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AN ATTEMPT AT FORMULATING AN OCCURRENCE-BASED THEORY OF SIGNS

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I. INTRODUCTION

1. The aim of the present article is to delineate a definition of a 'sign' that would fulfill at least two conditions:

First of all, the article shall attempt to formulate the basis for a theory of signs that could be applied to all actually used symbols. This implies that the scope of the term 'sign' is already pre-theoretically known, even though the characteristics of signs are not clear. Even the scope of the term is not very specific — we must therefore make an assumption as to its extent. For the purpose of the present article, 'signs' shall include articulate verbal utterances, exclamations and cries. Signs include expressions that in one way or another depict elements of the world and utterances with no meaning (fictional utterances). The category also encompasses natural biological phenomena, such as a white coating on the tonsils or the decrease in air pressure. Other signs include: wearing medals, certain hairstyles or items of clothing.

The second condition is methodological in nature. Our manner of describing signs: *x is a sign...*, ought not to lead to a contradiction. The sentence: *'A horse' is a sign of a horse* or, more generally: *x is a sign of y*, immediately results in a contradiction, as it is both true (in the case of a person who knows the English language) and false (in the case of someone who has no command of English). Naturally, this discrepancy occurs only if our manner of describing signs is not an abbreviated version of a more precise formula. If a more general and a more precise formula does not

exist, then we cannot avoid accepting contradictory sentences when we use ordinary ways of assessing sign-related sentences. For the mentioned formula not to result in the said discrepancy, it needs to be expanded to: i*n a certain place and time 'a horse' is a sign of a certain thing to a given person.* This method of specifying sentences to avoid contradiction has been known for a long time. It was first described as a legitimate method by Kazimierz Twardowski in his article entitled *On the So-Called Relative Truths.*

2 a. When referring to signs, we usually use the formula: *x is a sign of y* (when specifying item *y*) or *x is a sign that q* (when specifying occurrence or state *q*). In both cases a sign is an item, therefore the abovementioned formulae include the name-type variable *x*. The item may be a word, a sentence, a certain light at the crossing, etc. Very rarely is a sign treated as an occurrence. In such cases the formula ought to be changed to: *the fact that p is a sign that q*; the expression *the fact that ... is a sign that* is to be treated as a unit. This less frequently used formula shall be the basis for our analysis; in the course of the present article I shall try to present the advantages of using it.

2 b. Consider the following example of so-called natural signs (symptoms, indication). We are looking at two people. In one of them arterial blood pressure readings usually show 80/130; whereas the other one normally has the blood pressure of 60/100. If the blood pressure of person A drops to the level normally observable in person B, this decrease will most likely be indicative of something, e.g. exhaustion, developing illness, etc. In the case of person B low blood pressure does not signify anything; it brings no change in activity or mood. It seems that in the analysed example it is not the blood pressure itself, but the sudden change (in the blood pressure readings of person A) that constitutes a sign. In other words: the sign is an occurrence (in this case: the drop in blood pressure), not a phenomenon or an item.

In the case of natural signs and symptoms, the sign is usually regarded as an occurrence. In such situations the correct formula to be used is: *the fact that p is a sign that q* or *the fact that p is a sign of y.* For the time being, we shall focus on the former notation. The formula may be abbreviated to: $Z(p,q)$.

Thus, we have two formulae at our disposal: the traditionally used one – $Z(x,p)$ — and the one we have just presented – $Z(p,q)$. Thus far, reducing one of them to the other did not seem possible, as evidenced by the (unresolved) difficulties in translating natural signs into the language of linguistic signs and *vice versa.* It must be remembered that natural signs are usually understood as occurrences (formula $Z(p,q)$), while linguistic

signs are considered to be items. These problems and the existence of two basic formulae which may not be reduced to one another imply that there is no single universal theory of signs. The lack of such a theory is also evident in conceptual discrepancies. Some scholars wish to reduce the role of signs to forming associations with what is signified; others advocate various interpretations of the concept of 'semantic intention', mostly in relation to linguistic signs.

The present article aims at presenting a draft of a uniform theory of signs, both natural and linguistic. The formula $Z(p,q)$ shall constitute the starting point of the analysis and the basis for our considerations. Let us start with discussing actual and not potential signs. I am of the opinion that potential signs are a derivative of actual signs. Potential signs and their definitions shall be discussed in the final part of the present article.

II. THE SEARCH FOR A COMPLETE FORMULA OF AN OCCURRENCE-TYPE FACTUAL SIGN

1. Similarly to the example of item-type signs presented above, the occurrence-based formula $Z(p,q)$ also leads to a contradiction. For instance, the appearance of a 'ring' around the moon might signify bad weather (more precisely: the place where the halo is observed is likely to experience rainfall the following day). However, the same lunar halo may not be a sign of upcoming rain. These contradictory sentences may both be considered true on the basis of the same justification: for a city-dweller who never really looks at the moon and cares little about the weather (spending time mostly in the car or indoors) the ring around the moon means nothing, signifies nothing, arouses no associations. For a forester who spends long hours outdoors and pays attention to the weather, a lunar halo is a well-known sign of imminent change in atmospheric conditions; an indication which allows the person to plan to spend the following day doing office tasks. If our code does not have the possibility of including factors other than the signifier and the signified, i.e. if it only contains the formula $Z(p,q)$, the abovementioned contradictory sentences cannot be relativised; which means that the risk of contradiction cannot be eliminated. If, however, we relativise the sign with regard to the person, the contradiction will not occur. We will simply state that for person v a lunar halo is a sign, whereas for person v' this phenomenon is not a sign. Let us introduce the corresponding formula: $Z(v,p,q)$. Instead of a contradiction, we get two sentences: $Z(v,p,q)$ and $\sim Z(v',p,q)$. The two formulae are not contradictory. Adding quantification allows us to form the following theorems:

$\bigvee_v Z(v,p,q)$ and $\bigvee_{v'} \sim Z(v',p,q)$.

These two theorems are not contradictory either.

2. Our basic formula requires further limitations and specifications. One and the same person may consider a lunar halo to be a sign of a change in weather in some circumstances, but not in other ones. Imagine Arkady Fiedler looking at the moon over Poland. Seeing a ring around it, the famous globetrotter would probably read it as a sign of imminent bad weather. However, if the same traveler saw a ring around the moon over the Amazon Jungle, he would not regard it as a sign of changing weather conditions, since the high humidity in the region makes lunar halos a permanent feature of the sky. What is more, if the same Arkady Fiedler was sitting in his armchair and thinking of a lunar halo over Poznań, he would treat it as a sign of bad weather; if he thought about a lunar halo over the Amazon Jungle, he would not be interpreting it as a sign. It is apparent that a relativisation with regard to the person is not always sufficient if we want to avoid contradictions. What we also need to take into account are the circumstances of the appearance of the lunar halo. Thus, our formula ought to include one more factor — circumstances. In the analysed example the circumstances are a type of an occurrence: the halo is observable either in Poland or in the Amazon Jungle. Our formula needs to be expanded to include one more sentence-type variable. Let us assume that the letter p and its variants (p', p'', ...) will refer to the occurrence which constitutes a sign. The variable q (with the corresponding variants q', q''...) shall always refer to the occurrence that is signified. The variable s will indicate the circumstances in which the sign appears. The above provisos are significant, as the variables will belong to slightly different sets of occurrences. This issue shall be discussed in detail in a further section. For now, our formula takes the following form: $Z(v,p,q,s)$.

3. The expanded formula does not constitute sufficient guarantee against contradiction. One and the same person may either treat a given occurrence as a sign or not. Take a situation in which a lecturer utters the following sentence: *The contradictions found within the conceptual framework make it necessary to modify or reject it* twice to the same audience. Hearing the utterance for the first time, a student may be paying much attention to the words, but as the lecturer repeats the sentence later, the same student — who already knows the lecturer's point — could be taking notes and is not concentrating on the words at all. The difference between these two instances of listening to the same utterance (two specimens of the same utterance) consist primarily in the attitude of the person who is listening:

first the student is paying attention, but later does not focus on the message, but on writing it down (the content, not the wording). Generally speaking, the objective of the student was different in each case. Such differences in attitude are very common. A doctor may, for instance, diagnose anaemia by looking at the patient's skin, while a non-professional will notice nothing. Naturally, in this case the decisive factor is professional training, but the act of paying attention is crucial nonetheless. One and the same doctor will notice the symptoms of a disease while examining a patient in a clinic, but not notice them while talking to the same person at a New Year party. In order to eliminate the possibility of contradiction from our model of defining signs, we need to introduce a variable that belongs to the set of objectives. We assume that the aim is an event, which has already been justified. The variable belonging to the set of objectives shall be represented with r (r', r'' etc.). Thus, our formula will take the following form: $Z(v,p,q,s,r)$.

4. The basic formula becomes more and more complicated, but it still needs perfecting. Imagine a person looking at the rabbit-duck illusion image in a psychology textbook. In one moment they see a duck, in the next — a rabbit. The perception of the image changes. The reasons for this change are not entirely clear, and thus we are unable to say what such an image signifies. In any case, it is justifiable to say that the image both is and is not a sign of a duck. Since we are not certain of the factor that determines the change in perception, we must assume our variable to be time: in one moment the image is a sign of a duck, in the next it is no longer so. This 'time' must of course be appropriately short. Thus, our formula may take its final form, which includes the variable t belonging to a set of periods (not moments) of time. The formula will be easier to read if the variable t is placed at the very beginning. The final formula for defining signs is as follows:

$Z(t,v,p,q,s,r)$.

Which is to be understood as: During the period t for a given person v occurrence p is a sign of occurrence q, if v has the objective r and circumstances s occur.

III. BASIC CHARACTERISTICS OF SIGNIFYING SITUATIONS

1. The formula we have introduced to describe a signifying situation is not very informative, as it is based on relations between fields that have not been very well defined: there is no finite set of signifying occurrences, occurrences that are signified, circumstances or objectives. Moreover, the

formula does not specify the characteristics of the relations. These issues must be analysed if the meaning of the formula $Z(t,v,p,q,s,r)$ is to be clarified.

2 a. We shall assume that the theses for describing the concept of a signifying situation specified by the formula $Z(t,v,p,q,s,r)$ will be based on the ancient definition of a sign. It postulates that a sign is a known item that provides information regarding something which is covert (temporarily or permanently).

2 b. The 'information' mentioned in the above definition is, of course, a different concept than the one described e.g. by Shanon. The role of the information provided by the sign is to give instructions about the world and facilitate proper conduct. These generalities regarding the notion of 'information' are nothing new, yet they support our claim that a sign is an occurrence. In fact, only occurrences may carry information on how things are and how people should act.

2 c. The ancient definition of a sign demonstrates how deeply embedded in our life signs are. We must constantly foresee situations that are not yet known and use these predictions to avoid threats and pursue desirable goals.

3 a. I decided not to base the analysis on Shanon's definition of information, yet I wish to include some elements of his conceptual framework in my considerations. If we arrive at many possibilities none of which may be disproved, we possess a small amount of knowledge or information. If some of the possibilities have been eliminated in one way or another, then we have gained some information — namely the data that allowed us to discard some of the unrealistic possibilities. When we have eliminated all possibilities but one, this means that we have all information regarding a particular topic. Thus, if a sign carries information, it must narrow down possibilities — it reduces the number of elements in the set of information of a certain type (occurrences). If a sign pertains to one situation only, then eliminating all possibilities provides all relevant information. Signs are usually regarded as pertaining to a single aspect of reality — a single occurrence — and thus are believed to carry all data on the subject. This view seems rather unrealistic. In reality, we rarely appear to have all possible data, there is always some degree of uncertainty and fuzziness. It is particularly evident in the case of artistic signs, such as paintings, sculptures, installations. They are very often deliberately ambiguous. Such ambiguity is also present in many linguistic signs. Take the differences in the use of the term 'mass' in various scientific theories. This ambiguity is revealed only at the next stage of development: at an earlier stage people did not realise that using a given term does not cancel out certain alternatives. Only after the elimination of

a certain possibility did the ambiguity become apparent. Even today we are not able to determine how many possibilities have not yet been excluded — there is some information that we lack, but perhaps in time we will find a way to obtain it. We might then realise that what is now considered unambiguous is, in fact, polysemantic, even if we had not noticed this before.

3 b. I am aware that signs do not always contain all information (regarding a particular matter), i.e. do not refer specifically to one topic. The theory of signs seems very complicated, I shall therefore limit my analysis to a selection of topics or perform a major idealisation — the present article will focus exclusively on monosemantic signs. This idealisation or narrowing the scope of research allows us to disregard artistic signs, which are characterised by a high degree of ambiguity. The same seems to be true with regard to the numerous symbols used in religious practices, which may also be ambiguous, even if this is not intentional. 4 a. To sum up, we assume that a sign is monosemantic and pertains to a single situation (and therefore to a single piece of information). This thesis may be expressed as follows:

Premise 1. $Z(t,v,p,q,s,r) \wedge Z(t,v,p,q',s,r) \rightarrow q = q'$

Since q is a state, an occurrence or a situation, the equals sign between q and q' is to be understood as the equivalence of occurrences of the type described by non-fregean logical systems. Already the first premise specifies what kind of logical system we have to employ in our considerations. According to premise one, if sign (p) signifies both q and q' in the same period of time (t), in the same circumstances (s) and for the same person (v) with the same objectives (r), then q and q' must be identical, i.e. that the symbol pertains to a single state (occurrence or situation — the differences between these concepts shall be discussed elsewhere). 4 b. It is apparent that the ancient definition of a sign implies a differentiation between the signifying and the signified. The sign is known and given, whereas the signified is not. For this reason:

Premise 2. $Z(t,v,p,q,s,r) \rightarrow p \neq q$

4 c. The aim or objective is something that has not yet been obtained, *ergo* is not given. Thus, an objective cannot be identical with a sign:

Premise 3. $Z(t,v,p,q,s,r) \rightarrow p \neq r$

4 d. The circumstances in which an occurrence becomes a sign is not given either, similarly to the sign. In such a situation the objective is not given. Thus, the circumstances of a signifying situation are not a sign in themselves: $s \neq r$.

Premise 4. $Z(t,v,p,q,s,r) \rightarrow s \neq r$

4 e. The time period in which p constitutes a sign must be relatively

short. In the course of one minute the perception of the rabbit-duck illusion image will change several times. This time period is difficult to estimate, since with various optical illusions of this type and the time needed for a change of perception to occur may be longer or shorter. Thus, the shortest period to be considered is the time in which a given occurrence constitutes a sign (i.e. a period shorter than that would not be enough for the occurrence to become a sign). The premise is as follows:

Premise 5. $Z(t,v,p,q,s,r) \rightarrow \sim \bigvee_{t1}[t \neq t_1 \subset t \wedge Z(t,v,p,q,s,r)]$.

The period t may be different for each *p, p', p"* etc. Premise 5. emphasises the fact that we are analysing factual signs. Potential signs may carry significance for hundreds of years — there are many shorter periods within this continuity in which there are such signs. In our formula the period t is, so to speak, filled with the signifying role of the occurrence p.

4 f. We have already established that both the sign and the circumstances in which it appears are not given. Acknowledging this fact allowed us to formulate premises 2, 3 and 4. The premise of these premises is as follows:

Premise 6. $Z(t,v,p,q,s,r) \rightarrow p \wedge s$.

If we transpose premise 6, we arrive at the thesis that if p and s do not occur in the right circumstances, then p is not a sign.

4 g. The ancient definition of a sign, which postulates that signs provide new information, is not only consistent with the occurrence-based theory of signs, but also allows us to notice one more significant factor we ought to consider. An occurrence constitutes a sign if a given person is able to infer new information on the basis of the said occurrence. To define this possibility of deducing new data we will need a new term — 'acceptance'. If occurrence p not only happens, but is also given to person v in the sense that this person accepts it and connects p with q (i.e. accepts the implication: $p \rightarrow q$), then person v also accepts q. In other words: person v acknowledges the new information that was not given.

Premise 7.

$Z(t,v,p,q,s,r) \rightarrow \{\mathrm{acc}(t,v,p) \rightarrow [\mathrm{acc}(t,v,p \rightarrow q) \rightarrow \mathrm{acc}\ (t,v,q)]\}$.

IV. SIGNS IN COMMUNICATION

1 a. The analysis presented thus far was very general and pertained to all types of signs, both natural and man-made (this category also includes linguistic signs), since its aim was to formulate a general theory of signs. Now it is time to consider the characteristics of man-made symbols, with particular emphasis on linguistic signs. However, it must be remembered that signs that are used in communication are a very special category of

symbols in the general meaning of the term. These idiosyncratic features will become more apparent if we narrow the scope of our variables.

1b. In the preceding sections of the present article, the set of occurrences p considered to be signs was not defined. The scope of this variable must now be limited. It is difficult to assume that abstract occurrences, i.e. ones that cannot be explicitly given, may constitute signs. For instance, something as abstract as the principle of logic (by this we do not mean any specific formula, but the abstract structure to which the principle refers) is unlikely to be treated as a sign. Analogically, principles of logic cannot become objectives. An objective refers to something that has not yet occurred, whereas principles of logic are constant; they occur always. The present article shall not contain any detailed analysis of the abovementioned limitations, since such an investigation would require us to deviate from the original topic and define the notion of a 'principle of logic', which would certainly be too broad an issue to fit the spatial constraints of the present publication.

The issue of logical principles reveals a much more general problem. Signs are observable, they are given — or at least so they seem to person v. However, logical principles (and any other abstract occurrence) could also appear to be given. Moreover, we need to consider whether abstract occurrences exist and if so, what their definition is. According to one philosophical framework, only specific occurrences which may be perceived by the senses can be regarded as given. Other philosophical systems postulate that even perceivable occurrences are qualitative, comparable, identifiable and thus — general. Should we then distinguish general structures from specific ones? In my opinion the answer is: yes. There appears to be a great difference between a specific car we notice and its general characteristics. I shall therefore follow the lead of Barwise and Perry (1983) and differentiate between abstract and specific occurrences. However, I wish to make these concepts more specific than the mentioned authors did. My characteristics of the notions will be based on the work of Paśniczek (1992). Given the differences in terminology (Barwise and Perry speak of 'situations' whereas I decided to use the term 'occurrence'), I need to emphasise that I am fully aware of the difference between situations, occurrences, states and fact, but decided not to discuss these dissimilarities in the present article. Let us simply assume that an occurrence may be defined as the referent of a declarative sentence. Some further specifications shall be given, but only as additional information.

1c. According to Paśniczek (1992), items that are involved in specific occurrences (specific items) are universal, i.e. in each pair of properties (sets): $\{X,\bar{X}\}$ ($\bar{X}$is an object of X) a specific item has exactly one element. There is

an infinite number of such pairs, *ergo* a specific item has an infinite number of properties (belongs to an infinite number of sets). We are normally aware only of a very limited number of these properties; therefore an analysis of items may take an infinite period of time and still result in finding new properties. Items involved in abstract occurrences are not universal. There are pairs of properties $\{X, \bar{X}\}$ in which none of the properties characterises the abstract item. What is more, abstract items may be contradictory, i.e. possess both properties from the pair $\{X, \bar{X}\}$. Thus, abstract items differ from specific items in the fact that they are non-universal and sometimes contradictory, and always possess a finite number of defining properties. Paśniczek claims that properties are identical with sets. Thus, abstract items are nothing but families of sets. Sentences pertaining to abstract items in the above understanding of the term are true, if the family of sets belongs to one of its elements, i.e. if the item has a property that is used to characterise this very same item. Sentences derived from other true sentences are also considered true. An occurrence described in a given sentence happens if this sentence is true. The problem of the existence of abstract items is therefore reduced to the issue of the existence of a family of sets or, more generally, the existence of sets as such. This means that the issue under consideration does not create any new philosophical dilemma — the answer is related to the ancient problem of whether sets exist. This issue shall not be discussed in the present article, as it would require us to solve philosophical riddles. It is sufficient to acknowledge the issue and the assumptions we had to make.

1 d. We know when abstract occurrences take place but what are the conditions for a specific occurrence? First of all, specific items (and, by analogy, specific occurrences) may be characterised using the method employed to define abstract items (bearing in mind that specific items have an infinite number of properties). Before encountering a specific item — of which we know that the encounter takes or may take place — we may only name a finite number of its properties. In other words, a specific item is abstract to us (has a finite family of properties) until the moment we come into contact with it. Only after the encounter are we able to determine that even an infinite period of analysis would result in finding new properties; the item becomes specific. In some situations an abstract item never becomes specific. We then assume that this item does not represent a specific object. On the other hand, if we come into contact with a specific item which has all the properties of an abstract item (plus some additional features) we assume that this abstract item represents a specific object. Sometimes abstract items may contain a property which excludes specificity. This property may

be defined as follows: the family of properties does not include any other properties independent of those that have already been specified. In order to facilitate further analysis, we ought to distinguish between the variables belonging to the set of abstract occurrences from the ones which belong to the set of specific occurrences. In our notation, the latter type will be accompanied by the subscript $_1$, whereas variables taken from the set of abstract occurrences shall be presented with the subscript $_2$. When it will not be possible to specify the set, the variable will have no subscript whatsoever. Thus, occurrences p_1, p'_1 ..., q_1, q'_1, ..., s_1, s'_1, ... etc. belong to the set of specific occurrences, whereas p_2, p'_2, ..., q_2, q'_2, ..., s_2, s'_2, etc. belong to the set of abstract occurrences. Variables such as p, p', ..., q, q', ... , s, s', ... ,r,r' are considered to belong to the entire set of occurrences, which includes both abstract and specific ones.

2 a. The character of the signs used in communication is as follows: someone knows something and produces signs so that some other person would also obtain this knowledge. Naturally, what is meant here is not knowledge *sensu stricto*, i.e. actual beliefs, but convictions or thoughts without any assertion. Such a general understanding of the term 'knowledge' may be described using the concept of a sign. The person communicating something thinks, experiences or creates certain signs of a given occurrence. This is a specific experience – p_1. In the mind of the sign user (the person who experiences), the signified possesses as many properties, as the user is referring to. This is always a finite number. The user may want the signifying occurrence to have an infinite number of properties and thus constitute a specific occurrence, yet it is not possible to refer to such a number of features — to experience p_1. Let us describe this fact in the following way: the signified item will be referred to as q_2 – an abstract item. The mental process (the signifying occurrence) is directly associated with occurrences whose items have a finite number of properties, and thus are abstract. This means that the occurrences possessing these properties are also abstract. This significant conclusion — that the direct points of reference of mental signs are abstract – proves to be very useful if we consider the fact that our thoughts can often be incoherent or contradictory. It would be difficult to assume that they refer directly to specific items and occurrences. It must be remembered that specific items (and occurrences) are universal and non-contradictory.

We know, however, that in some cases signs actually (and not only intentionally) refer to specific occurrences. This happens if the signified abstract occurrence has a specific representation (see: our earlier remarks about representation). Such situations will be discussed in a further section

of the present article.

2 b. We have already established that for communication to occur, the sender must possess some knowledge. Naturally, knowing something is not tantamount to communication. The sender has to produce the sign, i.e. write or say something (express it though gestures etc.) This physical manifestation of the sign, a physical occurrence, may refer to knowledge, to an abstract construct formed by knowledge (in the understanding of the term specified above) or to a specific occurrence. Usually it is assumed that signs — occurrences involving talking, writing, etc. — refer to specific occurrences, at least directly and primarily. The signifying occurrences discussed above (thinking, talking, etc.) are, as we know, specific, and thus belong to the set of variables p, p_1 .... In order to emphasise the fact that we are now dealing with special types of occurrences, I shall now introduce variables taken from the set of thoughts — variables m, and from the set of utterances – variables w, w', ... Despite their unique form, these are sentence-type variables.

Signs of communication were usually assumed to be intentionally directed and to posses a certain semantic intention. In our analysis the signs used in communication will be understood as something similar to a natural sign — which means that it may provide new information independently of the sender's intention. Such a definition emphasises the thoughts of the sender, and therefore may be described using two conditions. The first states that speaking is a sign of thinking; the second determines that thinking is a sign of an abstract occurrence (this issue has already been discussed). Thus, a sign in communication may be presented as:

Definition 1. $Z_{com}(t,v,p,w,q_2,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r)$.

V. TYPES OF COMMUNICATIVE SIGNS

1. Before we consider the subject of types of signs, one stipulation needs to be made: the term 'communicative sign' signifies a sign which may currently be used in communication. It does not imply that this symbol is actually employed in real communicative situations. For communication to occur, there must be at least two people involved — a sender and a recipient. Our formula considers only the sender. 1 a. The definitions presented above allow us to distinguish a fairly broad spectrum of various types of communicative signs. All of those pertain to factual signifying occurrences, as both the signs themselves and the referents of these signs as occurrences. The following section will focus on signifying occurrences which play the role of names if their referent is an item; further on we shall discuss item-type signs (when the sign is an item). 1 b. Let us start with a type we might

call a real signifying occurrence. In practice, theories of signs only consider real signs, i.e. those that referred to something actually existing. The only exception is the theoretical framework devised by Meinong: he was interested in expressions that had no actual equivalents. A real signifying occurrence is one that refers directly to an abstract occurrence (a property shared by all communicative signs). Moreover, this abstract occurrence needs to represent a specific occurrence. The notion of representation and the concept of abstract and specific occurrences have already been discussed; therefore they may be employed here. Let us introduce the following formula:

Definition 2.

$Z_{real}(t,v,w,q_2,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge \bigvee_{q1} (q_2$ represents $q_1)$.

An occurrence is a real sign of the abstract q_2, if the abstract has a specific reference.

1c. We have already established that fictitious signs were seldom considered in scientific analyses, even though more and more fictitious expressions find their way into our language (examples include: *The political system of ... is just*; *Soap ... is better than regular soap*, etc.). It is not impossible that real signs will disappear completely under the tide of science-fiction movies and TV shows. The need to consider fictitious signs is therefore great and very urgent. (Note: I use the term 'fictional' with reference to occurrences, whereas the word 'fictitious' is reserved for utterances. The latter adjective is used in relation to the realm of linguistics, the former – in relation to the extralinguistic reality).

A fictitious sign is one that signifies an abstract occurrence which has no specific reference. In this case the intention is not important.

Definition 3.

$Z_{fict}(t,v,w,q_2,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge \sim\bigvee_{q1}(q_2$ represents $q_1)$.

1 d. In the case of a real sign the number of specific occurrences represented by the abstract occurrence was not specified. If the specific occurrences are many, the real sign becomes general as well. If it refers to one specific occurrence only, the sign becomes individual. Thus, the thesis that abstraction is absolutely dependent on generality is disproved. The definition of a general sign will include the well-known concept of a numerical quantifier: $\bigvee^n$ – there exists at least *n,* and $\bigvee^1$ — there exists exactly one.

Definition 4.

$Z_{gener}(t,v,w,q_2,s,r) \leftrightarrow Z_{real}(t,v,w,q_2,s,r) \wedge \bigvee^n_{n>1q1}(q_2$ represents $q_1)$.

An individual sign may be defined in two slightly different ways. Each of these methods shall be given a different numerical indicator.

Definition 5.

$Z_{indiv1}(t,v,w,q_2,s,r) \leftrightarrow \mathrm{Z}_{real}(t,v,w,q_2,s,r) \wedge \bigvee^1{}_{q1}(q_2$ represents $q_1)$.

Definition 6.

$Z_{indiv2}(t,v,w,q_1,s,r) \leftrightarrow \bigvee_{q2} Z(t,v,w,q_2,s,r) \wedge \bigvee q'_1(q_2$ represents $q'_1 \rightarrow q_1 = q'_1)$.

1 e. Real and fictitious signs (both general and individual) specified in the above formulae are of little interest to us. The problem is that very often it is impossible to determine whether a given sign is real or fictitious — we do not know if the abstract that is our knowledge has a specific referent. The concepts that reveal our intentions (i.e. whether we wish the sign to be real or fictitious) have much more significance. The signs in question are those as to which we assume that there exists some occurrences concretising our knowledge and that there exists a given number of these concretisations. Such signs will be called 'intentional'.

Signs are real and intentional if we are convinced that an abstract occurrence – determined by the signifying sentences we utter — represents a specific occurrence. The remaining types of intentional signs also fulfill similar conditions based on our conviction. The definitions of all kinds of intentional signs shall be presented later on. First, however, we need to specify the concept of 'conviction'.

The definition of the concept of conviction shall be based on the analysis I have conducted in the article entitled *O zasadności przekonań*. Such an understanding of this notion is convenient for our present considerations, as it is relativised with regard to the person and the time, just as the concept of a sign. The concept of conviction we shall be using is based on the notion of thinking about something, which will be needed at several stages of the analysis. Let us assume that not all conviction needs to (or can) be verbalised. This significant premise is partly based on the results of my previous research and partly on the thesis of the existence of tacit knowledge.

The definitions of intentional signs are as follows:

Definition 7.

$Z_{realint}(t,v,w,q_1,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge \mathrm{conv}(t,v \bigvee_{q1} (q_2$ represents $q_1))$.

Definition 8.

$Z_{fictint}(t,v,w,q_1,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge \mathrm{conv}(t,v \sim \bigvee_{q1} (q_2$ represents $q_1))$.

Definition 9.

$Z_{generint}(t,v,w,q_1,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge \mathrm{conv}(t,v \bigvee^n_{n>q1} (q_2$ represents $q_1))$.

Definition 10.

$Z_{indiv1int}(t,v,w,q_1,s,r) \leftrightarrow Z_{real}(t,v,w,q_2,s,r) \wedge \mathrm{conv}(t,v \bigvee^1_{q1} (q_2$ represents $q_1))$.

Definition 11.

$Z_{indiv2int}(t,v,w,q_1,s,r) \leftrightarrow \bigvee_{q2} Z_{real}(t,v,w,q_2,s,r) \wedge \mathrm{conv}(\bigvee q'_1(q_2$ represents $q'_1 \rightarrow q_1 = q'_1))$.

The above definitions may be used in many combinations, resulting in further concepts of signs. For instance, a sign may be both real and intentionally real (if the sender was not wrong about the realness of the sign), or intentionally real but fictitious, etc.

1 f. All types of signs discussed above were (with or without the sender's intention) referring to occurrences — which implies: empirical occurrences. The implicit assumption has not yet been revealed; this may only be done after presenting even the most general definition of non-empirical occurrences (e.g. principles of logic). Since logical theses exist and pertain to something, this 'something' has to be determined. Signs that do not refer to empirical occurrences shall be called 'formal signs'. In the general theory of signs this type has been almost completely disregarded.

The category of formal signs includes suppositional signs, i.e. those that engage our imagination without any assertion. Twardowski was the first to distinguish the type, yet suppositional signs were not taken into account in any general theory of signs. In the case of suppositional signs the users do not care if the sign refers to any specific occurrence — they simply make no assumption as to the assertion. Our terminological framework allows us to define suppositional signs: The user does not accept the thesis that the abstracts determined by the thoughts have concretisations and does not accept the thesis that these abstracts do not have concretisations. Thus, a suppositional sign may be presented as:

Definition 12.

$Z_{sup}(t,v,w,q_2,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge \sim \mathrm{acc}(t,v \bigvee_{q1} (q_2$ represents $q_1)) \wedge \sim \mathrm{acc}(t,v \sim \bigvee_{q1} (q_2$ represents $q_1))$.

The above formula is one of many possibilities. The concept of acceptance may be replaced with the similar (but not identical) notion of conviction or thought. Different concepts of 'supposing' are used for different purposes. The one we have introduced is an illustration of an entire group of concepts.

Formal utterances, e.g. theses of logic or their negations (counter-theses), are said not to refer to any actual items. On the other hand, it is claimed that they are used in all kinds of situations, i.e. possess a concretisation in all occurrences. This contradiction may be resolved by making the following assumption: logical theses do not identify any occurrence in the empirical world. This does not mean that they cannot be real in any model, and thus — in a different sense — refer to all occurrences. The type of formal signs discussed above shall be called 'universal signs'.

Definition 13.

$Z_{univ}(t,v,w,q_2,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge [\bigvee q_1(q_2$ represents $q_1) \vee \bigvee q_1 \sim (q_2$ represents $q_1)]$.

Universal signs also have their intentional version. The signs in question are those which we consider to be universal (they may actually belong to this category or not). The formula specifying these kinds of intentional signs differs from definition 13 in the fact that the final two conditions are accepted and not factually stated.

Definition 13.

$Z_{univ}(t,v,w,q_2,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge [\mathrm{acc}(t,v, \bigvee q_1(q_2$ represents $q_1) \vee \mathrm{acc}(t,v, \bigvee q_1 \sim (q_2$ represents $q_1))]$.

It has already been emphasised that definition 12 is only one of many possibilities. We may create new concepts of suppositional signs by introducing different notions of 'acceptance'. The same is true with regard to definition 14. We also need to remember that definition 13 is not monosemantic. It does not involve the concept of acceptance, but the set to which the variable q belongs is not clearly defined. Depending on the size of this set we will arrive at different concepts of a universal sign, i.e. the type of signs used in logic.

1 g. The general theory of signs makes no mention of occasional signs, so important and characteristic for natural languages. Theorists were only interested in 'permanent' signs (cf. the term used by Bar-Hillel 1954). As we know, the referent of an occasional sign is tightly related to the situational circumstances. Our entire analysis is based on the assumption that the meaning of a sign is *always* dependent on circumstances, even in the case of 'permanent' signs. What makes occasional signs special is not their dependence on circumstances, but the *type* of this dependence. First of all, their relation to the situation in which they occur is very systematic. For example the referent of the expression: *We will not go to the cinema today* depends on the time when the sentence is uttered. The meaning of the utterance: *My dog is sick* depends on the speaker, etc. This systematic relation is easiest to describe using the concept of a function.

It should be remembered that we are dealing with occurrences, not items. Thus, the arguments and the value of our function are also occurrences. Such a non-standard understanding of a function appears in non-fregean logical systems, which include the concept of identity needed to define functions. The relation between occurrences (R) is a function, if $R(p,p') \wedge R(p,p'') \rightarrow p' = p''$. Let us agree not to use this lengthy notation and substitute it with the customary: $f(p) = p'$.

In the case of occasional utterances, the circumstance related to the referent is closely connected to the utterance itself, or rather to the action of uttering or writing. This property is strictly associated with uttering, e.g. it is the time or place where the expression is uttered. Thus, the feature may be understood

as a value of the function whose argument is uttering, or, more generally: $s = f(w)$. The referent of the sign is the value of the function whose argument is the circumstance s. Thus: $q = g(s)$. It must be remembered that we are dealing with occurrences and that the act of uttering is specific. In the case of occasional expressions the referent is specific as well. The formula $q = g(s)$ must therefore be made more specific: $q_1 = g(s)$. There is one more factor that has to be taken into account. The q_1 in question depends not only on the circumstances of uttering, but also on what had been thought — on q_2. Thus, the final definition of an occasional expression is as follows:

Definition 15.

$Z_{occas}(t,v,w,q_1,s,r) \leftrightarrow Z(t,v,w,m,s,r) \wedge Z(t,v,m,q_2,s,r) \wedge (q_2$ represents $q_1) \wedge q_1 = g(s \wedge q_2) \wedge s = f(w)$.

This notation is very complex. Let us illustrate the definition with an example. If q_2 = *the dog is sick*; w = *v utters the sentence: Your dog is sick*; s = *v addresses w to another person*; q_1 = *a specific dog of the recipient to whom person v speaks is sick*. This last assumption is dependent both on q_2 and on s, on the direction of the utterance. It is easy to notice that definition 15 is not, in fact, a definition, but only a model of a definition, since different occasional utterances involve different functions f and g. The above formula allows us to easily move from occasional to 'permanent' sentences.

VI. FUNCTIONS OF UTTERANCES

1. The mentioned types of signs may be specified even further by imposing various limitations on each factor in the formula. If we impose certain conditions on the set of people v, we will arrive at the formula for signs employed by a specific group of users. This method may be used to formulate a definition of ethnic languages, without the need of referring to lexis or grammar. Certain languages may be distinguished if we agree to take into consideration only signs which share a certain structure, e.g. grammatical and phonetic features. It is also possible to use this method to define styles of utterances — by introducing a requirement for a certain statistical proportion of grammatical structures, lexis etc. in the set of expressions. It is also possible to impose limitations on the subject matter (i.e. on q_1 and q_2), arriving at the concept of a mathematical, biological, scientific sign etc. Certain types of limitations usually imposed on the sets of objectives and circumstances shall be discussed in a later section of the present article.

2. Thus far it was clearly emphasised that p is different from r, q_1 and q_2.According to our assumptions, circumstances and objectives (r and s) must also be different from one another. Now we shall try to establish which elements of the formula for defining signs may be identical.

2a. Consider utterances that do not seem to refer to anything, such as *Hey* or *Hello*. According to traditional theories, a sign had to have a referent. Jakobson

did introduce the phatic function of language, but his conceptual framework was not in anyway related to the general theory of signs. Our definition formula also includes the referent (q). However, we have not stipulated that q must not be identical with r (the objective), therefore in some special cases these two may be equivalent. The formula would then take the following form: $Z(t,v,w,r,s,r)$. In such cases the referent of the sign constitutes its objective. As we know, objectives may include 'contacting other people' or 'working up one's courage' (e.g. when a *taekwondo* contestant lets out a battle cry while attacking). The difference between these two types of signs lies in the purpose. For the time being it is sufficient to determine the formula for a general teleological sign (i.e. one in which the referent is identical with the objective).

Definition 16.

$Z_{teleol}(t,v,w,s,r) \leftrightarrow\ Z(t,v,w,m,s,r) \wedge\ Z(t,v,m,q_2,s,r) \wedge\ (q_2 = r)$.

A teleological sign may be intentional, if the final condition of the definiens is not fulfilled and its place is taken by some form of acceptance of this condition: $\mathrm{acc}(t,v,\ (q_2 = r))$.

2 b. The terminological framework we decided to use allows us to describe at least some functions of impression and expression (these are numerous). The function of expression is understood as an unintentional exposure of thoughts (or sometimes convictions) or as a revealing of emotional attitudes (intentional, unintentional or even simulated). These differing notions may be categorised under two general models which may be made more specific if need be. An expression has such a function if it is a sign of a certain thought and refers to this thought or its derivative. Both these cases may be defined using the above presented notion of a function. The referent is usually specific; occurs in a given moment. All these observations add up to a definition of the first type of expression:

Definition 17.

$Z_{expr1}(t,v,w,f(m),s,r) \leftrightarrow\ Z(t,v,w,m,s,r) \wedge\ Z(t,v,m,q_2,s,r) \wedge\ (q_2 = f(m)) \wedge\ [(q_2 \wedge\ r \wedge\ s \wedge\ m) \rightarrow\ q_1]$.

The condition $q_1 = f(m)$ in the above definition may seem superfluous, yet it emphasises the fact that occurrences expressed in relation to thinking (feeling, tension, etc.) are specific, even though thoughts refer to general occurrences (q_2). The concept of expression is practically objective. Sometimes, however, much conscious effort is made to make a given person accept this expression. This conclusion has many variants, only one of which will be presented as an example.

Definition 18.

$Z_{expr2}(t,v,w,f(m),s,r) \leftrightarrow\ Z(t,v,w,m,s,r) \wedge\ Z(t,v,m,q_2,s,r) \wedge\ (w \wedge\ q_2 \wedge\ r \wedge\ s \wedge\ m \rightarrow\ q_1) \wedge\ \bigvee_{v1t1}(\mathrm{acc}(t,v',q_1 = f(m)))$.

We shall not focus on any other type of expression, but consider the notion of impression, which has a similar structure of definition. The difference between these concepts lies in the fact that the objective r is not a derivative of the

thoughts of the sender, but a derivative of the thoughts of the recipient. Let us consider this last possibility (we would not be able to present all possible variants):

Definition 19.

$Z_{impr1}(t,v,w,f(v'),s,r) \leftrightarrow\ Z(t,v,w,m,s,r) \wedge\ Z(t,v,m,q_2,s,r) \wedge \bigvee_{q1}[(r \wedge\ q_2 \wedge\ r \wedge\ s \wedge\ w \rightarrow\ q_1) \wedge\ (q_1 = f(v'))]$.

Definition 19. corresponds to definition 17. The counterpart of definition 18 is as follows:

Definition 20.

$Z_{impr2}(t,v,w,\ f(v'),s,r) \leftrightarrow\ Z(t,v,w,m,s,r) \wedge\ Z(t,v,m,q_2,s,r) \wedge\ [(w \wedge\ q_2 \wedge\ r \wedge\ s \wedge\ m) \rightarrow\ q_1) \wedge\ \mathrm{acc}(t,v,q_1 = f(v'))$.

2 c. A function which is sometimes mentioned but not included in Jakobson's classification is 'memorising'. Sometimes we utter an expression in order to remember a given piece of information (or perhaps the exact wording of the expression).

Definition 21.

$Z_{mem}(T,v,w,q_2) \bigvee_{s,r} \bigvee_t [Z(t,v,w,m,s,r) \wedge\ Z(t,v,m,q_2,s,r) \wedge\ [r = \bigvee\ t_1\ (t_1 \subset T \rightarrow\ Z(t_1,v,w,q_2,s,r))]$.

The notions of conviction and a conviction-related sign may also be presented without the need for any changes in terminology:

Definition 22.

$Z_{conv}(t,v,w,q_2,s,r) \leftrightarrow\ Z(t,v,w,m,s,r) \wedge\ Z(t,v,m,q_2,s,r) \wedge \bigvee_{v'}\ (r = \mathrm{acc}(t,v',q_2))$.

Introducing more terms (e.g. the concept of action, reward, punishment, etc.) would allow us to determine a number of other functions or specify the ones that have already been distinguished. However, expanding the number of roles signs may play does not seem worthwhile — we have already enumerated many; what is more, new functions can be described by combinations of existing formulae.

VII. POTENTIAL AND NAME-TYPE SINIGIFYING OCCURRENCES

1. Factual signs are temporary and therefore not sufficient. For this reason, most theories of signs analysed potential signs. A theoretical framework fulfilling all or at least the most important requirements needs to take potential signs into consideration. Let us turn to them now.

1 a. The difference between potential and factual signs lies in the fact that signs of the former type fulfill their signifying role for a longer period of time. We shall define the group of potential signs that used to be factual signs. There are, naturally, other types of such signs. In the case of one type, it is not the signs themselves, but a similar expression (with a similar form) that was once a factual sign. Lacking a definition of the concept of similarity, we shall not define this latter category of potential signs. If we decided to introduce the rules of creating signs, we could introduce a third type of potential signs: ones that had not yet been used as factual signs, but are formed in accordance with the rules.

The first type of potential signs may be described using a partial definition, the so-called conditional definition: if time (t) is the start of the period (T), then w is a potential sign during the period T if in the moment t w was a factual sign. The concept of a previous moment in time will not be analysed in this article (such an analysis was presented elsewhere). We may move on to present the definition of a potential sign:

Definition 23.

t is the beginning of $T \rightarrow [Z_{potent}(T,v,w,q_2,s,r) \leftrightarrow Z(t,v,m,q_2,s,r)$.

The definition is partial, which means that the concept of a potential sign is still fuzzy.

1 b. Although we have no means to define the third type of potential sings, we may attempt to specify what such a definition would have to include. The signs in question are potential expressions in the case of which no similar expression has ever acted as a factual sign. A possible framework for a definition of such a potential sign is as follows: we have a number of simple utterances which form a sign. The components of the sign described as potential (of the third category) are potential in the way specified by definition 23. What is more, the manner in which these elements are combined means they had to be used at one time in a factual sign. This manner may also be disassembled into more elementary methods, which ought to have been used before. In other words, the elements of a sign which might be potential (or at least expressions similar to those elements) and the methods of their correlation ought to have been factual at some point in time. This subject will not be presented in more detail, as I wish to avoid discussing the topic of grammatical rules.

1 c. Thus far we have only discussed sentence-type signs, i.e. signs referring to occurrences. We shall now turn to signs that refer to objects — the so-called name-type signs. Such signs are also a subcategory of signifying occurrences; despite the reference, the sign itself is an occurrence.

As we already know, names can be used in a sentence and thus in certain conditions uttering a name is a part of uttering a sentence. To define name-type signifying occurrences we only need to consider the role of uttering names in simple sentences. Let us make the provisional assumption that a simple sentence consists of a name and one other expression. If w is a simple sentence, then $w = g(a)$. This does not allow us to determine which element of the sentence is a name and which is the other expression. Let us not be misled by the familiar formula. We may also make the following assumption: the q_2 determined by w is a function $f(x)$ in which x is an item-type variable. This assumption must be made even though the concept of an occurrence cannot be used to define items. Thus, the notion of an item (and the concepts of a 'person' and the 'time period') must come from one of the 'substantialist' and not 'eventist' philosophical frameworks. We had previously assumed that a sign refers to only a single state. Thus, if two

utterances differ with regard to the item and not to the item's properties, but only one of these utterances is accepted as correct, then the expressions used in both of these utterances must refer to items — in other words, constitute names. This idea is expressed more clearly in the following definition of a factual name-type sign:

Definition 24.

$Z_{name}(t,v,a,x,s,r) \leftrightarrow \bigvee_{g,a',f,x'}[f(x) \neq f(x') \wedge Z(t,v,g(a),f(x),s,r) \wedge \sim Z(t, v, g(a'), f(x'), s, r)]$.

It is also possible to formulate a definition of a potential name-type sign on the basis of the corresponding definition of a potential sentence-type sign (as we are still dealing with occurrences):

Definition 25.

t is the beginning of $T \rightarrow [Z_{potentname}(T,v,a,x,s,r) \leftrightarrow Z(t,v,a,x,s,r)$.

VIII. SIGNIFYING ITEMS

1. The present article discussed many types of signifying occurrences: factual, potential, name-type and sentence-types. However, most theories of signs focus on signifying items, disregarding sentences or acts of uttering (e.g. a name) and analysing only the products of these actions. In the case of the products of language, the transition from occurrences to items seems particularly easy to make. A sentence understood as an item is the product of speaking; a product of a series of sounds put in a certain order. This apparent simplicity is misleading. Twardowski introduced the division into actions and products into philosophical discourse, yet these concepts have never been precisely defined. The notion of a product of an action may be used to describe the expressions of a language – while our analysis pertains to all kinds of signs, including natural ones, which rarely constitute the product of deliberate actions. Natural signs may be a product of any given type of occurrences. Such an understanding of the term 'product' differs from the one defined by Twardowski. An even more significant complication for the analysis stems from the fact that to formulate a definition of the concept of an item sorely on the basis of the concept of an occurrence and the relations between occurrences it would be necessary to create an entire ontology of occurrences. All possible types of occurrences and the mentioned relations would have to be described in detail, so that the concept of an 'item' and a 'product' could be defined within this terminological framework. This issue is too broad to fit the spatial constraints of the present article; I may discuss this topic in a longer academic work. Let us assume that the concept of a 'product' is already understood. There is one important concept that needs to be added to Twardowski's framework, namely the concept of a special product which makes it possible to reconstruct (any given number of times) the occurrences that caused it. This is the case with regard to sentences and names. They allow us to reconstruct the process

of uttering sentences and names. Sentences and names are related to principles of re-creating original actions (their copies). It is not so in the case of technical products. An item manufactured by one factory does not provide other factories with all the information regarding its production. Years of research may yield no results or lead to discovering a different method for manufacturing a similar item.

Let us assume that the sentence φ is a product of the occurrence p (in most cases the act of speaking). This assumption may be presented as: $\varphi = W(p)$; this concise notation does not make the issue any less complicated. Let us also assume that the name α is a product of the occurrence a, i.e. a product of the act of uttering a part of a sentence — a name. The corresponding formula is: $\alpha = W(a)$. It has already been mentioned that in most cases a sentence is a product of an act of uttering, i.e. $\varphi = W(w)$. According to this provisional conceptual framework, a factual sentence-type signifying item is a product of the act of uttering a factual signifying occurrence. If we disregard the type of the signifying occurrence that constitutes the definiens (real vs. intentional; general vs. individual) we arrive at a model which, if need be, can be expanded and used to define the corresponding signifying items. The model is as follows:

Definition 26.

$Z_{fact\ sentitem}(t,v,\varphi,q,s,r) \leftrightarrow \bigvee_w[Z(t,v,w,q,s,r) \wedge \varphi = W(w)]$.

The formula for a factual name-type signifying item is analogous:

Definition 27.

$Z_{factnameitem}(t,v,\alpha,x,s,r) \leftrightarrow \bigvee_a[Z_{name}(t,v,a,x,s,r) \wedge \alpha = W(a)]$.

The corresponding potential signs may now be specified by means of a classical definition and not, as in the previous cases, a partial one. A sentence constitutes a potential sign within the time period of T, if the corresponding utterances constitute potential signs within the same period of time:

Definition 28.

$Z_{potentsentitem}(T,v,\varphi,q,s,r) \leftrightarrow \bigvee_w[Z_{potentsent}(T,v,w,q,s,r) \wedge \varphi = W(w)]$.

The same is true with regard to potential name-type signifying items.

2. Thus far we have only analysed categorematic signs: sentences and names. Obviously, a comprehensive theory of signs must have some means to define other types of expressions. I am referring to various functor categories. I shall illustrate this richness of sign types with only one example. First, however, I would like to emphasise that — unlike other theories of sings — my framework contains no assumption regarding syntactic structures which would determine *a priori* what a sentence is and allowed to determine the factual role of sentences only later, in the process of semantic interpretation. This procedure, commonly applied in logical theories of language, is the exact opposite of what occurs in real life situations: first a given utterance plays the semantic role of a factual sentence, and only then its structure and the rules for its formulation are determined. My framework aims at recreating this natural order of events.

Coming back to the promised example: we defined the concept of a factual item-type sentence and the concept of a name. In such circumstances it is relatively easy to define e.g. a sentence-making functor for one name-type argument. If a given utterance is a sentence and one of its elements is a name, then the rest of this sentence must constitute the said functor. In order to avoid any closer specification of the mentioned functor (e.g. its position with regard to the name), I shall introduce a general notation $\gamma(\alpha)$, which is to be understood as: $\varphi = \gamma \cap \alpha \vee \varphi = \alpha \cap \gamma$ ('$\cap$' is the symbol of concatenation).

Definition 29.

$Z_{sent-makfuntfornamearg}(t,v,\gamma,r,s) \leftrightarrow \bigvee_{\varphi\alpha} [Z_{sentitem}(t,v,\varphi,q,s,r) \wedge \varphi = \gamma(\alpha) \wedge Z_{nameitem}(t,v,\alpha,x,r,s)]$.

IX. CONCLUSIONS

The draft presented here is still incomplete. First of all we have not determined what an occurrence is and what rules it is governed by. Thus, the whole project lacks sufficient grounds. An occurrence-based theory of signs is nevertheless an interesting alternative, which seems to transcend the barrier between natural and linguistic signs. It creates a convenient basis for a theory of speech acts and a theory of linguistic functions. Most importantly, it demonstrates that an occurrence-based vision of the world may be useful and is more than just a whim of an eccentric whose bored with the course philosophy has taken. The draft presented here needs to be elaborated on — the concept of an occurrence must be precisely defined, along with the principles that govern it. Occurrences need to be defined without the use of concepts taken from substantialist theories. A fully developed theory of signifying occurrences should be able to prove theses which are assumed on the basis of substantialist theories of signs, e.g. the thesis of the transparency of linguistic signs. All these arguments may be regarded as proof that an occurrence-based theory of signs has factual merits.

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IRONY AND LITERATURE

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1. PRESUPPOSED WORLD

The creation and interpretation of literature require the existence of a certain body of KNOWLEDGE common for both the author and the reader. This consists, first and foremost, in LINGUISTIC PRESUPPOSITIONS. The author presupposes that the word "gopher" means gopher, "molasses" means molasses and that the reader understands these words. The importance of these presuppositions becomes obvious the moment we have to perform the difficult task of translation. Stiller says:

Treacle, also called molasses, is a non-coagulating syrup obtained during the production of sugar. It is still commonly used in home-cooking in the United Kingdom and America. However, etymologically and originally, the word *treacle* refers to the plant 'driakiew' (scabiosa) [...]. Thus, the term *treacle well* referred to springs which were supposed to have medicinal qualities. [...] Because the word *well* can refer to both the springs and an actual well, the 'driakiew' springs were interpreted as a syrup-containing well. (Carroll 1984)

However, the difficulties of translation shall be less relevant here. EXTRAVERBAL PRESUPPOSITIONS concerning the represented world are far more relevant for the interpretation of the text. While creating the represented world, the author places a certain figure within a prefabricated 'BACKGROUND," which consists of common assumptions concerning the world shaped by the CULTURAL TRADITION shared by the author and the readers.

Sitting in heavy, high-backed chairs, using heavy silver cutlery, they ate tasty, heavy dishes, drank fine, heavy wine and shared their opinions. (Mann 1994)

What is part of the BACKGROUND in the above text? Undoubtedly presuppositions:

– if people (let us add — in European civilisation) meet at dinner, then they sit at a table, use certain seats (chairs, benches or stools) consume certain foods and engage in some kind of conversation;

– also: people are beings that sometimes eat dinner, drink various beverages and have the appropriate anatomy and physiology to do it.

What could be considered a FIGURE? The fact that the house in which the dinner is being consumed belongs to the Buddenbrook family. The fact that both the hosts and the guests represent the elite of German commerce? Finally the fact that the decor of the place emphasises the solidity of this elite and the cultural unit it embodies; it is not by accident that Mann used the adjective "heavy" four times in the above sentence.

The difference between the figure and the background can also be captured by juxtaposing "what was said" and "what was implied" as two planes of the represented world in a literary work. Undoubtedly, the verbs"assume" and "suggest" differ in meaning. However, our problem of IDEOLOGICAL MYSTIFICATION shall require us to devote more attention to another semantic difference, which separates the words "suggest" and "omit," as well as the functional affinity of these two words implied by the fact that OMISSION is often an effective tool of suggestion.

Literary scientists have grown accustomed to using the category of REPRESENTED WORLD. However, they apparently fail to notice that the represented worlds of literary works are "immersed" in presupposed worlds. They also fail to notice that these presupposed worlds are not axiologically neutral. We shall try to expose certain consequences of this "oversight"

2. ≪CRONOPIO≫ MYSTIFICATIONS

We shall now move on to the novel *A Lost Lady* by Willa Cather. Below is a scene in which the noble Niel becomes disillusioned with his Fair Lady.

It happened like this — had scarcely the dignity of an episode. It was nothing, and yet it was everything. Going over to see her one summer evening, he stopped a moment by the dining-room window to look at the honeysuckle. The dining-room door was open into the kitchen, and there Mrs. Forrester stood at a table, making pastry. Ivy Peters came in at the kitchen door, walked up behind her, and unconcernedly put both arms around her, his hands meeting over her breast. She did not move, did not look up, but went on rolling out pastry. (Cather 1990)

First of all, let us notice that in the real world, Peters' gesture towards a woman he was friendly with does not seem to be anything peculiar. Also, the lady's reaction to the intimate embrace does not diverge from the universal stereotype (one ought to remember that in the represented world of *The Lost Lady* Peters was Mrs Forrester's permanent, not random lover). Thus, Niel's indignation is justified by his longing for the idealistic world of the dying

traditions of the American South. Now, let us ask: is Niel's indignation at the "vulgar" gesture of Mrs Forrester's lover shared by the author — Mrs Willa Cather?

This is a problematic issue.Without a doubt, the author knows perfectly that women have always been the objects of intimate gestures from men - this fact has been observed in every culture remembered by society. If one assumes such a presupposition, one would have to rethink the interpretation of *The Lost Lady* and treat it as an "educational story," a story about the process of growing up of a boy who gradually discards his illusions concerning the virtues of women he adores and idealizes and comes to understand that the trappings of high culture (usually or always?) conceal tensions created by the interplay of sexual and material urges.

So, is this an "educational story" or a story about the downfall of a certain culture? Personally, I am inclined to favor the second interpretation. However, let us leave the matter alone for the moment. After all, one is allowed to presume that, similarly to *The Magic Mountain*, this particular variety of meanings constitutes the artistic value of the discussed works.

I would like to treat the above remarks as a, perhaps slightly long-winded, digression. Let us now return to the primary issue: the juxtaposition of FIGURE and BACKGROUND in the construction of the represented world. I firmly believe that the worlds presented in literary works are fundamentally different from the worlds presented in subjective views of reality. Perhaps this difference is based on Popper's juxtaposition of World Two and Three, the world of feelings and convictions versus the world of objectified cultural output, described in his *Objective Knowledge* (Popper 1972: 104-105).

In the literary REPRESENTED WORLDS, a significant part of the background is not fully specified (which had already been noted by Ingarden); more importantly – it is purposefully "obscured." I shall illustrate this thesis with the following quote from *The Magic Mountain*:

> Since our intent all along has been to make him no better or worse than he was, it should also be noted that when poor Wehsal approached him privately one evening and begged with ashen words for God's sake to please tell him in strict confidence about his experiences that night of the Mardi Gras party, Hans Castorp had complied with calm charity, although, as the reader can well imagine, he did not permit anything the least bit base or frivolous to sully that hushed scene. All the same, we have our reasons for excluding him and ourselves from it, and will merely add that afterward Wehsal bore his friend's overcoat with twice the reverence. (Mann 1996)

Let us imagine a man who either found himself in the same situation as Hans Castorp or, like Wehsal, listens to a report of someone else's "romantic adventures." Such a man will search for Ingarden's "clarification" of

the basic structure of narration, will try to recall or guess at the details concerning "that night of the Mardi Gras party," and - more importantly - will expect information about the experiences of Hans' partner — madame Chauchat and further presumptions concerning her psychological state. This way, the presupposed world in the subjective view of a specific PERSON IN A SITUATION shall prove to be radically different than the world presented in *The Magic Mountain*. It may, however, be somewhat similar to the world from the subjective view of the author. After all, as we might have noticed, the author remains silent on the subject of all possible "indiscreet" assumptions, saying that he has his "reasons for excluding him and ourselves from" the scene. This is the proper moment to make a more general observation. The narration techniques used both by Thomas Mann and Willa Cather eliminate the author's access to the subjective worlds of the other characters of their stories. Neither the narrator, nor the reader know how Mrs Chauchat felt or what Naphta and Settembrini were thinking. They only know what they and other characters said and how they behaved in certain situations. It is impossible to overestimate the epistemic importance of the self-restraint intrinsic to this technique of constructing the represented world of a literary work. It leads directly to a peculiar ideological mystification — the ≪ CRONOPIO≫ MYSTIFICATION (the terminology used here metaphorically refers to a work by Julio Cortazár *Cronopios and Famas*). This type of mystification stems from an unauthorised identification of the REPRESENTED WORLD of a text with a certain fragment of the real world or one of its subjective views. The falsity consists in the fact that while constructing the represented world, the author by necessity simplifies and deforms the relations between people and circumstances in the presupposed world. We have studied this on the example of the discrepancies between the possible interpretations of *The Lost Lady* by Willa Cather. However, one must also emphasize that the CRONOPIO mystifications can be cognitively dangerous only when one presumes the existence of a realistic coordination of the represented world and reality. A different picture emerges after one questions this coordination.

As has already been stated, the worlds of the subjective view are in many ways richer than the represented world of the literary work. Moreover, following the suggestions put forth by Karl Popper's evolutionistic epistemology, one should place these worlds on different ONTIC levels (World Two and Three according to the Austrian philosopher). The represented world of a literary work is constructed from certain ABSTRACTIONS, or — in other words — substantiated "ideal types;" its elements cannot be incorporated into the real world or any of the subjective VIEWS of this world. Meeting Hans Castorp on one of the streets in Davos is equally impossible as finding

there the number five, a centaur or a unicorn.

Hence, one ought to abandon the simple idea of POSSIBILISTIC COORDINATION. Neither the real world, nor any of the possible worlds (as looked upon from Kripke's point of view) has a place for the Berghof sanatorium presented in *The Magic Mountain*. This does not mean that I am negating the work's epistemic value in the sense that it is "similar to truth." The novel acquires this characteristic due to a type of coordination we shall call CONSTRUCTIVE.

3. THE ISSUE OF ≪ CONSTRUCTIVE COORDINATION≫

CONSTRUCTIVE COORDINATION, in the sense of the term that is proposed here, consists in creating correlations between characters and situations constructed in the represented world and people and situations existing in the real world or one of its subjective views. Such coordination occurs each time we describe someone as a "tartuffe" (in reference to the character from Molière's play) or when we call someone a "Don Quixote" because they decide to fight for a cause that is subjectively right, but objectively hopeless.

One might say that a certain "spectrum" appears between the represented world and the real world. The spectrum is a set of symbolic transformates of persons from the real world. The spectrum is what we have called the "presupposed world" The semantic key to the construction of the SPECTRUM is the inconspicuous little word "as." The following quote by Wojciech Kossak shall help us clarify the issue:

Grottger shall belong to the *sacro sanctum* together with the kings of the Polish spirit, with Mickiewicz, Chopin, Słowacki. I say this about a painter as a painter myself, out of my own deepest conviction, because Grottger is a SYMBOL of the energy of the nation and its power against oppressors and tormentors. He does not complain among the "smoke from the fires" or cry out to God for mercy. He is a "rebel" with a helpless, albeit powerful fist. (Kossak 1971)

It is rather obvious that Wojciech Kossak did not create an image of Grottger AS a "rebel." The idea of the Polish INSURGENT is a result of the spiritual efforts comprising the entirety of our ROMANTIC tradition, founded, among others, by the abovementioned artists: Mickiewicz, Chopin and Słowacki. Kosak does not come up with anything new; both him and his father wanted to see Grottger as a "symbol of the nation's energy," moreover — they could not see him as anything different. Another quote from the discussed memoirs will perhaps make the phenomenon of the construction of the PRESUPPOSED world even clearer:

"It was in the year 1865 or 1866. We were here in Warsaw, in my father's workshop in a house I remember well, situated on the corner of Nowy Swiat and Jerozolimska. A young INSURGENT came in - at least that is the way I perceived him with my childish eyes that had seen so many. He was slender and energetic; had a handsome face with a profile that reminded me of a bird of prey. His eyes were black, beautiful and gentle. He was wearing an insurgent's burka and coat and looked like an embodiment of sprightly and valiant youth." (Kossak 1971)

What we must realize is that this is the way Kossak PERCEIVED Grottger. Someone else would have seen him differently: as a young consumptive, an intellectual posing as a warrior, finally as a daubster. Which one of these observers would we agree with? My answer is simple: with both of them!

We must remember that these observers live in different PRESUPPOSED WORLDS. The first one, a "romantic," has internalized a view of Poland battling against the tsarist Russia (Wojciech Kossak considered himself a friend of the emperors Wilhelm II and Franz Joseph; his patriotism demonstrated itself mainly through a distaste towards the "Moskals"). The other observer - let us assume he was a "positivist" — has concluded (like Wokulski from Prus' *The Doll*) that the Duchy of Warsaw was a bearable place to live in, provided that one worked hard and looked after his interests.

Let us observe how far we have strayed from the topic of ideological mystifications in literature. The problem consists in the fact that literature does not "mystify" the world, but that the world itself is "MYSTIFIED." Of course, literature plays a large part in this as well. After all, the birth of tradition or even the creation of ethical paradigms were caused by literature. This prompts us to formulate a rather radical thesis: literature does not reflect the world, it co-creates it.

4. POSTMODERNIST DISINFORMATION

In the second half of the 20th century, the simple facts discussed in the above section have led to the creation of a rather peculiar philosophical doctrine, called POSTMODERNISM. Many of my friends and colleagues have concluded that since:

(i) each one of us lives in a culturally SHAPED world and

(ii) none of us can determine which of the many worlds is not mystified, then

(iii) there is no possibility of finding a TRUE answer to any of the questions that people want to consider important.

Without giving up the friendship of the abovementioned colleagues, I would like to propose the following:

(i) It is obvious that Kossak's and the positivist's view of Grottger must be different. That, however does not exclude the possibility of establishing FACTS. Kossak would say: A CONSUMPTIVE, BUT AN INSURGENT, the positivist: AN INSURGENT, BUT A CONSUMPTIVE. Both utterances contain the same information about Grottger, however, the valuation of these facts is different. Therefore:

(ii) The sentences "Grottger was an insurgent with an aquiline profile" and "Grottger was a consumptive, whose ambition induced him to join the uprising" are both TRUE in their own presupposed worlds. However, this theory contains a certain catch.

The catch consists in the fact that the sentence which is TRUE in a given presupposed world turns out to be FALSE in every alternative world. That is why a member of the "romantics' club" is fully justified in resenting someone for saying "that Grottger was a bad insurgent and a stupid daubster," NOT BECAUSE he is questioning the truthfulness of this sentence, but BECAUSE this sentence is offensive (precisely to the members of the "romantics' club"). However:

(iii) At that moment, my postmodernist friend says to me: "You are absolutizing the ≪ natural≫ world. You are unreasonably assuming that ≪ natural≫ facts belong to the ≪ real world≫ , thus concluding that Grottger was ≪ objectively≫ a consumptive and an insurgent. But this is not correct: the so-called ≪ objective world≫ is only one of many presupposed worlds."

Perhaps it is so. However, my friend, allows me to retain my own opinion. True - I believe that NATURE provides materials for the construction of all presupposed worlds. CULTURE processes these materials. One might say that Gabriela Zapolska was "a harlot," someone else that she was "an actress" and some other person may call her a "realist writer." All these opinions are true, or at least verisimilitudinous (in their respective worlds). Let us notice: all of them assume that a person called "Gabriela Zapolska" existed and that this person was a WOMAN.

You might also tell me that in this case, my "natural" world, understood as a common part of many presupposed worlds, is not an OBJECTIVE, but an INTERSUBJECTIVE world. I may agree with you in that matter, however its resolution appears to me as highly irrelevant. I have followed your path of TRUTH DESTRUCTION as far as any sane man possibly could. Do not expect me to go any further!

5. IRONY

"But I don't want to go among mad people," Alice remarked.

"Oh, you can't help that," said the Cat: "we're all mad here. I'm mad. You're mad."

"How do you know I'm mad?" said Alice.

"You must be," said the Cat, "or you wouldn't have come here." (Carroll 1984)

Is the above quote (according to Stiller "the most frequently used quote from *Alice*") IRONIC? The answer to that question depends on the convention adopted concerning the meaning of the term "irony." The convention which I shall presume to propose here (referring loosely to Hegel's philosophy) demands one to accept the following declaration: AN IRONIST is every person that negates (questions, rejects) the entirety of the given presupposed world. Below, I shall present one of the final theses of this dissertation:

– EVERY OUTSTANDING WORK OF LITERATURE IS IRONIC

– EVERY OUTSTANDING WORK OF LITERATURE SEEMINGLY ACCEPTS THE PRESUPPOSED WORLD IN ORDER TO RIDICULE IT.

In this sense, the work written by deacon Charles Lutwidge Dodgson (known as Lewis Carroll) is ironic: the everyday world of the Liddell sisters (one of which is Alice) is questioned in its entirety. The presupposed world of the British judiciary system is also rejected; in chapter XII ("Alice's Evidence"), Alice's evidence seems to be irrefutable.

One may find a perhaps even more curious example in Thomas Mann's *Magic Mountain:*

"Yes, I won't deny it — you keep yourself busy with more practical matters, with your Russian grammar. You should soon be fluent, my man, and that can only be to your great advantage — if there should be a war, which God forbid."

"Forbid? You're talking like a civilian. War is necessary. Without war the world would soon go to rot, as Moltke said."

"Yes, it has that tendency. I'll grant you that much," Hans Castorp added. (Mann 1996)

By using ironic negation, Castorp rejects Joachim's presupposed world. He similarly rejects the presupposed worlds of Naphta and Settembrini. However, let us remember: in the end, Castorp went to fight in the war.

"*E cosi in giu*," he said, "– *in giu finalmente! Addio, Giovanni mio!* I would have wished to see you go in some other way, but it doesn't matter. The gods have decreed it so, and not otherwise. I hoped to send you off to your work, and now you will be fighting alongside your fellows. My God, you are the one to go, and not our lieutenant. The tricks life plays. Fight bravely out there where blood joins men together. No one can do more than that now. Forgive me if I use what little energy I have left to rouse my own country to battle, on the side to which intellect and sacred egoism direct it. *Addio*!"

Hans Castorp forced his head out from among the ten others filling the little window. He waved above their heads. And Herr Settembrini waved with his right hand, too, while with the tip of the ring finger of his left hand he gently brushed the corner of one eye. (Mann 1996)

Even though Thomas Mann is an ironist, he does not in any way belong to the world of POSTMODERNIST CULTURE.

Let us try and analyze the singularity of this culture. I shall simplify the matter (and avoid such absurdities as the sentence: postmodernism is a culture of quotation) by stating:

– A POSTMODERNIST STORY IS A STORY ABOUT A WORLD IN WHICH APPEARANCES ARE IRREMOVABLE.

Therefore, it would be a world where there is no such thing as "nature" (Żukrowska 1994), a world where "demystification" is impossible because "tearing off a mask" only reveals the existence of yet another "mask." The first man to ever describe the postmodernist world was Jonathan Swift, the second – Witold Gombrowicz.

Such is my claim. I also claim that "postmodernist disinformation" has resulted in the creation of several outstanding works, amongst which I include everything written by Gombrowicz (with the rather obvious reservation that, according to the author, YOUTH exists "objectively," which is a statement we – the older folk — would rather reject), the majority of works written by Susan Sontag and Philip K. Dick. This adorable lunatic (who thought that even Lem was a KGB agent) wrote one brilliant book entitled *Ubik* (Dick 2012).

However, I do not think that this trend in 20th century literature has any chances of being continued, due to the following reasons:

(i) Any attempt to DEMYSTIFY the world assumes that there is something to be demystified in the first place, hence, that our "natural" world is not a phantasmagor. Only upon adopting this assumption can one deem it worthwhile to write fairytales. Lewis Carroll knew that perfectly well.

(ii) In a sense, any attempt to DEMYSTIFY the presupposed world assumes (or PRESUPPOSES) THIS PRECISE world. Please note, my postmodernist friend, that reading *Alice in Wonderland* means that we know what or who the Queen of Hearts, the rabbit in a vest and the jury in the English judicial system might be. Thus, our negation of the presupposed world is only a negation in the way HEGEL meant it, not a LOGICAL negation.

Obviously, my (partial) acceptance of the postmodernist JABBER in literature does not equal the acceptance of JABBER in literary science.

I shall conclude my work with this declaration, because it is too difficult for me to go any further.

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THE VERB *BYĆ* (TO BE) IN THE POLISH LANGUAGE

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1. INTRODUCTION

The present article constitutes a fragment of one of the possible analyses of the word *być* (to be) in the Polish language.[1] The results of this analysis are fundamentally dependent on four factors:

1) the material included in contemporary monolingual dictionaries of Polish (which constitute the basis for the analysis);

2) the aim of the analysis;

3) the research methods;

4) the assumptions made.

As regards the first of the factors, the present publication is based on the data included in the following dictionaries: SJP-D, SJP-S, MSJP, PSWP, SPP, SWB, SS, SA, SFJP, SS-GCP, SEJP-B, SSt, SFPW (for the full titles see: Bibliography). The source material is regarded as reliable and linguistically correct. Most of the mentioned dictionaries contain example sentences demonstrating the use of the defined terms (entries). As the authors of the introductions suggest, these examples are taken from various official and journalistic texts, *belles lettres*, specialist literature and other sources (SS-GCP also includes example sentences

[1]The article is related to the presentation delivered on 18^{th} April 1997 during a seminar organised as a part of a research program entitled Znak-Język-Rzeczywistość (Sign-Language-Reality). I wish to convey my thanks to Professor Jerzy Pelc, Professor Zygmunt Saloni and Doctor Piotr Brykczyński for contributing to the discussion and offering critical remarks, some of which have been included in the present publication. I would also like to express my gratitude to all my professors and co-workers at the Department of Logic and Theory of Knowledge at the Catholic University of Lublin, and to Mr. Krzysztof Zawisza, for their intellectual and editorial help.

created by the authors of the publication). Thus, it may be surmised that the dictionaries give an accurate account of how contemporary users of the Polish language employ the verb *być* [to be] in various contexts.

The aim of the work is clearly philosophical — it involves specifying the ontic equivalents of sentences which contain the verb *być* as well as the equivalents of the elements of such sentences. Lexicological and semiotic considerations (syntactic, semantic and partly pragmatic) included in the present article are but an auxiliary instrument for formal ontology, understood as a philosophical study of the possible structures of objects (categories of objects) which may be found in the universe (here: in the domain or universe of discourse of the Polish language). In any case, semantic and ontological research have much in common.

Starting a philosophical discourse from an analysis of the existing lexical material is not uncommon in contemporary philosophy. Suffice to mention the postulates of J. L. Austin, who represented the Oxford school in philosophy of ordinary language. He claimed that "our common stock of words embodies all the distinctions men have found worth drawing and the connections they have found worth making, in the lifetimes of many generations: these surely are likely to be more numerous, more sound, since they have stood up to the long test of the survival of the fittest, and more subtle, at least in all ordinary and reasonably practical matters than any that you and I are likely to think up in our arm-chairs on an afternoon — the most favoured alternative method" (1961: 130). Professor Witold Doroszewski (1982/1963: 213) also wondered whether philosophy is not "very broadly understood historical semantics" and 'the study of all lexicography."

Philosophers ought to attach particular importance to the study of the term *być* [to be], as it is a word connected with the most important terms in ontology (metaphysics).[2] What is more, analyses suggest that *być* is the most frequently used verb in the Polish language.[3] The verb also plays a significant role in many grammatical constructions. *Być* fulfils the same role which Austin (1955: 62) noticed in the case of the English word *real* – "it is [...] already firmly established in, and very frequently used in, the ordinary language we all use," and as such must be a significant shaping of our image of the world.

In the present work *być* is regarded as a lexeme (a simple meaningful element of the vocabulary or lexis of the Polish language) which may appear in various forms (*jest*, *będzie*, etc.) that, in turn, occur in individual tokens (e.g.

[2]The famous work entitled *The Verb 'Be' in Ancient Greek* by Charles H. Kahn was inspired by the 'career' of *einai* (to be) in Greek and — more generally — European philosophy (Kahn 1973: ix-xiii, 1-4).

[3]According to SFPW II *być* is third on the list of absolute frequency of word appearances (and, in particular, first on the list of frequency of verb apparences) in the studied sample of representative texts of contemporary Polish (the first two words are *i* – 'and' — and *w* – 'in, at'). The verb *być* also has a very high frequency of appearance in spoken language.

this one: *jest*) belonging to certain types (categories) of writing. Two tokens belonging to the same type may express (indicate) different inflection forms (e.g. the written form *jest* is an indicator of 3^{rd} person singular, present tense, active voice, declarative mood; or an indicator of an element of the passive voice). This phenomenon, known as inflectional and syntactic homonymy (cf. Miodunka 1989: 169–171 and SFPW I p. XVII — XX), is particularly frequent in the case of the verb *być* — SFPW I (p. 39 and next) lists as many as 79 of its word-forms.

II. THE RESEARCH METHOD AND THE ASSUMPTIONS

The present study will be based on the following methods:

a) LEXICOGRAPHICAL AND SEMANTIC ANALYSIS — discerning and defining various meanings of the word *być* in typical contexts;

b) SYNTACTIC AND GENERATIVE ANALYSIS — associating sentences containing the word *być* with syntactic and generative models or schemes (sometimes designating their semantic properties);

c) CATEGORIAL ANALYSIS — supplementing the components of sentences containing the verb *być* with the indexes of the modified syntactic (semantic) categories specified by Ajdukiewicz and the symbols of their syntactic position.

d) ONTOLOGICAL ANALYSIS — finding the ontic equivalents of sentences containing the verb *być* as well as the ontic equivalents of the components of these sentences.

The first method amounts to presenting and arranging the lexical material taken from the dictionaries. The second type of analysis involves comparing the material with the data accumulated in the SS-CGP (p. 5–8 and 55–60) which makes use of the achievements of generative grammar to "determine the connectability of Polish verbs" (i.e. the methods of creating sentence structures by adding certain expressions to verbs). The final two processes are more creative and philosophical in nature. The author uses a modified version of Ajdukiewicz's (1967/1935) theory of categories to define the categories of the components of the sentences containing the verb *być* and finding their ontic equivalents.[4]

[4]Writing the functor categories I shall use a modified version of Lambek's notation (Tokarz 1994: 97–100). Lambek's notation is superior to the original one devised by Ajdukiewicz, as it takes into account the position of the argument with regard to the functor and facilitates digital recording. However, all functors are treated as having only a single argument, which appears to be an oversimplification. According to the notation that shall be used throughout the present article, the main line in a multi-level fractional index (of a given functor) shall be represented with the largest amount of slashes appearing in combination (e.g. '///'), the next level will have one slash less (e.g. '//'), etc. A right slash (/) indicates that the argument is located on the right side of the functor, whereas a backslash (\) is used if the argument is on the left. In the case of multi-argument functors, if all of their arguments are located on the one side,

The present publication is based on the abovementioned assumptions, as well as on the stipulation that the various meanings of the verb *być* described in the dictionaries are accurate and that the processes specified above are adequate for describing the syntactic and semantic structure of sentences containing *być*. The most important stipulation of the article may be summarised as: the categories of expressions correspond to the types[5] of objects found in the world (universe).

One of the possible classifications of expressions "according to the type of ontological categories referred to by the expressions of a language" was presented by Ajdukiewicz (1985/1960: 350–352). However, he did not exclude the possibility that a classification "according to the syntactic role the expressions may assume in a sentence" (i.e. a classification of semantic, or syntactic, categories which was *de facto* already designed by Ajdukiewicz in: 1993/1930–31) is fundamentally concurrent with the abovementioned division. For the purpose of the present analysis, semantic and syntactic categories shall be treated as equal in extension (though distinguishable from different points of view). The list of expression categories and their ontic equivalents is as follows:[6]

then their indices are presented next to one another below the slash (e.g. 'nn\z') and if the arguments are placed on both sides of the functor, then the notation includes both a slash and a backslash separating the numerator from the denominator (e.g. 'n\z/n').

[5]The term 'type' denotes only 'an element of a typology' and is not related to the theory of types.

[6]To broaden the research perspective, Ajdukiewicz's categories of expressions have been correlated with categories of phrases (or other expressions) employed in SS-GCP. The square brackets below the name and the index of each of Ajdukiewicz's categories contain symbols (or examples) of the categories of phrases (for their basic definitions see: SS-GCP, p. 9 and next) which may have the function of the given category from Ajdukiewicz's categorial grammar. The symbols of phrases are taken from the English notation used in the generative grammar.

CATEGORY OF EXPRESSION AND ITS INDEX	TYPE OF ENTITY (ONTIC EQUIVALENT)
1) SENTENCE: z [S]	STATE OF AFFAIRS
2) NAME: n [$NP_{N,G,etc.}$; *to,co* (. . .); IP+NP] n_i n_{pr} n_{ev} n_{con}	OBJECT: individual (n_i) process (n_{pr}) event (n_{ev}) conglomeration (n_{con})
3) FUNCTOR: a) a functor of the z/n type [–; — (. . .)] b) a functor of the z/n//z/n type [$NP_{Temp,Loc,etc.}$; Adj, Adv; V; (Prep+) $NP_{G,I,L}$; IP] c) a functor of the z\n/z type [-Prep] d) a functor of the n\z/n//z/n type[7] [NP_I]	PROPERTY (property together with attribute)(a) ATTRIBUTE (b) RELATION (c) RELATIONAL ATTRIBUTE (d)
4) CATEGORIAL TRANSFORMATOR: a) a functor of the z/n//z/n///n type [Prep; $_I$] b) a functor of the n\z/n//z/n type [Prep; $_G$] c) a functor of the n/z type [*to, co*; *to, że*] d) a functor of the n/z//n type [*co*] e) a functor of the n\n_{con}/n type [Con] f) a functor of the n/n type [Prep] g) a functor of the n/n//n type [Prep] h) a functor of the n\z/n//n type [Prep;$_I$]	ONTIC TRANSFORMATION: object → attribute (a) property → relation (b) state of affairs → object (c) object → (state of affairs → object) (d) objects → $object_{con}$ (e) $object_x$ → $object_y$ (f) $object_x$ → ($object_y$→ $object_z$) (g) object → relational attribute (h)

The definitions of each category may be found in the mentioned articles

by Ajdukiewicz and in some textbooks of logic. In order not to get involved in complicated ontological discussions, the present article contains not definitions, but only examples of the ontological equivalents (types of items or entities): a state of affairs — the fact that Jan is walking; an individual – Jan; a process — a walk (taken by Jan); an event– Jan's arriving (at a certain place); a conglomeration– the weather; a property — being... (as in: Jan's being pale); an attribute — (Jan's) pallor; a relation — the friendship between Jan and Grzegorz; a relational attribute — Jan's friendliness (towards Grzegorz).[8] Individuals, processes, occurrences and conglomerations constitute types of objects. The distinction between a 'property' and an 'attribute' (*Eigenschaft* vs. *Beschaffenheit*) is taken from K. Twardowski's book (1977) but is not understood in terms of his *part-whole* framework. It may be assumed that a property is the relation of internal belonging of something to an object, whereas an attribute is an element of this relation (that which belongs to, that is a characteristic). A property may be analysed both with its attribute (an expanded property) or without it (property in itself). A relation in the strict sense is the external connection that binds two different objects, while a relational attribute is an attribute based on such a relation.

The same expression (specimens of writing of the same type and grammatical form) may belong to different categories depending on the context. This property is called the relativity of categories (Tokarz 1994: 55–56, 94–96). The ontic equivalent of categorial relativity of expressions is known as the ontic relativity of types of entities: the same item may be considered to belong to different types depending on the context. The words (most often prepositions) which, if added to a given expression, change its category, may be called categorial transformers. Their ontic equivalents are ontic transformations (in the chart they are represented with arrows). Examples of ontic transformations shall be presented further on in this article. For now it is sufficient to note that the relativity of ontological categories is not infrequent in ontological theories. For instance according to N. Hartmann's ontology, if a leaf exists within a tree and a tree exists within a forest, then the *Dasein* of the leaf is the *Sosein* of the tree, while the *Dasein* of the tree is the *Sosein* of the forest (the existence of one thing is the essence of something else and vice versa).

The concept of correspondence (similarity) between categories of expressions and types of entities may be specified even further. The relation between the categories of expressions and the types of entities depicted in the chart (sentence — state of affairs; name — object, etc. with the exception of the relation categorial transformer — ontic transformation) reflects in the isomorphic way relations between the categories of expressions (e.g. sentence – name) into the relations

[8]The term 'situation' is frequently used to denote the category I have named here the 'state of affairs'. However, this term could also be used in relation to conglomerations.

between types of entities (e.g. state of affairs – object). Thus, the relations between categories of expressions are isomorphic to the relations between types of entities. If the entire chart is take into consideration (including the relation: categorial transformer — ontic transformation) then it is only possible to state that the relations are homomorphic (due to the fact that a functor of one type is repeated), but in a reverse order (types of entities — categories of expressions).

III. LEXICOLOGICAL DATA

Many dictionaries (following SJP-D) divide the entry for *być* into two groups: independent or autonomous (autosemantic) *być* and dependent or non-autonomous (synsemantic) *być*. However, at first glance the examples presented seem to suggest that *być* is always a non-autonomous expression, i.e. a functor. In the first case it functions as a sentence-making functor (a predicate), in the second — as a functor-making functor (an element of the predicate). If the predicate is regarded as an expression signifying designates of its arguments, then the division into AUTOSEMANTIC and SYNSEMANTIC *być* may be maintained.

Fundamentally, there are three types of non-autonomous *być*. The word may appear as (a) "an auxiliary verb used for constructing compound verb forms" (SJP-D mentions 4 subtypes; SPP, SJP-S and PSWP list 5 subtypes); (b) "a copula in a compound predicate" (SJP-D — 4 subtypes; SS-GCP — 3 subtypes); or (c) an element of fixed expressions (together with various descriptions) "performing a function similar to that of the copula" (many examples). The use of *być* in fixed phrases deserves a separate analysis (which would not fit into the spatial constraints of the present work); moreover, separating the verb from the other elements of the phrases would most probably be inappropriate. However, as further analysis will corroborate, the types of the auxiliary *być* may be interpreted as the possible modifications of other types of *być*, whereas *być* as a copula can also be regarded as independent. Such an interpretation questions the very notion of dividing the uses of the verb into AUTOSEMANTIC and SYNSEMANTIC.

As regards the verb *być* in its so-called independent function, SJP-D lists 5 possible meanings. MSJP repeats all five, whereas SJP-S specifies only four. SS-GCP — which only takes into account the meanings that trigger a change in the structure of the sentence — also mentions the four possible meanings and adds one not included in SJP-D. PSWP adapts a different structure: most interestingly, it isolates the category of relational *być*. The meanings inferred from SWB, SS (and the correlated publication — SA) may also be found in the previously mentioned dictionaries (possibly with the exception of two synonymous groups of the subtype D. and E. mentioned in SS). SEJP-B and SEJP-S both point to the primary etymological meaning of the verb *być* which is not present in contemporary dictionaries. There may, however, be some doubt as to whether the etymologically primary *być* and the contemporary *być* are in fact the same

lexical unit. Out of the 16 functions and meanings specified in SSt (and presented with their Latin equivalents), 7 may be regarded as clearly independent — they are fundamentally equivalent to the meanings (or their nuances) listed in the abovementioned dictionaries.

The abovementioned lexical material is sufficient to formulate a list of possible meanings of the word *być* functioning as an 'autosemantic' verb. The qualifications of the meanings were designed me,[9] while their descriptions and synonyms were taken from the dictionaries:

1) DYNAMIC — "to grow, to mature, to become" (Lat. *fieri*) — the primary etymological meaning (SE-B, SE-S);

2) EXISTENTIAL — "to possess the property of being, to exist, to live" (SJP-D and SJP-S); "to exist" (cf. Lat. *existere*, e.g. PSWP); "to be or to subsist" (SS):

a) VITAL — "to live", "to be alive, to lead a life, to have a life, to have a lifestyle" (SS),

b) ABSTRACT — "to exist, to be found, to prevail, to inhere" (SWB);

3) LOCATIONAL — "to be present, to stay, to abide, to lodge" (SJP-D, SJP-S); "to live, to inhabit, to occupy" (SEJP-B); "to figure, to be listed," "to appear, to happen, to be found, to find" (SS);

4) TEMPORAL

a) DURATIVE — "to continue, to persist for a given amount of time" (SJP-D) — duration in time,

b) EVENTISTIC — "to take place, to occur, to come to pass, to ensue" (SJP-D, SJP-S); "to befall, to happen" (SWB) — occurrence in time;

5) PARTICIPATIVE — "to take part in something, to participate" (SJP-D, SJP-S);

6) RELATIONAL — "to maintain a certain relation or affinity with other objects, individuals, etc." (PSWP):

a) CONJUNCTIONAL — "to accompany someone" (SS-GCP),

b) POSSESSIVE — "to belong to someone," "to be someone's" (SFJP); "something is for someone," "something is someone's" (SSt),

c) GENETIC — "to originate from somewhere," "to be of something or somewhere" (SSt, SFJP);

7) CONSTITUTIVE — "to constitute, to create," "to be categorised as, to pass as" (SS);

8) OPTIMAL — "to abound, to thrive," "to suffice, to be adequate" (SS);

9) SEMIOTIC — "means, signifies" (SFJP, SSt).

[9]The choice of terms is dictated by stylistic elegance (the principle of avoiding neologisms) rather than factual accuracy. Hence the use of the (ambiguous) word 'DYNAMIC' (and not 'DYNAMISTIC') etc.

The further steps of the present analysis shall be based on the material of examples listed in SJP-S, SJP-S and SS-GCP. The results thereof might suggest that the above list ought to be expanded to include (e.g.) the meaning connected to the COPULA *być* (an ATTRIBUTIONAL, or PREDICATIVE meaning). It is debatable whether meanings no. 6 (particularly 6c) and 9 correspond to the autosemantic *być*, or to certain fixed phrases. The most significant issue to be discussed is whether the above list ought to be shortened or the items it contains delineated in more detail. Specifying the categories (a more exhaustive description of the nuances of every single meaning) would require analysing a larger number of sentences containing *być*. Reducing the number of categories, on the other hand, would make it necessary to define the basis for incorporating some meanings into other ones (is it etymology, synonymy, transformation, etc.). The issue of reducing one meaning (function, use) to another is a matter for specialists in the relevant fields and branches of linguistics. The matter (in relation to the English verb *to be* and its Ancient Greek equivalent) has been tackled by Kahn (1973) from the perspective of transformative grammar. Kahn's work was later popularised in Poland by Gawroński (1990). Both these authors emphasise e.g. the importance of locational *być*.

IV. EXAMPLES OF CATEGORIAL ANALYSIS

The spatial constraints of the present work make it impossible to recount the analysis of all the listed types of sentences with the word *być* in its various meanings (such an analysis was conducted by the author and some results of it are available in English in Wojtysiak 2012). The presentation will be limited to the locational *być* (as representative for *być* in the so-called independent function), the auxiliary verb *być* (using the example of the futuristic *być*) and the copula *być*. In all three cases the analysis is structured as follows: the lexical definition of the verb *być* in the given meaning/function (unless it has already been specified above); typical examples of sentences with *być* (the general names included in them appear *in suppositione personalis*);[10] the model of the sentence structure taken from SS-GCP (sometimes with minor modifications; it was not necessary to include the indicators of semantic characteristics in the presented examples); an analysis of the sentence in terms of categorial grammar: expression – element, its syntactic position (Ajdukiewicz 1985/1960: 348–349), indication of the category, description of its ontic equivalent. For each type of meaning the abovementioned information is supplemented with a more descriptive summary and commentary (e.g. the justification for choosing a given model of grammatical analysis). The division into categories of names and types of objects is not included in the

[10]This is, maybe, a method for avoiding the problem of 'universals', which Ajdukiewicz analysed using his theory of expression categories (1985/1934: 200–210).

analysis, as in most cases it is easy to think of corresponding sentences which would contain names referring to other types of objects (e.g. to a conglomeration instead of an individual).
LOCATIONAL MEANING
EXAMPLE:
Książka jest na szafie. (SS-GCP) [The book is on the cabinet.]

SYNACTIC AND GENERATIVE MODEL:
NP_N – NP_{Loc} (NP_{Td})
(Adv)

AJDUKIEWICZ'S NOTATION (MODIFIED) AND ITS ONTIC EQUIVALENT

1) Purely locational interpretation:
jest na szafie [is on the cabinet] — (1,0) — n\z — a property with an attribute
Książka [The book] — (1,1) — n — an object
na szafie [on the cabinet] — (1,0,0) — n\z\\n\z — an attribute
jest [is] — (1,0,1) — n\z — a property
na [on] — (1,0,0,0) — n\z\\n\z//n — a transformation: object → attribute
szafie — (1,0,0,1) — n — an object.

2) A relational-cum-locational interpretation:
jest na [is on] — (1,0) — n\z/n — a relation
Książka [The book] — (1,1) — n — an object
szafie [the cabinet] — (1,2) — n — an object
na [on] — (1,0,0) — n\z\\n\z/n — a transformation: property → relation
jest [is] — (1,0,1) — n\z — a property.

THE ONTIC EQUIVALENT OF THE SENTENCE:
1) A state of affairs in which a given object is located somewhere (has a certain place or belongs to a certain place); the elements of the state of affairs: an object (most often an individual), a property of the object — a location, an attribute of the object — a place.

THE LOCATIONAL ONTIC EQUIVALENT OF *BYĆ* (SOMETHING): the location of something.

2) A state of affairs in which something remains in a spatial relation to something else; the elements of the state of affairs: two objects (mostly individuals), a spatial relation between them — (the first object) being on / under / over / near / next

to, etc. (the second object).

THE RELATIONAL-CUM-LOCATIONAL EQUIVALENT OF *BYĆ* (SOMETHING): remaining in a spatial relation to something else.

SUPPLEMENTARY REMARKS:

1. In the case of interpretation (1) the analysed sentence is divided into two direct elements (the main single-argument operator[11] and its argument). In the second interpretation the sentence has three components — the main two-argument operator and its two arguments. The further steps of the analysis will be more problematic (if possible at all), yet it must be attempted if the diversity of ontic equivalents is to be shown. The analysis is as follows:

1) The expression that shall be disassembled is *jest na szafie* [is on the cabinet]. Its main operator is *na szafie* [on the cabinet], whereas *jest* [is] constitutes the operator. It is *na szafie* that is the less autonomous functor here: in order to formulate a relatively independent expression (the functor *jest na szafie*), the phrase needs to be accompanied by the functor *jest*. Just as the argument is determined by the predicate, so the argument (*jest*) is determined by the operator (*na szafie*) (*jest* is *na szafie*, which may be expressed more specifically with the neologism *naszafowo* [on-the-cabinetly]). A deconstruction or division of the expression *na szafie* reveals that it is the functor *na* that constitutes the operator, while the name *szafie* (specified by it) is the argument. The above analysis shows that the book (an object) possesses the attibute of *naszafowość* [on-the-cabinet-ness], and that belonging of this attribute to, i.e. the property of being located (on the cabinet) is expressed by an appropriate form of the verb *być*. In itself (in isolation from other things) a cabinet is an object, but becomes an attribute when regarded as the place where the book lies. This ontic transformation is manifested by the use of the functor *na* as a categorial transformer.

2) The expression that shall be disassembled is *jest na*. Its main operator is the functor *na*, while the functor *jest* constitutes an argument. The functor *na* is less autonomous than the functor *jest* (in order to formulate a relatively independent expression *jest na*, *na* has to be supplemented with *jest*); *na* is a complement of *jest*. The functor *na* plays the role of a categorial transformer, changing the single-argument functor *jest* (ontologically equivalent to a property) into a two-argument functor *jest na* (equivalent to a spatial relation). It is apparent that a given object (here: a book) in itself possesses properties (composed of

[11] Ajdukiewicz (1985/1960: 346) differentiates between a 'functor', as a name for "a certain absolute property of some expressions", and an 'operator', understood as a syntactic role "a given expression plays within another." The term 'operator' used here does not refer to the identically named concept (e.g. quantifier) used by Ajdukiewicz at an earlier stage of his academic work (1985/1935: 233, 1967/1935: 220).

attributes), but if it is regarded in relation to other objects (here: a cabinet), it begins to possess relations (here: a spatial relation) whose correlates are two objects (here: a book and a cabinet).

2. In the case of both the above presented interpretations it is possible to carry out a grammatical analysis that would follow a different model, depending on which parts of the sentence are treated as linked (it can either be *jest na* or *na szafie*). For the purpose of the present article it was decided to adapt the second variant in the locational interpretation and the first variant in the locational-cum-relational interpretation. This way the expression *być* is always regarded as a functor of the n\z type, ontologically equivalent to a property. In the case of the locational interpretation, the phrase *na szafie* transforms *jest* into an expression whose ontic equivalent is a the property of being located together with the attribute of place. In the reltional-cum-locational interpretation *na* transforms *jest* into an expression which is ontically equivalent to a specific spatial relation.

3. The syntactic and generative model suggests that there is a possibility of adding an element pertaining to time (e.g. a nominal temporal-cum-durative phrase such as *dwa tygodnie* [two weeks]). This component indicates that the given place or spatial relation is inherent for the object for a given period of time.

4. Expressions containing *być* and a locative pronoun are among the most frequently used phrases with *być* in the Polish language (in SFJP, for instance, almost one half of the 136 phrases listed in the entry *być* shows the verb in combination with a locative pronouns: *być na (czym)* [to be on (sth)] — 23 examples, *być po (czym)* [to be after (sth)] — 4 examples, *być pod (czym)* [to be under (sth)] — 7 examples, *być przy (czym)* [to be near (sth)] — 2 examples, *być u (kogo)* [to be at (sb's)] — 3 examples, *być w (czym)* [to be in (sth)] — 26 examples, *być za (kim)* [to be behind (sb)] — 2 examples; total — 67 examples). Naturally, many of these expressions communicate location in a metaphorical sense; they may often express e.g. non-spatial relations (*być na czyjejś głowie* [lit. *to be on someone's head*; to be someone's responsibility] — the relation of accountability, *być pod czyimś okiem* [lit. *to be under someone's eye*; to be under someone's supervision] — the relation of guardianship, *być w czyichś łaskach* [to be in someone's favour] — the relation of respect, etc. In these cases *być* could be regarded as communicating a purely relational meaning (cf. III 6). Sentences containing *być* in this non-locational relational meaning are difficult to analyse, as they often include fixed phrases or metaphorical expressions.

5. Sentences with *być* in its locational meaning sometimes involve inversion, which is probably introduced in order to draw attention to the locative aspect, to emphasise the expression signifying the place (e.g. *Na dworze była słota.* [Outside the weather was bad.] — SJP-D mentions this example in relation to the durative meaning).

6. According to SEJP-B the etymologically original (dynamic) meaning of the

verb *być* metamorphosed into the locational meaning: to stay (to abide, to lodge), to live.

7. It appears that the locational *być* analysed here corresponds to the Ancient Greek use of the verb 'to be' as a locative copula. Kahn specifies several types (1973: 82) and ultimately includes them (1973: 398) in the category of elementary (non-transformable) 'to be'.

THE FUTURISTIC MEANING (FUNCTION) AS THE EXAMPLE OF AUXILIARY MEANING (FUNCTION)

LEXICAL DEFINITION: formulating the compound future tense of verbs in the imperfective aspect. (SJP-D, SJP-S, PSWP)

EXAMPLE:

Będę pamiętał(ć). [I will remember.] (SJP-S)

SYNACTIC AND GENERATIVE MODEL:

Ja *będę* *pamiętał(ć).*
NP_N $^{-}{}_f$ V_p
IP

AJDUKIEWICZ'S NOTATION (MODIFIED) AND ITS ONTIC EQUIVALENT
będę pamiętać [will remember] — (1,0) – n\z — a property with an attribute
Ja [I] — (1,1) — n — an object (individual)
pamiętać [remember] — (1,0,0) — n\z\\n\z — an attribute
będę [will] — (1,0,1) — n\z — a property

THE ONTIC EQUIVALENT OF THE SENTENCE:

A state of affairs in which a given attribute (e.g. a disposition or an action) will, at a certain point in the future, be inherent to a given object; the elements of the state of affairs: the object, the property of possessing an attribute (or belonging of it to, or its being inherent to) in the future, the attribute of the object — what will be inherent (e.g. the disposition or action that will be inherent to the object in the future, here: remembering).
THE FUTURISTIC ONTIC EQUIVALENT OF *BYĆ* (SOMETHING): the fact that something will be inherent to this object in the future.

SUPPLEMENTARY REMARKS:

1. In the Polish language the word *będę* is the form of the verb *być* (*to be*) in the first person singular of future tense.

2. The analysis of the sentence is analogical to the sentence with locative *być* in the first interpretation. Naturally, the expression *pamiętać* does not lend itself to further decomposition.

3. In its semantic aspect, the analysed sentence differs from *Ja pamiętam* [I remember] with regard to the moment in time. The structure of the ontic equivalents of the two sentences is, however, identical: an object (individual) — a property with an attribute. In the context of the presented analysis, the verb *pamiętam* has a double function: it points to the attribute itself (the remembering) and to the property of present inherence (belonging) of this attribute.[12] The tense forms of *być* and other verbs specify the temporality of the property. The use of an appropriate form of the word *być*, especially as an element of a compound inflected form (e.g. in past perfect or as a movable suffix) emphasises the ontic structure: the temporal property — attribute.

THE ATTRIBUTIONAL (PREDICATIVE) MEANING (FUNCTION) — THE COPULA *BYĆ*

LEXICAL DEFINITION: a copula in a compound predicate
a) accompanied by an adjective, adjectival pronoun or a noun in the genitive case;
b) accompanied by a noun or a nominal pronoun;
c) accompanied by an adverb or an adverb-like noun, as an element of impersonal expressions. (SJP-D)[13]

EXAMPLES:

a) *Las jest gęsty.* [The forest is thick.] (SJP-S)
Chłopiec był dużego wzrostu. [The boy was (of) considerable tallness.] (SJP-S)

b) *Jan jest śpiewakiem.* [Jan is a singer.] (SS-GCP)
On jest mi przyjacielem. [He is a friend (to) me.] (SS-GCP)

[12]This remark is partially in accord with the conceptual framework described in the work *The Port-Royal Grammar* (Arnauld, Lancelot 1975). According to this thesis (based on scholastics) the only proper verb is 'to be' in the form of 'is', while all other verbs contain the function of both 'to be' and the complement (signifying a property (in time)), or even that of the subject (signifying an object (in time)). In contrast to the writers of *The Port-Royal Grammar*, I assume that *być* signifies not a manner of thinking (assertion), but a property (in time).

[13]The final point of the definition presented in this dictionary — "(d) [*być* as a copula] in a reduced form as a mobile suffix of other words in the sentence" — may be disregarded. The role of the reduced forms of *być* has already been mentioned in point 3. of the analysis of the futuristic meaning.

c) *Jest słonecznie.* [(It) is sunny.] (SJP-D)
Teraz było już za późno. [Now (it) was already too late.] (SJP)

SYNACTIC AND GENERATIVE MODELS:

a) $NP_N{}^1$ — (*zbyt/za* [excessively/too]) $\cap$ Adj_N + (. . .)
NP_G + (Adj_G)
taki [so] (*jak(i)/że* [like/that] $\cap$ S)
$NP_N{}^2$
b) $NP_N{}^1$ – NP_1 + ($NP._D$)
$NP_N{}^2$ (*dla* [for] $\cap$ NP_G)
c) – (*tak/już/zbyt/. . .* [so/already/too/. . .]) Adv + (. . .)

AJDUKIEWICZ'S NOTATION (MODIFIED) AND ITS ONTIC EQUIVALENT:

a) *jest gęsty* [is thick]; *był dużego wzrostu* [was (of) considerable tallness] — (1,0) — n\z — a property with an attribute
Las [The forest]; *Chłopiec* [The boy] — (1,1) — n — an object
gęsty [thick]; *dużego wzrostu* [(of) considerable tallness] — (1,0,0) — n\z\\n\z — an attribute
jest [is]; *był* [was] — (1,0,1) — n\z — a property
b) *jest śpiewak(iem)* [is a singer] — (1,0) — n\z – a property with an attribute
Jan – (1,1) — n — an object
śpiewak(iem) [a singer] — (1,0,0) — n\z\\n\z — an attribute
jest [is] — (1,0,1) — n\z — a property
jest przyjacielem [is a friend] — (1,0) — n\z/n — a relation
On [He] — (1,1) — n — an object
mi [(to) me] — (1,2) — n — an object
przyjacielem [a friend] — (1,0,0) — n\z\\n\z/n — a relational attribute, transformation: property → relation
jest [is] — (1,0,1) — n\z — a property
c) *(To) jest słoneczn(i)e* [(It) is sunny]
jest słonecznie [is sunny] — (1,0) — n\z — a property with an attribute
(To) [(It)] — (1,1) — n — an object (a conglomeration)
słonecznie [sunny] — (1,0,0) — n\z\\n\z — an attribute
jest [is] — n\z — a property

THE ONTIC EQUIVALENT OF THE SENTENCE:

A state of affairs in which a given attribute is inherent to a given object; the elements of the state of affairs: the object, the property of possessing an attribute, the inherent attribute. Special cases of attributes: a feature (*gęsty* [thick]; *dużego wzrostu* [(of) considerable tallness]); a permanent activity or group membership

(*śpiewakiem* [a singer]); a relational attribute: being someone/something in relation to someone or something (*przyjacielem mi* [a friend (to) me].

THE ATTRIBUTIONAL ONTIC EQUIVALENT TO *BYĆ* (SOMETHING): the fact that something is inherent to something (belonging of something to something else).

SUPPLEMENTARY REMARKS:

1. The analysis of the example sentences is similar to the previously discussed ones. The sentence *On jest mi przyjacielem* [He is a friend (to) me] is the most interesting in terms of structure. The direct elements of this sentence are two names (*on* [he] and *mi* [me]) and the sentence-making functor (operator) (*jest przyjacielem* [is a friend]), which the two names serve as arguments for. The names have their ontic equivalents in objects (individuals — people), the functor — in the relation between them. If the sentence did not include the expression *mi* [(to) me], then its structure and its ontic equivalent would not differ significantly from that of the sentence *Jan jest śpiewakiem* [Jan is a singer], equivalent to a state of affairs comprising an object, a property and an attribute. The presence of the second object (the equivalent of *mi*) transforms this property into a relation (of friendship). The first object (the equivalent of *on*) possesses an attribute (friendliness, as an equivalent to *przyjacielem*), but this attribute is a result of the relation: between the two individuals (persons) there exists a relation of friendship, which causes these individuals to possess the attribute of mutual friendliness. In the analysed sentence, the expression *przyjacielem* fulfils the role of a functor which, on the one hand, transforms a single-argument sentence-making functor into a two-argument one (categorial transformer: an ontic transformation of a property into a relation) and, on the other, signifies a relational attribute. The inflectional ending *(i)em* (indicating the instrumental case) may be treated as a categorial transformer that changes a name (an object) into an appropriate functor (a fitting attribute).

2. Certain types of relational attributes may be specified even further by using various grammatical forms (e.g. the comparative and the superlative), expression such as *zbyt* [too], supplementary phrases preceded by expressions such as *(a)że(by)* [(so) that], *na to* [in order to / that], etc. (e.g. *On jest większy od Jana* [He is taller than Jan], *On jest zbyt mały, ażeby dosięgnąć sufitu* [He is too short to reach the ceiling]).

3. In sentences of the same type as (c) the subject is only implied (it might be *otaczająca przestrzeń* [the surrounding space], *pogoda* [the weather], ect.). If the subject is directly introduced, the adverb in the latter part of the sentence needs to be replaced with an adjective. It is possible that subjectless adverbial constructions pertain to states of affairs which include objects-conglomerations and attributes that 'overshadow' the subject they refer to.

V. CONCLUSIONS FROM THE ANALYSIS

The conclusions are the result of the analysis of all meanings of *być*, not only the ones presented above (for details see Wojtysiak 2005).

1. The verb *być* does not function as a functor-forming functor in any of the example sentences presented in the dictionaries. The word in question always plays the role of a sentence-forming functor with one or two name arguments. In the first case its ontic equivalent can be identified with a property (sometimes expanded: a property with an attribute), in the second – with a relation.

2. Consequently, all types of *być* may be divided into two categories: *być* of inherence or belonging (attributive, predicative *być*) and relational *być*. The first type appears in sentences whose ontic equivalent is the following structure: object — property – attribute; the latter type is related to the structure: object — relation – (another) object.

3. In terms of its syntactic role and ontic correlates, the copula *być* does no differ in any significant way from the attributive (non-relational) *być*. All types of autosemantic non-relational *być* (or interpreted as non-relational) may, in fact, be understood as uses of the copula *być* (e.g. *Książka jest na szafie* [The book is on the cabinet] as *Książka jest naszafowo* [The book is on-the-cabinetly]). However, sentences containing what the dictionaries identify as the copula *być* reflect (isolate) the structure of object — property — attribute in a more pronounced manner than the sentences with any other type of attributive *być*.[14]

4. Both the attributive and the relational *być* always appear in an appropriate grammatical form (tense, person, number, voice, mood). These forms (or at least some of them) point to modifications in the relevant attributes and relations with regard to time, modality, etc. (e.g. the fact that a given attribute is inherent to the object in the present, future, past or distant past). However, according to the dictionaries only the grammatical forms which cannot be assumed by other verbs without *być* constitute separate categories of auxiliary *być*. In such cases *być* also puts emphasis on the structure object — property — attribute and points to modifications in the property: the attribute being inherent to a given object in the future (futuristic *być* — the construction of the compound future tense), the attribute being inherent to a given object in the distant past (plusquamperfective *być* — the construction of the past perfect tense), conditional inherence of a given attribute in the past (conjunctive *być* — the construction of the conditional mood in past tense), a passive inherence of a given attribute, i.e. the attribute being the result of some action (passive *być* — the construction of the passive voice). The use of the verb *być* in impersonal constructions (impersonal *być* in

[14]This conclusion partially corresponds to Gawroński's summary of Kahn's research on the verb *einai* "[...] there is one use central to the entire system of correlated uses, namely using this verb as a copula" (1990: 17).

expressions such as *Trzeba było /można było / można będzie* [One should have / It was possible to / It will be possible to]), which is related to the modal and the temporal *być* and may be connected to postulative sentences, is much more difficult to interpret (Grzegorczykowa 1995: 157).

5. Conclusions (1) — (4) may suggest that the division into autosemantic and synsemantic *być* is unnecessary. The attributional and relational meanings of *być* are subdivisions of the so-called autosemantic *być*, which invariably assume some grammatical form. The forms of the so-called auxiliary *być* are only forms of some types of the attributive *być*. The grammatical and auxiliary forms of *być* do not constitute a separate category (synsemantic *być*), but modifications of the autosemantic *być*. The verb *być* appearing in any given sentence indicates some type of a property or a relation, but also to their modifications with regard to time, modality etc. Types of these modifications delineate (some) grammatical categories.

6. A more detailed classification of the meanings (functions) of the verb *być* depends on whether the ontic equivalent of *być* in a given type of sentence is treated as a property or as a relation. The categorisation of the attributive *być* is related to defining types of properties; the types of the relational *być* are connected with categories of relations.

7. Properties may be divided according to the types of attributes. The analyses presented above justify distinguishing at least the following categories of attributes:

a) places,

b) moments and periods of time,

c) attributes actively 'possessed' (shaped) by objects, events and processes,

d) features: simple, relational and axiological,

e) activities and dispositions.

The fact that a given place is inherent to an object may be called a property of location; if it is a given moment or a period of time — the property is that of temporality etc.

8. Properties may also be classified according to the manner in which they bind the object to the attribute. For instance an attribute may be inherent to the object in a dynamic way (in such a way that it is only the object acquires it, becomes the carrier of the attribute — the equivalent of dynamic *być*?); in a contingent and static way (the equivalent of the ordinary attributive *być*, especially in sentences containing an adjective); in a necessary way (the equivalent of constitutive *być*) etc.

9. The analysis presented above suggests that relations may be divided at least into the following number of categories:

A) locative (spatial);

B) non-locative (non-spatial)

a) pure (abstract),

b) participative (relations of participation, e.g. of a person in a process or an event),

c) accessorily (objects in relation to the circumstances),

d) conjunctive,

e) possessive,

f) genetic.

10. The analyses of sentences presented above indicate that every object which 'creates' (constitutes) a given state of affairs possesses some property. Thus, property, i.e. having attribute, is a necessary condition for entering relations. It is also possible that the property of a given object indicates that object's being or even may be identified with it. This intuition seems to be expressed by the definition of one of the existential functors in Leśniewski's ontology (the definition of an object):

$ob\ a =_{df} (Ex)\ (a\ est\ x)$.[15]

11. If — as the previous conclusion suggests — it is true that, ontologically speaking, the original meaning of *być* is attributive, then the sentences containing the so-called existential *być* (e.g. *Jan jest* [Jan is]) could be regarded as underspecified. They would only communicate that a given object is, i.e. possesses some property, and so there is an attribute inherent to it but the attribute remains unknown. Such a reductive interpretation of existential sentences (as incomplete attributive sentences) may, however, be questioned. For this reason, the issue of existential sentences deserves a separate analysis.

VI. FINAL REMARKS

The present work does not include a detailed justification of the premises, the research method or the particularities of the analysis. This is partly due to the spatial constraints of the article and partly due to the fact that the above presentation constitutes only a suggestion of one of the possible analyses of the word *być* and its ontic equivalents. This analysis views ontic structures through the prism of sentence structures, while the considerations related to sentence structures are related to certain ontological presuppositions. I am unable to prove that these presuppositions are true or rule out alternative presuppositions. I am satisfied with stating that this analysis is acceptable and consistent in explicating some of the possible semiotic and ontological intuitive intuitions the users of the Polish language (conscious of the richness of ontic differences between the equivalents of the expressions of this language) might have.

[15]On the basis of the above presented analysis, it is also possible to define *być* using the framework of predicate logic of second order: Być$(x) \equiv\ (EF)\ F(x)$. However, this definition does not demonstrate the structure of property – attribute.

Some might find the conclusions from the above analysis trivial; others may consider it to be false. Most probably, however, both parties would also be likely to question the cognitive value of Aristotelian and scholastic tradition, which has been invoked here in at least two matters. What is meant here is, first of all, the extensive (and not minimalist) list of categories (differentiating at least between a substance / an object / an individual, various types of attributes and relations) and secondly, a serious consideration (related to syllogistics) of the structure of a categoric sentence (and its equivalent: object — property — attribute). Frege's contribution, i.e. replacing the sentence structure of '*S est P*' with '$F(x)$' resulted in a rapid development of logic, but was most probably detrimental to ontological awareness. The present work was an attempt to conduct an analysis that would be more sensitive to the ontic richness of the universe.

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ON AJDUKIEWICZ'S NOTION OF EXISTENCE

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(Some remarks connected with the problem of intentionalist language and idealism. Marginally on "On the notion of existence" by Kazimierz Ajdukiewicz)

I. Introduction. Four research trends concerning existence

The present paper[1] draws on the article "On the notion of existence. Some remarks connected with the problem of intentionalist language and idealism" by K. Ajdukiewicz (1951, reprinted in Giedymin 1978: 209-221) and to a great extent constitutes its corrective analysis (see below: part III). In this analysis the article by Ajdukiewicz is discussed in a broader context — against the background of some other texts by Ajdukiewicz (part IV) and four research traditions concerning existence (parts I and II). For it turns out that "On the notion of existence" is not only a representative sample of Ajdukiewicz's work, but also a text which allows us to show relationships between problems (and their solutions) within different philosophical traditions.

It is possible to differentiate the following four research trends concerning the issue of existence in the history of philosophy:

1. The first trend (the oldest, originating from ancient times and medieval Arabic thought) is clearly apparent in the theory of being of St. Thomas Aquinas and some of his contemporary interpreters (especially of the so called existential Thomists). According to this theory, existence-*esse* is the most important factor constituting every being. *Esse* is the first act of being, the act thanks to which

[1]This text is an elaborated version of a paper delivered on 22^{nd} March 1996 in the Kazimierz Ajdukiewicz auditorium of the University of Warsaw as a part of semiotic seminar run by Professor Jerzy Pelc (Polskie Towarzystwo Semiotyczne [Polish Semiotic Society], program Znak– Język –Rzeczywistość [project Sign–Language–Reality]).

being is at all (some will say: exists in reality) and, by the same, radically differs from nothing (non-existence: that it does not exist). Such a conception of being relates to the approach of extreme metaphysical and epistemological realism.

2. The second trend, clearly present in modern philosophy (though not devoid of precursors), relates to the question: is there anything outside cognitive consciousness (the mind, the sphere of *cogito*, etc.)?, and if there is, then what is its relation to consciousness? Posing this problem questions the irrefutability of a realistic approach, and results sometimes in formulating various variant of idealistic theories (such as, for example — to use Ajdukiewicz's terminology — immanent or subjective/psychological idealism of G. Berkeley, objective/logical idealism of G. W. F. Hegel and transcendental idealism of I. Kant or E. Husserl).

3. The third trend occurs in the tradition originated by F. Brentano, whose students (e.g. K. Twardowski and A. Meinong) created a theory of object. This theory assumed the so called intentionality principle (for every mental act, there is such an object that the act refers to), and involved the necessity to classify objects and differentiate the members of this classification, among others, into existing and non-existing objects. Theses of this theory can be interpreted idealistically: all types of objects are ONLY objects of cognition or (re)presentation, thus they somehow depend on consciousness. However, these theses can also be interpreted as a consequence of a special form of realism – extensive realism (if the term can be introduced in want of a name): what really (in an irreducible way to anything else) IS (as being) is not only conscious subjects (idealism), and what exists independently of them (realism, e.g. Thomistic realism), but also what does not exist at all (but, for example, subsists or quasi-exists). In both interpretations, the notion of non-existing object requires a detailed explication. Anyway, discussing non-existing objects leads to stylistic, logical and ontological difficulties. The theory of objects (including non-existing objects) turned out, however, to be inspiring. On the one hand, it can be claimed that the theory of R. Ingarden (who belongs, in the broad sense, to the Brentanian tradition and thus to the third trend) of various kinds or ways (or modes) of existence (instead of the theory of existing and non-existing objects) is a better solution to the issues discussed by Twardowski and Meinong. On the other hand, Meinong's views were challenged by B. Russell (and, as will be shown later, Twardowski's views were challenged by Ajdukiewicz), which resulted in important achievements in the fourth trend concerning research on existence.

4. This fourth trend, abundant in professional literature, is developing within the contemporary analytic philosophy of language and logic as well as related to the latter ontology. In this trend, it is possible to differentiate a more linguistics-based approach (e.g. Ch. H. Kahn),[2] and a more logic-based approach (originated

[2]See e.g. Kahn (1973) as an example of broader research on the verb *be* and its synonyms in various languages.

by G. Frege). The aim of the former is to collect and systematize various usages (or ways of usage) of the verb *be* and related expressions (e.g. according to a criterion of being a derivative or a criterion of reducibility), and to find existential usages among them. The aim of the latter, however, is to define or specify the logical status of existential expressions by means of such terms as: identity, second order predicate, property of concepts (Frege); non-emptiness of sets, property of propositional function, logical proper name — definite description (Russell); existential quantification, value of a variable (W. V. O. Quine); presupposition (P. F. Strawson), etc.[3]

II. Research trends concerning existence and Ajdukiewicz's article

The previously mentioned article by Ajdukiewicz belongs to this fourth and logic-based approach. In his article, Ajdukiewicz adopts the definition of the expression "exists" (and actually, the definitions of a few functors of existence or existential functors) from S. Leśniewski's ontology. These definitions contain only name variables *x*, *y*... (which can be substituted by any names: *a, b*...), quantifiers (here: '(x)' and '(E x)') and the only primitive term: constant epsilon (here: 'est' — 'is'), as well as symbols of the classical propositional calculus, such as conjunction (here: '·') and logical consequence (here: '<'). Here follows the definitions (here: Leśniewski's existential definitions — LED) in one of their notations:[4]

LED1.: *ex a* [at least one *a* exists, there exist *a*'s] ≡ *(E x) (x est a)* [something is an *a*];

LED2.: *sol a* [at the most one *a* exists, there exists at the most one *a*] ≡ *(x, y) (x est a · y est a < x est y);*

LED3.: *ob a* [*a* is an object] ≡ *(E x) (a est x)* [*a* is something at all].

According to Borkowski (1991: 190), the following definition can be added:

LED4.: ex_1 *a* [exactly one *a* exists, there exists exactly one *a*] ≡ *ex a · sol a.*

[3]Most of these propositions were originated by Frege (according to R. Grossman (1983: 393-396) young Frege already defined "to exist" as "to be identical with oneself"), and further developed and elaborated on by different authors. The above list is not exhaustive. Additionally, there are such authors who talk about existence as a predicate of the first order (or accept such an interpretation in special circumstances – e.g. Strawson), and such authors who do it within a theory of possible words (e.g. for R.M. Adams (1979: 191) "to exist" means "to be in any possible word"). In the Polish professional literature, sets of various logic-based expressions are given, among others, by U. Niklas (1974), L. Koj (1990: 112-125), U. Żegleń (1991).

[4]Ajdukiewicz indicates that these definitions — unlike the Russell-Whitehead definitions — allow us to use the predicate "exists" also to proper names and seem to be closer to colloquial speech. To see other formulations and interpretations of these definitions (and theorems) cf. D.P. Henry (1971: 124-126), Ajdukiewicz (1951), T. Kotarbiński (1986: 193-195), L. Borkowski (1991: 187-191), A.K. Rogalski (1995: 61).

Then in ontology the following Leśniewski's theorem (LT), among others, can be proved:

LT: $ob\ a \equiv ex_1\ a$.

It needs to be highlighted that Ajdukiewicz — using Leśniewski's language – refers (directly or indirectly) in his article not only to the fourth trend (as has been shown), but also to the remaining three mentioned research trends concerning existence:

FIRSTLY (in relation to I.3), on the basis of the thesis of ontology "if a is an object, then a exists" Ajdukiewicz (contrary to, among others, Twardowski) claims that "no sentence of the form 'a is a non-existing object' can be true" (Giedymin 1978: 211). Then, Ajdukiewicz proceeds to make Twardowski's terminology more precise through introducing the following terms to Twardowski's vocabulary: "merely thought-of object" or "intentional object," "existence only in thought" or *ens/esse intentionale* (this latter term originated in scholasticism — related to the first research trend!). The next step taken by Ajdukiewicz is to show — by means of the appropriate extension of Leśniewski's language — how "it is possible to construct one's own language so as to be able to speak meaningfully of 'real objects' as well as of 'merely thought of [sic!] objects', of 'real existence' as well as of 'merely intentional existence', etc." (Giedymin 1978: 212). In other words, Ajdukiewicz gives an example of a two-part language which allows to talk about two types of objects or modes of existence, distinguished in the third research trend.

SECONDLY (in relation to I.2), this language created by Ajdukiewicz (which he did not regard as his own) is, in terms of structure, similar to the language "in which the idealist asserts his fundamental thesis formulated in the material and not only in the formal mode [...] 'objects of experience do not exist really but only intentionally'" (Giedymin 1978: 218). Ajdukiewicz attempts to prove that "the idealist asserts without any foundation the second, intentional part of his thesis" or "the idealist cannot assert the first part of his thesis in the language he speaks" (Giedymin 1978: 221). By the same token, he makes a severe criticism of idealism, and the criticism is more severe than the one that consists in proving idealism false.

THIRDLY (in relation to I.1), in his most severe criticism of idealism, Ajdukiewicz indirectly shares anti-idealism which is characteristic of the first research trend, and which claims that realism is unquestionable, while "all idealist philosophers devour their own feet" and idealism "engages philosophy in an inextricable series of internal contradictions" (Gilson 1990: 23). It is no coincidence that the eminent Polish Thomist, a former student of Ajdukiewicz, S. Swieżawski writes:

"Filozoficzna postawa Ajdukiewicza pociągała mnie przede wszystkim z uwagi na jego zdecydowany, bezkompromisowy realizm. [...] Postawa idealistyczna wydawała mi się nie do przyjęcia przez normalnie funkcjonujący intelekt [...]"

(1993: 7, 9), which translates:

"Ajdukiewicz's philosophical stance attracted me most of all owing to his decisive and uncompromising realism. [...] Idealistic approach seemed to me to be unacceptable for a normally functioning intellect [...]."

III. Corrective analysis of Ajdukiewicz's article

The above mentioned relationships between Ajdukiewicz's article and the four research trends concerning existence constitute a presentation of the article's structure. It is possible now to analyze the article in greater detail, by means of the following questions:

a) is Ajdukiewicz's two-part language that includes the notion of intentional object (existence) exact and detailed to a sufficient degree (which is aimed at in the fourth trend)?

b) does Ajdukiewicz give an explication of the notion of intentional object (existence) adequately enough to the content of the notion and the way it functions in ontological theories (of the third type) in which this notion plays a significant role?

c) is Ajdukiewicz's criticism of idealism (connected with the second trend) sufficient in the discussed context?

d) does Ajdukiewicz's criticism of idealism differ in principle from the criticism of idealism by the Thomist E. Gilson (who represents the first trend)?

I answer all these questions negatively. The best justification of the answers will be to propose some corrections and supplements to Ajdukiewicz's article.

Ad a) and b).

The language proposed by Ajdukiewicz consists of two parts: an empirical or realistic language (L_r) and intentional language (L_h).[5] The former encompasses sentences which — "result from sentences meaningful in ontology by substitution of names for free variables" (Giedymin 1978: 214). What can be asserted[6] as theses of language L_r are those sentences which directly or indirectly meet the criteria of experience. $L_h$differs from L_r in that the theses of L_h are accepted not

[5]Most probably, Ajdukiewicz uses the "h" subscript because his example of intentional language is a language created through adding sentences from a Polish translation of Homer's epics to Leśniewski's ontological theses. The symbol "i" is used by Ajdukiewicz and myself (though in a slightly different way) only while formulating the idealistic language and thesis.

[6]It seems that, in the analysed article, Ajdukiewicz uses the expression 'to accept a sentence (in a particular language)' and 'to accept a thesis (in a particular language)' interchangeably. In another text, Ajdukiewicz gives an explication of the expression "to accept a statement" in the following way: "If a person in a statement utters his belief, then we say that he accepts that statement" (Ajdukiewicz 1974: 106).

on the basis of experience language-external or real objects, but on the basis of assertion that a particular sentence is present in an appropriate text.[7]

What needs to be highlighted at once is that it is better to call L_r a realistic language, since both languages are empirical languages in a broad sense. They are experience-based languages: accepting sentences in L_r involves experiencing language-external objects, in L_h — language objects. Moreover, a phenomenologist would say that (depending on consciousness) intentional objects are experienced in the type of experience that is different from (sensory) experience of real objects, but has something in common with it (see e.g. Stępień 1995: 116). Analogously to the linguistic convention introduced by J. Pelc (1983: 179), which differentiates between a FICTITIOUS object (or an object of fiction) and a FICTIONAL text (or a fiction-based text), it seems to be reasonable to call L_h — an INTENTIONALIST language as opposed to INTENTIONAL object or existence.

Except for the mentioned remarks, Ajdukiewicz does not characterize in detail the realistic (empirical) language, however he characterizes the intentionalist (intentional) language through an example of a directive for accepting sentences of a language "in which the notion of an intentional object of Homer's epics occurs" (Giedymin 1978: 216). Leaving this open, if such an approach is right (as it can raise some doubts) and sufficient (and it is not), it is possible to reconstruct the following directive for accepting sentences of language L_h on the basis of Ajdukiewicz's texts (Ajdukiewicz's directive – AD):

AD: it is allowed to accept an object-language sentence p in intentionalist language L_h if in realistic language L_r the meta-linguistic sentence "a certain sentence in text x is isomorphic to sentence p" is accepted, or if it is possible to obtain, in L_h on the basis of the language's inference rules, sentence p from an object-language sentence (sentences) already accepted in L_h.[8]

Formulating this directive requires comments, supplements and corrections:

(1) Instead of the sentence of the form *a est b* (given by Ajdukiewicz), the

[7]It seems that the vocabulary and the syntactic rules of L_r and L_h are determined by the vocabulary and the syntactic rules of Leśniewski's ontology as well as a particular natural language (in the case of L_h – by (a fragment of) the language in which the text is written.

[8]AD is a semantic directive (language directive) in Ajdukiewicz's sense (1985a, 1985b, 1985c or Giedymin 1978: 1-34, 35-66, 67-89). It is a multi-level directive, hence it is difficult to classify it unambiguously as axiomatic, deductive or empirical. The direct relation this directive is based on is the acceptance of a certain sentence in the realistic language (or the derivation of some sentences from other sentences — the deductive directive). Is this acceptance a certain empirical datum (the empirical directive), or a premise of a certain deduction (what deduction?; the deductive directive)? The ultimate basis of AD is the occurrence of sentences in a text. Is the acceptance of the sentences determined by the empirical directive (occurring in a text as an empirical datum), or the axiomatic directive (occurring in a text as a property of the set of axioms of a particular intentionalist language)?

present article makes use of sentence p, in order not to prejudge the shape of the sentence that can be regarded as acceptable.

(2) The variable x in the expression "in text x" can be substituted with a title of any text (e.g. Ajdukiewicz uses *Iliad* and *Odyssey*) or (a part of) a name that designates the text (either independently or in context; Ajdukiewicz uses the indefinite description, e.g. "Homer's texts" (Giedymin 1978: 217)). It needs to be highlighted that what is meant is any (not only a fictional) text, since (if views of phenomenologists are freely paraphrased — cf. Ingarden 1988: 193 and 407) the assertion of occurrence (and even the very utterance) of the sentence in the text is equivalent to the acceptance of a certain intentional state of affairs. This state of affairs (or its equivalent) can also exist in reality, but when asserting its reality it is not enough to refer to the very (even scientific) text. What is needed is to refer to appropriate (e.g. empirical) cognitive operations (whose results can be presented in the scientific text).

(3) L_h must be relativized to a particular text. Without the relativization L_h would be an incoherent language, in which (even contradictory) sentences from different texts could be theses. Thus, it is needed to introduce the symbol $L_{h:x}$ for the intentionalist language for the purpose of text x, and $L_{h:x,y}$ – for the intentionalist language for the purpose of text x and y (a combination of texts), etc. L_h is the intentionalist language relativized to any text(s) or all texts (the universal intentionalist language). The antinomiality of such a language or some languages that are a combination of texts is not so striking if item (5) of the present considerations will be accepted.

(4) As highlighted by W. Marciszewski (1973: 194-198, 206), who supplements Ajdukiewicz's views, accepting a sentence takes place on account of particular "general characteristics of acceptance." Marciszewski proposes characteristics, which do not allow us to accept internally contradictory sentences or sentences leading to a contradiction in a particular intentionalist language, but agrees on other characteristics of accepting as well. Thus, AD needs to be supplemented with the expression "on account of CA" (that is on account of the adopted characteristics of acceptance) after the verb "to accept."

(5) The adopted characteristics of acceptance should be adjusted to the nature of the text to which a particular intentionalist language is relativized. If the text is a postmodern novel (anti-novel) in which, for example, the narration refers to contradictory states of affairs, then other CA than the one proposed by Marciszewski needs to be adopted. Similarly, inference rules: inference rules of language $L_{h:x}$ are determined by the nature of text x, thus they can allow and even prefer (in the case of specific texts) to generate contradictory sentences. The question arises if such a language (and its text) could have its model. According to Marciszewski (1973: 197) — who refers to the characteristics of models of the language of fiction given by Pelc (1971: 122-139) — the answer is no. These

characteristics, however, do not directly imply that creating a model of language with contradictions would not be possible at all. It seems that such a model cannot be excluded, though it would be "overfilled."

(6) As the law of non-contradiction does not apply in specific intentionalist languages (relativized to particular texts), the law of excluded-middle can not apply to all intentionalist languages. On the basis of the law of non-contradiction, a rule (NR) can be formulated to prohibit acceptance (or force rejection[9]) of sentence *not-p*[10] in the case of accepting sentence p (or respectively: p when *not-p*). Whereas the rule formulated on the basis of the law of excluded-middle (EMR) forces acceptance (prohibits rejection) of at least one of two contradictory sentences: acceptance of sentence p in the case of rejecting sentence *not-p* (or respectively: *not-p* when p). If, following Ingarden (1987b: 203-207), we accept that every intentional object (due to the finiteness of its acts) has (in its contents) the so called spots of indeterminacy, then EMR does not have a universal application in any (finite) text or any intentionalist language based on this text. For it is possible that in a given intentionalist language neither a particular sentence, nor its negation can be regarded as acceptable. There are a few solutions in such a case:

PRIMO: a thesis that needs to be accepted in $L_{h:x}$ is the joint denial *neither p, nor not-p* (which is equivalent to the negation of the law of excluded-middle), thus both p and *not-p* should be rejected; however, since *neither p, nor not-p* is equivalent to *p and not-p*, then rejecting both p and *not-p* is equivalent to accepting both of them;

SECUNDO: what should be accepted in $L_{h:x}$ is the alternative *p or not-p* (and, by the same, EMR); however, a language user is not capable of determining which of these sentences (components of the alternative) should be rejected, and which should be accepted, because neither the text nor inference rules determine the acceptance or the rejection of any of these sentences, these sentences are, thus, neutral on account of acceptance/rejection;

TERTIO: what should be accepted in $L_{h:x}$ is the alternative *p or not-p* (and, by the same, EMR); the language user decides which sentences (components of the alternative) should be rejected, and which should be accepted, in an intellectual process called text interpretation.

All these propositions correspond to Ingarden's views. The first,[11] however,

[9]It is necessary to reject a sentence in $L_{h:x}$ if neither an isomorphic sentence occurs in text x, nor can it be obtained in $L_{h:x}$ (on the basis of the language's rules) from sentences previously accepted in this language. Thus, what is required to reject a sentence is a familiarity with the whole text and an ability to determine what can not belong to the set of the text's consequences.

[10]Instead of the functor, symbols of the classical propositional calculus, appropriate English words will be used in the present article.

[11]Ingarden (1987b: 205), analyzing the content of R. M. Rilke's poem, writes about

despite Ingarden, leads to our accepting contradiction in all (and not only some) intentional objects[12] (here: intentionalist languages). The second not only highlights the moment of indeterminacy of an object (text), but separates it from a broader background: it neglects the creative role of a receiver of a work of art or a text. The third — free from the above disadvantages and considering the pragmatic context — seems to be the most accurate. According to this proposition a receiver of a work of art or literature processes, in appropriate acts, its concretization (to use Ingarden's term) or interprets a text (to use the terminology adopted here). Opting for the third conception, it is necessary to add to AD that in certain cases, p can be accepted on account of the interpretative preferences of the receiver (in relation to the sentences here called "neutral").

(7) L. Koj (1990: 117-118), discussing the issues of translating sentences concerning fictitious objects into a meta-language, observes that (to use the terminology adopted here) sentences accepted in $L_{h:x}$ do not occur in text x, when x is written in a foreign language (e.g. Polish) in relation to the language of $L_{h:x}$ (e.g. English). Following Koj's suggestion, it seems reasonable to, among others, replace the expression "isomorphic" in Ajdukiewicz's directive (as Ajdukiewicz focused his analyses only on Polish texts or translations into Polish) with "synonymous." After all, two isomorphic expressions may have different meanings (while two synonymous expressions may have different shapes); it is not always the case that isomorphic expressions have the same meaning (or synonymous expressions have the same shape).[13] If Pelc's (1971: 15-24) analyses concerning the usage of expressions are to be used, it seems that it is possible (in a certain sense of the word "meaning") to replace the expression "is isomorphic" with the expression "is used in the same way as sentence p;" it would be necessary, however, to add: "and occurs in the same usage as p." It seems that Pelc would not accept the possibility of having non-isomorphic expressions with exactly the same usage. In $L_{h:x}$, however, non-isomorphic sentences are very often accepted in relation to the sentences in text x.

(8) Although the introduction of the notion of synonymy (or ways of usage and usage) is necessary, it leads to a series of complications and problems (not smaller than the introduction of the notion of translation). Most of all, it turns the

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the poem's protagonist that his body "should have an infinite multitude of various properties, but actually does not have them in the particular intentional object, because the text does not establish them, however, it also does not contradict them."

[12]"A purely intentional object may be contradictory, internally inconsistent or incomplete — BUT NEEDS NOT NECESSARILY BE SO" (Ingarden 1987c: 243).

[13]It is worth considering if it would not be better to talk in this context about a (content? range?) translation of a sentence in the original text into a sentence in $L_{h:x}$. The notion of translation raises, however, a series of complicated problems. After all, the notion of synonymy has an advantage in that it can be applied not only to the sentences in which one is the current translation of the other.

arguments — despite the intentions Ajdukiewicz[14] declares in the discussed article — from the purely syntactic plane to the semantic plane (or pragmatic, and at least "functional"). Then arises e.g. the problem of what constitutes synonymy between non-isomorphic sentences (one of which belongs to text x, and the other is to be accepted in $L_{h:x}$). Koj (1990: 118) also indicates the danger of a vicious circle which consists in that (if Koj's opinion is not misinterpreted here) the meaning (recognizing the meaning?) of a sentence synonymous with p is determined by its presence (recognizing the presence) in a particular text, and the presence in a text is determined by having a particular meaning. Leaving the complicated issues of the theory of meaning it is enough here to answer that Ajdukiewicz — unlike Koj – does not give an explication of the meaning of sentence p (or its truth conditions, or even all rules on how to use it), but states only (in a very general directive of accepting) when it is allowed in $L_{h:x}$ to accept sentence p: it is allowed to accept sentence p in $L_{h:x}$ either when, according to a language user of $L_{h:x}$, p is synonymous with a sentence in x (and in a special case, when p is in x), or when p can be derived from the sentences in x on the basis of adopted deductive rules. This directive does not even involve a choice of any conception of meaning.

(9) The results presented in items (6) and (8) can serve as a basis to relativize the intentionalist language not only to a text, but also to its user. Since the user of this language (restrained only by own interpretative preferences) decides which of the neutral sentences may be accepted, and since the language user (in the face of a lack of strict rules for determining sentence synonymy) decides if a given sentence is synonymous with a sentence in the text, then languages relativized to the same text can differ in their accepted sentences depending on the decisions of a language user. Thus, $L_{h:xu}$ is an intentionalist language relativized to text x and language user u. Similarly to the possibility of combining texts – shown in item (3) — there is a possibility of communication between users of intentionalist languages and of creating a language relativized to a certain group of users.

(10) Another difficulty observed by Koj (1990: 118) is connected with the fact that text x may contain e.g. sentences uttered by a protagonist in direct speech and inconsistent with the content of narration. In order to overcome the difficulty, Koj proposes that the truth condition of a sentence about a fictitious object (here: a condition for accepting a given sentence in $L_{h:xu}$) be the occurrence of a synonymous sentence "in work (here: text) x as imitation of a description of real persons or events." This phrasing seems to be too broad on the one hand (a text's sentences do not need to imitate anything), and too narrow on the other (a text's sentences may imitate not only real objects, and real objects do not reduce to persons and events). Moreover, it ignores the problem of sentences uttered by a text's protagonist, or weakens their role for a particular intentionalist

[14] "[...] whereas our analysis is purely syntactical" (Giedymin 1978: 215).

language. It is enough to indicate here that sentences uttered by a protagonist of an epic or drama text are sentences of the protagonist of the text (and not of the very text), hence they should be either put into quotation marks[15] (in the case when the protagonist quotes another character's utterances, additional quotation marks are needed, and iteration of a quotation leads to an n-fold quotation),[16] or treated not as sentences but as parts of sentences of the type: *y said*: ... (or *y*: ... — as in dramatic texts).[17] In these (and similar) special cases, AD will concern accepting sentences synonymous with appropriate quotation-mark-sentences or "whole-sentences." After all, the issue discussed here reveals a broader problem: what is accepted: single sentences, or rather (constituting their context) complexes of sentences, perhaps even together with hidden assumptions and consequences?

(11) It needs to be highlighted that text x may contain sentences (questions, orders, exclamation sentences) or verbless sentences to whom truth value traditionally are not assigned and which are not said to be accepted (or not) as theses of a language. For example, canto XXVII of "Paradise" in *The Divine Comedy* reads: "O joy! O gladness inexpressible! / O perfect life of love and peacefulness" (Dante 2015). According to the current considerations, there are three possibilities of accepting this verbless sentence (ellipsis?) in the intentionalist language relativized to the translation of *The Divine Comedy*:

PRIMO: it is necessary to transform the quoted expression into an indicative sentence whose content corresponds to the content of the quoted expression (so that both expressions are synonymous in aspect); this sentence (e.g. "God's glory causes the joy of eternal life in those in paradise") can be regarded as a thesis of the intentionalist language;

SECUNDO: what can be regarded as a thesis (according to item (10)) is either a sentence version of the quoted expression but put in quotation marks, or simply the sentence: "the person speaking (Dante) says: O joy! O gladness [...]!"

TERTIO: the quoted expression needs to be accepted in the intentionalist language, but in another sense of the word "acceptance." To "accept the quoted expression" would mean here to "assert that this expression is in the text" or "assert that whoever would be in the world presented (determined) by this text, (s)he should (or could without contradicting this world's order) utter this expression."

(12) It is worth considering if text x belongs to $L_{h:xu}$. There are two possible conceptions. In the first, the text is not a part of appropriate intentionalist

[15] It is only a quotation mark, so the expression it creates is not a quotation-mark-name.

[16] It is connected with a problematic issue of the so called multi-level fictionality, mentioned by J. Paśniczek (1984) who analyzes selected conceptions of fictional objects and paradoxes related to them.

[17] In lyric and certain types of narration, the whole text is only an utterance of somebody, hence it should be consistently treated as a quotation and all its sentences should be put into quotation marks or preceded by a colon.

language, but a basis to formulate it. Then, the set of theses (of expressions accepted in) $L_{h:xu}$ is a set of expressions obtained from x through appropriate operations (e.g. translating or interpreting) and accepted on the basis of operations of accepting determined by AD. In the second conception, the set of theses (of sentence expressions accepted in) $L_{h:xu}$ ($T_{Lh:xu}$) is the smallest set that includes the set of sentences of text x and is closed due to the operations of accepting determined by AD (Cl (x, A_{AD})), thus:

a sentence expression E belongs to $T_{Lh:xu} \equiv$ E belongs to Cl (x, A_{AD});

and

x is included in $T_{Lh:xu}$, thus x is a part of $L_{h:xu}$.

What is adopted here is the second conception, according to which using $L_{h:ux}$ is either uttering (and accepting) the expressions of text x, or doing certain operations on the text x (translating, establishing synonymy, deducting, interpreting, etc.), or uttering (and accepting) the results of such operations. The following persons can function as users u of language $L_{h:xu}$: the author of text x, a reader of text x who understands the text, a translator, an interpreter, a critic, a continuator who accepts and develops the content of the text.

Taking into account remarks (1)-(12), AD can be formulated anew and changed into a corrected Ajdukiewicz's directive (AD'):

AD': it is allowed to accept sentence p (or "p") in an intentionalist language that is relativized to text x and used by user u, that is in language $L_{h:xu}$, on account of the adopted characteristics of accepting CA (determined, among others, by the nature of text x), if and only if the meta-language sentence "a certain sentence in x is regarded by u of language $L_{h:xu}$ as synonymous with p (or "p")" is accepted in realistic language L_r on account of CA, or when it is possible to obtain p (or "p") in $L_{h:xu}$ on the basis of the language's inference rules (determined, among others, by the nature of text x) and, if necessary, interpretation preferences of u of language $L_{h:xu}$(in relation to neutral sentences of text x) from a different, already accepted on account of CA in $L_{h:xu}$, sentence (sentences).

The above directive and the preceding remarks provide some more precise information on intentionalist language. However, they contain neither a real definition of intentional existence or intentional object, nor nominal definition of their names. According to AD', it is possible to accept a sentence that contains a certain existential functor, and by the same token asserts, for example, that a given item exists or is an object. On the basis of appropriate ontological definitions by Leśniewski it is possible to eliminate the functor, and, by the same definition, to determine its sense by means of the logical symbols in the definitions. These definitions, if they occur in a given intentionalist language, are only definitions of the expressions "there is (at least one) ...," "... is an object," etc. in the analyzed language. They are, however, neither nominal definitions of the expressions "there is intentionally (at least one) ...," "... is an intentional

object," nor a fortiori real definitions of intentional existence or intentional object. In such a situation, Ajdukiewicz just adds subscript h ("intentional flat") to the symbols of existential functors as long as they are treated as belonging to the intentionalist language. Thus, he introduces symbols ex_h and ob_h, and refers to their meanings as "the notion of intentional existence" and "the notion of intentional object," respectively (by way of analogy, he introduces symbols for certain expressions of the empirical/realistic language: ex_r and ob_r, and refers to their meanings as "the notion of real existence" and "the notion of real object"). Because Ajdukiewicz (1985f: 190) does not want to use definitions of semantic nature, and in general attempts "not to contaminate his language with a term with such a bad reputation like the term őintentional existenceź," he retreats from any definition of "intentional existence" and "intentional object."[18]

However, such definitions could be attempted. Here follows a sample set of definitions:

D1: *p'* is an intentional state of affairs that is assigned to sentence p in $L_{h:xu}$ $\equiv$ *p'* is a state of affairs that is determined by sentence p accepted (or potentially accepted) in $L_{h:xu}$ according to AD', and *p'* is determined by sentence p as an accepted (or potentially accepted) sentence in $L_{h:ux}$ according to AD' (the second part of the conjunction is necessary, because there could be sentences that are accepted in both $L_{h:xu}$ and L_r);[19]

D2: *a'* is an intentional object that is assigned to name a in $L_{h:xu} \equiv$ *(E p, p')* (a is, or can – without a change in the meaning of p — be, the subject in sentence p in $L_{h:xu}$ and *p'* is an intentional state of affairs that is assigned to sentence p in $L_{h:xu}$) (cf. LED3);

D3: *a'* (at least one *a'*) exists intentionally on account of language $L_{h:xu}$ that contains name $a \equiv$ *(E p, p')* (p in $L_{h:xu}$ has, or can — according to rules in language $L_{h:xu}$ — have, the shape *ex a*, and *p'* is an intentional state of affairs that is assigned to sentence p in $L_{h:xu}$) (cf. LED1.).

The above definitions are real definitions of BEING an intentional state of affairs, an intentional object and intentional existence, but they can be treated as nominal definitions of the respective expressions (by putting them in quotation marks). Under the second approach, it would be said that the term "state of affairs" (or "what is determined by the sentence," if it is possible to eliminate

[18]Anyway, Ajdukiewicz highlights that his object language contains neither the term "intentional object" nor "real object." The latter could be a synonym of the term "object" at the most.

[19]It needs to be remarked that, according to the content of footnote 9, the condition for the rejection of a sentence is when all conditions for accepting it are not met. In such a case, "it is allowed (possible) to reject p" is synonymous to "it is not allowed (possible) to accept p;" thus, "it is not allowed (possible) to reject p" is synonymous to "it is not allowed (possible) not to accept p," that is "it is possible to accept p." If the above is correct, then it is enough to say in D1 "sentence p accepted (or not rejected)."

this original term by means of the sentence) is a primitive term. What is assumed in the definitions is that the state of affairs is an equivalent to the sentence (preferably, of the shape *a est b*), while the object is an equivalent to the subject of the sentence, and the existence of the object is an equivalent to the sentence that contains functor *ex* (or the sentence that is equivalent to the sentence with the functor).

If the above terminology and the related semantic and ontological assumptions are not accepted, then another set of definitions can be formulated. This set, however, needs to be in accordance with the following generalizing definitions (GD):

GD1: a is an intentional object on account of $L_{h:xu} \equiv$ the sentence "a is an object" is (can be) accepted in $L_{h:xu}$;

GD2: a exists intentionally on account of $L_{h:xu} \equiv$ the sentence "a exists" is (can be) accepted in $L_{h:xu}$.

GD1–GD2 can be specified in various ways depending on the accepted (e.g. included in Leśniewski's ontology) definitions of the object and existence. For example, by means of LED3 it is possible (through appropriate operations) to transform GD1 in D2, while by means of LED1. — GD2 in D3.

The above considerations and their results (DA', D1–D3, GD1–GD2) quite precisely express some intuitions of the Brentano-phenomenological tradition. A representative of this tradition could, however, remark on two serious simplifications made here.

The first is about that an intentional object/existence is relativized to (expressions of) a certain language. Such an object is however — as Ingarden would say (1987b: 162, 196; 1988: 190-193) — only a derivatively intentional object, for language is relativized to particular consciousness acts of the language's users. "A purely intentional object is an equivalent to and a creation of an act or acts of consciousness. There are, however, various types of acts, though correlatively, and various types of intentional objects" (Ingarden 1987b: 162). Thus, the definitions presented above concern only certain types of intentional objects and do not take into consideration their most important relativization — the relativization to acts of consciousness.

The previously quoted article by Marciszewski provides three comments which can help to supplement the above considerations in accordance with Ingarden's conception:

PRIMO: it is possible to differentiate between actual texts (here: languages), that are written or uttered, and potential texts (languages), that are only thought but not realized in written or spoken form (Marciszewski 1973: 195); then an intentional object (existence) would need to be relativized to an intentionalist potential language (which would lead, however, to ignoring derivatively intentional objects relativized to actual languages) or to both languages (which would lead,

however, to ignoring the derivativeness of the actual language from the potential language); hence what should be discussed here (although rather artificially) is the relativization of the object to the consciousness layer of intentionalist language or to this language's pre-verbal stage;

SECUNDO: it is possible to determine the notion of intentional object (existence) by means of the notion of accepting as a certain act of consciousness (cf. Marciszewski 1973: 206): something is an intentional object if and only if there is an act of accepting of a particular sentence, its pre-verbal content or the object (something) that the sentence/content concerns; however, in the Brentano-phenomenological tradition, intentional objects need not be correlates of acts of accepting, for these acts are preceded by acts of presenting (cf. Twardowski 1965: 4-8, 13, 33);

TERTIO: it needs to be stated that something is an intentional object (exists intentionally) if and only if somebody somehow thinks about it (in the broadest sense of the word "thinks" that encompasses any type of act of consciousness characterized by the moment of intention) (Marciszewski 1973: 202), or (it needs to be added) if somebody can think about it provided the person comprehends the complex of signs (resulting from, among others, somebody else's acts of consciousness); a special case of such thinking is the thinking that respects appropriate criteria.

In accordance with the above remarks, the following phenomenological description of intentional object can be proposed (PIO):

PIO: an intentional object is a correlate of acts of consciousness (which, in a special case, meet certain criteria), e.g. thinking, or of their results, e.g. judgements (that create texts/ potential languages), or of linguistic expressions of these results, e.g. sentences that create (actual) texts/ languages; these acts, results or their expressions can be treated either as belonging to a particular individual, or as independent of the individual.[20]

The second simplification consists of neglecting a very important differentiation present in Ingarden's writings (and has equivalents in the Meinong tradition, and, to some extent, in Twardowski). The differentiation is between the intentional object as such ("intentional structure") and its content (Ingarden, 1987b: 195-203; 1988: 181-190). This differentiation allows, among others, to avoid certain paradoxes, e.g. a intentional equivalent of a name exists intentionally, because it is only an equivalent of a linguistic meaning-entity, and at the same time it exists really, because this equivalent is alleged as something real in this entity

[20]According to Ajdukiewicz (1973), the approach in which the existence of something relies only on being a correlate of acts of consciousness of a certain individual (individuals) is subjective (psychological) idealism, while the approach in which the existence of something relies on being a correlate of the results of acts that are independent of the individual and that meet specific criteria (that are determined by norms) is objective (logical) idealism or transcendental idealism.

(Ingarden 1988: 196). Marciszewski (1973: 204-205) proposes that we express the differences between intentional object and its content through putting the sentence-forming functor in brackets (here: curly brackets), if it is related to the content of intentional object.[21]

Employing the (elaborated and detailed) idea of Marciszewski and the results of the above analyses, it is possible to present the vocabulary and the set of truth conditions for the sentences that have the functor *ex*:

1) sentence $ex_r\ a$[22] – is sentence *ex a* accepted in L_r; the explicated sentence is true when object *a* exists really (actually), thus, according to LED1., if something is real *a*;

2) $ex_h\ a$ — is either sentence *ex a* or sentence *not-ex a* accepted in a certain $L_{h:xu}$; the explicated sentence is true when object *a* exists intentionally (thus, according to LED1., something is intentional *a*) on account of acts of consciousness of person *u* or language $L_{h:xu}$, that is person *u* thinks about object *a* or name *a* occurs in $L_{h:xu}$;[23] then there are four possibilities:

2') $\{ex_r\}_h\ a$[24] – is sentence *ex a* accepted in a certain language $L_{h:xu}$, and

[21]G. Evans, who examined the issue of (negative) existential sentences and the use of empty names, used K. L. Walton's conception of games of make-believe. An example of such a game is telling a fictional story. In order to specify linguistic expressions which correspond to the content of the game, both authors use the sign "* *". Asterisks (in between which e.g. the narrator's utterances can be put) play the role similar to that of brackets in Marciszewski (cf. Evans 1991: 353-363).

[22]The problem that arises here is where to put the subscript "*r*" or "*h*." In my opinion the subscripts specify the language of the whole sentence (which differentiates the sentence's meaning), hence the whole sentence should be put in round brackets, while the subscript should be outside the brackets. Ajdukiewicz, who wanted that the name replacing *a* had the same meaning in both languages, assigns the subscript to the functor and reduces the non-synonymy of appropriate isomorphic sentences — which results from belonging to different languages — to the functor. It is interesting what T. Kotarbiński (1986: 188, 193) would do, as he proposed that "the tense marker is shifted from the copula to the subject or to the subjective complement" (Kotarbiński 1966: 191) (e.g. not "Troy existed," but "former Troy exists"), if he agreed on differentiating 'existential tense marker'?

[23]According to LED1., it would be more precise to say: *u* thinks about something that is *a* (or: *u* thinks that something is *a*; or *u* thinks about something that it is *a*), or: name *a* occurs in language $L_{h:xu}$ and it is asserted that the name is related to something (e.g. something (presented) that is (presented as) *a*, is presented in the text (as existing/ non-existing, real/ intentional, being such-and-such)). This precise wording was omitted in the set of truth conditions in order not to complicate their formulations. The name "object" occurring in the formulations is synonymous to the colloquial expression "something" (it is not treated as a technical term of Leśniewski's ontology — *ob*; anyway, it would be easier to formulate truth conditions for *ob* than for other functors).

[24]The subscript "*r*" that appears between curly brackets indicates not that a given

a is a name of language $L_{h:xu}$ used in imitation of a name of language L_r; the explicated sentence is true when object a exists intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$) and is treated in its content as existing really (e.g. object a is presented in text x as a real person);

2") $\{ex_h\}_h$ a — is sentence *ex* a accepted in a certain language $L_{h:xu}$, and a is a name of language $L_{h:xu}$ not used in imitation of a name of language L_r(e.g. a occurs in language $L_{h:xu}$ in expressions put in quotation marks); the explicated sentence is true when object a exists intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$) and is treated in its content as existing intentionally (e.g. object a is presented in text x as an object of thought of the protagonist of the text);

2"') $\{not\text{-}ex_r\}_h$ a — is sentence *not-ex* a accepted in a certain language $L_{h:xu}$, and a is a name of language $L_{h:xu}$ used in imitation of a name of language L_r; the explicated sentence is true when object a exists intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$) and is treated in its content as non-existing really (e.g. object a is presented in text x as a real person who has just died);

2"") $\{not\text{-}ex_h\}_h$ a — is sentence *not-ex* a accepted in a certain language $L_{h:xu}$, and a is a name of language $L_{h:xu}$ not used in imitation of a name of language L_r; the explicated sentence is true when object a exists intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$) and is treated in its content as non-existing intentionally (e.g. object a is presented in text x as an object which is not thought of by any protagonist of the text);

3) $not\text{-}ex_r$ a[25] – is sentence *not-ex* a accepted in a certain language L_r; the explicated sentence is true when object a does not exist really (thus, according to LED1., nothing is real a);

4) $not\text{-}ex_h$ a – is sentence *ex* a or *not-ex* a rejected in a certain language $L_{h:xu}$; the explicated sentence is true when object a does not exist intentionally (thus,

functor occurs in a realistic language, but that it occurs in a text (in an intentionalist language) and is treated as referring to something allegedly real (something that is alleged in its content as real). There are other alternative notations, e.g.: $ex_h\{a_r\}$, $ex_h\{ex_r a\}$, $ex_h\{ex_r\}a$, they lead, however, to certain difficulties: using the first type of notation consistently makes it impossible to talk about objects treated in their content as non-existing (e.g. 2"', 2""); the second notation suggests that contents of intentional objects are only states of affairs (*state of affair* here: a exists really); the third notation is syntactically incorrect (unless treated as an abbreviation of the expression: *a exists intentionally and a is treated in its content as existing really*).

[25]Bearing Kotarbiński's warning in mind (1986: 190), it would be reasonable to consider where the negation sign should be put. There are four possibilities: before bracketed sentence ex_r a, before the functor, before the indicator, before the name. The second option was chosen here (it is equivalent to the first one, since one-argument functor negation is in this case equivalent to the negation of the whole sentence with the functor and the argument).

according to LED1., nothing is intentional a) on account of acts of consciousness of person u or language $L_{h:xu}$, that is person u does not think about object a, or name a does not occur in language $L_{h:xu}$; on account of the content of the object whose intentional existence is negated, by analogy to 2 four possibilities can be differentiated:

4') *not*-$\{ex_r\}_h$ a – is sentence *ex* a rejected in a certain language $L_{h:xu}$, and a is a name aspiring to be a name of language $L_{h:xu}$ used in imitation of a name of language L_r; the explicated sentence is true when object a – treated in its content as existing really — does not exist intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$), that is u does not think about such an object or its name does not occur in $L_{h:xu}$;

4") *not*-$\{ex_h\}_h$ a — is sentence *ex* a rejected in a certain language $L_{h:xu}$, and a is a name aspiring to be a name of language $L_{h:xu}$ not used in imitation of a name of language L_r; the explicated sentence is true when object a – treated in its content as existing intentionally — does not exist intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$);

4"') *not*-$\{$*not-ex*$_r\}_h$ a — is sentence *not-ex* a rejected in a certain language $L_{h:xu}$, and a is a name aspiring to be a name of language $L_{h:xu}$ used in imitation of a name of language L_r; the explicated sentence is true when object a – treated in its content as non-existing really – does not exist intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$);

4"") *not*-$\{$*not-ex*$_h\}_h$ a — is sentence *not-ex* a rejected in a certain language $L_{h:xu}$, and a is a name aspiring to be a name of language $L_{h:xu}$ not used in imitation of a name of language L_r; the explicated sentence is true when object a – treated in its content as non-existing intentionally — does not exist intentionally (on account of acts of consciousness of person u or language $L_{h:xu}$).

Meeting truth conditions is mutually exclusive for 1) and 3). Such analogous pairs are: 2' and 4', 2" and 4", 2"' and 4"', 2"" and 4"", 2' and 2"', 2" and 2"". In the remaining cases truth conditions do not exclude each other. It is assumed here (what Ajdukiewicz seems to tacitly adopt in his formulation of the idealist's thesis) that a given object can exist really (as an element of the real world) and intentionally (as a correlate of acts of consciousness or text's/ language's expressions) (and can also be presented both as real and as intentional). Assuming to the contrary[26] would cause a bigger number of mutually exclusive cases.

The results of the current analyses can also help to check Ajdukiewicz's criticism of idealism. However, it should be highlighted that these results describe

[26]Such a contrary assumption occurs in Ingarden who claims that objects with different modes of existence cannot be identical, at the most they can be characterized by self-same identity of the content, especially if an intentional object — through which a real object is cognized — completely "overlaps" with it (see Ingarden 1987a: 79; 1987b: 186, 191).

an intentional object and some of its types, but are not its detailed characteristics. Ingarden would refer here to e.g. existential moments which are part of e.g. the existential characteristics of a discussed object. Giving the detailed characteristics of an object is not necessary for realizing what the object is. Anyway, there are some preliminary analyses (Haefliger 1995: 31) by means of which Ingarden's characteristics of a intentional object can be made more specific; hence there is no need to repeat them here.

Ad c).

Ajdukiewicz's formulation of the idealist's thesis (IT) in the object-language (and not meta-language) version can be reconstructed as follows:

IT: (x) $(not\text{-}\ ex_r\ x\ and\ ex_i\ x)$,

or

$(not\text{-}\ ex_r\ a\ and\ ex_i\ a)$

and a can be replaced by a name of any 'object of experience' or 'thing we encounter in nature' (Ajdukiewicz uses the name *tree*).[27] "In his basic thesis the idealist claims that all things which we encounter in nature, for example trees, do not exist in reality but exist only intentionally." (Giedymin 1978: 219). The first element of the thesis-conjunction is formed in a realistic language, while the second — in a certain intentionalist language which is the idealist's language (hence the subscript $_i$ instead of $_h$).

Particular stages of Ajdukiewicz's criticism of the idealistic approach can be reconstructed as follows:

— it is possible to accept IT if both its elements are accepted (since they are linked by conjunction);

— it is possible to accept $ex_i\ a$ (the second element of IT) if meta-language sentence Z ("sentence $ex_r\ a$ meets the criteria"[28]) of a realistic language is true;

— if Z is false, then accepting $ex_i\ a$ is groundless;

— if Z is true, then, on the grounds of Z being true, what needs to be accepted is not only $ex_i\ a$, but also $ex_r\ a$; it causes a contradiction between the first element of IT and the sentence accepted on the basis of Z being true (a contradiction between $not\text{-}ex_r\ a$ and $ex_r\ a$);

— conclusion: accepting the idealist's thesis (who consequently uses their language) is either groundless or results in a contradiction.

[27]In further analysis, for convenience, the symbol (x) in IT will be omitted on the basis of the rule of omitting the general quantifier. It is worth remarking that perhaps (as Prof. J. Jadacki observed in the discussion following the delivery of the paper; cf. note 1) instead of the functor of the classical propositional calculus *and*, there should be a different functor of the type *and* (*but*) *only*.

[28]What is meant here is the specific criteria of accepting sentences formed by objective/ transcendental idealists. In the case of subjective idealism it is sufficient if a sentence is accepted by an appropriate subject (and thus meets the criterion of being accepted).

The results presented in ad a) and ad b) allow us to make the above analyses of Ajdukiewicz more precise and check their correctness. Reading Ajdukiewicz's statements (reconstructed above) literally leads to the following claim: an idealist states in a realistic language: "a does not exist really," and states in a certain intentionalist language: "a exists intentionally." In the first utterance, the word "really" is not necessary since L_r concerns only what is real. Hence Ajdukiewicz's formulation of the first element of IT is an abbreviation of the sentence *not-ex a* as accepted in L_r(cf. 3). Similarly, the second element — sentence ex_i a is sentence *ex a* accepted in a certain intentionalist language (cf. 2).[29]

However, what is text x to which this language as the language used by an idealist is relativized? This (only potential or actual in Marciszewski's sense) text is a complex of sentences (results or records of thoughts of individual u or any meta-individual being) which meet appropriate criteria (e.g. being accepted by someone — highlighted in subjective idealism – can be one such criteria). Let's call the text the idealist's text and mark it with i instead of x. Applying AD' it needs to be stated (for the sake of simplicity) that it is possible to accept sentence *ex a* in $L_{h:iu}$ (thus, it is possible to simply accept ex_h a – ex_i a in Ajdukiewicz's notation — or more precisely $ex_{h:iu}$ a) if a certain sentence in the complex of sentences that meet the appropriate criteria (thus a sentence of text i) is synonymous with sentence *ex a* or if *ex a* can be derived from sentences already accepted in $L_{h:iu}$.

Thus, it is clear that — according to AD' — none of the sentences in i can be equivalent to a sentence of the form ex_r a; at the most it can be synonymous with a sentence of the form $\{ex_r\}_{h:iu}$ a (this sentence, however, is a sentence of language $L_{h:iu}$and not language L_r — cf. 2'). Sentences of a text (here: i) need to belong to an intentionalist language provided that they are read as sentences of a text. Thus they can be assigned with the subscript $_h$. Assigning them with the subscript $_r$ involves treating them not as sentences of a text, and by the same involves understanding them in a different sense than the sense they have as sentences of a text. Anyway, if there were a sentence with the subscript $_r$ in i, then an meaning equivalent sentence would also need to have (so that synonymy occurred) the subscript $_r$. Then it would be necessary to accept a sentence with the subscript $_r$ in $L_{h:iu}$, which would result in a paradox since all sentences accepted in $L_{h:iu}$ on the grounds of AD' are sentences of the intentionalist language, thus they can be assigned only with the subscript $_h$.

In other words, since all sentences accepted in $L_{h:iu}$ are intentionalist (sentences with the subscript $_h$), then they can be synonymous only with intentionalist

[29]Perhaps, however, sentence ex_h a is a sentence accepted in L_r which asserts that a is really only a correlate of thought and thus a exists intentionally (that a exists so is a real fact and not fiction). However, since (it is actually, really so that) a exists intentionally, then — on the grounds of GD2 or 2.) — sentence *ex a* is accepted in a certain intentionalist language (which is a record of appropriate thoughts).

sentences. By the same token, a text to which the intentionalist language is relativized can not contain realistic sentences (sentences with the subscript $_r$) (unless they are put in curly brackets; however even then they are not — to put it more precisely — realistic sentences but intentionalist sentences that imitate realistic sentences). Whereas a sentence of the form $ex_r\ a$ is a sentence of language L_r (cf. 1) (a realistic sentence) and as such cannot occur in text i (in language $L_{h:iu}$).

On the basis of the above — despite Ajdukiewicz — it can be said that accepting the second element of conjunction IT does not result in rejecting its first element. For when an idealist states that a certain sentence meets specific criteria, then — to use the terminology adopted here — it is possible to say that the idealist states that the sentence (or a synonymous sentence, or a sentence from which the sentence can be derived) belongs to a peculiar (perhaps only potential) text such as a complex of sentences that meet the criteria. Sentences of this complex as sentences of a text (that is, as sentences that meet the criteria) cannot be realistic sentences (thus, they cannot be assigned with the subscript $_r$). *Z* should not be: "sentence $ex_r\ a$ meets the criteria," but: "sentence *ex a* meets the criteria (thus, sentence *ex a* belongs to text *i* which is part of language $L_{h:iu}$)." Let us call the second reading: *Z'*. When *Z'* is true, then sentence *ex a* needs to be accepted in $L_{h:iu}$, and thus sentence $ex_h\ a$ (or more precisely: $ex_{h:iu}\ a$) or $\{ex_r\}_{h:iu}\ a$ (cf. 2, 2') needs to be accepted. It does not relate, however, to accepting $ex_r\ a$. Thus, that *Z'* is true does not result in a contradiction within the first element of IT: *not-*$ex_r\ a$.

The insufficiency of Ajdukiewicz's criticism of idealism is confirmed by the analysis of the structure of the idealist's language. What is this language (or more precisely: the theses of this language) composed of? Firstly, sentences that meet the criteria, thus text *i* which (as adopted here) belongs to $L_{h:iu}$. Secondly, the remaining part of $L_{h:iu}$, thus sentences accepted in this language on the basis of text *i*. Thirdly, meta-language sentences of L_r that assert synonymy between particular sentences of text *i* and sentences which claim to be accepted in $L_{h:iu}$ (in special cases, these will be sentences that only assert the occurrence of a particular sentence in text *i*, thus sentences that assert that this sentence meets appropriate criteria). Fourthly, meta-language sentences of $L_r$that assert the derivability of particular sentences from sentences already accepted in $L_{h:iu}$. As can be seen, an idealist does not need to use the object-language part of L_r. However, if (s)he uses it, (s)he does so only to be able to present her/his own view to a realist, and (s)he limits her-/him-self to negative existential sentences. A negative object-language existential sentence formulated in L_r — which occurs in the idealist thesis formulated by Ajdukiewicz — is, however, only a clarifying supplement to the second element of the thesis: since anything that exists exists intentionally, nothing exists otherwise than intentionally, and thus nothing really

exists. Whereas uttering in L_r, by a consistent idealist, any affirmative object-language sentence (e.g. uttering sentence $ex_r\ a$) and a negative object-language non-existential sentence is simply impossible (unless curly brackets are used to treat it as a sentence about the content of an intentional object; it is, however — as previously noted — an alleged use of the realistic language).

Taking into account the above discussion, two types of idealism can be differentiated. An "extreme" idealist does not use a realistic object-language (analogously, an "extreme" realist does not use an intentionalist language), hence (s)he does not formulate the thesis in the form proposed by Ajdukiewicz. An "extreme" idealist limits themselves to the second (intentionalist) element of the thesis. Whereas a "moderate" idealist — when it is accepted that (s)he uses a negative object-language existential sentence in the realistic language to present her/his own view to a realist — can formulate their thesis in the form proposed by Ajdukiewicz. Moreover, an idealist — despite Ajdukiewicz — can accept this thesis, for accepting its second element does not result in negating the first element (as the language of a "moderate" idealist contains no affirmative object-language sentence in the realistic language, and thus no $ex_r\ a$).

Both the "extreme" and the "moderate" idealists must use the meta-language part of the realistic language. But it is not the basis of an argument against idealism. For an idealist needs the meta-language of L_r only to be able, by means of sentences of this meta-language, to accept object-language sentences of text i (through asserting that they meet the appropriate criteria, and thus belong to the text) and the remaining object-language sentences of language $L_{h:iu}$ (through asserting that they are synonymous to or derivable from sentences of text i). The meta-language of language L_r has only auxiliary functions for an idealist (allowing us to accept sentences), while, principally, an idealist uses object-language $L_{h:iu}$. Moreover, an idealist firstly formulates sentences in object-language $L_{h:iu}$, and only then formulates meta-language sentences in L_r on the basis of which the former sentences are accepted or rejected. Sentences of the first type are of the form e.g. *a est b* and aspire to be sentences of text i or be accepted in $L_{h:iu}$. Sentences of the second type — not reducible to the former sentences — are of the form e.g. "sentence p (*a est b*) occurs in text i" or "a certain sentence that occurs in i is synonymous to sentence p (*a est b*)" or "sentence p (*a est b*) is derivable from sentences in i."

A similar role is played by the meta-language of the realist's language. Neither realists nor idealists, as long as they only utter sentences, need to use a meta-language. However, as an idealist needs a meta-language to accept sentences, a "critical" realist needs it to critically accept sentences (a condition of this is an assertion that a sentence is uttered on the basis of thorough cognitive criteria and not only on the basis of conjecture). In both cases the meta-language is the meta-language of the realistic language: it concerns sentences as certain real objects in

the real world (for an idealist such objects are particular sentences). It is worth considering — despite Ajdukiewicz — if the idealist's meta-language utterances about sentences cannot be interpreted as utterances about characteristic correlates of thought or of linguistic expressions.[30] With such an interpretation, the idealist's approach retains a particular consistency (whatever exists, it exists intentionally; perhaps with the exception of "a creator of intentionality"), and the dispute between realism and idealism is insoluble (whatever exists can be treated as something only real, or only a correlate, or both).

Further analyses of the idealist's and the realist's language confirm the insolubility of the realism-idealism dispute, and by the same token — almost the impossibility of refuting idealism attempted by Ajdukiewicz.

The realist's thesis differs from IT at least in that a realist negates the first element of IT, and thus accepts object-language thesis $ex_r\ a$. Although an idealist does not use the object-language affirmative part of $L_r$appropriately, (s)he can understand this thesis, provided that (s)he realizes that a realist (especially a "critical" realist) had to accept the thesis on the basis of some criteria. If an idealist shares these criteria (e.g. empirical criteria) and if (s)he is convinced that sentence *ex a* actually meets the criteria, then (s)he can accept the sentence — as a component of text i — in her/his intentionalist language. However, is putting this sentence from the realistic to the intentionalist language (thus, changing the subscript $_r$ into the subscript $_h$) by an idealist a translation (preserving synonymy) of the realist's thesis into the idealist's language? No, because, although both sentences ($ex_r\ a$ and $ex_h\ a$) are accepted on the basis of the same criteria and differ only in the subscript, they have (as sentences of different languages) different senses: the first asserts that something exists independently of consciousness; the other — that this something can be thought (talked, written, read about, or experienced) according to the criteria. A realist and an idealist can have the same views on the way the world functions (what exists and what it is like), but they must disagree about the understanding of the word "exist" (and by the same token, of all words whose senses contain an existential component). Thus, an idealist can (in certain cases), on the basis of accepting sentence $ex_r\ a$ by a realist, assert that sentence *ex a* meets the criteria, and by the same token, accept $ex_h\ a$, while a realist can do the same, but the other way round. This fact does not mean, however, that sentences of the realistic language are translatable into sentences of the intentionalist language (and preserve synonymy), but only that users of both

[30] A problem arises here if these utterances (or their senses, or acts creating them, or their authors) are real objects or intentional correlates. In order to avoid *regressus ad infinitum*, it needs to be definitely admitted that these utterances (or some higher-order beings that originated the utterances) are something real. What is meant here, however, is a characteristic and only reality of being (or of a complex of beings) from which originates everything else that is intentional (such a being can be called "a creator of intentionality").

languages have the same empirical data and use the same criteria of accepting sentences.

On the basis of the above it may even be claimed that the idealist's language and the realist's language exclude each other and have contradictory conceptual apparatuses (close in the sense of the one determined by Ajdukiewicz in his famous article (Giedymin 1978: 67-89), by means of which — on the basis of the same data of experience — two different (though parallel) pictures of the world are created. Using Ajdukiewicz's criteria for choosing between the two conceptual apparatuses, it is difficult to prove the superiority of the realistic over the idealistic apparatus. The latter can be characterized by the same tendency to use non-contradiction, rationalization, decidability, and empirical sensitivity, as the former.[31]

Although both apparatuses exclude each other, there is a possibility of agreement between some idealists and realists. The complicated realism–idealism dispute is related to the differentiation of the realistic object-language and the intentionalist object-language. This differentiation takes place only when there is a need to distinguish statements about objects of the real world from statements about thought correlates or linguistic expressions (texts). An "extreme" realist rejects this differentiation, since sentences about correlates can be reduced to meta-language sentences about linguistic expressions (or their thought-equivalents). A similar stance — although in the opposite direction — is taken by an "extreme" idealist who believes that sentences about objects of the real world should be eliminated in favor of sentences about correlates. What connects a "moderate" idealist and a "moderate" realist, though, is that they accept the above differentiation; moreover, an idealist allows us to use at least part of the realistic language (negative existential sentences), and a realist — the intentionalist language (affirmative and negative sentences of various types — see below).

What is more, a "moderate" realist does not need to negate the second element of IT. For it is possible to assume that a particular object exists both: really (independently of acts of consciousness) and intentionally (as an object thought about according to specific criteria). Then a sentence about the existence of this object can be accepted in both: object-language L_r and object-language $L_{h:iu}$ (however, as already mentioned, the sentences will have different senses). However, a realist may introduce (or only allow) the intentionalist language not only to highlight that what really exists (in certain cases) exists also intentionally (is what is thought about according to the criteria), but also to differentiate true sentences from false sentences (or sentences with unassigned truth value) in the realist language. In the latter case, false (or unassigned — as regards truth value) sentences of the realist language can — after the change of the subscript — be

[31]Most probably, the idealistic apparatus is more complicated than the realistic one, but Ajdukiewicz does not mention the tendency for simplicity among the choice criteria.

accepted (as true) in the intentionalist language. In the intentionalist language so understood, only sentences with unassigned truth value or all uttered (thought) sentences (regardless of their truth value) need be accepted.

IV. Conclusion (Ad d))

If the results of the above analyses are true, then Ajdukiewicz's criticism of idealism in the discussed article is not sufficient. It needs (if possible) supplements. Such supplements can be found in two other works by Ajdukiewicz.

In the dissertation *A Semantical Version of the Problem of Transcendental Idealism* (Giedymin 1978: 140-154) Ajdukiewicz interprets the standpoint of transcendental idealism (especially in the version by H. Rickert) that it turns out that any true sentence of the idealist's language should be its thesis, which is — in the light of Gödel's theorem — impossible, for the language of natural science (which is not rejected by the idealist) is not complete. However, for example on the basis of the remarks included in (6) *SECUNDO* it is possible to formulate the idealist's intentionalist language as an incomplete language, that is such a language which has pairs of contradictory sentences from which none is a thesis (is accepted), thus – provided the law of excluded-middle applies — there are true sentences in this language which are not its thesis.

In the article *Epistemology and Semiotics* (Giedymin 1978: 182-191) Ajdukiewicz claims that the idealist uses in fact (at least at the beginning of considerations) not an object-language but "the language of syntax, in the broad sense, i.e. with the language which contains names of the expressions of the object-language or the names of thoughts which are meanings of those object-language expressions" (Giedymin 1978: 183). As a result, idealists have "no object-language expressions at their disposal" (184) and if "so abandoned the object-language, i.e. the language which we normally use in everyday life to describe reality, will be unable to say anything about that reality" (191). "If nevertheless he pretends to say something, e.g. if he denies our worlds full reality and attributes to it some sort of dependent existence, then he does so through an unconscious mystification which replaces our object-language by his *qusi*-object-language" (191). In accordance with the above, the presented idealist's intentionalist object-language is only apparently an object-language. Sentences of this language refer to thought correlates or sentences (that meet the criteria), the correlates, however, are not objects, but equivalents of thoughts or sentences. Thus — according to Ajdukiewicz — this language is in fact not about objects but about thoughts or sentences.

Ajdukiewicz's paraphrase of the realism–idealism dispute as an opposition between the object-language of semantics and the meta-object (or quasi-object) language of syntax is close to Gilson's approach to this dispute. According to Gilson (1990: 115) it is a dispute between two methods: "Either one begins with being, in which thought is included — *ab esse ad nosse valet consequentia*;

or one starts from thought, in which being is included – *a nosse ad esse valet consequentia*." Gilson and Ajdukiewicz — who aim at justifying the thesis that there is no transition from thought to being, or from an utterance about thought to an utterance about being — are in favor of the first element of the above exclusive disjunction. Also, they add that the natural (and primary) cognitive stance of a common man is the realistic stance which involves using the realistic language.

Finally, to weaken (problematize) the stance of both authors, four questions need to be raised. The answers to these questions and some remarks included in ad c) may constitute a basis for a discussion with the realism in Ajdukiewicz and Gilson's version. Firstly, does a common man use, in fact, the realistic language (and adopt the realistic approach), or a neutral language which is appropriately (realistically or idealistically) interpreted by philosophers who argue about the ontic status of what we talk about? Secondly, since thought is not the same as thought correlate, and a sentence about thought is not the same as a sentence about thought correlate, is the idealist's language (which concerns correlates of thoughts and sentences) a quasi-object language in fact? Thirdly, is effective cognition and action of a man who uses only a "quasi-object" intentionalist language possible? And if yes, then does it not constitute a basis for a thesis that idealism has not been totally excluded yet and is a hypothesis characterized by a certain degree of probability? Fourthly, are the best arguments in favor of realism sound if one considers the possibility (observed in a brilliant article by R. Nozick (1981)) that our world is a world of fiction subordinate to a text written by God and that all anti-idealistic arguments proposed in this text are not effective? They are only arguments of protagonists of the world of fiction and their value is the same as arguments of protagonists of drama who argue that they are real, but do not become real only because they argue so.[32]

Answers to these questions require further analyses which go beyond the framework of this article.

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[32] According to the notation adopted here, such arguments would be put in quotation marks (as quotations) in curly brackets (as showing the content of an intentional object).

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Adam Nowaczyk

PROSPECTS OF THE THEORY OF TRUTH AND MEANING

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The two terms mentioned in the title of this work have shared a large amount of bad publicity for a long period of time. This is particularly true with reference to the term of truth. As it is generally known, epistemology has been full of anti-realistic approaches that question the usefulness and validity of this term or at the very least propose that the scope of its use should be limited. As for the term of meaning, the difficulties encountered while trying to formulate its definition induce many authors to try and avoid using it altogether. Therefore, questions about the prospects of the two above terms seem to constitute a valid issue. When referring to the theory of truth, I have in mind a certain theory of LANGUAGE and in particular: its cognitive-communicative function. Due to the fact that language is the most subtle of all cognitive tools available to man, one cannot dismiss even the most radically skeptical opinion, namely: that a satisfactory theory of language (just as a theory of mind) is not possible, because it would require much more advanced "equipment" than the one available to humans. However, one ought to also consider other, more or less optimistic opinions, such as the ones presented below:

1. The theory which might be meant here is already at our disposal; however, we ought to improve it and broaden the scope of its uses.

2. Such a theory does not yet exist, however, we already know how to build it — it shall emerge as soon as certain minute issues have been resolved.

[1]This is a slightly edited version of a paper presented at the 1995 Polish Philosophical Conference (Polski Zjazd Filozoficzny) in Toruń. I have decided to publish this work, because, in my opinion, the remarks it contains are still valid, despite the passage of time.

3. While constructing the theory of language we might (but do not have to) encounter insurmountable difficulties, which shall nullify or at least modify the feasibility of this attempt.

It is impossible to judge the validity of these opinions until we have established what the term *theory* really means and what is expected of it. As it is generally known, it is attributed to various creations of the human mind: occasionally as a set of loosely connected and general reflections, sometimes as a detailed description of a certain class of phenomena. It can also refer to various theories within the domain of mathematics or other exact sciences. One must also accept certain assumptions concerning the theory's content. I believe that philosophy can only value a theory of language which takes into account the REFERENCE RELATIONS between expressions and the discussed reality, because only such a theory enables the existence of TRUTH in the traditional (classical) sense. Other postulates concerning the theory of language might refer to its problematic generality, which can be interpreted in a variety of ways: one might expect a cohesive, universal theory of all possible languages[2] or merely an abstract outline which is applicable to various languages (all languages or just some languages) through the selection of proper additional assumptions.[3] Further expectations put upon the language theory refer to the achievements people would like to gain by using it. Should it only be a simplified language model enabling people (in a certain vague sense) to UNDERSTAND the phenomena of the creation and interpretation of linguistic expressions? Should we demand that the discussed theory EXPLAIN something (in the sense of scientific explanation practiced by the empirical sciences)? Should the process of explaining be aligned with the possibility of PREDICTING, and if so, what would we be able to predict? From the historical point of view, the first attempts to create a theory of language which would respect certain formal requirements were connected to the processes of its reformation and, as a consequence, referred to artificial languages. One does not need to delve very far into the past to recall the achievements of Frege and Hilbert's school, the work published by Tarski and Carnap in the 1930s as well as analyses made by Ajdukiewicz in the same period of time. Although the latter researcher was interested in natural language, he did not believe that a natural language could (in the general meaning of the term) be directly used as an object of this theory. Artificial languages fulfilled the need for the formalization of axiomatic systems. The differentiation between the system's language and the system itself was usually very vague, so the language was often identified with the

[2]Such was the theory W.V.O. Quine presented in his famous essay about *two dogmas of empiricism*, since he demanded that the definitions of semantic terms should make them relatable to ANY language.

[3]Such is the theory of *universal grammar* presented by R. Montague in *Universal grammar*. Theoria XXXVI, 1970.

axiomatic system, or at the very least, a certain axiomatic system was treated like an integral part of the language — any language worthy of its name had to possess two things: certain rules of drawing conclusions and axioms perceived as components that determined its identity. This, of course, did not eliminate the possibility of providing certain languages with additional features, for instance those used for interpreting expressions. A serious theoretical approach to the issues connected with interpretation was made possible by Tarski's rehabilitation of semantic terminology, in particular the SEMANTIC IDEA OF TRUTH. This term occurs in two incarnations. In his famous 1933 dissertation, Tarski defined (for the language of the theory of classes, but with distinct suggestions on the generalizations of the applied method) the so called ABSOLUTE TRUTH (made relative only in case of language) and enumerated all the T-equivalences which would provide the criteria for definition accuracy: (T) sentence S is true for language L always and only when P, Where S is the name of the sentence and P its translation into metalanguage.

Tarski considered it obvious that the expressions of language L have an unambiguous interpretation; however the allegation that his concept of truth proposed the idea of meaning as being more primary, does not seem valid. Due to the fact that Tarski concerned himself only with extensional languages, one may assume that he only wanted to assign extensions (denotations) to expressions, whereas the translation discussed here could only be coextensional. Tarski's classical analysis and his method of defining the absolute idea of truth was referred to directly by D. Davidson[4], one of the most prominent advocates of the idea of constructing natural language semantics. It is worth noting here that, according to Davidson, semantics would be extensional and based on a modest syntactic foundation: the language of elementary logic (that is: first order predicate logic). Davidson claims that the theory of truth constructed according to Tarski's guidelines is at the same time a theory of meaning. This is possible because — as Davidson believes — each T-equivalence which has been verified through empirical research provides us (in the form of P) not only with the condition of truthfulness, but also with the MEANING of the sentence S. This argument does not seem convincing, particularly when the research is conducted on an extensional language (and Davidson claims all languages could fall within this category). Furthermore, it is unclear how the definition of truth would reveal logical and semantic relations between the expressions of the studied language, which are believed to constitute its crucial characteristics. Of course, the researcher could transfer such relations from the metalanguage to language, however it would be hard to justify such a procedure due to the fact that metalanguage has to be significantly more intricate than the object language and that not all relations which occur within it must

[4]Studies assembled in the publication Inquiries into Truth and Interpretation. Oxford 1986.

also occur in the other. At the same time, the researcher would be forced to refer to his own intuitive knowledge of the metalanguage (which gives rise to certain objections) or his own theory (which poses the danger of infinite regression). Semantic relations between the expressions of object language can of course be studied and recorded independently of the resultant definition of truth, but such a situation would make it difficult to claim that the theory of truth is at the same time a theory of meaning. In the above mentioned dissertation, Tarski noted that the idea of a sentence which is TRUE IN A CERTAIN DEFINED DOMAIN plays a much more significant role than the absolute idea of truth. Tarski was referring to metamathematics, but his words were confirmed by studies on natural languages. In the 1960s, many logicians started to transfer experiments conducted on formalized languages of logical systems into natural languages in an attempt to establish a set of their characteristics. During this process, they utilized Tarski's RELATIVE CONCEPT OF TRUTH, which acquired the mature form of TRUTH MADE RELATIVE TO THE LANGUAGE AND ITS MODEL only in the 1950s. Models, which also received many different names (domain, semi-model, model structure, etc.) are set theory structures characterized by various levels of complexity dependent on the semantic intricacies of language. Their role is to establish an object of reference to the simplest semantic expressions. The definition of truth should broaden this reference to complex expressions and — in effect — determine the logical value of sentences. However, each language obviously possesses multiple models which correspond to its various possible interpretations. Thus, the definition of a relative concept of truth for a specific language does not determine any of its interpretations; it merely indicates its mechanisms and informs the user how the interpretation of complex expressions is dependent on the interpretation of their simple components. An important stage in the evolution of the concept of the language model occurred when researchers broke through the barrier constituted by non-extensional expressions and constructions, which were notoriously present in natural languages. This became possible when analyses of these phenomena were equipped with such objects as POSSIBLE WORLDS and INTENSIONS understood as functions which ascribed extensions to the possible worlds (that is — denotations, and in the case of sentences — logical values). It allowed researchers to analyze and describe the characteristics of modal, deontological and other operators, whose non-extensional properties had been known for a long time. Another success came with the broadening of semantic analysis to include expressions whose interpretation depends on the circumstances in which they are used, referred to as CONTEXTS or POINTS OF REFERENCE. If we assume that possible worlds and points of reference are to be considered separately, then aside from using intension, we must also use the concept of SENSE as a function which shall assign intensions to points of reference. The extension of an expression in the given model M is then described

in relation to the circumstances of its use and a certain possible world (for instance the one we live in). The above mentioned approach has been adopted by many logicians, whose interest in natural language was undoubtedly awakened by the revolution in linguistics initiated by Chomsky. The most prominent researchers in this field are R. Montague, D. Scott, M.J. Cresswell and D. Kaplan. These authors created formal theories (sometimes very general — as is the case with Montague's *Universal grammar*), which — according to the intended interpretation — were to become reconstructions of the syntax and semantics of certain fragments of natural language.[5] The cognitive result of the above mentioned theories is undoubtedly the analysis of the properties of certain expressions and syntactic forms which are characteristic for natural language and were treated similarly to the so-called logical constants. The undeniable success of these theories lies in the fact that they allow one to accurately define (in a semantic manner) the RELATION OF ENTAILMENT between the sentences of the selected fragment. However, in my opinion, this is their only advantage. These theories use the concept of truth that is relative to a model; they certainly cannot explain the manner of interpreting expressions, which is different for each model. However, one can claim that they do not specify the intuitive sense of expressions which were treated as logical constants. For instance: we have certain (extremely vague) intuitions of objective possibility and necessity, but the provided semantic description of the appropriate operators does not specify these intuitions. One might consider a contrasting example — the semantics of classical logic explains the sense of implication and negation in a precise manner, which is unfortunately discordant with their colloquial meaning. The discussed semantics are also unable to specify the references of known circumstantial expressions, such as *here* and *now*, which refer to the time and place of the utterance, whereas the size of those places and times can be different depending on numerous additional circumstances which are difficult to specify. This does not influence the entailment relations between sentences; however, it does limit the explanatory functions of the theory. The relative concept of truth and the related concept of a language model have also been utilized in a different domain, which deals with the following question: how is it possible that the referential relationships between expressions and objects about which we intend to speak are established and become fixed? This is undoubtedly an issue which demands complex interdisciplinary research. Formal semantics, which is discussed here, can only grasp the potential result of this process. In this case, our general intuition that referential relations are not monosemantic (after all, the phenomena of polysemy and vagueness have been analyzed for centuries) has been confirmed and even reinforced. This was demonstrated in the most

[5]These theories — incorrectly attributed to the domain of pragmatics — were discussed by M. Tokarz in his book Elementy pragmatyki logicznej. Warszawa: Wydawnictwo Naukowe PWN 1993.

emphatic manner in the analyses conducted by M. Przełęski in Methodology and Linguistics, eds. R. Butts, J. Hintikka, Dordrecht 1977. Assuming that we have only two ways of semantic interpretation of expressions: a direct one (limited to the universe consisting of observable individuals) and an indirect one (using semantic postulates which establish semantic relations between expressions), the author demonstrated that denotations of predicates referring to non-observable objects must be completely vague. After all, even the common vagueness of predicates forces us to accept the fact that the language we speak cannot be interpreted using only one model; the most one can do is to equip oneself with an extensive class of such models. As a result, the specific logical value of truth or falsity can be ascribed only to some of the sentences in our language — namely, those that possess the same value in all selected models; the logical value of the remaining sentences is still undetermined. Due to the fact that differentiating between these types of sentences is not always simple, the language user is put in a difficult situation of deliberately uttering sentences which establish neither a truth, nor a falsity. Fortunately (or not), we can camouflage this fact by describing the desirable model of object language in metalanguage (of which the discussed object language is a component) or by making assurances that we possess an adequate translation of the object language into the metalanguage. The issue presented above is based on the assumption that in any language one can differentiate sentences constituting semantic postulates from the rest and that only the former are useful in establishing referential relations. As we know, this proposition has been questioned by many authors. If we were to agree with them, it appears we shall have to assume that this role is fulfilled by any sentence accepted by one or all language users (or perhaps only by the majority?). The first solution questions the possibility of uniformization of the referential relations, whereas all of them pose a serious threat that nothing shall be able to fulfill the conditions put upon the denotations of expressions. The discussed problems seem to advocate a certain version of instrumentalism, according to which only expressions closely connected to experience can refer to something and that only sentences built from such expressions can be considered truthful. If that were true, the scope of uses for the absolute concept of truth would be significantly limited. A different approach to the issue of reference is presented in the so-called causal theory of reference, outlined in a famous book by Kripke.[6] Contrary to the above mentioned concepts, this analysis bears no trace of the formal apparatus (and the author himself does not want to call his propositions a theory of reference, he only mentions its *outline*), which does not diminish its significance. Kripke's theory (we shall use this term after all) refers to a certain category of names, which the author calls rigid designators and defines (as he says: in a quasi-technical manner) as expressions which denote the same object in each possible world. It is a rather non-diagnostic

[6] *Naming and Necessity*, Oxford 1980.

definition, but Kripke attaches to it certain strong intuitive convictions about the character of counter-factual conditionals. He is convinced, for instance, that the name *Aristotle* would refer to the same person even if we were forced to alter all of our existing beliefs about Aristotle. Similarly, since such names as *a tiger* or *gold* denote certain NATURAL KINDS, then the reference of these names shall not change even if we had to ascribe completely different qualities to the representatives of these kinds. Kripke's views on introducing names (for kinds or individuals) and their subsequent functioning are not easy to present in a short and straightforward manner. The process undoubtedly begins when someone gives a name to something (a certain individual or a newly discovered specimen of a certain unknown species). The name is then transmitted to others via a demonstration of objects and an appropriate verbal description. However, these descriptions do not act as arbitrary definitions which establish the name's reference; they merely constitute instructions whose role it is to enable or facilitate the identification of the object. Furthermore, instructions might turn out to be ambiguous or even false with reference to previously named objects; however this does not lead to vagueness or a change of reference of the introduced name. In such a situation, the recipient of the instruction can of course begin to use this name in an incorrect manner, but even then, he is *de facto* (or even *de iure*) referring it to an object which has been given that name by someone in the past. The instructions mentioned here (identifying descriptions) make up chains which popularize the new name in the entire linguistic community. Such chains may be subject to corrections, however the objective reference of names constituting rigid designators shall not be altered. Kripke justifies his concept with metaphysical arguments, sociolinguistic observations and most significantly — by relying on his referential intuition, which he considers to be the decisive proof. Kripke's point of view is undoubtedly worth considering and inspires one to re-examine the concept of reference. Its most unique feature is the fact that it allows one to describe a broad class of expressions with an unequivocal reverence which does not change even when our knowledge is significantly modified. This brings about consequences, which are both desirable and at the same time — unfortunately — highly implausible. Their careful verification would require an analysis of numerous basic concepts referring to the relationships between reference relations typical for the given language and the complex set of verbal behaviors occurring in the community which uses the language. Such (appropriately close) relationships must be present if one agrees with the opinion that reference relations are fully determined by the behaviors of language users. Within the scope of traditional concepts, which exhibited a high degree of simplification, the issue seemed to be quite straightforward: the objective reference of names was determined by our ability to recognize their designators and unconditional acceptance of semantic postulates. In the concept presented by Kripke, everything is much more complex

and — as the author himself admits — a little unclear. I believe that some of Kripke's conclusions can be called into question. For instance — proper names do not always refer to the person indicated by the individual who gave them that name. Let us assume that I have written a treatise on Aristotle, but then find out from a recently discovered letter by Plato that *Analytics* were written by his nephew, Speusippus. In such a situation, it would be difficult to convince me that by speaking the name *Aristotle* I had in mind the author of *Analytics* — Speusippus. It is also difficult to believe that the denotations of the names of various species have been established forever by the person who indicated or described the first encountered specimens of the given species. Such an opinion is contradicted by the changing criteria which determine membership of the same species in biology as well as physics (for instance — a reaction resulted in the creation of ordinary water and heavy water). Let us now turn to the concept of MEANING, which has been mentioned in the title, but not yet discussed. As we know, this issue was touched upon by Ajdukiewicz within the context of pragmatics (however, with the exclusion of the semantic aspect, which later induced the author to refute his earlier solutions) as well as Carnap, who attempted to explain the idea of meaning through the concept of intension. Formal semantic research usually identifies meaning (intension, sense) with a certain function, whose values are constituted by the extensions of expressions. This confirms the traditional doctrine that the meaning of an expression outlines its scope; a doctrine which has lately come into question. This approach disregards a certain aspect of the traditional concept of meaning, according to which expressions with the same meaning have THE SAME COMMUNICATIVE AND INFORMATIVE value for language users. These characteristic of equivalent expressions (synonyms) would manifest itself through the *salva veritate* substitution within the context of the so-called epistemic operators (*knows, believes, assumes, that*É). Thus, adequate semantics of these operators would, in a sense, provide a solution to the problem of meaning. However, its construction constitutes one of the most difficult tasks for logicians concerned with the issue. It seems doubtful that the meaning of an expression could be adequately represented through any function, as has been done with intension. It is rather a certain property, constituting a component of a certain family of properties generated by the equivalence relation. That relation, in turn, must take into account not only the semantic properties of expressions, but also some of their pragmatic aspects. Equivalence can only occur when expressions are semantically equal in a manner that is easily perceivable by any speaker of the language. In the case of sentences, this approach means that both sentences must be the carriers of the same information and the contents of one must be inferable from the other. I believe this was the direction Carnap was taking when he proposed that expressions be explained by the so-called intensional isomorphism, which, however, proved to be an equivalence that was either too

forceful or too vague in certain regards. I have not mentioned in this work the many important types of research on language, which (as those are the ones I chiefly had in mind here) express philosophical implications or presuppositions. It was not my intention to provide an exhaustive review of all the research; I merely wanted to indicate ITS DIFFERENT STYLES. Sometimes reflections upon the same object can result in drastically different outcomes, for instance: the translatability of languages has been the topic of Quine's essays as well as the strictly formal analyses conducted by Montague. Let us now return to the issue mentioned at the beginning of this article, namely the prospects of the theory of language in its cognitive and communicative function. I believe that at present (and perhaps also in the future) there is no chance of creating a theory which would integrate all the significant avenues and types of research. It does not appear to me that the reason for this is a difference in styles, methods, theoretical premises and the accompanying controversies, for these are factors that could be modified. The most important obstacle lies in the very object of this intended theory. Verbal communication constitutes a part of every sphere of human activity and takes on different characteristics in each of them. Therefore, an integrated theory of language would actually be something one might call *integrated humanities*, and it is hardly appropriate to even dream of such a creation. In these circumstances, what progress might be expected within the domain of language theory? I believe it is possible and beneficial to conduct formal-logical research on natural languages, while taking into account the semantic aspects of expressions. I claimed that such analyses always end in defining a logical entailment relation for the given fragment of the natural language; however, it is not an insignificant achievement, since a semantic definition of entailment uncovers the basic mechanisms of interpretation (in the sense of objective reference) of the used forms of complex expressions. Thus, it would not be an exaggeration to say that within the areas where the mechanisms mentioned above have not been discovered, our understanding of expressions is not yet satisfactory. As a result, the research referred to in this article contributes to the enhancement of our thought process, the main apparatus of which is natural language. What needs to be analyzed more thoroughly is the potential explicative value of this type of research. In order to fully comprehend it, one ought to confront the proposed solutions not only with the intuitions of the researchers, but also with the practice of language users. In the present case, the issue would be relatively simple: one should only instruct users to unconditionally accept certain sentences based on others. The sad truth is that this issue has been neglected, illustrated by the fact that even today we are not certain of the role of classical logic in our thinking. The significant difficulty which formal-logical research faces when attempting to grasp the full scope of natural language lies in its typical variety of syntactic forms, which contrasts sharply with the almost ascetic minimalism of the languages used by logical systems.

However, it is a purely practical difficulty, which can be overcome by the solution outlined by Montague: since the majority of syntactic particularities of the natural language can be treated as paraphrases of certain basic logical forms, one ought to simply register them patiently as alternative forms. Formal-logical research also encounters a more fundamental difficulty. Referential semantics must assume the existence of a certain ONTOLOGY. Since the above mentioned research arose from mathematical analyses, it used an ontology borrowed from set theory, which proved to be perfectly adequate for mathematics — probably due to the fact that set theory itself was promoted to the position of the most fundamental mathematical theory. Since set theory is the only ontology presented as a coherent system of theorems, it comes as no surprise that logicians try to use it also for the semantics of natural language. However, natural language already has its own ontology, which is broader and at the same time different from the set theory ontology. It encompasses properties, relations, states, events, processes, rules, possible as well as fictional objects and Heaven knows what else. A consistent utilization of set theory as the ontology of natural language would require a reduction of all these categories of beings into categories of sets or individuals. It remains controversial whether such a reduction would have been adequate. Logicians (and philosophers with similar views) sometimes deal with this issue by assuming that a certain *natural* category of beings is irreducible and treat it as an additional species of individuals.[7] The drawback of this solution is that it blurs the self-evident relations between beings from various categories. In my opinion, there is a possibility that a theory might one day be created from the research on the character of reference relations between expressions considered to be extra-logical. At the moment, this field is ripe with controversy, but presents many ideas worthy of further attention and deeper analysis, since they might one day become the cornerstone of a new theory. Such ideas include Quine's concept of *stimulus meaning* as the basis for reference, Davidson's concept of *radical interpretation* and Kripke's *causal theory of reference*, outlined in this article. All these ideas combine semantics with pragmatics understood traditionally as a theory of linguistic behaviors. This approach could be considered correct, if we agree that the only source of information about reference relations typical for a given language can be the observation of the behaviors of its users. In order to obtain an adequate insight into the situation and provide the theory with a possibility for empirical verification, one should carefully analyze the relationships between the objective reference of expressions IN A GIVEN LANGUAGE (because such references fall within the scope of semantics) and individual acts of referring expressions to

[7]Such a solution was used for instance by D. Davidson, who treated events as a special type of individual (in the article *The logical form of action sentences* published in The Logic of Decision and Action, ed. N. Rescher, University of Pittsburgh Press 1967.

objects by THE USERS OF THE GIVEN LANGUAGE. It is not difficult to observe that these relationships are quite complex, even at the level of objects which can be observed directly. It is reasonable to assume that the majority of Poles cannot recognize a yew tree; does this mean that the denotation of the word *yew* in the Polish language is highly indeterminate? If Mr. Kowalski sometimes refers to a maple ash as ash and is then ready to admit that he made a mistake caused by inattentive observation, we can treat this as a meaningless episode. But what if this happens to the majority of Poles and they fail to notice their mistake? According to Putnam, whose views on naming are similar to those of Kripke, in the cases discussed here, the denotation of the name in the given language is determined by experts, whose opinions are usually respected by the rest of the linguistic community. If this was true for the majority of cases, each name would be determined by a group of experts (usually different for different types of names) and ethnic language would consist of specialist languages created by various groups of experts. In reality, the majority of Poles, for instance, use the name *bugs* to refer to wingless insects, maggots, pinworms and other disgusting creatures and have no intention of complying with the semantic instructions of zoologists. Therefore, perhaps one ought to differentiate between Polish colloquial language and the dialect or jargon used by zoologists? Furthermore, it should be established whether an act of referring an expression to an object also occurs in a situation when the language user does not have direct sensory contact with the referent object. In such circumstances, the act of reference could constitute a purely verbal behavior — an assertive utterance of a sentence which *says* or *predicates* something about the given object. However, this explanation does not possess sufficient clarity and implicitly refers to the speaker's mysterious INTENTION. In order to build a theory of reference, one also has to settle the ongoing controversy concerning the so-called axioms of language (also referred to as semantic postulates and treated as analytic sentences, together with their consequences) and their role in creating reference relations. It seems that each language user feels that rejecting certain sentences or accepting their negation constitutes a kind of deviation from the standard, which, at the very least, would hinder communication. These sentences are supposed to be the axioms of language. In my opinion, the problematic issue is to indicate some objective proof of this sensation in an individual interlocutor. In the traditional approach, language axioms were considered to be the only instrument of the so-called indirect semantic interpretation of expressions. One might ask whether other sentences could also fulfill this role, because in certain areas of language there are too few axioms to provide an adequately synonymous interpretation of expressions. As we know, the conviction that the achievement of a satisfactory level of synonymy is not possible in such cases provides a strong argument in favor of instrumentalism. I am aware of the rather fragmentary and subjective nature of the observations presented here, which concern the prospects

of a general theory of reference that would be verifiable empirically. It is also quite certain that such a theory would face multiple difficulties.

Jerzy Pelc

KAZIMIERZ TWARDOWSKI (1866–1938) ON THE SIGN AND LANGUAGE FROM THE POINT OF VIEW OF PSYCHOLOGY AND THE THEORY OF COGNITION

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Kazimierz Twardowski was born in Vienna in 1866. He was educated at the Theresianum, an elite school for the sons of the Austrian royal house and aristocratic families, and studied at the University of Vienna, mostly under the tutorship of Franz Brentano.

His investigations covered the areas on the boundary of psychology and logic, within the theory of cognition, the theory of knowledge and the philosophy of language. For instance, he analysed the meanings of terms used in the logical theory of sentences and the theory of names, and in the psychological investigation of images and judgements in the psychological sense (hereinafter: p-judgement).

REPRESENTATIONS (IMAGES AND CONCEPTS): THE ACTI, THE CONTENT AND THE OBJECT

He made a distinction between sense representations, i.e. images, and unsensual representations, i.e. concepts in the psychological sense (hereinafter: p-concept). He was of the opinion that an image is a part of a p-concept. For instance, the p-concept of a geometric point contains (a) the so-called fundamental image of a dot, (b) the representation of a p-judgement denying its three-dimensionality, (c) the representation of the declarative p-judgement about the dot: that the dot is non-extensive; p-judgements (b) and (c) are only represented, and not stated seriously, when it is known that they are false (Twardowski 1898). This analysis reveals the structure of the meaning of an abstract term, since a concept in the

logical sense (hereinafter: l-concept), i.e. the content of the act of cognition, is the meaning of the nominal term.

In every representation, Twardowski distinguished the act of representing to oneself, the content of the representation and the object of the representation (Twardowski 1894).

NAME

These differentiations constitute the foundation for the description of semantic and pragmatic functions fulfilled by the language formulation of representations (images or concepts), i.e. the name, or, more strictly, its use. When a speaker uses some name in its broad meaning, i.e. as a simple or complex nominal term, the speaker (1) informs that an act of representation is taking place in the speaker, (2) evokes an identical or similar mental content in the recipient, and finally (3) names the object represented in accordance with the content.
Twardowski differentiated proper names from: individual names and general names. A general name denotes an object of a corresponding general p-concept, and at the same time it designates individual objects belonging to the given type. These objects may be things, as much as features, events, phenomena etc. A nominal phrase of the type 'that so and so' refers solely to a representation of a p-judgement.

In analysing seemingly object-less representations, e.g. ones expressed by the word nothing or a contradictory phrase a sharp-angled square, Twardowski concluded that the word nothing is not a name, but a syncategorematic word, and hence it does not refer to any representation. The contradictory phrase a sharp-angled square, on the other hand, names something that does not exist, but the referent differs from the contents of the phrase, since that contents is neither sharp-angled nor square. This "something" is the represented object to which the characteristics of sharp-angledness and squareness were ascribed by means of this phrase. The object does not exist in reality; it is just an object of representation, the represented object (Twardowski 1898: II).

ACTIONS AND THEIR PSYCHICAL, PHYSICAL OR PSYCHOPHYSICAL PRODUCTS

In his treatise on actions and products entitled Kilka uwag z pogranicza psychologii, gramatyki i logiki [Some observations from the border-land of psychology, grammar and logic] (1912), Twardowski made a distinction between actions, e.g. pacing, from their products, e.g. a pace. He divided both into physical ones, e.g. jumping — a jump, and psychical ones, e.g. thinking — a thought. The psychophysical actions and products, e.g. shouting — a shout, were in his view a sub-category of the physical ones. Actions are denoted not only by means of verbs,

but sometimes also by nouns, e.g. the word accompaniment in the phrase singing with the accompaniment of a piano. An action is psychophysical when the course of a physical action is influenced by the accompanying psychical action. Some words, e.g. assessment, indicate: 1) a disposition, in this case a disposition towards assessing, 2) the action of assessing, 3) its psychical product: the assessment that is expressed in thinking, 4) its psychophysical product: the sentence containing the assessment. Some nouns, e.g. washing, are ambiguous, because they may denote either the action or its product.

Twardowski pointed out that products may be ephemeral, i.e. existing only for the duration of the action that produced them, e.g. a thought as a product of the action of thinking. Some products, in turn, are durable, e.g. a drawing as a product of an action which, in this case, relies on the transformation of a pre-existing material. Durable products are physical, for instance a footprint on sand when left inadvertently, or psychophysical, for instance a footprint on sand when left deliberately.

SIGN AND MEANING

In his reflections on the psychophysical products, Twardowski introduced the concept of sign and the concept of meaning; the latter concept, a semantic one, he defined by means of the pragmatic concept of expressing. A psychophysical product, both durable and ephemeral, is an expression, i.e. a sign, of a psychical product, i.e. of a meaning that is not subject to senses; analogously, a psychophysical action may be an expression of a corresponding psychical action. What is meant by saying that a psychical product finds its expression in a psychophysical product is that a psychical action together with its psychical product are a partial reason for the emergence of a psychophysical product, e.g. a drawing or an inscription, and that this psychical action and its psychical product are not subject to senses, whereas the corresponding psychophysical product is subject to them and, moreover, it may become a partial reason for the emergence of an identical or similar psychical product when it evokes in the recipient a psychical action similar to that due to which it emerged.

On the basis of the differentiations between 1) actions and products, 2) their types, Twardowski offered a classification of signs in the broader sense. According to him, an entity A is a sign A of the entity B, if the recognition of the emergence of A permits us to conclude that B has emerged, is emerging or will emerge, or prompts us to cause B, in which case A is a signal. Twardowski differentiated symptoms on the basis of the assumption that what occurs in the first case is a causal nexus between A and B, and in the second case — a conventional relation between A and B. He considered a psycho-physical product to be an indication of a physical action expressing this action. Such imitative, artificial or substitute signs as a sculpted shape of a foot or a pose assumed by an actor on the stage

(which emerges to represent an emotion, i.e. due to a product that is substitute and at the same time artificial), Twardowski called artefacts. He gave the name of petrefacts to ephemeral products which are made to endure by means of durable products.

Various psychical products may be expressed in a single psychophysical product, when the latter came into being as a result of several psychophysical actions, e.g. a drawing may express 1) the image of this drawing which the artist had while drawing it, 2) the idea which the draughtsman wished to convey, 3) the very wish of conveying an idea etc. Thus, a psychophysical product expresses some psychical products directly, while others it expresses with an increasing indirectness. At this point, Twardowski proposed a differentiation between two types of the pragmatic function of expressing: the direct and indirect expressing. He also distinguished between actual expressing and potential expressing. A meaning which is an ephemeral psychical creation finds its expression in a durable psychophysical creation, for instance a text. This text, in turn, is a partial, durable reason for the reader's ephemeral but repeatable thought. In this way, the meaning of the text potentially exists within this text, as if it were embedded in it.

WORDS OF SPEECH

According to Twardowski, words of speech are those psychophysical products which express their meaning more precisely than others, while their meaning belongs to the category of psychical products known as thoughts or propositions. At this point, Twardowski also introduced the differentiations between

1) meaning as an action of providing an object with characteristics (signs) that make it different from other objects, e.g. the action of giving an object a name, the name being a psychophysical product of this action; e.g. the name tree expresses a certain unsensual representation, i.e. an l-concept which is its meaning, and denotes all objects which come under this l-concept;

2) meaning as a psychical product expressed by a certain psychophysical product;

3) meaning as an ability to evoke a corresponding psychical product in the recipient of the sign.

The process of fixing ephemeral psychical products, such as thoughts or emotions, in writing consists of the following stages. The action of thinking is accompanied by the action of speaking (although often silently), in the process of which emerge ephemeral psychophysical products: the formed but unvoiced sentences. They are fixed by being written down; the resultant text is a durable psychophysical product.

Psychical products evoked in the recipients of the sign differ from one another, but they have a set of common features which together compose the meaning, i.e. the content, of this sign. It is not a concrete psycho-physical product, but a result

of the action of abstracting preformed upon concrete products. It is obvious that Twardowski (in opposition to the advocates of associationism) did not consider the meaning of an expression to be a thought that is associated with the perception of this expression in the mind of an individual interpreter.

Twardowski's classification of attributes, with special focus on adjectives, sheds light on their meaning. According to this classification, attributes are determinative, modifying or abolishing. A determinative attribute, e.g. good in the phrase a good man, adds some feature to the meaning of the word it qualifies. A modifying attribute, e.g. forged in the phrase forged money, removes some features from the meaning of the word it qualifies in order to substitute it with some other features. An abolishing attribute either entirely eliminates the meaning of the word it qualifies, e.g. the adjective false in the phrase a false friend, or, quite the reverse, underlines the meaning of that word, e.g. the attribute real in the phrase a real fact (Twardowski 1927).

JUDGEMENTS AND SUPPOSITIONS. STATEMENTS AND UTTERANCES

The differentiations between the act of representing, the content of representation and the object of representation, and between the physical, psychical and psycho-physical actions and products, were applied by Twardowski, with the relevant alterations, to p-judgements, to l-judgments, or propositions, and suppositions, and consequently to statements as well. The meaning of a name is the content of the act of unsensual representing, that is the content of a p-concept, in short: an l-concept. The meaning of a declarative statement, in turn, is (a) the content of the act of judging, that is the content of a judgement, that is an l-judgement, i.e. a proposition. or (b) a supposition, i.e. the content of the act of supposing, that is understanding a thought, which is not accompanied by a conviction that it is indeed so. The reference of a representation to its object differs from the reference of a p-judgment to its object in only one respect: in the first case, the object is only represented, regardless of whether it exists or not, whereas in a p-judgement it is precisely the issue of its object's existence or non-existence that is at stake. By confirming or negating the existence of its object in a p-judgment, we neither ascribe nor deny any attribute to this object, since existence is not its attribute. In this area, Twardowski adhered to the so-called idiogenic theory of p-judgment, according to which the acceptance or regection of the object of the p-judgment is the essence of judging. Every p-judgment has one object, i.e. an entity of some type, like a thing, a feature, an event or a phenomenon. Connected with this is the classification of p-judgments, and hence also of the statements which are their language formulation, into, for instance, individual and general, relational and non-relational, or simple and complex ones. From a formulation of a statement or a nominal expression alone it is impossible to ascertain whether it is an expression, i.e. a verbalisation, of an already-formulated p-judgement, or

whether it expresses a supposition, that is a represented p-judgment or in other words a representation of a p-judgement.

The differentiation, applied by Twardowski, between utterances, that is sentential or nominal formulations expressing judgements given by the speaker, and formulations expressing suppositions, that is judgments which the speaker only represents to himself, is useful in, among others, grammar and logic, where formulations of the second type are given as examples.

Twardowski ascribed veracity to p-judgements (Twardowski 1900) and called them truths. He also considered that truths are absolute, that is, if a p-judgement is true, it is so unconditionally, regardless of circumstances, always and everywhere. But when an expression, that is a sentence expressing a p-judgment, is elliptical (as is, for instance, the sentence Hong Kong is a free city), it is true at the t1 point in time, and false at the t2 point in them, and in this sense it is conditionally true. Appropriately amended, however, this sentence will begin to express an absolute truth or an absolute falsehood. He will also ascribe obviousness and probability to a p-judgement, and only indirectly to the expression, i.e. a sentence or other part of speech expressing a p-judgement and having an l-judgement, i.e. the content of judgement, as its meaning.

According to Twardowski, not only affirmative sentences, but also interrogative and imperative sentences, apart from expressing, respectively, questions and orders, express also one or another p-judgement or p-judgements. For instance, in an interrogative sentence this is done by the datum quaestionis, the foundation of the question.

Twardowski based his classification and characterisation of utterances on the idiogenic theory of judging, on the grammars of German, Latin and Greek, and on the definitions of the extensional conjunctions found in the propositional calculus in logic. For instance, he described the unreal conditional as follows: such a sentence expresses a judgement which 1) rejects the existence of the object of the antecedent and the object of the consequent, 2) accepts the relationship between these objects. He construed defining sentences, e.g. A is B, as A denoting B, i.e. as a definition of the expression A by means of showing to what it refers.

THE LANGUAGE

Twardowski perceived language as a tool for communicating and thinking by means of symbols which (as signs of psychical products, and indirectly — of objects) are suitable for being easily grouped or separated. The tasks of word symbols are: 1. pragmatic, 2. semantic. The first, pragmatic, is subjective, the second, semantic, is objective. Both consist in expressing: the pragmatic function, or relation, informs about the psychical, emotional, volitional and intellectual acts of the sender of the utterance and arouses corresponding acts in the recipient.

The latter, semantic one, consists in pointing out the products of the speaker's psychical actions: meaning, denoting and designating.

Twardowski pointed out the logical shortcomings of speech and emphatically argued that thinking, speaking and writing should always be clear, unambiguous, univocal and precise. He was an advocate of the scientific approach to philosophy, devoid of metaphors evoking an illusion of profundity and wisdom. Even though he was one of the first professors of philosophy in this part of Europe to lecture on, among others, mathematical logic, he always warned against what he called the "symbol-mania" and "pragmatophobia," that is against the blind faith in using logical symbols and formulae with the concurrent neglect of what they represent (Twardowski 1919 and 1921).

Kazimierz Twardowski's influence on the philosophy of language in Poland was not limited to the generation of his numerous disciples, but radiated to the following generations of philosophers and logicians, including those who did not belong to the Lvov-Warsaw School. Twardowski's influence, which lasted until the end of the 20-th century, was obvious in the scientific treatment of philosophy, in the attention to the clarity of discourse and the scientific quality of investigation, and in the analytical approach. Twardowski's differentiations between the action and product, image and concept, representation and judgement, judgement in the psychological sense and judgement in the logical sense, i.e. proposition, relative and absolute truth, the act of representing, its content and object and hence, in parallel, the pragmatic and semantic functions of speech, are still valid.[1]

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Jerzy Pelc

KAZIMIERZ AJDIKIEWICZ (1890—1963) ON LANGUAGE AND THE EXPRESSIONS OF SPEECH

Originally published as "Kazimierz Ajdukiewicz (1890—1963) o języku i wyrażeniach mowy," Studia Semiotyczne 21–22 (1998), 271–291. Translated by Klaudyna Michałowicz.

During his studies in Lvov, Kazimierz Ajdukiewicz's academic teachers were, in the field of philosophy, his doctoral thesis supervisor Kazimierz Twardowski, Jan Łukasiewicz, the psychologist Władysław Witwicki, and in the field of mathematics, Wacław Sierpiński and others. During his university studies abroad, he attended classes taught by Edmund Husserl and Dawid Hilbert. He entitled the collection of his selected writings *Język i poznanie* [*Language and Cognition*], by which he gave an indication of his main interest: semiotics and epistemology (Ajdukiewicz 1960a, 1965a). The volume *The Scientific World-Perspective and Other Essays 1931—63* contains the English translations of Ajdukiewicz's leading works on issues in the field of the logic of language and the philosophy of language.

CONCEPT OF SIGN

Instead of saying *The barometer is falling, which means it is going to rain*, it is possible (Ajdukiewicz 1931) to say *The barometer is falling, so it is going to rain* without any change in meaning, as it seems. In all the cases where *which means* connects two sentences the expression can be substituted by *so*; the state of affairs stated in the first of those sentences is, according to Ajdukiewicz, an indication, i.e. symptom, of the state of affairs stated in the second of them. In his opinion, the same pertains to signal, i.e. an artificially generated phenomenon, whose detection, in connection with the awareness of a certain convention, leads as a motive to a conclusion regarding the occurrence of another phenomenon or to a certain decision. Since convictions expressed in the premises are the motive

for the conviction expressed in the conclusion, the former may be considered an indication of the latter. The same pertains to sentences as physical phenomena; according to Ajdukiewicz, they are indications, although not necessarily signals, of the fact that the speaker is thinking one thing or another. The fact that the signals and indications have been characterised in an analogous way prompts the assumption that in both cases Ajdukiewicz used a more general concept of the sign. His lectures from that period are known only from the notes of a single attendee, but these notes indicate that Ajdukiewicz did use the term 'sign' and differentiated between command signs, inarvative/associative signs, indications and expressions.

THE RADICAL-CONVENTIONALIST CONCEPTION OF LANGUAGE AND MEANING

The middle of the 1930s decade constitutes the turning point in Ajdukiewicz's philosophical views; before the year 1936 he assumed a stance which he himself called radical conventionalism, and afterwards through its increasingly moderate forms he reached empiricism, which then grew increasingly more extreme.

He begins his reflections on the issue of language from making a distinction between two concepts of meaning: (a) as including every semantic function of an expression except its external side; (b) as this property of expressions of the given language which determines which aspect of the same broadly understood object is being talked of, as in the pairs: *triangular — three-sided* or *5 is larger than 3 — 3 is smaller than 5*.

Further on, he explains that the language L is spoken by a person who (a) uses expressions which, with regard to their sound, belong to the vocabulary of L; (b) while doing so, he/she behaves in a manner ascribed by L for this particular sound, e.g. imagines something; (c) does (a) and (b) while having a set of dispositions for such reactions to the expressions of the language L which are proper to that language, i.e. to accepting certain sentences in the face of motives, such as an experience or the acceptance of a different sentence, e.g. accepting the sentence *It is raining* upon seeing the rain, or the sentence *16 is divisible by 2* as a result of accepting the sentence *16 is divisible by 4*. In the case of some expressions of the natural language, e.g. the expressions that have multiple meanings, motivational relations are not fixed. Hence Ajdukiewicz referred his conception of meaning to a language possessed of a fixed: (a) vocabulary; b) rules of syntax; c) motivational relations consisting in the principle that to each form of a statement in the language L ascribed is one or more types of experiences in the face of which the speaker of L must be ready to accept a sentence having this form. The language L is a consciously accepted idealisation, only approximately equivalent to a natural language.

Having presented a criticism of associationism theories of the meaning of expressions and the connotative theory of meaning proposed by John Stuart Mill,

Ajdukiewicz began to formulate his own definition of meaning. He accepted as his basis the fact that in certain formalised axiomatic systems, the vocabulary and the rules of syntax are entirely determined by the definition of a meaningful expression, and the system directive determines on what grounds a given sentence may be accepted. On this basis, Ajdukiewicz decided to accept it as fiction and treat the attitude towards an ethnic language, e.g. Polish, as fixed. Then, a natural language may be viewed analogously to a language of a theory of deduction, in which the language directives are fixed. Directives of a natural language determine in what relation a sentence must be to some experiences to suffice for this sentence to be accepted. The speaker does not have to be aware according to which directives he/she is acting, as long as he/she is ready to keep to them.

The relation between the accepted sentence and the experience which motivated its acceptance is based on the concept of direct inference, e.g. as when the sentence: *It is thundering* is directly derived from the perception of an appropriate auditory impulse.

The following approximate formulation of the definition of the synonymity of two expressions is preparatory to the definition of meaning. That expression A, e.g. *flat* in the language L, is synonymous with expression B, *apartment* (both meaning a set of rooms on one floor) means that: (1) every experience E from which sentence S_1 of the language L can be directly derived according to the directives of language L, e.g. *A flat is a set of rooms on one floor*, is at the same time an experience from which sentence S_2: *An apartment is a set of rooms on one floor* can be derived in an identical way; (2) each and only sentence S_3 which can be directly derived from the acceptance of S_1 according to the directives of language L, e.g. *A flat is a kind of tenement*, can be in an identical way derived from the acceptance of S_2. From this definition, the definition of the meaning of expression W in the language L can be derived by abstraction as this property which is common to expression W and its synonyms (Ajdukiewicz 1931).

Ajdukiewicz pointed out (Ajdukiewicz 1964) that he accepted the conception of meaning directives, or meaning rules, in order to report the difference between what an expression denotes and what it means The difference in the meaning of two expressions, e.g. *the Morning Star* and *the Evening Star*, which denote the same thing, lies in the fact that a different meaning directive refers to each of them. Developing this conception further, Ajdukiewicz removed the concept of disposition from it and explained that only this person associated expressions in the language L with the meaning assigned to them by L, who in situations T either accepted the sentence S or rejected it (Ajdukiewicz 1934a). This pattern serves to formulate the meaning directives of the language L. Rejection of the sentence S, which the appropriate directive compels the speaker to accept, means that this speaker does not heed the assignment of meanings in L. If the acceptance of sentence S in the language L with the concurrent rejection of

sentence S_1 in the language L attests to the fact that these sentences were used in the meaning ascribed to them in the language L, then we can say that sentence S_1 is immediately inferable from sentence S on the grounds of the language L (Ajdukiewicz 1964). For instance, whoever is ready to accept the sentence *If A, then B* and its antecedent A, and at the same time rejects the consequent B, proves that he/she does not associate the expression *if. . . , then* with the meaning ascribed to it in L. The appropriate directive is termed the deductive meaning directive. In this case, it would assume the following formula: only this person associates expressions in the language L with the meaning ascribed to them in that language who is ready to accept sentence B when he/she accepts the sentence *If A, then B* and its antecedent A. The formula: only this person associates the expressions *every* and *is* in the language L with the meanings ascribed to them in L who is ready to accept the sentence *Every A is A*, is an example of the axiomatic meaning directive. The empirical meaning directive, in turn, compels the person having, for instance, a toothache to be ready to accept the sentence *It hurts*. Ajdukiewicz emphasised that he was not pretending to the enumeration of the complete list of types of meaning directives. He considered meaning directives to be characteristic of the so-understood language L. If the set of expressions in the language L is identical as in L_1, but a meaning directive D is valid in L whereas it is not valid in L_1, this means that the ascription of meanings to expressions in these two languages is different, because a rejection of the same sentence S violates the ascription of meanings characteristic of L, but does not violate the ascription of meanings in L_1.

It is worth noting that mentioning the expression *X accepts the sentence Z of the language L*, Ajdukiewicz never completed it by adding: *to be true*, because in that period he avoided semantic concepts, being wary of semantic antinomies. In fact, however, the pragmatic concept of accepting the sentence implied a semantic involvement. The set of all sentences distinguished by the directives of the language L together with certain data of an experience were by Ajdukiewicz termed the world perspective of the language L correspondent to those data of an experience; he considered this whole of the elements to be an unalterable component of cognition in which the users of this language participated (Ajdukiewicz 1934a).

Making use of the concept of the scope of a meaning directive, i.e. the class of these sentences which must be accepted following this directive, Ajdukiewicz differentiated between the closed and the open languages. This differentiation, important in the doctrine of radical conventionalism, he later discarded as he abandoned the doctrine. Language L_0 is open with respect to language L if every expression of language L_0 has a corresponding consonant translation in L, but not the other way around, and, in addition, in the richer language, i.e. L, there exists an expression W which has the translation W_0 in the language L_0, but at the same time in the language L this expression W is, in respect of meaning,

associated with an expression W_1 which does not have a translation equivalent in L_0. To the open language L_0 it is possible to add expressions which are not synonyms of any expression W_0 already existing in as regards meaning to tie them with W_0, and this will not result in the change of meaning of expressions already existing in L_0. If the opposite is true, the language is closed with respect to the other language. This differentiation pertains to artificial languages, but it may prove useful in considering the acquisition of new expressions by a natural language and the influence of this process on the meaning of expressions extant in the language before the acquisition of new ones.

Two expressions, W and W_1, are directly connected with respect to meaning if both appear either (1) in the same sentence dictated by an axiomatic meaning directive, or (2) in the same pair of sentences subordinate to a deductive meaning directive, or (3) in the same sentence ascribed to some datum of experience by an empirical meaning directive.

A language is coherent if none of its components contains expressions that would have no connections in meaning with expressions belonging to another component of that language. The set of all meanings of an expression in a coherent and closed language is termed the conceptual apparatus.

Ajdukiewicz explicates the concept of translation mentioned in the observations concerning the open and closed languages by formulating a necessary condition for the synonymity of expressions W and W_1: if on the basis of a meaning directive the sentence S containing the expression W must be accepted, there also exists a meaning directive which obliges us to accept the sentence S_1 derived from S by means of replacing the expression W in it with the expression W_1. The equivalence of W and W_1, in turn, relies on the fact that the true sentence S has an equivalent true sentence S_1 derived from S in the manner described above.

If languages L and L_1 are closed and coherent and if some expression W in the language L has its translation W_1 in the language L_1, then L and L_1 are mutually translatable, i.e. every expression in L has its translation in L_1 and the other way around.

The definition of synonymity, and following this — of meaning, is constructed in Ajdukiewicz for a language that is concurrently both closed and coherent. The expression W has the same meaning in the language L as the expression W_1 has in the language L_1, if and only if there exists a relation R with regard to which L is translatable to L_1, and W remains in the relation R to W_1. Hence the meaning of the expression W in the language L is this property of the expression W in the language L which is ascribed to some expression W_1 in the language L_1 if and only if W_1 in L_1 is synonymous with W in L. The concept of translatability contained in this definition was formerly explained by means of the concept of the acceptance of a sentence on the basis of an appropriate meaning

directive. Also the relation between the sentence being accepted and a sentence already accepted relies on direct inference. Hence when we establish the meanings of expressions in the language L, also the connections of direct inference between the sentences of that language become established.

The colloquial concept of language is fluid. Ajdukiewicz observes that an ethnic language is a multiplicity of identically sounding languages in a strict sense, e.g. ones in which one meaning is ascribed to every expression. The presence of even a single word which has more than one meaning makes us deal with two identically sounding languages which in that point differ by the expression-to-meaning ascription. Hence the meaning directives for that language are not unequivocally defined either (Ajdukiewicz 1934a, 1934b). Despite these differences between the logical conception of language, assumed by Ajdukiewicz in his analyses of the language and meaning, and the linguistic conception constructed after the example of the colloquial language, in his opinion (Ajdukiewicz 1947) the axiomatic and deductive meaning directive appear (explicitly or implicitly) in both languages. An artificial language investigated by logicians is simpler than a natural one, but it has been constructed on the pattern of a natural language whose idealization it is; thanks to this, investigation of the logic of that simplified language can reach deeper into the nature of a natural language than some linguistic analyses (Ajdukiewicz 1960b).

Ajdukiewicz rejected the radical-conventionalist conception of closed and coherent languages and non-translatable languages, and the associated definition of meaning, when it turned out that if the meaning directives of the language L are limited to the axiomatic and deductive ones, then it may happen that two equivalent expressions, W and W_1, denote different things. This was pointed out by Tarski. His allegation undermined Ajdukiewicz's assumption that if meaning directives are not altered by replacing the name of one expression in them with the name of another expression, then these expressions are synonymous. But the reverse of this assumption: that meaning directives are not altered if the name of one of synonymous expressions is replaced in them with the name of another, remained valid. This second assumption makes it possible to uphold the view that the meaning of expressions of the language L determines its meaning directives, and hence that it is impossible to alter the directives without altering the meaning of expressions.

Further on Ajdukiewicz considered whether the terms used in logic, e.g. the negation sign, had to be associated with such a meaning that axiomatic directives, which forbid the rejection of the axioms of logic under threat of violating their meaning, pertain to them. He answered that they did not have to be. He significantly weakened his assumption ascribing truth to every sentence dictated by the axiomatic meaning directive; tautologies are such sentences. In addition, the language of science may dispense with axiomatic directives, as

long as the deductive directives (according to which it is impossible to violate some ways of inferring without concurrently violating the meaning of expressions) remain valid in it. The following step which Ajdukiewicz was considering involved abandoning deductive directives; this, however, required him to assume a different, empiricist conception of language and meaning, which he outlined for the first time in 1958 (Ajdukiewicz 1964).

THE EMPIRICIST CONCEPTION OF LANGUAGE AND MEANING

The concept of meaning depends on the conception of language. Within the scope of its empiricist conception, Ajdukiewicz based the concept of the meaning of expressions on the pragmatic concept of their understanding. He explained that for two persons to understand the expression W as meaning the same, they must, firstly, have the same object in mind (excluding those expressions whose understanding does not depend on thinking about an object). Secondly, it is necessary that — having the same object in mind — they apply the same method to deciding whether W pertains to it; thus, they will not understand the term *hexagon* in the same meaning if one of them decides whether a figure is a hexagon by checking if it has nine diagonals and the other does it by checking if the sum of its angles equals 720°. Thirdly, it is necessary that they have the same attitude to the object of the expression W, e.g. the attitude of reporting, or commanding, or interrogating. Fourthly, the emotional attitude of the thought on which the process of reasoning is based must be identical, e.g. that they both treat the word *democratic* as emotionally neutral, or they both treat it as positive in respect of its social or political value. On the above enumeration of examples Ajdukiewicz based his opinion that the meaning in which a person comprehends the expression W is the manner of understanding it defined with regard to the enumerated points.

An expression W is understood when the reading or hearing W directs the recipient's thought to an object different from W; this thought blends into one with the reading or hearing of W and is expressed by means of W. To understand an expression W in the meaning M is to understand it by means of a thought T, which with regard to important aspects is provided with the above-mentioned properties P. These properties are expressed by W which has the meaning M. In other words: "W in the meaning M expresses the property P of the thought T" means as much as: "If in the moment t someone understands the expression W in the meaning M, this means he/she understands it by means of the thought T possessed of the property P." Expressing is a relation which occurs — regardless of time — between W, M and P, if a necessary condition for using W in the meaning M is to understand W by means of the thought T possessed of the property P. Stating, in turn, is a relation which occurs in the moment t between the speaker S, the expression W and the speaker's thought T_S, if S using W at the moment t understands W by means of his/her thought T_S.

The recipient R may not guess what thought T the speaker S is experiencing at the moment t as the sender of the expression W, if (1) W belongs to a language with which R is not familiar; (2) W is ambiguous and R does not know in which of its meanings it was used. But even if R knows in what meaning S used this W, he/she can only ascertain which properties P are expressed by the expression W in the meaning M with regard to aspects important to M. However, the thoughts T of the speaker S at the time of saying the expression W may have been accompanied by a conviction that things are just as W declares; and this property does not belong to the properties P, because W — declared either with or without conviction — may have the same meaning M. Hence, Ajdukiewicz commented, speech is not an exhaustive method of communicating our thoughts to other people; observing their behaviour is a more reliable method of getting to know their feelings and convictions (Ajdukiewicz 1965a: part 1, chap. I).

Even though he rejected the doctrine of radical conventionalism, he limited the scope of axiomatic meaning directives and considered whether it would be possible to resign from deductive directives or to modify their interpretation, Ajdukiewicz did not stop taking the conception of the meaning directives in language as a foundation for his considerations concerning logical semiotics, i.e. the logic of language. However, he no longer treated the meaning directives as an essential characterization of language, but as a component of its description, its other components being the rules of syntax or inflection; but he saw the former one as far more general and essential than the latter. He began to consider the role of empirical meaning directives as greater and more important than he did before; he asserted that applying idealisation, it is possible to distinguish a type of observational sentence whose truth is guaranteed due to the fact that precisely these directives should be accepted as linguistic usage. In contrast to those sentences which are observational at the moment t to the speaker S because the motive that compels S to accept them is the fact that at the moment t he/she experiences a sensual observation, the other type is true, while the latter can also be false, e.g. in the case of a sensual illusion. The first type owes its truth to the fact that linguistic usage makes the speakers ready to accept, in the appropriate normal circumstances, sentences of a given form in the face of observations of a given content. It is impossible to formulate empirical meaning directives for an ethnic language in any other way than approximately, because it is not fixed which circumstances of making an observation are normal or what the scope of those observations is, in relation to which one may deny the observed object a given predicate without violating linguistic usage (Ajdukiewicz 1965a: part 3, chap. III). Both this predicate and the expressions present in the description of the observation conditions and in the formulation of the directive are usually vague, i.e. they do not have an ascribed denotation with distinct boundaries. e.g. the expression *a young man*, and hence their meaning is not clear-cut. Hence

such sentences as *The observed object O is (not) P* are essentially undecidable (Ajdukiewicz 1965a: part 1, chap. IV).

Ajdukiewicz designed the new conception of language and meaning with the condition that, among others, it excludes the case in which two equivalent expressions have different denotations. Obviously, the radical-conventionalist conception did not fulfil this condition. In addition, the new conception was to report the difference between the meaning and connotation of an expression, and to do it in such a way that the meaning of an expression would unequivocally determine the connotation of this expression, and the connotation would determine the denotation, i.e. extension but not the other way round. Denotation was not to determine connotation; hence, two equivalent expressions, e.g. *the author of Hamlet* and *the author of Macbeth*, may have a different connotation. Connotation was not to determine meaning, i.e. two expressions having the same connotation, e.g. *Negro* and *nigger*, may differ with regard to meaning, the difference being e.g. the emotional tinge. The concepts of connotation and denotation were derived from John Stuart Mill; Ajdukiewicz wrote that his theory developed Mill's and made it more precise. In particular, he broadened the concept of denotation in the following way:

— the denotation of a proper name, e.g. *Warsaw*, is the object called by this name;

— the denotation of the name N in the meaning M, which can be used as a predicative in a sentence, e.g. the name *city*, is the set of all and only its designata, i.e. singular objects about which the name N in the meaning M can be predicated in a true sentence;

— the denotation of the operator not binding the variables, e.g. the word *and* in the expression day *and* night, it is raining *and* it is windy, or the verb form *is writing* in the sentence *John is writing a letter*, is the relation between the denotations of its arguments and the denotation of the expression formed by this operator together with its arguments, e.g. in the sentence *Warsaw is a city*, the denotation of the operator *is* is the relation between the denotations of the words *Warsaw* and *city* and the denotation of the sentence *Warsaw is a city*. This denotation is its truth value, i.e. truth or falsehood. In this case, the denotation of the operator is the relation between Warsaw, a city and truth. If by the truth we understand the real, empirical world, we may say that the operator *is* locates the city of Warsaw in the existing reality.

In contrast to Mill's concept of connotation, the connotation of the expression E as designed by Ajdukiewicz was to consist of the objects referred to by each of the expressions explicitly or implicitly contained in E, and to reflect in its structure the syntactic role of each of these expressions. This role is manifested in the syntactic position assumed by each of the component expressions in E. Syntactic positions are marked by numbers. The first step consisted in

developing conventional abbreviations present in *E* and in removing the elliptical expressions from it, e.g. instead of *Mary invited her class-mate, and Elisabeth her brother* the sentence *Mary invited her class-mate, and Elisabeth invited her brother.* Ajdukiewicz noted that the constituents of every compound expression are hierarchically arranged. For instance, in the sentence: *Sugar is sweet and quinine is bitter, and* is the main operator, and the sentences found on both sides of *and* are the first-order arguments. In each of the coordinate clauses, in turn, the word *is* is the main second-order operator, and its arguments are, in the following sequence: *sugar, sweet* in the first sentence, and *quinine, bitter* in the second sentence. Marking the syntactic position of the entire *E* as (1), the position of the operator as ending in the number (0), the position of the first coordinate clause, i.e. the first sentence argument, as (1,1), the second as (1,2), and thus considering the hierarchy of components and the order of arguments on each of its levels, we arrive at:

Sugar	is	sweet	and	quinine	is	bitter
(1,1,1)	(1,l,0)	(1,1,2)	(1,0)	(1,2,1)	(1,2,0)	(1,2,2)

This analysis and notation are suited to a purely inflectional language. The numbers in parentheses indicate the syntactic position of each component, and thus play the same role as inflectional endings. If the component words were jumbled, it would be possible to put them back in the correct order and reconstruct the entire *E* owing to the number of the syntactic position of each constituent. Ajdukiewicz remarked that no ethnic language is purely inflectional or purely positional. The syntactic structure of its expressions is never unambiguous to a degree which would permit only one way of dividing it into components. In the example analysed above, none of the simple components is an abbreviation of a compound expression; hence, each of these components occupies its final syntactic position within the scope of the expression *E*. Particular words are unequivocally ascribed to their final syntactic positions in a one-to-one allocation. A similar ascription occurs between words occupying final syntactic position within the scope of the expression *E* and the denotations of those words. Hence, for each expression *W* there exists a function which determines the one-to-one allocation between a syntactic position and the object which is the denotation of the word occupying this position. These functions Ajdukiewicz considered to be the connotations of the expression *E*. This function distributes those objects which are the denotations of component words of the expression *E* in the extra-lingual reality, according to a programme delineated by the structure of the expression *E* analysed by means of the conceptual tools: the operator, the arguments, the main component in the expression or its constituent part, and the syntactic position of each component. The symbol of the connotation of the above sentence will be as follows: ((1,1,1) — *sugar*; (1,1,0) — *is*; (1,1,2) — *sweet*; (1,0) — *and*; (1,2,1) — *quinine*; (1,2,0) — *is*; (1,2,2) —*bitter*). In the description of the structure of the expression *E*, printed

in italics, there appear the metalinguistic names of its constituent expressions, and in the notation of the connotation there appear the names of the extra-lingual counterparts of these expressions. The connotation of the sentence is the proposition, an objective entity, not a linguistic or a psychological one, linked with the sentence by the statement relation, which, according to Ajdukiewicz, is here neither syntactic not pragmatic, but semantic. From the notation of the connotation of the expression *E*, Ajdukiewicz moved to the notation of the denotation defined by these connotations:

Sugar	is	sweet	and	quinine	is	bitter
(1,1,1)	(1,l,0)	(1,1,2)	(1,0)	(1,2,1)	(1,2,0)	(1,2,2)

The notation of the denotation of expression *E* reveals how the objects which are denotations of the components of *E* were distributed by the connotations of *E* in the extra-lingual reality and in what mutual relations they remain. When *E* is a true sentence, and hence states a true proposition, i.e. a fact, this distribution is the same as in the empirical reality, whereas if *E* is a false statement, stating a false proposition, the distribution within the scope of the expression *E* differs from the pertinent section of reality.

Ajdukiewicz considered the above ideas to be purely introductory; he personally formulated charges which could be levelled against them and pointed out the direction in which work on resolving the discovered problems should proceed; he emphasised, however, that at the time (the year 1959) his idea for the solution was still too vague to be presented (Ajdukiewicz 1967b). Death prevented him from continuing his work on these issues.

The concept of connotation present in the above considerations can be applied to names as well. In such cases, connotations may also be called linguistic content. Ajdukiewicz considered it different from characteristic content. The characteristic content of the name *N* occurring in the meaning *M* is every such set *S* of properties *P* that every designatum of that name is possessed of every *P* from the set *S*, and only the designata of that name are possessed of every *P* from the set *S*. The name N, e.g. *a square*, may have more than one characteristic content, consisting of e.g. (a) the properties of equilaterality and rectangularity, (b) the property of having two equal and perpendicular diagonals. The characteristic content of the name *N* unequivocally defines its connotation. This contents is pleonastic if it contains more properties than necessary to characterise the denotation of the name *N*, e.g. the contents consisting of the properties of quadrilaterality, equilaterality, rectangularity and having two equal and perpendicular diagonals. The characteristic content of the name *N* in the meaning *M*, in turn, is constitutive when it stops to characterise the denotation of the name *N* as a result of removing even a single property.

The linguistic content of the name *N* in the meaning *M* is defined by Ajdukiewicz as the elements of the characteristic content of *N* distinguished by

the meaning M of N, i.e. by the manner in which N is understood, in the following way. Anyone who uses the name N in the meaning M, upon being informed that the object O has all the properties contained in the content, must be able to decide whether to bestow the name on the object in question. A person who knows that the figure F is a equilateral rectangle, but does not know whether the name *square* can be bestowed on it, proves by this that he/she is not familiar with the appropriate section of the language, that is the connotation of the word *square* in its geometrical meaning. Conversely, a person who knows that the figure F has two equal and perpendicular diagonals, but does not know whether to bestow the name *square* on it, or not, thus reveals that he/she is not familiar with the appropriate section of geometry. Expanded names, e.g. an equilateral and rectangular parallelogram, or their conventional abbreviations, e.g. *square*, have definite linguistic contents; these are names which have a clear-cut meaning. Names which have an intuitive meaning, e.g. *dog* or *yellow*, in the colloquial meaning, and not in the language of zoology or, correspondingly, physics, do not have a definite connotation. The set of all properties pertaining jointly to all its designata Ajdukiewicz termed the full content of the name N in the meaning M (Ajdukiewicz 1965a: part 1, chap. III).

Ajdukiewicz formulated the definition of the concept of translation by means of the concept of the syntactic position of the constituents of a compound expression; the definition does not refer directly to the concept of meaning. Translations, both within the scope of a single language and from one language to another, differ with respect to the level of precision. Expression A is a literal translation of expression B if and only if, after the abbreviations present in them have been developed to their full form, (1) they are transformed into abbreviation-free A_1 and B_1; (2) one-to-one correspondence occurs between each constituent of the expression A_1 and a certain constituent of the expression B_1; (3) constituents between such a correspondence occurs occupy the same syntactic positions in, respectively, A_1 and B_1, and are reciprocally equivalent, i.e. they denote the same object. A literal translation of a given expression is a translation which attains the highest level of precision that is possible to achieve while translating the expression under discussion, and hence a translation whose level is equal to the highest order of the constituents of the expression. The term "literal translation" is explained by the following example:

(A) $2 + (3 \times 5) = 3 + (2 \times 7)$

(B) $2 + (5 + 10) = 3 + (\mathrm{l}0 + 4)$

One-to-one correspondence between the expression A as a whole and the expression B as a whole is an example of a zero-level translation. Correspondence between the first-order constituents:

(A)	(B)
$2 + (3 \times 5)$	$2 + (5 + 10)$
$3 + (2 \times 7)$	$3 + (10 + 4)$

gives in result the first-level translation. Correspondence between the second-order constituents gives the second-level translation:

(A)	(B)
2	2
+	+
(3 × 5)	(5 + 10)
3	3
+	+
(2 × 7)	(10 + 4)

This is the highest level of translation possible in this case, because one-to-one correspondence of the third-level constituents would lead to the situation in which they are not reciprocally equivalent:

(A)	(B)
3	5
×	+
5	10
2	10
×	+
7	4

(Ajdukiewicz 1967a).

Making use of the concept of the hierarchical constituents of a compound expression and their syntactic positions, Ajdukiewicz interpreted intensional sentences of the type: *X thinks (says, believes) that p*, as being, in fact, extensional. He pointed out that the intensional operator, e,g, the word *believes* in the main clause segments the subordinate clause into constituents and it is not the subordinate clause as a whole that constitutes the operator's argument, but each of those constituents. E.g. the sentence *Caesar knew the capital of the Republic lay on the Tiber* is not about the relation between Caesar and the denotation of the subordinate clause, but about the relation between Caesar and the objects denoted by each constituent of the subordinate clause; these objects are, in the given case, the capital, Republic, Tiber and the relation of lying on. And the sentence *Caesar knows about such-and-such objects* is not intensional (Ajdukiewicz 1961 and 1967a).

On the margin of his considerations on intensional sentences, Ajdukiewicz improved the well-known differentiation between a token of an expression and a type of an expression, i.e., in his terminology, an expression *in concreto* and an expression *in specie*. He does it by asking whether in the sentence: *Peter loves Peter*, the grammatical subject *Peter* and the grammatical object *Peter* are examples of the same word *in specie* or of two different words *in specie*. In the first case, the term 'a word *in specie*' is understood so that its designata, i.e. words *in specie*, may occupy various syntactic positions. Ajdukiewicz used here the phrase

a word in specie not determined as to its syntactic position. In the second case, in turn, when the word *in concreto Peter* in the grammatical subject is an example of one word *in specie*, and the word *in concreto Peter* in the grammatical object is an example of another word *in specie*, different than the former one, then the term word *in specie* — this time: determined as to its syntactic position — is understood so that its designata are such words *in specie*, which may occupy only some, definite syntactic positions. In order to unambiguously characterise the designatum of the term 'a word *in specie* determined as to its syntactic position," it is necessary to have a word *in specie* not determined as to its syntactic position plus a definite syntactic position. A word *in specie* determined as to its syntactic position is thus an ordered pair consisting of a syntactic position and a word *in specie* not determined as to its syntactic position. Hence, saying that a word W occupies the syntactic position P in the sentence S, we understand the term 'word' as a word *in specie* not determined as to its syntactic position, because a word *in specie* determined as to its syntactic position in the sentence S, being the above-mentioned ordered pair itself, is not a constituent of the sentence S and does not occupy any syntactic position in it, unless the sentence S becomes a syntactic constituent of the sentence S_1. In that case, words *in specie* determined as to their syntactic positions in the sentence S may be constituents of the sentence S_1 and occupy syntactic positions in it (Ajdukiewicz 1967a).

In his considerations regarding the understanding of expressions Ajdukiewicz used the meta-language of pragmatics. In that meta-language, apart from the names of expressions in the object language and the names of objects to which they refer, there also exist names of the users of that language and the relations between those users on the one hand, and the expressions which they use on the other hand. In his works concerning connotation and denotation, Ajdukiewicz used mainly the meta-language of semantics, which is a part of the meta-language of pragmatics and contains the names of expressions in the object language and the names of their designata, denotations, connotations and logical values, but does not contain names of the users of these expressions. Differentiating between the expressions *in specie* and expressions *in concreto*, Ajdukiewicz used mainly the meta-language of syntax, which is even poorer than the one of semantics, as it contains the names of expressions in the object language, but does not contain either the names of the objects to which they refer or the names of the users of these expressions. The fact that he made a distinction between these three types of meta-languages, pertaining respectively to the three areas of logical semiotics (which Ajdukiewicz considered as identical with the logic of language), i.e. to pragmatics, semantics and syntax, agrees with Tarski's views on the hierarchical structure of natural language and also with the views of Charles Morris and Rudolf Carnap on the division of semiotics.

Although Ajdukiewicz was of the opinion that in many cases the only

way to solve many philosophical problems was to translate them from the object language to a meta-language, among others to the meta-language of semantics (he spoke here as the adherent of the so-called semantic theory of cognition, which he applied in many of his works), he nevertheless considered whether it was possible to construct one's object language in such a way that it be suitable to speak in it sensibly about both real objects and about objects which are only thought about, about real, that is empirical, existence and about existence which is only intentional. On the basis of the fact that Leśniewski's ontology did not lead to any existential theses, he made additions to its language, for instance, sentences from a translation of the *Iliad* and the *Odyssey*. Then, such sentences as *Zeus is an Olympian god* appeared in that language as accepted theses. The word *is* and other words in the above sentence, as well as those outside the sentence, e.g. *exists*, *object*, have a different meaning than in the empirical language. Thus, we arrive at the concepts of an intentional object and an intentional existence. Ajdukiewicz terms the language in which the above concepts appear 'intentional language'. The speaker of that language must also speak the empirical language, or at least its meta-language part, because in order to accept the sentence *Zeus is an Olympian god*, he/she must first ascertain that an identically sounding sentence appears in the texts by Homer. Thus, the speaker moves from accepting some meta-language sentences in the empirical language to accepting some object-language sentences in the intentional language. Its own immanent logic is valid within the scope of the latter, which permits moving from some intentional-language sentences to other sentences in the language. Hence in the intentional language it is also possible to accept some sentences as inferential consequences of other sentences in the intentional language, even though they do not have any corresponding asserted meta-language sentences in the empirical language. If the empirical language and the intentional language are treated as one language, then the sentence consisting of elements of each of those languages will be meaningful. For instance, the sentence: *The sentence 'Zeus is an Olympian god' appears in Homer, but Zeus is not an Olympian god* can be asserted in the empirical language; but also, without falling into contradiction, it is possible to assert the sentence *Zeus is an Olympian god* in the intentional language. If, however, the empirical language and the intentional language are treated as not forming one language, but as two separate languages, then it is possible to assert the sentence *Zeus does not exist* in the empirical sense and the sentence *Zeus exists* in the intentional one, and the latter sentence will not be contradictory to the former. These considerations may turn out to be useful in the analyses of the works of literary fiction (Ajdukiewicz 1949/1950).

SEMANTIC CATEGORIES VS. SYNTACTIC CONNEXION

Some concepts present in the empiricist conception of language and meaning come from Ajdukiewicz's essays published in the 1930s. For instance, the concept

of an operator not binding the variables is a variation of the concept of functor. The latter is present in Leśniewski's reflections on the topic of semantic categories, whereas the term 'functor' was introduced by Kotarbiński. An operator of this kind is an expression of any semantic category, which plays the role of functor in relation to another expression. In the absolute meaning, *and* is a functor, *capital* is a name. But in the phrase: *the capital of Poland* the word *capital* plays the role of functor, i.e. an operator not binding the variables. The concept of operator is syntactic, whereas the absolute concept of functor is semantic. Initially, Ajdukiewicz used the term 'functor' also as a name of an operator not binding the variables.

Ajdukiewicz modified the conception of semantic categories (originally proposed by Leśniewski in relation to artificial languages) in such a way that it was applicable to the classification of the expressions of the natural language, i.e. he took their meaning into consideration. He pointed out, however, that in natural language semantic categories were not definitively fixed and that there occurred expressions which were difficult to decide whether they belong to just one semantic category or to more of them. Such expressions were, for instance, nouns which were proper names, i.e. individual names suitable as a subject, for instance *Socrates*, and nouns which were general names, i.e. names suitable as predicatives, e.g. *philosopher*. As a result of their inclusion into different semantic categories, the expressions *Socrates is Socrates* and *A philosopher is Socrates* could be considered nonsensical. Ajdukiewicz proposed that the semantic category of an expression be disclosed by means of indices: s — sentence index, n — name index in a language that does not distinguish between proper names and general names, while in a language that does make this distinction: i — index of a name suitable only as subject, g — index of a name suitable also as a predicative. The sentence-creating functor having two name arguments has a "complex fraction" index: the symbol of the expression obtained by means of this functor is above the "line of a fraction," and the symbols of argument expressions are below the line. For example, the word *is* in the sentence *Socrates is a philosopher* has the indicator $\frac{s}{nn}$ in a language that does not distinguish between proper names and predicative names, and the indicator $\frac{s}{ig}$ in a language that makes the distinction, whereas the sentence *Dog is a species* has the indicator $\frac{s}{gg}$ in a language that both nouns in the sentence includes among the names (Ajdukiewicz 1935).

Ajdukiewicz used the above notation in investigating the syntactic connexion of a compound expression in colloquial language, a connexion relying on the fact that an expression consisting of meaningful simple words is meaningful, i.e. has a homogeneous meaning. These considerations are taken as fundamental in the field of categorial grammar and are included among classic achievements of its early period. The following example explains the central idea of Ajdukiewicz's proposal.

s			s
Lilac	*smells very strongly*	*and*	*the daffodil withers*
n	$\frac{\frac{s}{n}}{\frac{s}{n}}\ \frac{s}{n}$	$(\frac{s}{ss})$	n

The indices of simple words in the predicate *smells very strongly* come from the fact that as a whole, it has the index. *Very strongly* is a functor, which together with *smells* $(\frac{s}{n})$ creates the functor $\frac{s}{n}$; hence *smells* becomes the argument of the functor *very strongly*, which therefore acquires the index $\left(\frac{\frac{s}{n}}{\frac{s}{n}}\right)$ In the expression *very strongly* $\left(\frac{\frac{s}{n}}{\frac{s}{n}}\right)$, in turn, *strongly* is the argument of the functor *very*, which therefore acquires the index $\left(\frac{\frac{s}{n}}{\frac{s}{n}}\right)/\left(\frac{\frac{s}{n}}{\frac{s}{n}}\right)$.

Evidently, the hierarchy of constituents and the functor/argument relations in the above expression have been indicated. The main constituent is the functor *and* $(\frac{s}{ss})$ connecting the two coordinated clauses. The components of a compound sentence are ordered according to the following principle: (1) the main functor of the entire expression; (2) its first argument; (3) its second argument. If one of the components is also a compound one, the same principle applies. In the above example, the correct sequence of components is as follows: $\frac{\frac{s}{n}}{\frac{s}{n}} n\ \frac{s}{n}\ n$.

If, viewing this sequence from the left-hand side, we find in it a "complex fraction" index directly followed by such indices as those in the "denominator" of that "complex fraction," we cross out the first one from the left, substituting it with the "numerator" of the "fractional" index. Thus we obtain the successive derivatives of the correct sequence of indices of the analysed expression:

$$\frac{s}{ss}\ \frac{\frac{s}{n}}{\frac{s}{n}}\ \frac{s}{n}\ n\ \frac{s}{n}\ n$$

$$\frac{s}{ss}\ \frac{s}{n}\ n\ \frac{s}{n}\ n$$

$$\frac{s}{ss}\ s\ \frac{s}{n}\ n$$

$$\frac{s}{ss}\ ss$$

$$s$$

An expression is syntactically coherent if and only if (1) it is arranged in the correct sequence of its indices; (2) to each main functor of a given level ascribed

are exactly as many arguments as there are letters in the "denominator" of its index; (3) it has an exponent which is a single index. Such an exponent gives the meaning category of the entire expression. In a natural language, this analysis is rendered difficult by the vagueness of the meaning of words and, sometimes, by the uncertainty of what exactly constitutes a single word (Ajdukiewicz 1936).

Ajdukiewicz distinguished syntactic categories of expression from their semantic categories. The former were singled out with respect to the role of the expression in a sentence, the latter with respect to what the expression denoted, to what kind of entities it referred. Singling out semantic categories with respect to that, Ajdukiewicz enumerated singular names, i.e. names of individual objects, sentences as denoting truth or falsehood, i.e. the logical value, and functors as signs denoting function, i.e. the relation which to each object, or two or more objects, unequivocally ascribes some object as a correlate. As an important feature of language systems proper, differentiating it from other sign systems, Ajdukiewicz pointed out the fact that in certain circumstances two expressions A and B, denoting respectively objects α and β, form a compound expression which denotes not α and β, but some other object γ, e.g. *the father of Socrates* is a name for Sophroniscus, not a function of fatherhood and the individual object Socrates. Functors creating individual names, e.g. *old*, are marked by indicators $\frac{i}{i}$, $\frac{i}{ii}$etc. Functors denoting the function which ascribes logical value to logical values, i.e. sentence-creating functors, e.g. *not*, *or*, are marked by indices $\frac{w}{w}$, $\frac{w}{ww}$. Functors denoting the function which ascribes logical value to individual objects, i.e. sentence-creating functors, e.g. *lives*, *loves*, are marked by indicators $\frac{w}{i}$, $\frac{w}{ii}$. A functor which referred to another functor creates a meaningful expression with it is, for example, every adverb, e.g. *brightly*, which in the sentence *The sun shines brightly* has the index $\frac{\frac{w}{i}}{\frac{w}{i}}$.

By means of the above concepts, Ajdukiewicz analysed syntactic relations between the expression *in specie* in the sentence *S*. For example, if the main operator in the sentence *S* belongs to category $\frac{w}{i}$, and its argument to the category *i*, they are linked by predicate-subject relation of the first order, and the predicate is a *verbum finitum*, e.g. *sleeps*, *is a man*. Although it seems that *verbum finitum* cannot be a grammatical subject of a sentence in a natural language (in an artificial language, a second-order predicate $\frac{\frac{w}{w}}{i}$ is possible), Ajdukiewicz noted that it was enough to treat e.g. the verbum finitum *lives* and the general name *the living* as examples of one and the same word *in specie* — and then the functor $\frac{w}{i}$ would be able to occur in the role of the subject of the sentence *S*, and the functor $\frac{\frac{w}{w}}{i}$ in the role of its predicate. This would pertain to all words *in concreto* having the same root and the same denotation. To generalise: the predicate-subject relation occurs between the expressions *A* and *B* in the sentence *S* if and only if *A* is the main operator in *S* and *B* is its only argument, provided that either *A* is a functor $\frac{w}{i}$ and *B* is an individual name, or *A* is a *n*-order predicate and *B* is a

(n — 1)-order predicate. Since there exists a basically infinite number of syntactic positions, as well as semantic categories, it is possible to define an infinite number of syntactic relations by combining the former with the latter.

Finally, Ajdukiewicz presented for consideration the following definition of the main operator: if the expression A, which denotes α, can be in it entirely decomposed into B, C_1, C_2, ..., C_n, which denote, respectively, β, γ_1, γ_2, ..., γ_n, and β is a function which unequivocally ascribes α to objects γ_1, γ_2, ..., $\gamma_n$in this order, we can say that in the expression A, B is the main operator referred to C_1 as its first argument, to C_2 as its second argument, ..., to C_n as its n^{th} argument. If the above definition were accepted, the syntactic structure of an expression which denoted something, and hence of a correctly constructed expression, would be unequivocally defined by the semantic categories of its first-order constituents (Ajdukiewicz 1960a).

INTERROGATIVE SENTENCES

The term 'interrogative sentence' appeared in Ajdukiewicz's considerations with the same meaning as it has in grammar. Interrogative sentence S, i.e. a sentence expressing question Q, is connected with a set of sentences in a logical sense, that is true or false ones, which constitute answer A to question Q formulated in S. In an interrogative sentence, it is possible to distinguish the interrogative particle and, (1) in questions requiring a decision, e.g. *Is Earth a sphere?*, a sentence in the logical sense: *Earth is a sphere*,[1] or (2) in questions requiring an object, e.g. *Who discovered America?*, at least a fragment of a sentence in the logical sense. Such sentence function, as in this case *x discovered America*, constituting the schema of the answer to the question, is the *datum quaestionis*, the question's given, and the variable x enclosed in it is the question's unknown. The interrogative particle, e.g. *what*, *which of the vertebrates*, *how*, indicates the range of the question's unknown, i.e. the set of its values distinguished by the interrogative pronoun or adverb, e.g. the particle *which of the vertebrates* indicated that only after substituting the name of some vertebrate in the place of x will we obtain a true or false sentence that would constitute the correct answer to the question asked. A question requiring an object, i.e. complement, e.g. *Who discovered radium?*, has a positive assumption, in this case *someone discovered radium*, and a negative assumption, *someone did not discover radium*. If the positive or negative assumption of the question is not true, the question

[1]In the Polish language, a question requiring a resolution has the same structure in non-reported speech as in reported speech, i.e. it begins from an interrogative particle *czy*; this particle can be omitted only in informal speech. Then, only the intonation of the sentence indicates that it expresses a question, not a judgement or supposition, because the word order of the interrogative sentence is the same as in the indicative sentence.

is termed as an incorrectly stated question. Questions requiring a decision, i.e. yes/no questions, are always correctly stated, because they have only two answers which are contradictory sentences, so one of them is true and the other false. Some pieces of information are communicated by means of the question's assumption; this is made use of in asking suggestive questions, e.g. *When was the Berlin wall destroyed?* addressed to a person who does not know whether the assumption of the question is true, but from the fact that the question has been asked may guess that the asking person believes this assumption.

Ajdukiewicz divided answers to questions into (1) proper (2) improper e.g. an improper answer to the question: *Which domestic animal is carnivorous?* is the sentence *A cow is not carnivorous.*

Among the improper answers, the answer which implies some proper answer is called complete. For example, an entire indirect answer to the question: *Is a whale a fish?* is the sentence: *A whale is a mammal*, because it implies the proper answer: *A whale is not a fish* arises. A sentence which implies no proper answer, but which excludes some of all the possible proper answers to the question asked, Ajdukiewicz terms a partial answer to that question. This kind of an answer to the question: *Who found my keys?* is the answer: *I did not find them.* A sentence which implies at least one proper answer to the question, is called by Ajdukiewicz a complete answer. An improper answer being a contradiction to the positive assumption of the question, e.g. *Who was Copernicus' son?*, is an answer which does not satisfy the positive assumption of the question; in this case: *Copernicus did not have a son.* If a question was improper, because its positive assumption was not satisfied, only this kind of answer is true. If, however, the negative assumption of the question is not satisfied and all the proper answers to the question are true, then only the answer which cancels the negative assumption of the question is a true answer.

The psychological content of a question asked seriously was described by Ajdukiewicz as a desire to obtain information which may be expressed by sentences in the logical sense which are values of the *datum quaestionis.* If a question was only thought, the above desire is not its contents. Such questions are, e.g., didactic questions, for instance examination questions and heuristic questions (Ajdukiewicz 1934d).

THE CONDITIONAL

In the general perception, the meaning of the logical sign of implication, i.e. $\rightarrow$, read as *if, then*, differs from the meaning of the conditional connective *if, then* in the natural language. Material implication $p \rightarrow q$ is a false sentence only when the place of antecedent p is occupied by a true sentence, while the place of the consequent q is occupied by a false sentence, and in addition between those sentences there is no connection as to their contents, e.g. *If 7 is a prime*

number, then Montreal lies on the Thames. Otherwise, the implication is a true sentence, despite the absence of the contents link between its components. Among such cases, only those in keeping with the intuitions regarding the colloquial *if, then* are in the real conditional, where both components are true sentences and there is a discernible contents link between them. An implication whose both components are false sentences, in turn, is close in meaning to the colloquial unreal conditional. The largest difference as to meaning occurs between an implication in which falsehood implies truth and an analogous conditional. This difference can also be noticed when the so-called logical constants are compared with the respective connectives of the natural language, e.g. the alternative sign with *and*, the disjunction sign with *or*, and, if to a lesser extent, the conjunction sign with *and*.

Ajdukiewicz attempted to demonstrate that the truth conditions of the implication were applicable to the conditional, and that the truth conditions of the alternative $p + q$ were applicable to the colloquial disjunctive sentences. In doing this, he made use of the intuitive acceptance of the fact that $p + q$ is a true sentence in every case when at least one of its components is true, and a false sentence only when both of its components are false. He also pointed out that in the logical propositional calculus, the truth conditions of the logical sum, i.e. the alternative $p + q$, and the truth conditions of the material implication $p \rightarrow q$ result in the fact that every time $p \rightarrow q$ is true, then *not—p or q* is also true. Then he differentiated between what the sentence S asserts and what S (indirectly) expresses in a natural language. The sentence *Warsaw lies on the Vistula* asserts the objective state of affairs, while it expresses the speaker's conviction that this state of affair does occur. In order to find out from someone's statement about the state of affairs that has been asserted in it, it is necessary to believe in this statement, whereas to find out what the subjective state of the speaker's is expressed in that statement, it is enough to understand it and know whether it was used correctly, i.e. seriously and in keeping with the linguistic usage. The linguistic usage ascribes to statements the states of affairs asserted in them, as well as the type of the subjective state of the speaker's which they express. A motive for denying acceptance to sentence S, that is for denying to state it with conviction, may be either the fact that we know that S is false (and then we are ready to accept the negation of S), or the fact that we realize that S has been used in an inappropriate manner.

The disjunctive sentence *p or q* expresses (1) our knowledge that one of its components is true; (2) our lack of knowledge which of them is true; (3) our readiness to infer one of the components from the negation of the other. Conversely, the sentence *p or q* does not assert that one of its components can be inferred from the negation of the other. For instance, in the disjunctive sentence: *I shall die on a day having an even date or* $2 \times 2 = 4$, in which at least the second

component is true, it is impossible to infer one component from the negation of the other. In Ajdukiewicz's opinion, sometimes what the disjunctive sentence expresses gets mixed with what it asserts.

Colloquially understood, sentences *not—p or q* and *if p, then q* are not only equivalent, but also express the same thing, so to use one is appropriate if and only if to use the other is also appropriate. What the sentence *not—p or q* expresses is that among two *not—p, q* at least one does occur, and hence *not—not—p* and *not—q*, that is *p* and *not—q*, will not occur simultaneously; the same is expressed by the conditional *if p, then q*. Also, the sentence *not—p or q* expresses our lack of knowledge which of its components is true, and thus the lack of knowledge that *not—p* is true, hence *p* is false, and the lack of knowledge that *q* is true. The same, i.e. the lack of knowledge as to the fulfilment of the antecedent, is expressed by the real conditional. Finally, the alternative sentence *not—p or q* expresses our readiness to infer one component from the negation of the other, that is sentence *q* from the sentence *not—not—p*, i.e. sentence *q* from sentence *p*. The same is expressed by the real conditional: the readiness to infer the consequent from the antecedent. Without this readiness, to use the real conditional is inappropriate.

Both the colloquially understood conditional and the material implication assert the same: that is not so as the antecedent says and simultaneously so as the consequent says. The difference between them lies in the fact that material implication does not express anything of all that which — as it has been enumerated above — a conditional expresses, i.e. that a person who accepts this conditional (1) does not know that (a) the antecedent is true, (b) the consequent is true, (2) is ready to infer the consequent from the antecedent. Hence, the acceptance of a conditional may meet with resistance caused by the unwillingness to use it inappropriately; such resistance will not occur in the case of material implication.

Ajdukiewicz perceived the difference between the ordinary language conditional in the real mood, the conditional in the possible mood and the conditional in the unreal mood as lying in the following circumstances. The conditional in the real mood expresses that we do not know the antecedent to be false but it does not express that we know it to be true. The conditional in the possible mood expresses that we do not know that the antecedent is false and we do not know it to be true. The conditional in the irreal, i.e. impossible, improbable, mood expresses that we know the antecedent to be false. A person may use a real conditional in an appropriate manner when he/she wants to express that he/she does not know that the antecedent *p* is false, and he/she does not want to express whether he/she does or does not know that *p* is true. Hence, this conditional may be used in an appropriate manner both when the person does and does not know that *p* is true, as long as he/she does not know that *p* is false. The appropriate use of the possible conditional, in turn, requires this person to

not know that p is false or that it is true. Evidently, what has been stated above about the real conditional refers also to the probable conditional, but it does not refer to the unreal conditional. Inferential conditionals, i.e. those conditionals in which the antecedent is a premise and the consequent a conclusion, differ from other conditionals. An inferential statement asserts the state of affairs to which the premise refers, and the state of affairs to which the conclusion refers, and at the same time it expresses the speaker's conviction that things are indeed so as the premise and the conclusion state; it also expresses the fact that the speaker accepts the conclusion on the basis of the premise. A conditional, in contrast, does not assert its antecedent or consequent, and expresses not a concluded, but only a potential inference (Ajdukiewicz 1956b).

DEFINITION

Ajdukiewicz concluded that instead of one general concept of definition, there were three different concepts of it, namely the nominal definition, the real definition and the arbitrary definition.

The nominal definition of the word W in the language L is a statement which allows every sentence constructed from the words of the language L and the word W not belonging to L to be translated, on the basis of the theses and inferential rules of the language L, into a sentence constructed solely from the words of the language. This kind of a definition acquires an object-language form, e.g. *A square is an equilateral rectangle*, or a metalinguistic form: *Each time sentence* S *containing the word "a square" is accepted, it is also allowed to accept the sentence derived from it by the substitution of the word "square" with the expression "equilateral rectangle."*

The real definition of some object amounts to its unambiguous characterisation, i.e. a statement which states something that can be stated about one and only one object, e.g. *Table salt is a solid with the chemical constitution NaCl.*

The sentence S of the language S is an arbitrary definition, i.e. a postulate of the language L, if the terminological convention of L states that terms present in S are to symbolise objects which fulfil S in the place of those terms. Such nominal definition as *A square is an equilateral rectangle* is also a real definition of a square, because it gives its univocal characterisation, and at the same time it constitutes a postulate of language, i.e. an arbitrary definition, because an appropriate terminological convention is valid in that language (Ajdukiewicz 1956a, 1958, 1965a: part 1, chap. V).

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NOTE: All the above publications except those marked (*) are found also in: Ajdukiewicz Kazimierz (1960a and 1965a) *Język i poznanie*, vol. I—II. Warszawa: PWN.

Jerzy Pelc

STANISŁAW OSSOWSKI (1897–1963) ON THE CONCEPT OF SIGN, AND ON THE LANGUAGE OF SCIENCE, OF POETRY AND OF MYSTICISM

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At the beginning of his career, Stanisław Ossowski, a sociologist, was concerned with semantics; his doctoral dissertation, entitled *Analiza pojęcia znaku* (Ossowski 1926) was written under the supervision of Tadeusz Kotarbiński. Subsequently, in his studies in the field of philosophy of science, aesthetics and sociology (his post-doctoral dissertation, the book *U podstaw estetyki*, lay on the borderline of these disciplines), he used concept analysis in a broad scope.

He considered a sign to be a material object which due to someone's intention may fulfil the semantic functions of indicating and meaning. Among signs, he made a distinction between symbols (that is semantic creations ascribed to their referents solely due to someone's intention), images, and copies (that is semantic creations ascribed, respectively, to imagined objects or models, due to both intention and to similarity, and in the case of copies, also to origin). Indications, for instance rash or a student's cap, were not included in semantic creations.

EXPRESSIONS OF SPEECH

Expressions of speech constitute a separate category. Similarly to symbols, Ossowski considered them to be conventional creations. Language is a system of conventional semantic creations, which according to conventional rules of that system can be combined into complex semantic creations fulfilling autonomous functions that are not included in the primary conventions. Acoustic semantic creations included in this definition are linguistic creations, whereas graphic semantic creations are their substitute signs.

According to Ossowski, an expression was meaningful if it could participate in false or true expressions. He distinguished sentences, nominal expressions and non-autonomous expressions, e.g. prepositions.

A simple semantic creation is understood when we know the agreement, on the basis of which it was endowed with some semantic function. In order to understand a complex expression, however, it is necessary to (1) know the functions of its elements; (2) be able derive meaning from those functions, according to the rules of the given language; this meaning shall be a second-order function and shall decide whether this expression is autonomous (and thus nominal or sentential) or non-autonomous. Hence, in this conception of meaning, only complex expressions have meaning.

Ossowski considered a name to be a simple nominal expression which could serve exclusively as the subject of a sentence. Hence neither complex nouns nor complex adjectives are names; the latter were not names unless they served as a subject (e.g. in a sentence *The fool asked the wise*, in which case they were abbreviations of a complex expression. Thus understood, only the first declensional case of an expression is a name; other forms belong to non-autonomous complex expressions. Ossowski distinguished (1) names directly ascribed to referents, not possessing meaning and hence unsuitable as a predicative, and (2) names ascribed to referents by means of a definition, e.g. *a square*, which were equivalents of complex nominal expressions, in this case *an equilateral rectangle*. To say what such name means is to replace it by a complex expression. Names belonging to the second type are sometimes used in such a manner as if they were directly ascribed to their referents, even though their structure (for instance the suffix *-er* in the noun *joker*) attests to their complex nature.

Ossowski emphasised that the inclusion of any expression to one of the above categories, which were distinguished with regard to extra-lingual equivalents, was in each case determined by the manner the given expression was understood in the given case. Apart from that, it was possible to view semantic creations with regard to the psychological feelings of the speaker expressed by means of this expression, which were related to the meaning of the utterance or its element (Ossowski 1926).

THE LANGUAGE OF SCIENCE, THE LANGUAGE OF POETRY AND THE LANGUAGE OF MYSTICISM

From the point of view of the theory of culture, it seems convenient, according to Ossowski (1967), to distinguish three ideal types of language, that is the language of science, the language of poetry and the language of mysticism. All three may use the same repertoire of words, although each has its own paths of word-formation and at times generate forms that do not belong to the ethnic language, e.g. scientific symbolism or poetic neologisms. Also, each language may

fulfil the three fundamental communicative functions: a descriptive, expressive and impressive one. The first is determined by semantic conventions. The second consists in expressing feelings that are not the topic of the utterance. The third means forcing upon the recipient some reactions which go beyond understanding sentences. The language of poetry and the language of mysticism are the domain of the second and third function.

Differences between the above types of language lie, essentially, in the manner each of them fulfils communicative functions. The language of poetry does not attempt to precisely relate conceptual contents, but to evoke vivid imagery and rich associations by means of innovative wording: metaphors, abbreviations, neologisms, symbols, ambiguity, unconventional syntax etc. Contents expressed by the language of poetry could, albeit lamely and with injury to poetic quality, be translated into the language of conventionalised concepts.

In contrast to the language of poetry, the language of mysticism presupposes non-translatability of those concepts; it attempts to evoke in the recipients feelings which are dependent on intuition; intuition is supposed to grasp contents of words deeper than just their conceptual meaning. Translation of a mystical metaphor into the language of concepts would deprive it of its communicative function, which is to evoke states of mind which are impossible to describe. Hence charges of nonsensicality levelled at mystical theses, and thus also at some philosophical statements, seem to Ossowski irrational; here he mentioned Husserl and Schopenhauer, Hegel, Wroński and Heidegger. Ossowski pointed out that in his manuscripts, Husserl sometimes included the remark: "I have seen this," to reassure himself and others that the point in question was not an error; and that Schopenhauer maintained that upon finding words, human thought ceases to be sincere and, on a deeper level, serious.

In Ossowski's view, colloquial language, rich in ambiguous and vague phrases, fulfils the function of the imperfect language of conceptual contents and at times, unnoticeably to the speakers, assumes the functions of the languages of poetry and of mysticism.

The communicative shortcomings of colloquial language are partially eliminated by the situational context of an utterance. The language of science, in contrast, is expected by Ossowski to be precise according to the requirements of the given science, especially in the key sections of argumentation and in the face of an impending confusion. Apart from that, Ossowski gave the language of science the right to use colloquial idioms and even poetic metaphors — on condition, however, that this was not a sign of helplessness in the face of the requirement to formulate statements precisely. He also demanded that every author be able to translate his casual statements into precise ones at all times; the influence of Tadeusz Kotarbiński is evident in this.

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Jerzy Pelc

JANINA KOTARBIŃSKA'S (1901–1997) VIEWS ON SEMANTICS

Originally published as "Poglądy semantyczne Janiny Kotarbińskiej (1901–1997)," Studia Semiotyczne 21–22 (1998), 297–299. Translated by Klaudyna Michałowicz.

Janina Kotarbińska was a disciple and assistant of Tadeusz Kotarbiński, after whose retirement she took over as head of the Chair of Logic at the University of Warsaw. Her doctoral dissertation was written under the supervision of Tadeusz Kotarbiński.

THE CONCEPT OF SIGN

The concept of sign (Kotarbińska 1957) is the topic of her dissertation containing a critical review of associationistic, intentional and biological theories of sign, and a presentation of her own definition of the concepts of indication, sign and the sub-types of the latter: the iconic, symbolic and verbal sign. Indications are categorized as facts and signs as objects. According to Kotarbińska, an A-type phenomenon is an indication of a B-type phenomenon only if there is a constant relationship between A and B that makes it legitimate to draw conclusions regarding the occurrence of some B-type phenomenon on the basis of some A-type phenomenon having occurred. Object A, due to the convention K, is a sign of object B if and only if (1) A has such a feature F, (2) while B has such a feature G, and (3) A is to B in such a relation R, that: (a) due to the occurrence of R the fact that A has the feature F is an indication of the fact that B has the feature G, (b) objects having the feature F are appropriate, due to the convention K, for expressing thoughts about objects linked to them by the relation R and having the feature G.

THE EXPRESSIONS OF SPEECH

One of the types of symbolic signs is the expression of speech, especially names and sentences; in this case, the semantic relation of denoting occurs as the relation R. Semantic relations not only assign an expression of speech to those objects which are spoken of by means of this expression, but also to thoughts about those objects. Those thoughts are expressed in sentences containing this expression. In order to clearly refer a sentence to its extra-linguistic equivalents, it is necessary to consider the sentence to be true.

INDEXICAL EXPRESSIONS

Indexical expressions, e.g. *I, today, here*, so frequent in an ethnic language, and at the same time ones causing equivocality, are defined by Kotarbińska (1971) in a fragmentary manner: "If the expression *e* has the shape 'I' and was used by the person *P*, then *e* denotes *P*." It is a definition formulated in the meta-language and having the nature of a semantic rule. It is applicable only to those instances in which expression *e* has been used in the circumstances mentioned by it. Denotation of an indexical expression, i.e. to whom or to what it refers in a given case, is dependent on those circumstances. Hence, different instances of the same indexical expression have different semantic functions, but its denotations alter according to a certain constant rule, which is common in all instances that have the same shape.

OSTENSIVE DEFINITION

The issue of applications of indexical expressions is associated with the issue of ostensive definitions, which are indispensable because every empirical term is, in the end, reducible to terms definable only by pointing. Defining an expression, e.g. *yellow*, ostensively lies in pointing, e.g. with a gesture, to one of the objects designated by this expression, for instance a daffodil, with a concurrent declaration: *This is yellow*, or only pointing to it verbally by means of a sentence, for instance: *A daffodil, for instance, is yellow* ('for instance' belongs to this sentence), and generally: A is N, where N is the term being defined. Analysis of the purely verbal scheme of the ostensive definition was concluded by Kotarbińska with the following formulation of its final version: x is N always when, and only if, x is similar to a with regard to R to the degree D. A definition formulated according to this scheme requires examples and counter-examples that would make it possible to guess with regard to whether there is a similarity between x and a. Kotarbińska leaves open the question of whether the so-called ostensive definition is a definition in the strict sense (Kotarbińska 1959). The latter she views as a true sentence by virtue of a terminological convention (Kotarbińska 1955) and analyses six versions of the differentiation between real and nominal definitions, and then four versions of the differentiation between analytic and synthetic definitions.

REISTIC SEMANTICS

In her dissertation "Kłopoty z istnieniem (Rozważania z zakresu semantyki)" (Kotarbińska 1967), containing the analysis and some interpretations of Kotarbiński's reism, Kotarbińska comes to the rescue of this doctrine and program. She presents her advice on how reism is to avoid the complications it faces when, for instance, it attempts to translate sentences about sets of sets, typical in mathematics, into utterances free of onomatoids, yet understood literally at the same time. It is generally known that, to a reist, feasibility of such a translation is a condition for a sentence containing onomatoids to be making sense. Kotarbińska proposes two solutions which constitute a liberalisation of reism, but one done without an infringement of the principal tendencies of its ontological version. (1) It may be assumed that all names and onomatoids belong to the same syntactic category, and so every name or onomatoid is capable of being either the subject *A* or the predicative *B* in the sentence *A is B*. Kotarbińska proposes that, at the same time, it is possible to make a distinction between (a) the reistic sense of words *to be*, *to exist*: in a singular empirical sentence about an individual, concrete, material thing or person, and (b) the non-reistic sense of those words, for instance in true sentences, both *Mont Blanc exists* and *A class of mountains exists*. (2) Instead of (1), it is possible to assume — as Ajdukiewicz (1935) does — that among names there is an infinite number of syntactic categories which are arranged hierarchically: the lowest category, type zero which includes individual names, are suitable only as grammatical subjects in the sentence *A is B*; if this is the case, *B* in this sentence will be a first-type name. Generally: when *B* belongs to the k^{th} type in the sentence *A is B*, then *A* belongs to the k minus 1 type. As a result, all the functors which have name arguments, for instance *to be*, are systematically ambiguous. Only on the lowest level, the language of concrete things, does *to be* function in the fundamental sense postulated by reism. Due to this solution, neither the making sense nor the truth value of the sentence *A is B*, in which A is a name of an abstraction, depends on the translatability of *A is B* into the language of things. Also, no sentence about abstractions assumes their existence in the fundamental sense of the word *to exist*.

APPLICATION OF LOGIC TO THE ANALYSIS OF LANGUAGE

As a representative of analytic philosophy, especially the philosophy of natural language, Kotarbińska supports the idea of applying definitions of logic and sentential calculus to it, but only in the aspects making it possible to clearly formulate the point and to give an equally clear answer that would nevertheless respect the customary usage of expressions, as long as that does not clash with the postulate of precision. She is opposed to formalization as art for art's sake and to the excessive use of the tools of formal logic that causes deformations in

the problem given to be solved (Kotarbińska 1964).

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Jerzy Pelc

IZYDORA DĄMBSKA (1904–1983): SEMIOTIC CONCEPTS

Originally published as "Idee semiotyczne Izydory Dąmbskiej (1904–1983)," Studia Semiotyczne 21–22 (1998), 305–309. Translated by Klaudyna Michałowicz.

Izydora Dąmbska was a disciple and assistant of Kazimierz Twardowski, under whose supervision she prepared her doctoral dissertation in semantics. Her academic teachers were also, among others, Kazimierz Ajdukiewicz and Roman Ingarden. An important position in her *oeuvre* is held by several works on the philosophical semiotics of natural language.

THE CONCEPT OF SIGN AND TYPES OF SIGNS

In the field of semiotics, she developed a theory of sign, presenting a definition of the concept and classification of signs. She perceives a sign as a broadly understood object A, which to a person that perceives it is able to actualise a different object B, with which the object A remains in the relation of indication or denotation. An A which is a state of affairs or a process is an indication, whereas an A which is a thing is a symbol or an iconic sign.

There are two kinds of indications: symptoms and signals. A symptom A, for instance the occurrence of a rash, is linked with B causally or functionally, whereas a signal is linked with it entirely conventionally, and the selection of A is arbitrary, e.g. sound of a ringer, flash of a lamp. An A linked with B by a causal relation, that is by a natural relation, is nevertheless not a fully natural sign, because it is treated as a symptom due to the acceptance of a convention, i.e. an agreement, a decision or custom.

A symbol is either a simple conventional sign, e.g. a mathematical symbol, or a thing, which is perceived in two ways: asemantically and semantically; for instance, a trowel is a tool, but on the other hand — a Masonic symbol. The word 'trowel', therefore, or an image of a trowel turns out to be a sign with a literal

meaning when it denotes a trowel, or with a metaphorical meaning when it refers to Freemasonry; hence it has a complex denotation.

Signs were also divided by Dąmbska into denoting, e.g. gestures, and informing, i.e. sentences. The first are not entirely defined and they only denote fully in a certain arrangement: a situation or a verbal context. For instance, a single tear denotes nothing; it does so only as an element of weeping. Such an arrangement becomes an informative sign, i.e. one pointing to the occurrence of some process or state of affairs, or postulating them. A designed informative sign, i.e. a communication, has its sender. A non-designed informative sign, e.g. a. symptom, does not have a sender.

LANGUAGE AND SPEECH

An artificial language, e.g. a code or a formalised language of a deduction system, is a collection of denotative signs and principles of their use. Those principles are formulated in a natural language, and therefore do not belong to that artificial language. The natural language, which shares a common part with the artificial language, is therefore primal and fundamental, because (a) it constitutes the pattern for the artificial language, similarly as human organs and their functions are patterns for tools we devise; (b) it determines the structure of the artificial language by means of principles.

Speech, as well as some gestures and facial expressions, are natural to the extent that they serve human beings to satisfy the innate need to express feelings and to communicate with others. Similarly a language, as a system of signs, serves to indicate — on the basis of conventions — some objects and to communicate information pertaining to them. Those conventions are not arbitrary, but due to the instrumental efficiency of the language they are accepted, sometimes with the help of a projective definition, and hence on the basis of a conventional decision. The natural or primal character of an ethnic language is based on the fact that those very conventions are formulated in it (Dąmbska 1975a and 1982). If a language is perceived as an inter-subjective and conventional system of signs and principles of their use, which is objectified in writing, then it is an objective tool. Speech, in turn, analysed with regard to its actual or potential pragmatic functions, serves as both an objective and subjective tool, that is for expressing or concealing feelings, informing, communicating, that is making information or expression available, ordering, selecting, registering, recording and conveying human cognition. According to Dąmbska, every empirical cognition if it is an active investigation — that is identification, description and explanation of phenomena and formulation of results in a manner open to inter-subjective control — is thus instrumental cognition by means of signs (Dąmbska 1967a).

Understanding signs of speech and understanding expressions of speech are, according to Dąmbska (Dąmbska 1975b), only two of the many types of understanding; in her view, *I understand X* means as much as (a) *I know what the*

expression X means; (b) *I know what the expression X expresses*. The a-type understanding relies on the ability to give an expression which is the synonym of X, to formulate a definition of X and to use the expression X in various verbal contexts and situations. The b-type understanding — according to some views — relies on empathising with the state of the speaker's psyche and the vicarious re-living of the expressed feelings, as well as on being aware of their motives and causes. Understanding a text always means its subjective interpretation. Concepts (a) and (b) belong to pragmatics.

Other branches of semiotics: syntax and especially semantics are also concerned with the functions of the words of speech. According to Dąmbska, descriptive semantics in its broad sense, now called semiotics, includes (a) the general theory of sign and meaning, (b) the investigation of semantic categories, and (c) the logical syntax of a language. By applying this descriptive semantics, that is semiotics, to a natural language it is possible, in Dąmbska's opinion (Dąmbska 1964), to define with an adequate precision concepts used by its descriptive grammar. Dąmbska considers the grammatical division into parts of speech to be incorrect, since what is at stake are not the parts, that is to say the elements of larger meaningful units, but the types of expressions. Among others, words that are inflected are categorised according to the ontological nature of the objects they denote (nouns, adjectives, verbs, numerals), and at the same time according to the semantic character of the words themselves (on this basis, pronouns have been categorized as occasional expressions) and according to their morphological features (in the case of verbs), which differ with regard to semantics, e.g. the infinitive, the participle and personal forms. Apart from that, grammar does not distinguish the objective language from the meta-theoretical language, when, for instance, it characterises conjunctions and prepositions as non-autonomous words, whose meaning-function lies in expressing relations between other expressions in a sentence, instead of between objects denoted by those expressions. Yet pronouns are non-autonomous elements of names, e.g. *pod stołem* ['under the table'], or sentences in which they play the adverbial role. Conjunctions, in turn, behave analogically to functors in logic with regard to syntax, whereas with regard to semantics some of them, for instance *although* or *but*, indicate relativisation of objects as a result of thought processes. Another misunderstanding in grammar is to categorise exclamations, for instance *ah*, as parts of speech, while they are only expressive signs which do not denote intentional objects of thought.

In Dąmbska's opinion, the method of semiotic analysis is the fundamental and peculiar, but not the sole method of philosophy that is a meta-science which investigates cognition. Cognitive apparatus of semantics and pragmatics, branches of semiotics, directs the scholar towards epistemological and ontological issues; hence language cannot be the sole subject of philosophy. To Dąmbska, investigation of its cognitive and expressive functions seems to be possible only in the framework

of anthropological philosophy and axiology, and thus a conception of philosophy broader than the minimalist program of linguistic philosophy (Dąmbska 1967b).

EMPTY NAMES

Issues associated with the definition of empty names belong to those whose resolution depends on ontological views. Dąmbska opts for dividing names only into individual and general names, and for the inclusion of empty names such as *Zeus* to the first group, and those such as *a Muse* — to the second. In her opinion, such sentences as *Erato is a Muse* are true, and such as *Erato is a Parca* are false. She points out that the qualification of a name as empty depends on the worldview of its user: to a pious ancient Greek, the word *Zeus* was a non-empty name. She is of the opinion that every name denotes possible objects of thought, including the existent and non-existent ones, for instance contradictory ones. She is, however, aware that by assuming that no empty names exist, she is getting mired in an antinomy, because then the term 'empty name' is an empty name (Dąmbska 1948).

PROPER NAMES

According to Dąmbska, proper names are names of real or fictitious human individuals, e.g. *Socrates*, *Gulliver*, and in a broader sense – also of individual objects having a humanistic quality, e.g. *Montreal*, *Durandal*. In the incorrect use, a proper name is featured as a general name, e.g. *Every Sophia has her name-day on 15th May*, or is understood metaphorically, e.g. *Czego się Jaś nie nauczył, tego Jan nie bedzie umiał* (proverb: What Johnny [= a young man] will not learn, John [= a mature man] will not know). Sometimes a proper name denotes a class of people, e.g. *Zoilos* instead of *scoffer*. Then it fulfils a semantic function of denoting, which Dąmbska perceives as different from the proper semantic function of proper names, which is naming a certain individual in an arbitrary manner, independently from that individual's features. A proper name is not suitable for the function of a predicative in the sentence *A is B*. In separation from the context, it is, according to Dąmbska, devoid of a definite meaning: like a variable symbol present in the sentence function *X is a human being*. Hence proper names are not suitable to become scientific terms and they do not play a cognitive function, unless solely when they are present in a material supposition, i.e. as the names of themselves. Only placed in context do they reveal their semantic functions. Dąmbska proposes this definition: "The word W in language L is a proper name when and only when W is suitable for the following use: *My name is W*." The appellative function of proper names makes them useful for calling, making requests and giving orders (Dąmbska 1949).

ADJECTIVES

In her 1927 work, Dąmbska refers to Kazimierz Twardowski's article on the subject of adjectives. She defines them as synsemantic words, whose meaning requires adding to the meaning of names. As an element of the latter, they explain, supplement or transform the original meaning of the names to which they have been added (Dąmbska 1991).

THE CONDITIONAL

The conditional is the topic of Dąmbska's enquiry pertaining to semantics of sentences, not only those expressing hypothetical judgement, but also hypothetical questions, requests, orders, wishes and decisions. According to Dąmbska, the meaning of a conditional is not the meaning of the antecedent or of the consequent, and it is not the sum of those meanings; its meaning is the fact that the state of affairs denoted by the antecedent is a sufficient condition for the state of affairs denoted by the consequent. We are unwilling to use a conditional knowing that its antecedent is false and its consequent is true; it is used when neither the truth nor falsity of either of these components is ascertained. Even when one or both of them are in the negative, the entire conditional is affirmative. Real, potential and unreal conditionals do not differ with regard to meaning, because the meaning of a sentence is only what it expresses explicitly, whereas the *modus potentialis* implicitly expresses a conviction that nothing can be ascertained as to the occurrence or non-occurrence of states of affairs referred to by, respectively, the antecedent and the consequent. The *casus irrealis*, in turn, expresses a negation of the occurrence of each of those states of affairs. Dąmbska enumerates differences in the meaning between conditionals on the one hand, and clauses of: cause or reason, concession, and time on the other. She also analyses conditional questions, orders and normative sentences, incidentally describing the differences between an order and a norm (Dąmbska 1938).

As a historian of semiotics, Dąmbska's legacy includes a volume *Wprowadzenie do starożytnej semiotyki greckiej — studia i teksty* (Dąmbska 1984) of her essays on such topics as the concept of sign, the debate whether speech is natural or conventional, selected issues in rhetoric, the allegorical interpretation, as well as her own translations of the Sophists, Plato, Aristotle, the Stoics, Philo of Alexandria, Ptolemy, Galenus, Boethius, referring to a broad scope of issues in semiotics. Also, Dąmbska 1975c includes in her studies the history of semiotics, referring to, among others, the Stoic concept of indication and the concept of truth, the semiotic aspects of functional words in Abélard, and Kazimierz Twardowski's views on semiotics.

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