it means "nontext." The commentary

does not take into account the authors' earlier remark that for Kosoy, the cross was (allegedly) a nonmessage (106). In fact, the point of the scheme is not "messageness," but rather sign comprehensibility (whether of a linguistic expression, an object or a behaviour; silence can be treated both as an expression and as a behaviour). Something can be comprehensible or incomprehensible; it can be also culturally functional (i.e. textual) or nonfunctional (i.e. nontextual); finally, various cultures can tolerate (folk culture in Romantic literature) or war against each other (anti-classicism of the Romantic era). The text of the tolerated culture retains (or can retain, at least to a certain extent) positive textuality in the culture by which it is tolerated; a text of a combated culture is not as much a nontext (i.e. a zero text) as more a counter-text (a text of the "enemy") for the culture by which it is combated. Piatigorsky and Lotman apparently fail to distinguish nontextuality from countertextuality, although their commentary invites such a distinction. Each culture must encounter a different culture, that is, a different (foreign) "system of texts," a system of "different texts" and only then it is possible that, as Piatigorsky and Lotman put it, "the links are displaced and interchanged" (112). Most logical inaccuracies of the article result from the incorrect expression of countertextuality: "texts $[T_1]$ with emphasized [in C_2] expressions are perceived [in C_2] as ... nontexts [that is, as non- T_2 !]" (112). Tolstoy SAW Shakespeare as "too artistic," that is to say, he SAW a text that was DIFFERENT, FOREIGN.

Going back to the table, it should be added that:

1. Piatigorsky and Lotman do not agree that if silence fulfils a cultural function, it is a text of the given culture ("case" 7);

2. they did not adjust the commentary to the table (in "case" 6): the table confirms the textuality (+) of an incomprehensible message, while in the commentary we read that this message "cannot be a text;"

3. the entire paragraph (4.2.2) shows that the authors have no respect for the "intercultural" (and not intracultural) nature of both the table and the questions discussed. They try to conceal it behind synonyms. Their "displaced system" is what we call counterculture, which is not "another case" not included in the table, but rather the case of the countertextuality of "the foreign text," already discussed (Tolstoy's "case").

Finally, the reason for our disagreement with Piatigorsky and Lotman can be revealed and the disagreement itself may come to a conclusion. Contrary to what they say, our opinion is that function and text cannot be separated within a GIVEN culture. Only within ANOTHER culture (in a "displaced system") can the messages of a given culture be subject to

defunctionalisation (or rather: refunctionalisation) or detextualisation (or rather: retextualisation). If C_2 tolerates C_1 , then it assigns its own functions to the functions of C_1 in a cooperative manner. If C_2 wars against C_1 , then it assigns its own functions to the functions of C_1 in a competitive manner (it builds an anti-text upon a text). If we say that scientific or political texts can be used by a community as religious texts, then we speak of a shift from the scientific (or political) culture to the religious one, in other words, of a "crossing" of cultures (together with their texts and functions), of science (or politics) made religious. Here, we have "the absence of a text when the corresponding function is maintained" (113), "secular texts fulfil sacred functions" (112). This obvious fact is blurred by the authors with their ambiguous — definitive (D) and colloquial (Coll) — usage of the word "culture" in the two subsequent sentences: "the description of culture [D] as a set of texts is not always enough for full description. Thus, for example, if, in any culture [Coll], one did not find any sacred texts but did discover certain scientific ones" (etc.; 112). For them, however, a text is a text of a corresponding culture: a sacred text is a text of the sacred culture, a scientific text — of the scientific culture etc., "so that to each cultural function there corresponds an adequate type of text" (113). The authors seem to use the word "culture" in another, THIRD sense (T!), an indirect one: when they speak of types of culture as "repertoires" of NUMEROUS functions (113), and it is only here that one could speak of culture being a system, of the various texts of a given culture (every function establishes its own kind of texts, but obviously not its own kind of culture). It is only with Coll or T that one could consider the table as intracultural (but also, of course, intercultural because of D), and the proposed three-level description of culture — as feasible (that is, to recognise the separateness of columns 2 and 3).

A culture (T) which allows for any function to correspond to an adequate kind of text can be referred to as functional, as a culture of the comprehension of the substantial content of messages. A culture (T) which does not allow that (because it assigns scientific or religious functions to political texts or vice versa) can be referred to as dysfunctional, one that does not distinguish a message from an order; indeed, it can be reduced to the *D* sense and is not a culture of properly fulfilled functions, but a "culture" of functionaries. Thus, again, I cannot agree with Piatigorsky and Lotman.

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Jacek Juliusz Jadacki WORDS AND IMAGES

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Cuomua uo u npoe uomemuu by Juri Lotman, a semiotician from Doprat, has recently been translated into the Polish language.¹ Professor Lotman is a well-known and respected personality not only in his homeland, but also in other countries, including Poland. It might therefore be useful to identify and discuss the elements of the mentioned work which I personally consider objectionable. Perhaps it will inspire the relatively numerous advocates of Lotman's approach to SEMIOTICS to reflect on whether or not they are propagating it simply because they fail to see its shortcomings. Furthermore, Lotman's book is an EXEMPLIFICATION of an entire trend in contemporary SEMIOTICS which my scholarly conscience forbids me from accepting, in spite of my unfeigned APPRECIATION for its CORYPHAEI. For this reason alone I submit the present article to *Studia Semiotyczne*, which TRADITIONALLY refrains from publishing REVIEWS sensu sctricto. My analysis of Lotman's views disregards the POETIC RHETORIC of their phrasing, especially the entire DIALECTIC BACKDROP of his Semiotics (DIALECTIC "contradictions," "opposites" and "tensions"). I shall take the liberty to treat them as signum tyrannidis.

The aspect that I find questionable in Lotman's work are the many significant generalisations, which may be considered erroneous, dubitable or ambiguous. It must be added that in the present analysis 'ambiguous' and 'polysemantic' are not regarded as equivalent. A polysemantic expression is not ambiguous if the CONTEXT determines which one of the many meanings

¹Juri Lotman, *Semiotyka filmu*, translated from the Russian language by J. Faryno and M. Miczka, Warsaw: PWN 1983.

should be taken into consideration in the given case. It must also be emphasised that, not being admittedly flawed, polysemantic expressions are also undesirable. Their use may lead to a misunderstanding regarding the degree of generality of the statements in which they appear.

* *

In the following section I shall attempt to summarise the views (definitions, divisions and statements) presented by Lotman in his book.

LO1. COMMUNICATION is the exchange of information (THE TRANSFER OF MESSAGES).

LO2. A message is the medium of an information (THE BASIS OF INFORMATION)

Diagram 1:



LP1. There are two types of messages:

(a) stimuli (IMPULSES) and

(b) signs (SYMBOLS).

Thus, communication may be divided into pre-symbolic (PRE-SEMIOTIC), i.e. the exchange of stimuli, and symbolic (SEMIOTIC), i.e. the exchange of signs.

LT1. The parties (PARTICIPANTS) engaging in pre-symbolic communication, i.e. the sender (ADDRESSOR) and the receiver (ADDRESSEE), are non-autonomous entities (HETERONOMOUS INDIVIDUALS), i.e. instruments (ORGANS), whereas the participants of symbolic communication are independent (AUTONOMOUS) entities, i.e. individuals (ORGANISMS). LT2. Pre-symbolic exchange consists in migration (TRANSLOCATION) of stimuli, while symbolic exchange consists in rendering (TRANSLATION) of symbols, i.e. encoding (CODIFYING) and reading (DECODIFYING) the message. The transfer of stimuli is always EFFECTIVE; the translation of symbols may not be so.

LO. An utterance (A TEXT) is a collection (A COMPLEX) of signs.

LO4. A language (A CODE) is a SYSTEM of signs.

LO5. A sign is the medium of $\ensuremath{\mathsf{MEANING}}$.

LP2. There are two types of signs:

(a) images (ICONIC SIGNS)

(b) words (verbal signs).

Thus, utterances may be divided into representational (CINEMATIC), i.e. (e.g.) collections of images, and ordinary (NATURAL) utterances, i.e. collections of words. Similarly, language may be representational (consisting of a system of images) or ordinary (consisting of a system of words).

LT3. The main differences between images and words consist in:

(a) the level of PERCEIVABILITY of the medium: the former are less transparent than the latter;

(b) the strength of the connection between the medium and the meaning: in the case of images it is based on similarity, in the case of words – only on (arbitrary) assigning.

LT4. Images also differ from words in terms of content. The former type of symbols is:

(a) more adequate, more understandable and more readable, but

(b) less susceptible to separation (ABSTRACTION), TEMPORALISATION and ordering (NARRATIVISATION).

LT5. Images and words also differ with regard to the manner of enriching the meaning; in the case of images, a meaning may be enriched by means of aggregation; in the case of words – by adding new elements.

LT6. Both representational and ordinary utterances are separable (DISCRETE) and composed of similar components (SYNTACTIC SEGMENTS).

(a) The primary component of representational utterances: a take (A FRAME) corresponds to a word (A LEXEME) in the latter type of communication.

(b) Both types have similar secondary components: sentences (PHRASES), stories (EPISODES) and storylines (PLOT).

LT7. Representational and ordinary utterances differ with regard to the type of meaning they encode. The former are multi-layered, i.e. their original (PRIMARY) meaning is a sign in itself, a medium of a METAPHORICAL meaning (the so-called supra-meaning), other symbols of concepts that are impossible to signify; the latter are single-layered.

LT8. A command of a given language implies the knowledge of:

(a) its LEXIS

(b) its syntax

and

(c) the correlation between the sign and the signified (SEMANTICS).

LT9. Representational language differs from the ordinary language with regard to its lexis: the lexis of the former type is heterogeneous (POLYPHONIC) – it comprises not only (purely) graphic signs, but also verbal and aural (MUSICAL) ones; the latter type is homogenous (HOMOPHONIC) and consists only of words.

LT10. Representational language is open, undefined; ordinary language is finite and defined.

LT11. Sign-based communication may only be successful if the participants are using the same language and if the utterances constructed in these languages are monosemantic.

LT12. If the collective is polyglotic (MULTILINGUAL) and each of the languages used is polysemantic, miscommunication may still be avoided due to the existence of supra-language (META-CODE).

LP3. There are three types of supra-language (in Polish: *nadjęzyk*):

(a) the language of lore (MYTHICAL),

- (b) the language of creation (ARTISTIC),
- (c) the language of science (LOGICAL).

LT13. The role of supra-language is currently played by representational language.

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I am of the opinion that only two of the generalisations presented in Lotman's book and summarised in the preceding section may be accepted without question – namely statements LT8 and LT11. My reservations regarding the remaining statements are as follows:

J1. LO1 is too broad. In fact, only an exchange of words may be regarded as communication.

This issue shall be discussed in more detail below (cf. J13).

J2. The phrasing of LO2 is ambiguous. The *definiens* contains the word *information*, which may signify three things:

(a) a note (INFORMATION sensu stricto)

- (b) news (INNOVATION)
- (c) a surprise (REVELATION).

The same ambiguity applies to the term *message* (a message *sensu stricto*, a report or a surprise) and to the term *communication*; (a communication *sensu stricto*, reporting or surprising).

J3. It is not specified whether LP1 presents an exhaustive division of messages.

J4. Contrarily to LT1, communication may take place not only between organs (of a single individual), but also between individuals.

J5. Contrarily to LT2, the transfer of stimuli may also not be effective: the stimuli may not be received or interpreted (e.g. due to some damage to the channel).

J6. The statements LO3 and LO4 are overly broad. Only a collection of words may be regarded as an utterance; only a system of words may be considered a language.

J7. The statement LO5 is ambiguous. The definiens contains the word meaning, which may signify three things:

(a) the meaning *sensu stricto*, especially the content (CONNOTATION) or the actual (REAL) or imagined (INTENTIONAL) equivalent (DESIGNATION),

(b) the purport (IDEA),

(c) the internal significance (STRUCTURAL FUNCTION).

The statement that "everything we perceive while watching a movie, everything that moves and impresses us, has meaning" is only true if the term 'meaning' is understood in the sense specified in (b) and (c). The same ambiguity appears in the terms *sing* (a symbol, a manifestation or a factor), *utterance*(a remark, a phrase or a product) and *language*(speech; verbalisation or the material; one thing may be here the predicative of the other).

J8. It is not specified how meaning *sensu stricto* (cf. LO5) relates to message *sensu stricto* (cf. LO2). The matter is further complicated by the statement that "signs cannot be devoid of meaning; they cannot not carry any information," whereas "not every message can be the medium of information."

J9. It is not specified whether the division of sings $sensu \ stricto$ (cf. LT9 – aural signs) is exhaustive.

J10. Contrarily to LT3:

(a) The transparency of the medium – be it visual or verbal – is a relative property dependent on the attitude of the user of the signs, not on the type of the sign.

(b) The differences in the strength of the semantic connection between the medium and the meaning do not pertain to the relation between the sign and the supra-meaning (or the meaning and supra-meaning).

J11. Contrarily to LT4:

(a) As in the previous case, the differences in adequacy, understandability and readability do not pertain to the relation between the sign (meaning) and supra-meaning. Incidentally, we can maintain that "a word may be true as well as false" only if we metaphorically understand 'truthfulness'.

(b) Abstract phenomena may only serve as the supra-meaning of images.

J12. LT5 is ambiguous, as it is impossible to identify the difference between condensing and adding new elements.

J13. The similarities between the segments comprising representational and ordinary utterances (mentioned in LT6) is purely superficial.

(a) In the case of representational utterances, segments are syntactically uniform. Thus, a take is either considered a kind of a name and therefore all other segments are names as well, or a take is a unit that constitutes a quasi-sentence, in which case representational utterances would not contain names at all. In addition, there are no reliable criteria for isolating the takes in a representational utterance.² In any case, the statement that it is sufficient to "substitute items with words that signify them, and the sentence will work by itself" is far from accurate.

(b) The units of representational utterances do not at least include the equivalents of interrogatory, imperative and negative sentences in ordinary communication. This makes it impossible to communicate with pictures about some subjective states. In particular, the creator is not able to convey doubt (ignorance), demands (wishes) or objections (disagreement) by means of an image.

J14. Contrarily to LT4:

(a) Single-layer and multi-layer utterances may appear both in representational and ordinary communication.

(b) It would be very difficult to identify a supra-meaning that could not be described in words. For example, the primary meaning of the image of a sinking knife in Roman Polański's *Knife in the Water* is: SINKING KNIFE ("an excerpt from the Polish reality of the 1960s"). However, the sinking of the knife also carries a supra-meaning – it signifies the act of assuming everyone to be guilty of every crime. The sinking of the knife may be made into the meaning of an ordinary phrase 'the sinking of the knife'; thus, the

 $^{^2\}mathrm{This}$ observation was made by professor Jerzy Pelc.

act of assuming everyone to be guilty of every crime becomes the suprameaning of *the sinking of the knife*. Significantly, however, the signs of at least some representational utterances (in THEATRICAL PLAYS, HISTORICAL MOVIES and FEATURE FILMS) require meaning = an intermediate meaning: the primary meaning of the images are the equivalents (e.g. ACTORS) who are, in turn, carriers of the direct meaning (e.g. HISTORICAL FIGURES). Such intermediate meanings are not found in ordinary utterances (see: diagram 2).

Diagram 2:



J15. Contrarily to LT9, the lexis of ordinary language is equally heterogeneous as that of representational language: it contains not only words, but also images that may be provided to help describe words that are not fully

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identifiable (OCCASIONAL) and sounds (the nuances of pronunciation may influence the meaning of the words).

J16. The statement LT10 is ambiguous. Openness or finiteness may be the feature of:

(a) the lexis

(b) the syntax

or

(c) the semantic assignings of the language.

J17. The division presented in LP3 and the statements LT12 and LT13 are ambiguous. The term *supra-language* may signify three different things:

(a) supra-language $sensu \ stricto =$ the language in which all other languages may be described;

(b) arch-code = the language into which all other languages may be translated;

(c) inter-code = the language known by all (most) members of a given community.

J18. In order to fulfil the role specified in LT11, a supra-language needs to be unambiguous.

J19. Representational language cannot act as supra-language for the following reasons:

(a) As noted above (cf. J13b), not all utterances (e.g. ordinary) may be translated into this language.

(b) The language itself is ambiguous.

* *

The critical remarks listed above were presented in the hope that finding a solution for the problems I have identified will make it possible to AMEND the views advocated by Lotman. As opposed to him, I am of the opinion that when it comes to science (and to the Polish reality in general) it is more worthwhile to refurbish old houses than to build new ones. These should be erected only after no stone remains from the old buildings.

Katarzyna Rosner THE INFLUENCE OF TWENTIETH CENTURY SEMIOTICS UPON THE PARADIGM CHANGE IN AESTHETICS

Originally published as "Udział semiotyki dwudziestowiecznej w przemianie paradygmatu pojęćć estetycznych," Studia Semiotyczne 14–15 (1986), 335–341. Translated by Kinga Bulsiewicz.

During the last twenty years it has become obvious that the basic categories of traditional aesthetic philosophy are in crisis, or may be considered inadequate. One of the most prominent symptoms of the said crisis is the change in the analysis method of what traditional aesthetics call "aesthetic experience." The above mentioned change consists in gradual divergence from the theoretical approach that placed the reception of a work of art within the scope of epistemological issues (the analysis of aesthetic experience used to begin with the process of individual perception of an artistic object, understood as a finished object standing in front of the viewer) towards the study of conscious receptive behaviours understood as special processes of social communication. This process is understood as one conducted through, and determined by, society-dependent decoding and institutions of a given culture.

This change of approach resulted in profound differences between aesthetic experience concepts formulated in the 1930s (also by leading Polish philosophers of aesthetics such as Roman Ingarden and Mieczysław Wallis) and those formulated more recently. In retrospect, it is clear that the differences run deeper than ones that may result from separate philosophical schools of their authors and which may have been perceived by them as crucial. The representatives of traditional philosophical aesthetics, regardless of their inclination towards the positivist or phenomenological traditions, always began their deliberations upon the aesthetic experience with the following model situation: A FINISHED OBJECT was placed in front of an INDIVIDUAL RECIPIENT. The paradigm of basic aesthetic categories (artist, artwork, aesthetic experience, recipient) did not account the social, but also the historical aspects of aesthetic acts and phenomena.

Kant formulated a thesis about the impersonality and universality of the aesthetic sphere of life — a conceptualization that took its toll on the subsequent tradition of analysis, inasmuch as aesthetic experiences were treated as belonging to the spectrum of personal freedom, restrained by neither social nor pragmatic bonds. All supra-individual factors shaping the processes of interaction with art were considered secondary; it was believed that such factors might be disregarded if the deliberations are general and concentrate on capturing the important facets of aesthetic experience.

The concept of the subject of aesthetic experience was an obvious premise for these analyses. The subject of aesthetic experiences was placed in front of an art piece and the first task was to identify the qualities of the work, to justify it. If the recipient failed to do the above each time, if aesthetic experiences pertaining to one work of art significantly differed from one another, it simply meant not all of them were adequate.

Certain explanations of discrepancies in perception and evaluation of an art piece were attempted; one solution was to establish crucial qualifications of an individual recipient who is capable of having proper perception and adequate aesthetic experiences. For instance M. Wallis listed the following qualifications: the proper functioning of the senses, receptiveness towards the aesthetic qualities of art and nature, the ability to empathise with others, aesthetic sense rooted in knowledge about artistic styles and symbols, the circumstances of perceiving, the capacity of proper reasoning, etc. Although the author was aware that the model of a perfect recipient, experiencing art under perfect conditions, would never become reality, he still believed that experiences of numerous recipients correct and enhance each other. According to him, the experiences "with time lead to [...] impersonal aesthetic judgements [...] and we can have a strong subjective conviction that they are true even though they are only probable if regarded according to the rules of logic" (Wallis 1968). In the above and other analyses of aesthetic philosophers, the subject of an aesthetic experience was an abstract human being, removed from any particular social and historic matrix. If supraindividual factors, other than the cultural tradition, participated in such a meeting between an autonomous subject and the object of the experience, then they would only interfere with it, they would cause errors in perceptions and judgements. The cultural tradition itself was understood in cumulative

terms that is as knowledge accumulated by the recipient about historical "artistic styles and symbols," and not as the subject's own position on the cultural time line which determines his sensibility or the ways according to which he perceives and interprets things.

While the above described understanding of the subject of aesthetic experience can be found in almost all aesthetic concepts of the first half of the twentieth century, the definitions of the object of such an experience were much more diverse. The aesthetic philosophers disagreed upon the spectrum of characteristics that are attributed to the object, and of those inherent to it. Opinions differed particularly in regard to value: is the object's own characteristic, the characteristic of an attribute, or does it exists only subjectively as a correlate of individual or collective receptive preferences. There were also basic conceptual differences regarding an art work's mode of existence: it was perceived as either a physical object (e.g. by Wallis) or as an object derivatively intentional (e.g. by Ingarden), or as a psychological entity.

Although these differences matter in more detailed deliberations, they do not interfere with the common ground that remained the same for all philosophical aesthetics paradigms as the basis for the analysis of aesthetic experience. According to this common paradigm, an art piece is ahistorically placed in front of an abstract recipient, it has been shaped by its creator, and it is an object of perception. The characteristics, or at least a basic set thereof, of the said art piece are objective and the task of the recipient is to recognise them. If any discrepancies occur, they are due to mistakes in perception or a lack of qualifications on the recipient's part. Philosophical aesthetics — despite the differences between particular concepts — regards the identity of an art piece as an identity of an object. Regardless whether the meaning of the piece was considered in the context of the artist's intentions, or as something autonomous and inherent to the structure of the piece the aim was to defend the art work's identity as a meaningful message.

The herein described paradigm of the subject being pure consciousness and the object being an objective and substantial entity positioned in front of the recipient is not restricted to the aesthetic realm. Modern critics of this paradigm correctly attribute it to the Cartesian understanding of *cogito*, which influenced the whole of modern philosophy. Even though there had been attempts to challenge the said paradigm — on different grounds by Kant, Marks, Nietzsche, Freud and Husserl — it remained the principal governing philosophy well into the twentieth century.

Modern critics of this opposition coming from the fields of philosophy,

sociology of knowledge, structural semiotics and hermeneutics try to prove that the relation between the object and the subject is not primary and absolute. To the contrary, on numerous levels it is constituted by and entangled, often unawares, in presuppositions, which existed before the relationship was formed. An empirical fact is not free from scientific theory; similarly, the category of the perceiving subject existing outside of society and history, beyond the cultural structure is a mostly useless abstraction.

These critical deliberations are conducted usually as a result of interdisciplinary efforts, ones that venture beyond the boundaries of the traditional, specialised fields of philosophy. One such area is aesthetics, a field that built its system of terminology, basic issues and furthermore the grounds for autonomy of its research topic upon these questioned ideas. The feeling of general crisis also affecting aesthetics is not a result of theoretical dilemmas — these cannot be formulated due to the language of traditional aesthetics but rather of the feeling of helplessness when faced with problems of modern art and culture.

In consequence, many aesthetic philosophers began to acknowledge the normative and ahistorical aspect of their analyses. When the conceptualization of aesthetic experience treats its subject as abstract and its object as substantial, this inevitably leads to creating one universal model of all such experience. The above described models are formed by traditional aesthetics. They are an absolutized form of historical ways of experiencing art, which were appropriate for a circle of high artistic culture but are not applicable to new perception occurrences shaped by the structural changes of societies and the emergence of new art forms. Absolutizing a specific type of art experience restricted to the circle of high artistic culture and the values pertaining to this particular circle leads to a peculiar exclusiveness: a situation when non-elite circles with their art experiencing models and often different values remain beyond the scope of interest of aesthetic philosophers.

The traditional paradigm described above was consolidated by the Classical and Romantic German philosophy, the source of many aesthetic terms that remain in circulation even now. This paradigm leads to a mystical description of creative and receptive actions. Aesthetic deliberations on the act of creation concentrate upon its uniqueness and the impossibility of comparing such a work with any non-creative one. An act of creation is thereby described as unfettered action of an exceptionally talented individual. As such it is placed in opposition to work as a social act performed based on production techniques developed by a community, where each participating individual may be replaced by another.

This Romantic heritage of aesthetic consciousness proves particularly inadequate when faced with the modern trend to create art as a team and with the use of technology. However, every artist, not only a modern one, defines himself according to the state of the artistic tradition of his own culture, choosing from the techniques and artistic means developed by that culture. He also adjusts his creation to the available distribution channels. While choosing a course of action he also decides upon one of the roles the society prepared for artists within its structure. In short, artistic creation is a highly socialised activity and this crucial fact is ignored by traditional aesthetic philosophy.

Socialisation of artistic life, use of technology, participation of various institutions, artistic traditions and social perception codes — all these factors influence not only on the final shape of a work of art, but even more so its meaning for the recipients and the true functions it performs in a particular community. The notion that the artist is not the one who determines the meaning of his work, and that this meaning is also it is not by the shape of the piece has lost its novelty for critics and researchers of artistic communication some time ago. And yet the traditional set of aesthetic terms suggests that the process of perception should be analysed as a connection made with the help of a work of art between two entities: the creator and the recipient or, according to non-psychological concepts, between a finished object and a individual properly qualified recipient. Aesthetic philosophy is not able to analyse a situation where a particular text is differently interpreted not only by various individuals but also by whole groups of recipients. It has also failed to explain how it is possible that old works of art gain new meanings or lose their ability to provoke an aesthetic experience for subsequent generations. Another question left unanswered is why the artistic and non-artistic cultural creations may change their cultural functions in the course of the development of a single culture. In summary, aesthetic philosophy proved unable to account for the pluralism of modern culture, on its historical changes or on the social character of artistic activities.

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Modern semiotics of art and culture is one of the interdisciplinary fields that provide tools for analysing the above described issues. From this point of view, the achievements of structural semiotics are particularly profound: it is an attempt to overcome the paradigm of early modern philosophy that led to the crisis of philosophical aesthetics. It should be generally noted that whenever the symbolic aspects of art were mentioned (for instance by the neo-Kantian tradition) or the semiotic character of various art works was noticed (for instance by Charles Morris or Y. A. Richards), semiotic categories were used to analyse the supraindividual (i.e. social) characteristics of experiencing art, which transcend the perception attainable through senses. A sign by its very definition is intersubjective. The sheer acknowledgement of semiotic processes present during an interaction with art meant that an aesthetic experience is not only an act of perception but also of participation in the life of a community. It is this participation that provides the code allowing for a transition from what is perceived to what carries a communicative meaning.

For aesthetic philosophy from the 1930s an artwork was an object that also carried some meaning, for example it referred to something. The semiotic character of art, however, was treated as secondary, it was used to explain the non-aesthetic functions of art. At that time it was assumed that an aesthetic experience is based on perceiving those qualities of an object which are direct in nature. Structuralists, on the other hand, assumed that each cultural behaviour, also an aesthetic one, has a semiotic character, therefore an art piece is not an object but a meaningful structure.

The change in the paradigm of analysis of aesthetic experience was not limited to the acknowledgement of the fact that all cultural behaviours (creations) are semiotic in nature. The main point was THE RELATIVISATION OF THE TERMS SIGN AND MEANING. A sign — so say the structural semiologists — retains its identity only in the context of a particular semiotic system. In structural semiotics the basic category is not a sign or a text (respectively a work of art) but a language or semiotic system. One may speak about a sign, meaning or information only when one can point to a system that provides the said meaning. Upon this one issue all the authors agree, though they may have different opinions regarding numerous other matters: Ferdinand de Saussure, Louis Hjelmslev, Umberto Eco, Yuri Lotman, Roland Barthes, Algirdas Julien Greimas and many others. For the analysis of the traditional category of the aesthetic experience (that is the process of a receptive interaction with an art piece) the work of art and its semiotic functions lost their most basic position, and were replaced with semiotic systems of culture. The semioticians believe that such systems provide meaning for all creations of a culture, as they govern the behaviour of recipients. If we assume that a sign and meaning do not exist outside of a cultural or language system, this leads to the conclusion that an art piece understood as a meaningful structure retains its functions, identity and

meanings only in reference to a defined historical subsystem of a particular culture. Acknowledging that theoretically the language system category takes precedence over the sign and accepting the semiotic understanding of creations of a given culture meant challenging the old paradigm, whose basic assumption of which was direct interaction between the artwork and the recipient. Traditional analyses of an aesthetic experience were all based on the above described paradigm. The semiotic analysis of culture went even deeper: they challenged the opposition that was said to exist between the directness of perception and the intermediary character of semiotic processes.

For structuralists the elementary articulation of the world, by which they mean the distinction between objects, their colours and shapes, means that a network of categories and discontinuities is superimposed over the external experiences. Those are the same categories that form social, cultural and semiotic systems. Based on this assumption, the difference between epistemology, theory of language and theory of culture disappears. This modern "semiotic" version of Kantianism provides its categories with a very wide interpretation. It is upon these categories (understood as particularly human, species-specific capacity to articulate) that the world's cultures are based built from many subsystems and historically diversified semantic structures which encompass and provide meaning for all human social behaviours. Cultures, as well as their essential components the ethnic languages, are social creations. Inevitably, the assumption that the relationship between the object and subject is created by the system of the particular culture leads to the socialisation of the said relationship. Moreover, the way the subject perceives himself and categorises his surroundings regardless of his sphere of activity — cognitive, religious, aesthetic, practical — is determined by a historically defined system of a culture and its proper subsystems.

The systemic understanding of culture lead to a reformulation of many important issues in cultural theory, as well as many aesthetic dilemmas. I shall list a few of them. The first one: thanks to the semiotic approach the identity of an art piece is not connected with its physical existence as an artefact, but with its meaning. Thus understood, the identity of an artwork is a culture-specific identity, and not an existential one. The above allows for an explanation why certain cultural phenomena and cultural creations changed their function in the course of history (that is because the system of culture changed), but also in terms of space — when one culture took up the creations of another.

Secondly, the systemic approach allows for a recognition of the pluralism of modern cultures. The coexistence in one culture of many circuits of

reception (that is many social environments realising various models of interacting with an art work, each targeting different values) may be analysed as a coexistence of many codes of aesthetic perception.

Thirdly, cultural semioticians distinguished between immanent artistic codes and codes of aesthetic perception, which allows for describing the phenomenon of socially diverse ways of understanding even modern pieces not as a disruption of the receptive processes, but as certain regularities resulting from semiotic complexities of cultures and the autonomous nature of its various codes.

Finally, the fourth issue resolved by structural semiotics of culture is the role of supra-individual determinants of creative processes. Semiotics offers terms such as the semiotic system, codes and generative grammar. These concepts were employed for instance by Greimas and Bremond in their efforts to describe the artistic codes for narrative texts as generative grammars.

Describing aesthetic experience in the language of modern semiotic certainly does not solve all possible theoretical problems that make the analysis of this cultural sphere difficult. It allows, however, to escape the concepts of the basic norm and ahistoricism, which dominated the analysis of the processes of interaction with art when described in the language of traditional aesthetic philosophy. Even though artistic and creative behaviours are usually performed by individuals, the semiotic approach allows us to describe them as social behaviours — they take place in the context of socially created systems of a given culture.

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