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JARROLD J. KATZ'S THEORY OF MEANINGS [1]

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I. METHODOLOGY OF SEMANTICS

The starting point for Katz's deliberations is the claim that, so far, semantics suffers from many ailments. Although we know a great deal of facts, we do not have a theory which would organize and systematize them and would be capable of generalising them. Semantic concepts are formulated too broadly, they explain little and are incapable of properly describing the state of affairs. Finally, the theoretical proposals in semantics are mutually exclusive. Of course what Katz means is the condition of semantics of natural languages (Katz, Fodor 1964: 480).[2]

1. Katz, when postulating better semantic demands above all that semantics be a normal theory. What he wanted to achieve is to be able to predict previously unknown facts on the basis of the adopted semantic claims (Katz 1966: 103, 182). Such a prediction should consist in inferring consequences from the theses adopted. The mere process of drawing conclusions should be entirely formal, mechanical, and should not be based on intuition (Katz 1966: 105; Katz, Fodor 1964: 501). Katz does not provide more detailed information as to his understanding of formality. From the point of view of these postulates, Katz resists the traditional grammar, which he calls a catalogue of linguistic facts (Katz 1966: 106) and the so-called Oxford analytic philosophy

[1]This article presents Katz's views up to 1967. His later papers will be presented on another occasion.

[2]Aware of Katz's views I used the following Katz's works which were at my disposal: Katz 1964, 1966, 1971,

1961; Katz, Fodor 1964. I have not taken into account Katz, Postal 1964.

school (Strawson, Ryle, Austin). Although the philosophers from this school contributed greatly as far as the description of semantic details is concerned, yet they did not systemically attempt to develop semantic theories (Katz 1966: 87-88). The basis for the views of the analytics was the conviction that natural language is a creation formed by means of adding subsequent layers, i.e. something that does not have a homogenous structure (Katz 1966: 16, 89-95). Resisting the analytics Katz indicates the achievements of modern linguistics, evidently proving that languages have cohesive structure, which is capable of being described (Katz 1966: IX). These achievements provide an opportunity to construct natural languages semantics. What is more, it is impossible to correctly solve particular material problems without basing the proposed solutions on generalisations, which the analytics would prefer to avoid (Katz 1966: 93). For example, one needs to free himself from the features of particular ethnic languages in order to cope with the problems tackled by Plato, Descartes, Kant and Hume, writing in Greek, Latin, French, German and English, respectively (Katz 1971: 106). Therefore, a semantic theory of natural language not only can but has to be pursued.

2. In another postulate Katz demands that the semantics of natural languages be an empirical study and not a speculative, conventionalised construction. This requirement is juxtaposed by Katz with the programme of logical empirics, which according to our author is clearly conventionalised and non-empirical. Katz's opinion on the program of logical empirics is based mainly on the analysis of Carnap's views, where the most visible expression of conventionalism is the popular tolerance principle: everyone may create their own language in accordance with their wishes. One is only required to clearly formulate the method of the language construction (Katz 1966: 43). This principle, propagated by Carnap at the time when he did not acknowledge the possibility of constructing consistent and non-contradictory semantics, did not change later on, when Carnap started to construct languages, ascribing to them semantic properties (Katz 1966: 50 54). The most serious argument against the semantics of logicians, according to Katz, is that their semantics do not pertain to natural languages, but only to artificial ones. Therefore, the semantic theses of logicians do not describe the simplified versions of natural languages. What is described in the theses of semantic logicians is not an idealisation of natural languages. The theses of the logicians' semantics do not result in any semantic assertions pertaining to natural languages (Katz 1966: 62-68). Therefore, the assertions of the logicians' semantics are not a basis for predicting new semantic facts of natural languages. From the point of view of further considerations the

following arguments by Katz's are vital, which in his opinion undermine the semantics pursued by the logicians. Thus, it seems that Katz at least partially accepts Wittgenstein's views: the manner of use of expressions in a natural language does not depend on the knowledge of necessary and sufficient conditions of veracity (or more generally — on the conditions of having a denotation). Such conditions, according to Wittgenstein, simply do not exist, which is to be demonstrated by the famous example of the word *game.* There are no necessary nor sufficient conditions of a game, therefore there is no set of features distinguishing all and only games (Katz 1966: 70-76). And since, according to Katz, the essence of all semantic theories includes the fact that the necessary and sufficient conditions of denotation determine the use of expressions (Katz 1966: 46-48: 73), the logical semantics fails in the case of natural languages. The logical semantics is a semantics dealing with the relation of expressions to fragments of reality.[3] Therefore, natural language semantics cannot study the relations of expressions to reality. Such a conclusion follows from the assumptions adopted by Katz. This conclusion is never clearly announced by Katz, however his semantics seems to adhere to this rule consistently. Nonetheless, at least in one respect Katz wants to mimic the actions of logicians (whom he consequently calls logical empirics, which is however erroneous in case of Frege, Church and Tarski). For Katz's construction of a semantic theory in a formal manner is worth following (Katz 1966: 105). If a theory is not formal and based on intuition, then it actually is not a theory at all (Katz, Fodor 1964: 501).

It seems, moreover, that when constructing a semantic theory Katz understands it in such a manner that it should provide rules making it possible, in a finite number of steps, to determine the sense of complex expressions, when the meanings of simpler expressions are given. In short, he means effective rules, an algorithm making it possible to determine the meaning of complex expressions (Katz 1966: 152-153). This goal, set by Katz, exceeds the goals usually set by logicians when building their systems; usually developing an effective manner of proving theses is not the goal there.

3. We already know that, according to Katz, semantics should not be a theory determining the relation of expressions to reality. It would therefore be expedient to ask, what is to be explained in Katz's theory. Basing on the theories of physics, our authors say that various semantic theories should not build facts based on speech with all the mistakes that can be made,

[3]Cf. The criticism of Katz's view concerning the logical semantics by Robert L. Martin (1971).

restrictions of correctness resulting from the weakness of memory, accidental mistakes, imperfection of the speaking apparatus, etc. In a semantic theory, simplifying this complex, and sometimes random set of facts, one discusses an idealisation of actually generated strings of utterances. These idealisations are the abilities of an ideal language user. A semantic theory should therefore describe the competencies of the user and not the actual performance (Katz 1966: 115-117; Katz, Fodor 1964: 482). Language skills of the user which Katz means consist in the ability to communicate, which according to our linguist means the consistency of ideas of the speaker (writer) and the listener (reader) (Katz 1966: 98-99). At this point he decisively rejects behaviouristicly oriented semantics: one cannot speak of two adequately reacting robots that communicate. Similarly, one cannot say that two people are communicating with each other, if one takes into account only their reactions to sounds (Katz 1966: 99). Semantic competencies of a language user (not to be mistaken with syntactic competencies) are demonstrated in: a) noticing ambiguities not originating from the syntax, b) making the sentences unambiguous by adequate use of the context; c) detecting nonsense in syntactically correct sentences; d) the ability to paraphrase sentences (Katz, Fodor 1964: 485-486); e) determination of semantic dependencies between sentences (Katz 1964: 522); f) the ability to distinguish between analytical, syntactic and contradictory sentences (Katz 1964: 530).

4. Finally, we might ask, how, according to Katz, the competencies of an ideal language user are explained. It is known that language users also understand such sentences, which they have not encountered before, provided that such sentences are constructed from familiar expressions and in accordance with the syntactic rules of a given language. No language user has ever encountered an indefinite number of sentences which can be uttered. It is never known what new sentences a language user will encounter. In order to be able to cope with such new unpredicted sentences, the language user needs to have an ability to understand all possible sentences of a given language. This ability of the language user to understand any sentence of a given language cannot consist in remembering an infinite number of sentences, since the memory capacity is limited. It rather consists in the ability to systematically apply certain construction activities (in case of uttering sentences) or analysing activities (in case of receipt of a sentence). In view of the systematic character of these activities, one may describe them with the use of certain rules. And exactly with the use of rules one should explain the competencies of an ideal language user. Semantic rules are to present the immanent semantic knowledge of an ideal language user,

the knowledge, which explains the actual actions of the language users. These rules make it possible to generate an infinite number of objects by the relevant joining of simpler elements in order to form more complex objects, and therefore are of reconstructive character. (Recurrence rules provide: a) how to construct simple elements or simply enumerate them (initial condition) and b) how, from given elements of certain properties, to construct further objects of the same properties (inductive condition)). Therefore, semantics, describing and explaining the actions of the language users with the use of competence, must use the recurrence rules (Katz 1964: 520; 1966, 151-152).

The semantic rules mention meanings. Meanings of expressions are psychological beings, whose identity in the mind of the speaker and of the listener is the condition of the communication of these two: notions (Katz 1966: 176-177). These types of psychological theories are criticized more often. They are among others criticized since we are not able to realize what notions accompany particular expressions, e.g. conjunctions. One also notes that it is impossible to ascertain what notions are experienced by the interlocutor at a given time. We are therefore unable to determine when we are dealing with communication and when with misunderstanding and finally with incomprehension. In Katz's opinion his theory is not subject to normal criticism, to which psychologism is exposed, since Katz's ideas (notions) do not need to be realized (Katz 1966: 178). Their existence is not ascertained introspectively. Therefore, the impossibility to determine which notions are experienced by the use of such words as *when* or *in*, is not an argument against Katz's theory (Katz 1966: 179). In his opinion, ideas are theoretical formations which are in no way observable. Their existence is ascertained indirectly, namely, from propositions mentioning certain notions we derive observable consequences. If the latter are true, we obtain a confirmation of the initial propositions. Among those we will also encounter a proposition on the existence of notions (Katz 1966: 181-183; Katz, Fodor 1964: 517). What is more, Katz's theory does not even postulate that each expression must be accompanied by a notion. This makes criticism of Katz's theory even more difficult (Katz 1966: 184).

5. Since methodologies consider i.a. classifications, discussion of Katz's methodological views with respect to semantics will be ended with presentation of the relation of semantics to other studies of the language.

Katz differentiates between the theory of the language and the description of the language. The theory of the language is a generalisation of the descriptions of various languages. Descriptions of particular languages con-

firm or undermine the theory of the language. They are however additionally justified by the confirmed (by the descriptions of other languages) theory of language. In the theory of language one discusses language universals, i.e. what is common for all languages, and at the same time one provides a general pattern of linguistic descriptions (Katz 1971: 103). It is possible to presume that the theses of the theory of language have a quantified variable L, running across the set of languages (Katz 1966: 56-57). The task of the theory of languages is also to formulate criteria making it possible to choose the best description from amongst several descriptions of one language consistent with the observation data (Katz, Fodor 1964: 516).[4] Within a theory of language it is possible to distinguish a syntax theory (transformational grammar), a phonological theory and a semantic theory (Katz 1971: 104). If grammar is perceived in a broader manner, so that it encompasses the syntax and phonology, then semantics will be the remainder after taking away the grammar from the theory of the language (Katz, Fodor 1964: 482). Katz's views presented herein belong to the semantic theory, although the examples he gives are a part of the description of the semantics of the English language. Apart from the theory of language there is also the theory of performance (Katz 1971: 107). This study, according to Katz, is of strictly psychological character, since it determines the reasons (limited memory, defects of the speech apparatus, etc.) why language users diverge from the ideal and they themselves are not always satisfied with their performance (Katz, Fodor 1964: 482).

II. JARROLD KATZ'S SEMANTICS

As it has already been said, the language skills of a language user are described in semantics with the help of recurrence rules. The initial conditions for these rules simply determine the meaning of particular words (morphemes, to be more precise). The inductive conditions make it possible to discover the skills of generating semantically sensible complex utterances. These conditions simply inform on how to put together expressions with relatively simple meanings in order to receive expressions of relatively complex meanings (Katz, Fodor 1964: 482).

1. The initial conditions of semantic rules provide above all the meaning of the words and each of them has the form of a dictionary item. The dictionary, as understood by Katz, is very similar to an ordinary dictionary. In a dictionary item we first have a given word, an equivalent of the dictionary

[4]This point of Katz's doctrine is criticized by Quine (1972).

entry. Then the grammatical category of this item is specified. If the entry is syntactically polysemic, all grammatical categories are listed. Furthermore, there is information on the meanings of the word; whereby the meanings are listed in groups: after each grammatical category a relevant meaning (or a group of meanings) is provided (Katz, Fodor 1964: 494-495). If after one grammatical category several meanings are listed, then the word is semantically polysemic. We may use the word *shoot* as an example; sometimes it is a noun, at other times it is a verb in the imperative mood. The word *cow* is polysemic only semantically. Meaning is composed of notions. Determination of the meaning is composed respectively of the markers of notions, called semantic markers by Katz. Notions are the elements, which occur in many meanings; the semantic markers are therefore elements repeated in many designations of meanings.[5] Since expressions have a complex notional structure, the function of the markers is to present the meaning structure of the expressions (Katz 1966: 154-155). Moreover, the specification of meaning also includes certain kinds of selection rules (selection reading, selection restriction). The latter moment by specification of meaning indicates with which kind of expression and in what meaning a given word may be connected into a cohesive propositional whole. Let us illustrate these general remarks on the construction of a dictionary item with the example of the following dictionary item: *bachelor.* This word has only one grammatical category. The example will therefore be simple, all the more that we will take into account only two meanings of the word:

bachelor → noun (1) (physical object), (living), (human), (male), (adult), (who was never married), <specific>;

(2) (physical object), (living), (human), (young knight serving under the standard of another knight), <specific>.

In this example markers are in round brackets. In angle brackets there are selection restrictions. More detailed information concerning selection restrictions shall be provided below.

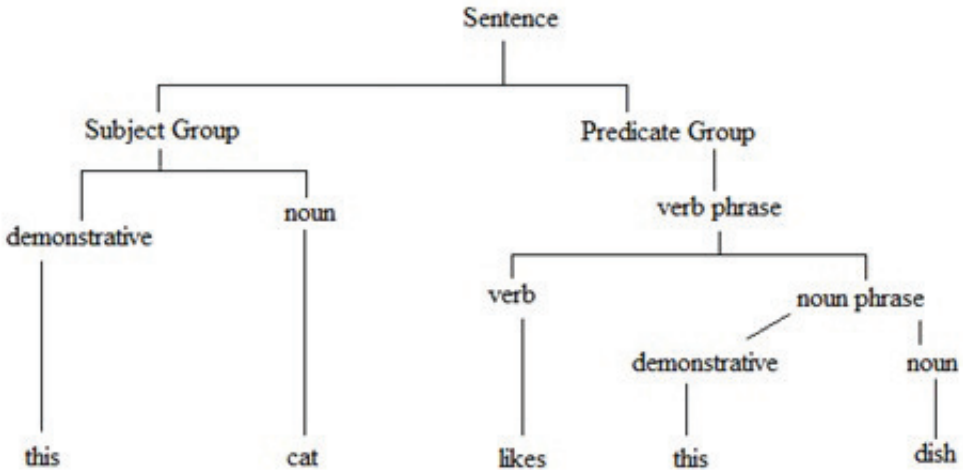
2. It also needs to be explained what Katz's motives were when he decided to construct dictionary items in this manner, since he did not base them only on the tradition of composing dictionaries.

Above all, the author tries to provide a justification that a dictionary and semantics are needed at all. Grammatical rules (generative grammar in

[5]In his earlier works, aside from the markers, Katz introduces distinguishers, indicating what is unique in a given meaning. Katz does not mention these distinguishers later. They are therefore mentioned in (Katz, Fodor 1964: 497) and (Katz 1964) but are absent from his later works (Katz 1966) and (Katz 1971).

its transformative version) do not make it possible to distinguish between sentences of the same syntactic construction, but differ with respect to meaning, e.g. *John ate a chop, John ate a cat.* Grammar does not explain why in certain cases, despite a difference in the phonological construction, sentences have the same meaning for example *John cracked the whip, John cracked the lash.* (Katz, Fodor 1964: 492). Grammar provides also no clues as to why certain sentences of correct syntactic construction are surprising for us, e.g. *John bit a high sound* (Katz 1966: 174; Katz, Fodor 1964: 483). In semantics the dictionary is used mainly in order to explain why sentences of the same syntactic structure may have varying meanings (Katz, Fodor 1964: 492). The projection rules (assembling meanings into complex wholes) are used mainly in order to explain such phenomena as lack of semantic sensibility (as illustrated above) by full grammatical correctness.

3. The dictionary and the semantic rules are used, according to Katz, only for the purposes of interpretation of the generated sentence structures (Katz 1971: 105). Therefore the arguments of the semantic rules (inputs) are syntactic structures (Katz 1966: 120, 131; Katz, Fodor 1964: 503, 414; Katz 1964: 520). Such understanding of semantic rules results in the necessity of placing the grammatical category (categories) of a given sentence in the dictionary, since in accordance with the rules of generative grammar, a diagram of the sentence structure has the form of a tree; for example the sentence *this cat likes this dish* has the following structure:



(In the diagram I have omitted the morphemes indicating the case, number and tense) (Katz 1966: 125). The words in the sentence have therein a specific grammatical category. When searching in a dictionary for relevant

meanings of words present in a given sentence, one should i.a. take into account the grammatical category of these words. As a rule, one word by different classification as to the grammatical category has different meanings. Therefore, in order to choose the relevant meaning, in accordance with the category of the word in the dictionary, we need to have the grammatical categories of words indicated in the dictionary.

As it has already been said, the semantic rules are applied to ready sentence structures. Katz together with other transformative grammar researchers distinguishes the surface structure and the transformable structure (the underlying phrase structure). The semantic rules apply not to the surface structures, but to the underlying phrase structures (I avoid the term "deep phrase structure" due to its ambiguity). Therefore, already at the pre-transformation stage, the slots in the sentence receive meaning. And since the ascribing of meanings begins at the bottom of the grammatical tree, i.e. at the stage of particular words, then already at the pre-transformation stage the sentence needs to be expanded by the most far-reaching details (Katz 1966: 131).

4. Semantic markers are principally used for the distinguishing of sentences with various meanings of the same grammatical construction (Katz, Fodor 1964: 498). Markers are symbols of notions (Katz 1971:112). Since Katz does not write a lot about the notions themselves, although they constitute principal elements of his theory, and the markers are the symbols of notions, therefore we may learn something about the notions from Katz's views on the markers. One may draw conclusions on the relations between notions on the basis of the markers, in view of the statement of Katz himself: semantic relations are expressed with the use of semantic markers (Katz, Fodor 1964: 498). What is more, in one of his older works, Katz identifies the markers with theoretical constructs. We may assume that he means notions. After all, in a different place notions are such constructs for him. What does Katz therefore say of markers and their mutual relations? It is possible to create Boolean functions of markers (Katz 1966: 160); at another point Katz explains what he means. He creates the product and the object with the use of markers. He also creates a sum (Katz 1971: 116) and speaks of the relation of inclusion between the notions represented by the records of meaning, containing markers. From these remarks it seems to follow that according to Katz notions are certain classes or between notions there are such relations as are present between the classes in Boolean algebra interpretations. It is difficult to say whether, according to Katz, any other relations between notions may occur, since it is impossible to find out what relations occur

between notions when the markers being the symbols of the latter are put in brackets, as in the example, which I present below (Katz 1966: 167). The reason for this difficulty in determination of the relations between the notion is the lack of any specification of the role of the brackets. Below I present the abovementioned example of a dictionary entry.

chase → verb, verb transitive, ...; (((activity) (nature: physical)) of X), ((movement) (rate: fast)) (character: following)), (intention of X: (trying to catch ((Y) ((Movement) (Rate: Fast)))); <*SR*>.

Bearing in mind the comments added, one should read this entry in the following manner: the word *chase* is a transitive verb expressing the notion of activity of the physical object X, the notion of fast movement of the character of following something. This verb expresses the notion of the intention of the subject to catch y in fast movement. *SR* is the acronym of the expression "selection reading" and indicate a distinguisher.

It has been noted that the markers are to emphasize the semantic structure of the expressions. Katz does not say clearly, however, to what extent the semantic meaning of the expressions is to be emphasized by the markers. After all, one could limit oneself to the presentation of only the most general sketches of the structure of meaning. One may also go deeper into the greatest subtleties of the semantic structure. In the case of the word *bachelor* we may limit ourselves to noting that the meaning of the word includes the notion of a physical object, alive, male, adult or to determine precisely what the notions of life, maleness and adulthood consist of. It seems that Katz includes into a dictionary entry all and only those markers, which may affect joining of expressions in view of their meaning. Therefore it seems that among the markers we only have those which are present also in the selection rules for the combining of expressions, which will be discussed shortly.

5. The final point of a dictionary entry is the selection rule limiting the possibility of combining a given entry to a given meaning with other entries. I therefore omit in this paper the abovementioned distinguishers, which Katz does not mention in his later works. This guideline in a dictionary entry means this selection rule shall be shortly called a limiter. Katz calls it a "selective restriction" or "selective reading". The selection rules make it possible to recreate a known fact consisting therein that a word has usually many meanings in the dictionary, yet within a framework of a sentence this polysemy is limited or it vanishes altogether (Katz, Fodor 1964: 497-498). We therefore need to realize how from many meanings we move into the context of a sentence towards a smaller actual polysemy. Katz illustrates the

abovementioned disambiguation with the following example. The expression *is burning* is ambiguous dictionary-wise (*The house is burning* and *John is burning to work*). In the sentence *The house is burning* this expression is unambiguous. The reason for such disambiguation is the rule limiting the connectivity of the expression *is burning* (in the sense of oxidation) in such a manner that it may be connected only with expressions having in their meaning the notion of PHYSICAL OBJECT. In this sentence *is burning* was connected with the word *house,* whose meaning incorporates the notion of a physical object, i.e. in its dictionary entry contains the marker (PHYSICAL OBJECT). The fact that *is burning* within the meaning of rapid oxidation may be connected only with words whose meaning contains the notion of being concrete is marked by Katz with the use of the marker <SPECIFIC>. In the sentence *John is burning to work* the expression *is burning* is directly connected with *to work.* The meaning of the latter expression does not incorporate the notion of a physical object. Working is after all an activity. Therefore in this sentence *is burning* has a different meaning than in the sentence *The house is burning.* Therefore, by application of the selection rules, we eliminate some of the possible meanings. And if we do not observe the rule indicated by the restriction, then we will construct a grammatically correct sentence, yet it will be abnormal semantically. E.g. *bachelor* may be connected only with an expression containing in its reading the marker (SPECIFIC) (cf. the example on page 7). The word *number* does not have this marker in its reading and therefore the sentence *The bachelor is a number* is semantically abnormal and does not have a coherent meaning, which is demonstrated by the fact that it does not have a reading of its meaning. The rules of creation of these readings simply do not allow the joining of the word *bachelor* with the meaning of the word *number.* Therefore, there cannot be created a reading of a complex expression.

6. Katz does not only provide reasons why he introduced certain elements into dictionary entries, but also provides arguments as to why he did not put some other moments in the dictionary specification of the meaning of expressions. What he means is the omission of rules making the meaning of expressions dependent on both the paralinguistic, i.e. the situational context, as well as the purely linguistic context, exceeding the sentence in which a given word is placed. The sentence *John found a needle in the jug* is an example of a sentence where the meaning depends on the situational context. If we know that John was in prison, then *the jug* means prison. If, however, John was in the kitchen, then probably *the jug* means a kitchen vessel. Katz provides several arguments which made him omit these

rules. It seems however, that the most important reason for not taking the abovementioned rules into account was the intention of making semantics similar to grammar. The rules of grammar (in its transformative version, acknowledged by Katz), do not take the context into account. As it has already been said, grammar is to describe the skills of an efficient language user, allowing him to construct any correct sentences and recognize the correctness of any utterances. In Katz's opinion, a language user is able to recognize the correctness of the construction of a sentence, irrespective of other utterances, occurring either earlier or later (Katz, Fodor 1964: 484). This property of grammar is generalized by Katz over the entire linguistic theory. Therefore, also the semantic rules do not (potentially, should not—in this respect Katz is not clear) take the context into account (Katz, Fodor 1964: 484). Other arguments do not exclude radically from the semantics the rules making the meaning dependant on the context. A sentence in a context may obtain only some of the meanings, which it has in isolation. The context therefore makes a certain choice of meanings. Thus, semantics determining the full set of meanings of sentences is logically precedent with respect to semantics, which selects only certain meanings from this set. For this reason Katz's theory, making it possible to determine all meanings of a sentence, is at least logically precedent to semantics, which take the context into account (Katz, Fodor 1964: 488). In the opinion of the discussed author there is one more obstacle to develop contextual semantics. Namely, a theory taking into account the impact of paralinguistic contexts on the meaning that should dispose of means making it possible to describe all contexts available to the language user's knowledge and therefore affecting the meaning of the expressions. Therefore, such a theory should have the means to describe any situation (Katz, Fodor 1964: 488-489). It is impossible to systematize such vast knowledge. For this reason, a general and formal theory attempting to present the impact of the knowledge of the paralinguistic situation on the meaning of expressions is not possible (Katz, Fodor 1964: 489, 491). Katz allows the creation of a semantic theory taking into account the impact of the limited knowledge on the meaning of expression (Katz, Fodor 1964: 489). What makes it impossible to create a semantic theory linking the meaning of expressions with paralinguistic situations, also makes it equally impossible to create semantic theories making the meaning dependent on the language context (Katz, Fodor 1964: 490). This context simply provides certain knowledge of paralinguistic situations and may be as varied and as rich as the abovementioned paralinguistic contexts. If, however, we limit the language context only to the grammatical properties of the sentences

preceding (or succeeding) the sentence analysed in a given context, then the theory taking into account the context understood in this way is limited to the semantic theory proposed by Katz — at least he himself believes so (Katz, Fodor 1964: 490). The context understood in this manner may be presented as one long compound sentence (e.g. a conjunction), examined and parsed in the manner proposed by Katz.

7. Having discussed the dictionary determining the meanings of semantically simple expressions, Katz proceeds to determine the meaning of complex utterances, in particular sentences. The first step in this direction is to ascribe meaning to particular words, when they do not occur in isolation, but within the underlying phrase structure as its terminal symbols. Katz describes the underlying phrase structure as a derivative tree, emphasizing the grammatical structure of the utterance before subjecting the utterance (or rather the tree) to transformations. The terminology adopted by Katz, and making the use of the semantic use dependant on undertaking such or other grammatical actions, makes it clear that Katz's entire theory is organically based on the transformational grammar, which he adopted.

The matter of ascribing meaning to simple words occurring in the underlying structures is relatively simple. The only complication consists therein that the utterance analysed at a given time may have several different trees, which indicates the syntactical polysemy of a sentence (e.g. *we think and express thoughts with the use of words* is ambiguous in this manner). Word *m*, if it appears in phrase structure *d* of sentence *S,* is ascribed such dictionary meanings, which are connected in the dictionary with category *p*, occurring in structure *d*, in the node directly above word *m.* There may be numerous such meanings. In a case like this word *m* is ambiguous in such a context. The sentence where word *m* occurred may (although does not have to) be ambiguous as a whole. The ambiguity of the entire sentence may be multiplied, if word *m* has different syntactic categories in various phrase structures (Katz, Fodor 1964: 504-505). If we treat every word in the underlying phrase structure (or in the underlying phrase structures, if this is a syntactically ambiguous sentence) in the same abovementioned manner, then we receive a certain semantic semi-product, being a starting point for the projection rules, i.e. rules making it possible to compose a unified meaning (meanings) of a sentence from such unrelated meanings.

8. We shall start to combine meanings from the meanings of simple words, i.e. from the very bottom of the tree illustrating the underlying phrase structure of the sentence. The action of combining the meanings is mechanized. Katz puts great emphasis on the mechanisation of this

interpretational activity. He believes that the basic achievement of his semantics is the fact that it demonstrates that it is possible to mechanize the combination of meanings. Instead of referring to the language user's intuition and efficiency, Katz formulates rules, wherein he takes into account only the readings of the combined meanings. We combine meanings by simply putting together the markers corresponding to the combined utterances. The phrase structure of the sentence indicates which utterances should be semantically combined with one another. The combination of markers, i.e. certain signs, is a strictly formal matter, not involving any understanding of anything; it is sufficient to identify shapes and comply with the rules of combining these shapes. Therefore we combine meanings or words of relevant meanings through an operation on the markers. Finally, however, we obtain a combination of meanings. This happens in the following manner: let us assume that we are dealing with two utterances x and y, which in the underlying phrase structure of the sentence are placed in two neighbouring branches stemming from one branching node. One of these utterances is a head and the other is a modifier. Having these data we compose a meaning (with the use of combining semantic signs) of a complex utterance: x *with the following* y of the syntactic category marked in the branching node. The meaning derived this way is simply a composition of the meaning of the head with the meaning of the modifier, provided that the combination of the meaning of the head with the meaning of the modifier is not excluded by the limiter of the modifier. We add to the obtained compound, meaning the rule limiting the combining of the meanings. This rule in an unaltered manner is adopted from the meaning of head y (we simply ascribe the limiter from the semantic sign thereof). If the combined expressions have many mutually exclusive meanings, the complex expression has a number of meanings being the product of the number of meanings of one expression and the number of meanings of the second expression. In order to present Katz's thought more clearly, I hereby present a literal example provided by him as an illustration:

(Rule one) When we have two readings:

(R_1) (a_1), (a_2),..., (a_n); $<SR_1>$

(R_2) (b_1), (b_2),..., (b_m); $<SR_2>$

such that $R_1$is ascribed to node X_1, $R_2$is ascribed to node X_2, X_1 specifies grammatically the sequence of words being a superior expression, X_2 specifies grammatically the sequence of words being a subordinate expression, X_1 and X_2 are direct branches of node X, then the notation of the derivative meaning:

(R_3) (a_1), (a_2),..., (a_n), (b_1), (b_2),..., (b_m); $<SR_1>$

is subordinated to node X, since the limiter $<SR_2>$ is met by R_1 (Katz

1966: 166).

Multiple application of this and similar rules to longer sentence components in the end will result in ascribing meaning to the entire sentence.

Katz makes the reservation that other projection rules may considerably differ from the abovementioned rule (Rule 1). In particular, compound meaning does not have to be simply expressed by the sum of the markers of the combined expressions (Katz 1966: 167). Nonetheless, Katz provides neither a full set of projection rules nor a general structure thereof. From the examples provided however, it follows that they have the form of an inductive condition of recurrence reasonings (also definitions). The rules provided by Katz fall under a general scheme: if there are certain readings then, acting adequately, we may transform them into further readings. One may apply to the latter the rules on the composition of readings. The result obtained may then be combined again, and again and again, which proves the recurring character of these rules. Despite that, these rules are very generally formulated, since it has not been explained, what should the APPROPRIATE ACTIONS by creation of new readings mean.

Full interpretation of a sentence is limited, according to Katz, to ascribing meaning to particular semantically simple expression and then to determination of the meaning of more and more complex expressions, up to the determination of the meaning of the entire sentence. Full interpretation of a sentence also includes a semantic assessment of the sentence (Katz 1966: 170-172). This assessment consists in asserting whether a sentence is semantically normal (or not), whether it is clear or ambiguous, whether it is synonymous to other sentences or whether it is semantically excluded by them. In order to make this assessment formal, i.e. without resorting to intuition, Katz provides relevant definitions of the abovementioned notions. Since sentences may be syntactically polysemic, i.e. may be composed of several underlying phrase structures, and by each structure the assessment may be different, Katz first determines the semantic abnormality, ambiguity, etc. for particular phrase structures of a given sentence. He directs himself towards this purpose with the help of the definitions of abnormality etc. of the phrase structures of the (not necessarily proper) parts of a sentence.

Katz adopts the following definition of semantic abnormality:

D_1. If C is a part of the underlying phase structure of sentence S, then C is semantically abnormal, if and only if the interpreted structure C (i.e. the structure of ascribed reading) does not contain any element (Katz 1966: 171).

What this definition provides is that structure C has no coherent reading

expressing the meaning of the whole. This situation occurs for example, when structure C is composed of a superior and subordinate component, and the superior component in its reading does not have a marker required by the rule limiting the possibility of combining the expressions of the subordinate component. For example, in the sentence: "*A numerical bachelor is not married*," expression C "*A numerical bachelor*" is semantically abnormal, since it does not have any reading (and respectively does not have a coherent meaning). The rule limiting the possibility of joining the word numerical with other words should provide that this word may be combined only with words, which in their reading have the marker (ABSTRACT). The word *bachelor* does not have this marker. Therefore we cannot establish any meaning of the expression *numerical bachelor* and the reading of this expression is simply empty.

D_3. If C is a part of the underlying phase structure of sentence S, then C has n meanings, if and only if the set of readings ascribed to C has n elements (Katz 1966: 171).

The simplest example of an expression of structure C of sentence S is the following sentence S: *I see a conductor* (here C is the improper part of sentence S, i.e. it is identical with it). Under the entry *conductor* we find several meanings in an ordinary dictionary. In the dictionary constructed in accordance with Katz's proposal, we also find several readings. Adequate ascribing of these readings to the structure of sentence S will provide us with several readings of S. It is obvious that the set of readings of an expression has exactly one element, then this expression is unambiguous (D_2).

In definition D_4 Katz introduces the notion of synonymy of two expressions with respect to at least one reading. If both expressions have at least one reading in common, then they are synonymic with respect to this reading. When all readings of both expressions are identical, then the expressions are fully synonymic (D_5: Katz 1966: 171). Two expressions are different semantically, when each reading on one expression has at least one marker, which none of the readings on the second expression have (D_6: Katz 1966: 171).

On the basis of the abovementioned definitions Katz specifies the definition of sentence S which is semantically abnormal. Previously one has discussed generally any structures, presently we will speak only of sentences in their full surface structure. Sentence S is semantically abnormal, if the sentence components of all underlying phrase structures of sentence S are semantically abnormal (D'_1; Katz 1966: 172). A sentence is unambiguous, if all readings of the underlying structures of the entire sentence are the

same (D'_2; Katz 1966: 172). Definition of polysemy provided by Katz is very similar. It is also easy to analogously reconstruct the definitions of synonymy of two sentences and their semantic differentiation, which Katz did not provide.

Being equipped in the above definitions, making it possible to assess the meaning of sentences, Katz defines the semantic interpretation of a sentence in the following manner. Semantic interpretation of sentence *S* is a set of interpreted phrase structures of sentence *S*, in connection with the assertions on *S*, following from the above definitions and familiarity of the abovementioned interpreted phrase structures of sentence *S*.

III. APPLICATION OF KATZ'S SEMANTICS TO PHILOSOPHICAL PROBLEMS

According to Katz, his semantic apparatus makes it possible to distinguish fully correct sentences from sentences which are only grammatically correct. It also makes it possible to determine which sentences are semantically different from each other, which are synonymic, etc. In short — his semantic theory meets the conditions, which should be met by a good semantic theory (cf. I, 3 hereof). Katz propagates his semantics, not only by pointing to the already discussed advantages thereof, but also its usefulness in philosophy. At least on three fields his semantic theory is to materially contribute towards solving philosophical problems. According to Katz, his semantics is capable of explaining the nature of deductive reasonings based on analytical assertions. It is also capable of determining, which notions are indeed the highest categories. And finally, this semantic theory answers the question, whether notions are inborn or acquired by means of experience. Therefore, according to Katz, his semantics provides new points of view and arguments aimed at the solution of the most important philosophical problems (Katz 1966: 186-187).

A. On analytical sentences.

1. The condition of research concerning analytical sentences is highly unsatisfactory according to Katz. Carnap's attempts at determining these sentences are based on the notion of semantic postulates, which, according to Carnap, are totally conventional and do not have any distinctive features. Therefore analytical sentences could be any sentences. Since no semantic postulates have been presented in detail, then also the notion of an analytical sentence, based on the notion of semantic postulate, is practically deprived of a definition (Katz 1966: 50-53). The definition of the analytical sentences introduced by Leibniz, as true sentences has not the power of facts, but only

of reason, and does not explain at all why these sentences are accepted by us on the principal of mere reason; at most we ascertain the fact that analytical sentences exist (Katz 1966: 189). The explanation of this problem is provided by Kant and therefore his theory is the basis for the more technical of Katz's developments. Nonetheless, Kant's theory in its original version has two faults, which Katz attempts to remove, creating a concept free of the defects noticeable somewhere else.

Kant's understanding of analytical sentences is limited to noun-predicate sentences. This is the first nuisance of Kant's proposal. The Königsberg philosopher assumed that in an analytical sentence the notion expressed by the predicate is contained in the notion expressed by the subject. This containing of notions, according to Kant, may be determined solely with the use of proper reasoning. This solution seems obvious, since notions are mental beings and appear in thoughts only. Yet, this manner of determination of analytical sentences is erroneous, due to the ambiguity of the terms of "notion" and "containing of notions," "thinking." This haziness of the used expressions is the second negative side of Kant's proposal (Katz 1966: 189-190). Katz, following Kant, wants to eliminate this obscurity (Katz 1966: 190-191).

2. An introduction to the formal definition of analytical sentences, for now only of the subject-predicate construction, is the formal specification of the noun and predicate. At this point Katz uses the notional apparatus of the transformative grammar — since this is purely a grammatical matter (Katz 1966: 191, 192). I will not refer this first specification in view of its purely grammatical character. The next stage on the way to define analytical sentences is to create a definition of antonyms. Two expressions are antonymic, if their notions are mutually exclusive. For example, the following expressions are antonyms: a groom and a bride, an infant, a child, a teenager, an adult, etc. In the first example, the expressions are different with respect to the notions of gender connected with them: male and female. In the second example there are different notions of age. This kind of definition of antonyms does not satisfy Katz, since it is not formal and based on intuition. After all, nothing in the shape of these expressions or in the reading of these expressions indicates that the notions are mutually exclusive. In order to enable formal specification of antonyms, Katz slightly modifies the markers. E.g. instead of writing (*male*), (*female*), he introduces one marker for gender (G) and its modifications (G^m) and (G^f) of various upper indexes; in case of age these markers shall respectively be (A^1), (A^2), ..., (A^n). Analogically, the case will be in the case of colours (C^1), (C^2), ..., (C^n), i.e. for example

white is the first, yellow is the second, etc. Two markers are antonymic, if they have the same shape with the exception of varying upper indexes. Further expressions are antonymic (by a given interpretation), if they have antonymically ascribed markers (Katz 1966: 195-197).

These specifications are sufficient for Katz in order to provide a definition of a simple analytical sentence of the following construction "A is B". If R_1 is the reading of the subject and R_2 is the reading of the predicate of sentence S, then it is analytical only if every simple marker in R_2 is present also in R_1; if at least one M_i marker in R_1 (for $1 \leqslant i \leqslant n$), i.e. a marker being a component of a compound marker from R_2, corresponds to every compound marker in R_2 $((M_1)\ (M_2)\ ...\ (M_u))$, and finally in the reading of the subject, i.e. in R_1 there are no antonymic markers (the subject is not contradictory). Such definition of an analytical sentence differs from Kant's proposal, in that it is visually possible to check the analyticity of the sentence, by checking the reading of the sentence. Intuition here is totally unnecessary. Therefore, this is a formal definition. At the same time it is apparent that analyticity formulated this way is a particular case for semantic inclusion. The latter notion is more general, since it applies to any and all expressions, and not only to sentences, which is the case with analyticity. On the basis of the notion of semantic inclusion it is possible to define synonymy (the meaning of the first expression is contained in the meaning of the second expression, and the meaning of the second expression is contained in the meaning of the first, expression which is determined visually, by means of a review of the readings of both expressions), by avoidance of those difficulties, which were encountered by Fodor (1961) by his definition of paraphrase (Katz 1961, passim).

Without any greater difficulties Katz further defines a contradictory sentence of the construction "A is B;" this is a sentence about a subject whose reading does not contain any antonyms and has a marker, which is contained in the predicate. If, however, the subject of an "A is B" sentence does not contain any antonyms, but the sentence is neither analytical nor contradictory, then the sentence is synthetic (Katz 1966: 198-199).

Katz tries to prove the aptness of those definitions indicating that between analytical and syntactical sentences there are relations, which we determine between these sentences by means of feeling and intuition. We then consider a negation of an analytical sentence to be a contradictory sentence, and a negation of a contradictory sentence to be an analytical sentence. Negation of a synthetic sentence is also synthetic. In order to prove these relations between the types of sentences, Katz needs to define negation,

and he does so with the use of the definition of an antonymic operator. By means of this operator Katz builds marker objects. If instead of marker (Z^i) we enter the sum of its antonyms, then this sum is a marker object. This operation is marked with the following notation $A/(—)$, where the place of the dash may be taken by any reading. If we, for example, have marker (Z^3), which let us say is (*green*), then $A/(Z^3)$ is the sum of antonyms, i.e. (*red*) (*blue*) (yellow) ... (Katz 1966: 199-200). The negation of the sentence is created by means of relevant transformation of the sentence's predicate, consisting mainly in the introduction of marker objects in the place of the markers of the predicate of the negated sentence, i.e. by performance of the operation $A/(—)$ on the markers of the predicate. Similarly, it looks different in an analytical and a synthetic sentence. If in a synthetic sentence subject S and the predicate are not contradictory (i.e. we are indeed dealing with a non-contradictory sentence), and the predicate contains markers appearing in the subject but contains also the markers absent from the subject (in fact we are dealing with a synthetic sentence), then latter markers will be replaced by marker objects, and we will thus create a negation of sentence S. This rule of negation creation has the following full form in Katz's theory: If (1) the markers of the subject are (X_1), ... (X_n); the markers of the predicate are (Y_1), ... (Y_n); the notation $(X) = (Y)$ indicates the identity of markers and the expression (X) A (Y) indicates that (X) and (Y) are antonymic; (2) there are no (Y_1) for $1 \leqslant i \leqslant m$ such that (Y_1) A (X_1) for $1 \leqslant j \leqslant n$, but there are (Y_1), (Y_{i+1}), ... (Y_{i+k}) for $k \geqslant 0$, such that for each () for $i \leqslant v \leqslant i + k$ there is a relation $(Y_i) = (Y_j)$ and there are (Y_1), (Y_2), ... (Y_{i-1}), (Y_{i+k+1}), ..., (Y_m), such that no (Y_h) for $1 \leqslant h \leqslant i - 1$ *or* $i + k + 1 \leqslant h \leqslant m$ is not such that $(Y_h) = (X_j)$ or (Y_h) A (X_j), then replacement of (Y_1), (Y_2), ... (Y_{i-1}), (Y_{i+k+1}), ..., (Y_m), with $A/(Y_1)$ (A) (Y_2)... $A/(Y_{i-1})$ $A/(Y_{i+k+1})$ ... $A/(Y_m)$ results in a negation of the initial sentence.

The rules of negation of a contradictory sentence is simpler: if the markers of the predicate are antonyms of the markers of the subject, then the former is replaced by the sum of their objects. The markers of the predicate, different from the markers of the subject and not being their antonyms are simply left out (replaced by a zero marker). The original formulation of this rule in Katz's theory is as follows: If there exist (Y_1), (Y_{i+1}), ... (Y_{i+k}) for $l \leqslant i \leqslant m$ and $k \leqslant m$, such that each (Y_{iv}) for i $\leqslant v \leqslant i + k$ is such that (Y_{iv}) A (X_j), then (Y_1), (Y_{i+1}), ... (Y_{i+k}) is replaced by A/(Y_1) A/(Y_{i+1}) ... $A/(Y_{i+k})$. Each (Y_g) for $1 \leqslant g \leqslant i - 1$ or $k + 2 \leqslant g \leqslant m$ is replaced by the zero element, provided additionally that $(Y_g) \neq (X_j)$.

An even simpler rule governs the negation of analytical sentences. If every marker of the predicate is identical to some marker of the subject, then the markers of the predicate are replaced by the sum of their objects. In the initial form this rule was as follows: for each (Y_i) for $l \leqslant i \leqslant m$ $(Y_i) = (X_j)$, then (Y_1), (Y_2), ..., (Y_m) are replaced by $A/(Y_1) \ldots A/(Y_m)$. (Katz 1966: 201)

Katz binds these rules together and treats them as one rule of negation for "A is B" sentences. Thus the conditions and specifications indicated by the first rule remain in force in the two remaining cases.

Specification of negation makes it easy for Katz to indicate that negation of an analytical sentence is a contradictory sentence. If in an analytical sentence we replace the markers of the predicate with their antonyms (and to be more precise: with the sum of their objects), then since the replaced markers are repeated in the object, we obtain a contradiction: in the predicate after the replacement we will find the antonyms of the markers of the subject. If in a contradictory sentence we replace the markers of the predicate with their antonyms, then we receive an analytical sentence. In Katz's theory there is the following rule governing the marker objects: $A/A/(Z^i) = (Z^i)$. Therefore, replacement in a contradictory sentence of the markers of the subject with the object markers results in the fact that there are subject markers in the predicate. Finally, in a synthetic sentence the predicate has markers which are not identical with the markers of the subject neither are they the antonyms of the latter. Replacement of these markers of the predicate with the sum of their marker objects results neither in their contradiction nor analyticity. Therefore, synthetic sentences are created by negation of synthetic sentences (Katz 1966: 202-205).

4. Another step made by Katz towards a better version of Kant's theory is a more general (not fully general though) definition of an analytic sentence. The previous definition of an analytic sentence was based only on the construction of "A is B" sentences. We will now speak of the analyticity of conditional sentences, whose clauses are of the "A is B" construction. Such conditional sentences are analytical, if the markers of the subjects of the postcedent are contained in the set of the markers of the subjects of the antecedent, and if the case is the same with the markers of the predicates, and when the subjects do not contain antonymic markers (Katz 1966: 206). The above definition assumes of course purely grammatical differentiation of conditional sentences from other compound sentences.

Apart from those two definitions of analytical sentences Katz provides a third definition pertaining to sentences, where the subject implicitly contains

a sentence, which for example is the case in: *A man who bought a horse, bought something.* Analytical sentences are of this kind, when the reading of the main sentence (in the example: *a man bought something*) is contained in the reading of the subordinate attribute clause (in the example: *who bought a horse*) (Katz 1966: 208-209). Other analytical clauses have not been defined by Katz, treating the provided definitions as illustrations demonstrating the possibilities offered by his semantic theory.

Based on the definition of an analytical conditional, Katz provides a definition of the propositional resulting in: sentence S_1 entails sentence S_2, if and only if there is an analytical conditional of the precedent S_1 and postcedent S_2 (Katz 1966: 205). Expanding his semantics Katz introduces a more general notion of contradiction, referring to the last notion of analyticity. A compound sentence is contradictory, if the predicate of the main sentence contains markers, which are antonyms of the markers of the subordinate attribute clause. In view of the latter definition of contradiction the following sentence: *Persons who are old are young* is contradictory.

The so-called problem of analytical sentences includes not only the issue of defining the latter, but also the question, whether analytical sentences together with contradictory and synthetic sentences exhaust the set of the sentences of a given language. This issue is resolved by Katz negatively. Apart from semantically abnormal sentences (although they are grammatically correct), and apart from analytical, contradictory and synthetic sentences, Katz introduces undetermined sentences and sentences which are metalinguistically true or false. Therefore, according to Katz, the most common divisions of sentences are not exhaustive and therefore, incorrect (Katz 1966: 211).

Undetermined sentences have contradictory subjects, e.g. *Men of female gender are stingy.* According to Katz one is unable to say that they are true, neither is one able to say that they are false. Since according to the theory of our author a sentence is true or false, depending on the fact, whether it adequately or inadequately ascribes features to the object, which is designated as the object of the sentence. Therefore, if the subject of the sentence is contradictory and means nothing, this sentence cannot have any logical value, and therefore is logically undetermined (Katz 1966: 211-212). Yet not all sentences with a void subject are undetermined. Only those sentences are undetermined, whose subject is contradictory, i.e. the markers ascribed thereto are antonyms. Sentences of void subjects purely and empirically, e.g. *The golden mountain is high,* are synthetic (Katz 1966: 214).

Katz was forced to introduce undetermined sentences in view of the concept of the truth he adopted. The notion of truth appears in his deliberations somewhat accidentally: Katz does not provide a definition of this notion, he claims that semantics cannot deal with the relation of expressions to reality, i.e. it should also not deal with the truth. Therefore Katz provides further arguments in support of the introduction of undetermined sentences. And thus, basing on the general intuition with respect to analyticity and contraction, some of the sentences with contradictory subjects need to be classified at the same time as analytical and contradictory sentences. For example, the sentence *A queen being a man is a man* contains in its reading the markers which the subject has (therefore this should be an analytical sentence). At the same time the reading of the predicate has markers which are antonyms of the subject markers. Therefore, this should be a contradictory sentence. Katz avoids these complications by indicating in the definitions of analytical and synthetic sentences that the subjects cannot be contradictory. This way a group of sentences is created which is outside of the previously adopted definitions, i.e. the category of undetermined sentences (Katz 1966: 215).

Apart from all these types of sentences Katz also introduces metalinguistically true sentences. If one says that a given sentence S has a certain semantic quality, and its semantic interpretation meets the criteria of the definition of the said semantic quality, then the utterance in sentence S is metalinguistically true. Metalinguistically true sentences constitute a group of sentences which are not analytical, but are still true on the basis of generally binding rules of the language. From the above it follows that analytical sentences are not the only sentences whose veracity is determined by linguistic rules. It needs to be added that for Katz, metalinguistically true sentences belong to the same language as the analytical or synthetic sentences and the sentences of which one may say that they are metalinguistically true (Katz 1966: 220-223).

B. Notions in Katz's semantics.

1. Katz believes that his semantics is a good basis for solving the old problem of categories, i.e. the most important kinds. Above all, Katz accuses the previous attempts at determination of the categories and the number thereof of indefiniteness. Aristotle claims that the most general answers to the question *What is X?* contain the names of the categories. Such a determination of the categories is faulty in Katz's opinion, since as a rule the answers to such questions are based on intuition. A similar intuition is necessary for determination of the generality of the answer. Lack of formal criteria allows freedom, of which Aristotle is already accused by Arnauld

(Katz 1966: 226). It has not been explained why in all languages there are the same categories and why we are dealing with the categories that we know and not with any other categories (Katz 1966: 227). Moreover, it has not been determined what relations occur between the categories and what is the relation between them and other grammatical structures.

As it has already been noted, in the readings each semantic component is ascribed with a marker. If we compare the readings of many words it will turn out that these readings manifest certain irregularities. And namely, each dictionary item with, for example, the marker (*human*) also has the marker (*physical object*). Simply, the marker (*human*) entails the necessity of the appearance of the marker (*physical object*). Since the above is always the case, it is possible to leave out the marker (*physical object*) in many dictionary items, provided these items have the marker (*human*). In Katz's opinion such an omission perfectly simplifies the dictionary and reduces its volume. Nonetheless, it is impossible to totally resign from the markers entailed by other markers. The reason for this is due to the rules of restriction for the joining of meanings. These rules may be fully used only if an expression is equipped in a full reading. For this reason, abbreviated dictionary entries of meaning need to, in the course of semantic interpretation of a sentence, be extended to the full form. Extension of the abbreviated forms is effected in accordance with the following rules: $(M_1) \vee (M_2) \vee \ldots \vee (M_n) \rightarrow (M_k)$, where the markers from the first to the n entail marker (M_k), which is different from the others. Rules such as this type make it possible to introduce marker (M_k) back into the reading (Katz 1966: 231-232).

The marker reduction rules make it possible to formally determine the categories of a given language: these are the notions symbolized by these markers, which are present on the right side of the markers omission rules and never appear on the left side thereof. The categories which are shared by all languages, and are the universal categories of the language (Katz 1966: 235). These categories are discussed in the general theory of language and constitute the propositional universals of the language theory, supplementing the formal universals of language, which provide a general shape to the language rules (Katz 1966: 228). The categories of the language make it also possible to make the language description more concise, since they make it possible to introduce to the language theory the reduction rules, which even allow for the omission of the categorical markers of particular languages. Therefore, in the description of particular languages it is not necessary to introduce certain reduction rules, since they are already present in the general theory of language (Katz 1966: 235).

In Katz' opinion the categories which he introduced have an advantage over the categories introduced by Aristotle. Katz's categories are closely connected with the theory of language; they are aimed at determination of meanings. The relations between the categories and other notions are known. In particular, it is important that it is known which categories (or rather categorial notions) are contained in the notions being the meanings of the dictionary entries. It is also clearly visible how the categories are connected with the interpretation of sentences (cf. the paragraph on the rules limiting the combining of meanings) (Katz 1966: 238-239). This issue is considered by Katz together with the issue of inborn ideas (Katz 1966: 239).

2. Katz believes that the semantics he created makes it possible to make a material contribution to the resolution of the dispute between empiricism and rationalism. In his opinion empiricism acknowledges human inborn capabilities to get to know the world. Nonetheless, these capabilities are poor. The difference between empiricism and rationalism consists therein that the latter much more precisely determines the methods of creating notions: according to rationalism, the mechanisms of the creation of notions are richer (Katz 1966: 240). The creation of notions according to empiricists consists solely in the association of the experienced material and in inductive generalisation of these associations (Katz 1966: 241-242; 247-249). According to empiricism there are no other mechanisms for the creation of notions. Therefore, the idea assumed by empiricists is the association of simple ideas. Katz believes that the dispute concerning the genesis of notions may be resolved by means of examination, whether by means of association and inductive generalisation we may obtain all the notions which we actually use (Katz 1966: 246-250). The information from this part of linguistics which deals with acquisition of language skills is useful for the resolution of the dispute between empiricism and rationalism (Katz 1966: 246-247). In this section of linguistics we consider whether a human being is capable of acquiring all the skills to create sensible sentences, i.e. all the skills of creating meanings, i.e. notions, having at one's disposal only this simple notion generation mechanism, which is, in Katz's opinion, allowed by the empiricism.

What is empirically available for a child learning how to speak are the sentences uttered by adults and the situations, in which this takes place. A child learns the sentences in their final form, i.e. they reach the child in the surface structure (Katz 1966: 251). In the transformational grammars it has been assumed that the knowledge of the transformative history of a sentence, i.e. the knowledge of subsequent transformations of a sentence,

affects the process of reaching the sense thereof. The method of learning the meaning of the sentence is therefore decided also by some of its unobservable features, not demonstrated in the surface structure, i.e. the transformations made. Observation of the surface structure does not therefore guarantee learning of all important language elements. The empiricists would like to avoid this conclusion claiming that they learn the meaning of sentences whose sense is entirely dependent on the surface structure. Furthermore these sentences are the equivalent to such sentences whose sense is dependent on the underlying phrase structure. Therefore, in this way they are also able to indirectly reach the meanings depending on the transformation. This argumentation, in Katz's opinion, is not correct. How can it be possible to determine the equivalence of sentences, when on the basis of this equivalence one is to determine the meaning of one of these sentences? (Katz 1966: 260). According to Katz, taxonomical grammars are based on empirical assumptions. They use only the method of language facts observance and their inductive generalisation, which is an imitation of the methods of speech and language acquisition prescribed by the empiricism. Since within the framework of taxonomical grammars it was not possible to even determine the syntax of the examined languages, this is indicative of the failures of empiricism (Katz 1966: 252).

As it has already been said, according to empiricism, the only way to determine meanings are through their associations binding the expressions with the circumstances of their use. Since however, the meaning of the expressions contains meaning (notional) moments, which are not expressed in the surface structure, it is impossible to determine these elements by means of their association with the expression (Katz 1966: 250). Thus, where do these meaning moments, i.e. notions, come from? They cannot be taken from experience, because they would not have been created by means of association. According to Katz, this is an argument in favour of the existence of inborn notions, which are not created by association from empirical data.

To the disadvantage of empiricism Katz also presents N. Goodman's reasoning, which results in paradoxical conclusions. If all sapphires encountered up to the time t were green, then this allows a general conclusion that each sapphire is green. However, we are allowed to introduce the following definitional agreement: a sapphire is grue (from *green* and from *blue*), if up to the time t all sapphires were green, and from time t all sapphires were blue. The hitherto observations (i.e. observations made up to the time t) allow us to accept the following conclusion: each sapphire is grue, which leads to a further conclusion that the sapphires noticed after time t are blue. The latter

statement is however contradictory to the previous conclusion stating that each sapphire is green (Katz 1966: 262). In Katz's opinion, the difficulties of the inductive reasonings discovered by Goodmann (their solutions are unsatisfactory for Katz) are manifested particularly clearly by language acquisition: simply by undertaking inductive actions it is impossible to learn the language regularities.

Finally Katz emphasizes that by means of association it is impossible to understand and explain the multitude of relations which occur between the meanings. It is not visible, how to determine the inclusion of notions, the difference in meaning (notional difference), exclusion of meanings, etc. The association means and mechanisms are too poor in order to receive the entire richness of the relations between the notions (Katz 1966: 266-267).

Therefore, finally from the data provided by the senses, with the help of the mechanisms of association and inductive generalisation, i.e. with the help of what is allowed by empiricism, it is impossible to fully recreate all human language skills.

After the criticism of empiricism Katz presents the advantages of his theory. The starting point for his theory of inborn ideas is what Chomsky said about language acquisition. We acquire a language, we learn its structure, as if we were creating a theory. We postulate hypothetical theories on the basis of previous knowledge. There is no necessary relation of resulting, leading from data to the theory. If the theory is created by an act of creative invention, we verity its value by inferring empirical consequences therefrom. If we find empirical material consistent with those consequences, the theory is confirmed and its probability grows. If the empirical data are inconsistent with the consequences of the assertions of the theory, the theory in its present form is refuted. The process of speech acquisition is to be similar. A child, on the basis of the available language material, builds hypotheses concerning language structures. Then it instinctively predicts the possibility of the occurrence of future specific language actions of adults or predicts a reward in the form of being understood, if the child starts to express itself in a certain manner. These anticipations and equivalents of the consequences inferred from the theory are constantly confirmed or refuted by new language experiences of the child. Initial hypotheses are falsified and the child needs to adopt new, more elaborate language hypotheses.

Katz adds a supplementation to Chomsky's theory. A child at the beginning of the language acquisition process does not have any material allowing itself to build hypotheses concerning the language structure. Since the child's language activity must start from certain initial language hy-

potheses, these hypotheses need to be inborn. These inborn hypotheses are of general character and set the structure of other particular hypotheses. Katz claims that at least three types of language data are inborn. And thus what is inborn are the formal universals, specifying the general form of phonetic, syntactic or semantic rules. Formal universals also specify the form of the system of the previous rules. Moreover, propositional universals are inborn, and they set the cognitive apparatus for formulation of specific language hypotheses (Katz 1966: 276). The universal categories also belong to this apparatus (Katz 1966: 279). Finally, what is also inborn is the mechanism for the selection of language hypotheses. It is necessary in order to select the best, i.e. the simplest theory, from among several hypothesis equally well explaining the language facts. The latter inborn apparatus is therefore a mechanism measuring the simplicity of the hypotheses (Katz 1966: 277).

Such a rich set of inborn data makes it possible, in Katz's opinion, to explain why the languages are the way they are. In particular the included inborn data make it possible to explain why language universals, i.e. features common for all languages, exist. According to Katz the living conditions of humans, their beliefs and experiences differ from each other to such an extent that it is impossible for them to be the basis of the uniformity of languages (Katz 1966: 272). All the more, the uniformity of languages cannot be explained by various specific skills of individual human beings. If one accepts the existence of inborn ideas, then this all may be simply explained. Katz believes that his solution is consistent with Kant's theory. The relation of Katz's semantics with Kant's philosophy is demonstrated the most by the assessment of the a priori synthetic sentences. The inborn language rules are not analytical, since they do not match the definitions of analytical sentences. At the same time, these rules are neither contradictory nor undetermined. Therefore, they have to be synthetic. The inborn rules are in an obvious way a priori to the extent to which they precede experience. In this sense Katz therefore assumes the existence of synthetic a priori sentences (Katz 1966: 280). Moreover, Katz assumes that the inborn schemata are necessary in one of the possible senses. What follows therefrom, Katz assumes the existence of synthetic a priori sentences (and judgments) within the full meaning envisaged by Kant. Katz argues in favour of the necessity of the inborn rules in the following manner. In the case of inborn language rules, we will not find such empirical data, since the rules under discussion are the criteria for what is linguistic. Everything that is inconsistent with them is not language material (Katz 1966: 281-282).

In Katz's opinion, his semantics makes a considerable contribution,

namely it provides a number of remarks justifying innatism and the thesis on the existence of necessary synthetic knowledge.

IV. ADVANTAGES AND FAULTS OF KATZ'S SEMANTICS

1. The attempt at the formulation of a new semantic presented by Katz is far-reaching and closely connected to language practice. The construction of a dictionary entry, which he proposes, is very similar to the actual constructions which we encounter in dictionaries. This is an attempt which is also purely linguistic by the fact that it is not based on any psychological, logical or philosophical theories. This attempt is very original. Probably its fundamental advantage is the fact that it allows us to assess the semantic properties of sentences without resorting to intuition, and — what is more — it provides a simple algorithm allowing this assessment in a mechanical and effective manner in a finite number of steps. Thanks to such a solution, determination of semantic properties of expressions does not need to be based on arguments. And it is obvious that conducting arguments depends on creative invention, on intuition and similar intangible factors. The only simple thing is to verify the correctness of the ready arguments.

There is a clear tendency visible in Katz's construction aimed at making the theory practical. Katz does not only want beautiful theories, but he wants to be able to obtain practical results on the basis of his theory, to be able to "calculate" the semantic features of particular utterances, and to be able to predict on the basis of one set of data other semantic properties of expressions. Katz's semantic theory is distinguished from other semantic concepts of the natural language properties by a much greater precision. At the same time, Katz's semantics does not fall in a reverse trap, consisting in sacrificing empiricity of the deliberations in favour of purse exactness, which then assumes the form of a detached feature, realised in the research purely in order to satisfy the aesthetic needs of the researchers.

2. Many of Katz's claims and proposals however raise doubts or it is simply impossible to agree with them. Katz's semantics is based on the generative transformative grammar. It seems that Katz believes that his semantics is also generative and synthetic, since in many places he says that he wants to describe the competencies of the speaker and not to recreate the competencies of the recipient (cf. e.g. Katz 1966: 115). It might seem that Katz will show how the speaker GENERATES semantically sensible utterances. In practise, however, in Katz's works we encounter rather a program for analysing ready utterances. The semantic rules are in Katz's opinion of purely interpretational character (Katz 1966: 111). We ascribe

meaning to particular branches of a complex tree, illustrating the underlying phrase structure of the sentence. Therefore, we are initially dealing with a fully grammatically complex sentence (although before the transformation). In the subsequent interpretational step we ascribe meaning to the elements of the ready sentence structure. Such semantics can be comprehended only as analytical grammar, describing the skills and competencies of the recipient, who receives at his disposal ready sentences and is able to determine their meaning, since it seems impossible for the person generating the sentence (the speaker) to firstly determine the full structure of the sentence and then later in the interpretational step to consider what meaning should the generated grammatical construction have. In fact, it seems to be the other way around: we have a certain thought, some bunch of notions, which we "dress" in a sentence structure. Generating a sentence is therefore controlled by what in Katz's semantics is the interpretation of the ready underlying phrase structure. If, therefore, Katz wants to provide an authentic synthetic and generative semantics, he cannot treat semantics as an interpretational operation. It is rather the syntax which will be of interpretational character. Of course in case of analytical grammar, it is indeed not the syntax but the semantics which is of interpretational character.

The special skills of the speaker are his abilities to depart from the previous meaning of the word and to ascribe a new sense thereto. This occurs in cases of generating new original metaphors. Every synthetic semantics must explain these important competences of the sender. Otherwise it will not be capable of explaining a considerable part of poetry, where new metaphors appear on a daily basis. It seems that Katz's rules are incapable of describing the process of ascribing new meanings to words. Yet, this does not depend on the manner of describing his semantics either as analytical or potentially as synthetic. Katz's semantics is based on the dictionary meaning of the words and simply does not contain any rules allowing new meanings to derive from words outside of the scope of their definition. The last remark pertains to Katz's semantics treated as synthetic semantics. If we perceive this semantics as analytical we will encounter the following difficulty. A word which was ascribed with a new meaning by the speaker by means of a metaphor does not have the reading of this meaning in the dictionary. Therefore, the recipient at the first stage of gaining understanding of a heard sentence needs to treat such word as senseless. At the second stage of recognition of the meaning of the entire sentence the recipient is able to determine the meaning of the hitherto senseless word, taking the context into account. Yet, Katz does not want to take into account the rules allowing

determination of the meaning of the word on the basis of the context. And thus Katz not only resigns from the possibility to describe a larger set of language user competencies, but even makes this task impossible.

3. Let us now look in detail into Katz's thesis, excluding from the semantics the rules which take the context into account. It seems that in this respect Katz's views have an even greater stain than previously, since calling his semantics synthetic rather than analytical entailed no greater practical consequences. It simply turned out that Katz's semantics needs to be supplemented by an authentic synthetic semantics. As it has already been said, exclusion of the linguistic and semantic context from Katz's deliberations makes it impossible to realize important generative competencies of language users: namely their ability to ascribe new meanings to expressions with extra-definitional methods (cf. Lakoff 1971). Apart from that, not taking the context into account (or rather a prohibition on taking the context into account) makes it impossible to realise a further competence of a fluent language user. It consists in the ability to recognize the meaning of expressions which are constructed in a not entirely correct manner. In view of the significant number of mistakes which we all make when speaking (and writing), without this additional competence, it would be rather rare for people to communicate effectively. Our criticism of Katz's theory is supported by the mechanism of determining meanings account taken from the context. If we are dealing with a not entirely correct expression or with an expression whose certain components are incomprehensible for us, we do the following. The recipient assumes that the speaker within the framework of one utterance does not change the subject without a relevant signal, that the story presented by the speaker must describe a further course of events admissible in a given speaking convention and finally that the utterance is true. If the recipient knows what the probable course of events consists of, or knows the state of affairs, etc., then the understanding of some parts of the utterance instantly determines the understating of the remaining expressions uttered by the speaker. In such cases the recipient replaces the fragments unknown to him with understandable expressions until there emerges a true, probable or at least cohesive whole. This case is similar with incorrect utterances: the recipient modifies them (to possibly the smallest extent), so that they become correct and at the same time true or at least probable or only consistent with the rest. Each translator knows that this is what one does and that without the knowledge of a subject and without consequences for the translated author it is impossible to translate his work. In short — a perfect language user has to have greater competencies than those provided

by Katz. As a rule, these new competencies are connected with the use of the language and situational context.

All of the above objections against Katz's theory are presented by Uriel Weinreich (1971: 310-316). Therefore, there must be a lot to them, since the author of this article not being a linguist, reached the same conclusions independently from Weinreich, who is a linguist. Moreover, Weinreich notes, that jokes, which are often partly intentionally ambiguous and are therefore perfectly understood as fully semantically sensible, cannot be described with the use of Katz's theory. Weinreich suspects that Katz's semantics is simply a further elaboration of syntax, since Katz introduces semantic markers as those moments, which affect the way expressions are joint (cf. the remarks on the selection rules). Therefore, semantic markers make it possible to distinguish more subtle syntactic categories within the framework of traditional grammatical theories, hitherto included in the syntactical rules, which in turn makes it possible to infer more detailed syntactical rules. Weinreich also accuses Katz over the lack of rules concerning the order of the markers (it seems that the relations between them are interchangeable), which may result in the fact that the following sentences:

Cats chase mice.

Mice chase cats.

will have the same semantic notation.

Katz believes that semantics should not take into account the knowledge of the situational context of the uttered expressions, that it should not take into account the relations between the utterances and the reality at all, i.a. that it should not deal with the consistency of the utterances with the actual state of affairs, i.e. the veracity of the expressions. This conviction makes it impossible to develop his semantics any further. The source of this attitude is the view, very often expressed by linguists, that linguistics should deal with nothing else, but the language. According to this belief, examination of the relation between the language and reality exceeds the competences of linguistic semantics, since it necessarily needs to include descriptions of reality (the construction of the model). Katz says that linguistics cannot be the source of omniscience, that linguistics needs to have its specificity and cannot contain any information concerning the entire reality. And without this information, in Katz's opinion, it is impossible to create a referential semantics. This last sentence of Katz's is the source of the errors in his views. In order to determine, on the basis of the situational context, the meaning of one particular word, we also need a particular knowledge of the world. Determination of the meaning of words does not however fall within the

scope of the general semantic theory; this is a task for the description of a given language. In general semantics it is necessary to determine certain rules, according whereto it is possible to ascertain, what the meaning of given expressions is. Formulation of such general rules does not require the knowledge of the entire extra-language reality. For this purpose the most general knowledge of the structure of the world is sufficient, which is assumed by a semantitian-logician, who constructs a language model. Additionally, it needs to be noted that this is not the knowledge of the empirical world, but a kind of assumption: if the world has such a structure, then... In short — a linguist does not have to know the entire reality in order to provide rules taking into account the situational context. The knowledge of the structure of this reality is sufficient. Moreover, this does not need to be an actual knowledge, these may be assumptions concerning the structure of reality.

Katz's semantic theory, although it does not allow the inclusion of metaphorical expressions, is constructed in such a manner that the meaning of expressions is possible to determine in an effective way. This is not the case with semantics, which allows us to determine the meaning of the expressions on the basis of the context and the knowledge of reality. The procedure described above is clearly ineffective. This is a disadvantage thereof, although it describes the actual mode of conduct: the methods of meaning determination, which we apply in the course of an analysis of natural language utterances, are ineffective and therefore it is impossible to guess the meaning of the words we are dealing with.

Katz shows reluctance towards referential grammar due to the fact that referential semantics of logicians was not able to present the properties of natural languages in a satisfactory manner. The reason for this was to be the referentiality of this semantics. Katz's argumentation in this respect is particularly unclear and unconvincing. Referring to the word *game* and its propositional analysis made by Wittgenstein does not help much. There is no evidence that all natural language expressions have the same characteristics as the word *game*. What is more, Wittgenstein's analysis is not convincing either (Koj 1969). An explanation of such failures by logical semantics would be much simpler: it has never been conceived of as a semantics constructed for the purpose of explaining the properties of natural languages. The purpose was always to report the features of artificial languages. Secondary and derivative attempts at the application of logical semantics to the properties of natural languages could be in this case unsatisfactory (above all due to the poor syntax). Therefore, one cannot blame the logical semantics for not taking into account natural languages, since it was not created for this

purpose. It is even less substantiated to blame its referential character for this failure.

Despite Katz's abovementioned reluctance towards referential semantics, his final opinion on it is not clear. It is not known, whether at all he excludes the possibility of the construction of referential semantics for natural languages, or whether he finds it inappropriate for a linguist. If the latter was the case, there would be a chance to construct a semantics more general than Katz's semantics, without entering into a conflict with Katz's views and achievements. Otherwise (and there is more in support of understanding Katz in such a way) Katz's views would be an obstacle to the construction of full semantics. This obstacle should be overcome, i.e. one should demonstrate exactly and in detail the errors of Katz's theory.

4. Let us now look in more detail into the mechanisms introduced by Katz into semantics. His semantics is materially based on the data presented as dictionary entries. The origin of these data is very unclear in Katz's theory. On one hand he clearly states (Katz, Fodor 1964: 502) that the purpose of the semantics within the theory of language is not to create a method for the determination of the meaning of particular words, i.e. determination of the method of construction of a dictionary. Important problems of lexicography are therefore alien to his semantics. According to Katz, detection of meanings of words (connected with language acquisition) belongs to the theory of speech (Katz, Fodor 1964: 482). Detection of the meaning of words should therefore belong to what he calls the theory of performance, and not the theory of competence. On the other hand, by going into the matter of inborn ideas, Katz presents language acquisition as a process of generating and refuting subsequent hypotheses concerning the meaning of expressions and the projection rules. Do the deliberations concerning inborn ideas (universals) not belong to the theory of language, but the theory of language performance? Why therefore does Katz discuss these matters in a book being a treaty on the theory of language and why does he not clearly indicate that he is moving on to deliberations from another field?

These and other doubts are not, however, the weakest point of Katz's theory. More important is the fact that probably we would not be able to learn how to use the language, if the process of language acquisition was consistent with Katz's theory. A child encountering language material is dealing with many unknowns: incomprehensible words, unknown sequences of expressions and an unknown underlying phrase structure. Therefore, if a child in the process of language acquisition did not use the simple

possibilities provided by association, and it based its linguistic actions solely on generating hypotheses and the verification thereof, then both generation of the hypotheses, as well as the verification thereof would be of the utmost complicated, due to the abovementioned considerable number of variables and unknown parameters. The reasoning concerning several or more unknown factors is so complex that Katz's theory becomes improbable. In order to convince his readers, Katz would have to prove that there are not that many factors after all or that the human mind is able to process such vast amounts of information, which it needs to verify a hypotheses containing at least several unknown values. Potentially, Katz would have to prove that the process of language hypotheses generation in a child acquiring a language is gradual and therefore relatively simple. Yet, nothing has been done by Katz in this respect, therefore, Katz's hypothesis is totally unsubstantiated.

5. Katz strongly emphasizes that a good semantic theory should be a formally characterised theory. This is an admirable postulate. It is however highly doubtful whether Katz complies with his own postulate. His theory is much more precise than other semantic deliberations. Yet, it is far from being the ideal that Katz envisaged.

In a formally characterised theory each notion used needs to have a relevant axiomatic characteristic. This is unfortunately absent from Katz's theory. It lacks a general characteristic of the markers. A general characteristic of the markers does not consist in unofficial, non-technical comments which Katz presented in abundance. It should consist of assertions containing marker variables (and these have not been introduced by Katz at all). Neither does Katz define the symbol often appearing between the markers. What we mean is the comma between the markers, which in this context acquires technical meaning and requires a relevant formal characteristic. Since there is no such characteristic, it is not known, for example, whether it is admissible to change the order of the markers without the change of the semantic rule. The greatest failure of Katz's theory consists therein that it does not contain a formal remark stating that the markers are the marks for notions and not classes. In this respect Katz provides many informal comments, but nothing else. As a result, there is no axiom determining what the difference between a class and a notion is. Anyway, in the formally provided examples of rules Katz allows the signs of the sum of the product of the classes between the markers, i.e. between the alleged marks of the notions. After all, the notions, in Katz's theory, are not experiences but theoretic constructs, whose advantage simply consists in the fact that they make it possible to reach empirically verifiable conclusions. Therefore, if the

markers of the notions were treated as symbols of classes, we would obtain a semantic theory much closer to the known referential semantics. Moreover, it would be consistent with all of Katz's theoretical arguments. Only his informal and more philosophical remarks would not be met.

What is disturbing is Katz's attitude to the rights of logic, in particular their translatability into natural language utterances. One is bound to agree that a person who knows a natural language and the language of the narrow functional calculus will be willing to agree that the following sentence: *Any person who is a woman and is not a woman is generous* has the following logical structure: $\pi_x[(fx \wedge \ fx) \rightarrow \ gx]$. The latter sentence is a right of logic and therefore is an analytical sentence. Yet, according to Katz the above sentence of natural language is undetermined and has no logical value. It is not an analytical sentence. Katz notices this problem (Katz 1966: 216-217) and simply states that $\pi_x[(fx \wedge \ fx) \rightarrow \ gx]$ is not a correct translation of the sentence *Any person...* Which translation is therefore correct? Does Katz not question thereby the competencies of the users of both of these languages, i.e. the competencies, which his theory should accept as data and explain them?

Moreover, Linsky (1972) notes that from the sentences which in Katz's opinion are analytical there follow undoubtedly synthetic sentences (synthetic also in Katz's understanding). Namely, from the following sentence: *A spinster is a woman* (analytical sentence) according to Katz's understanding of resulting follows the sentence *A certain person is a woman*, which in Katz's view is a synthetic sentence.

These and similar difficulties raise doubts as to whether Katz's definitions concerning analyticity, resulting, etc. are apt.

Finally, it would be expedient to provide some remarks on Katz's philosophical views. They are the weakest parts of the book. Identifying empiricism with associationism and inductionism is a gross misunderstanding. Katz's argumentation, which is to demonstrate the existence of something inborn is very unclear. We actually do not know, what is inborn in a human being: abilities, mechanisms, notions or schemata. All of these terms are used by Katz. Are these synonyms? In order to acknowledge the value of Katz's ideas, one would have to clearly distinguish the linguistic contents of his book from the philosophical interpretations. A criticism of the latter was provided by A. Schaff (1972: 96-102) and one should resort to his book with respect to Katz's philosophical remarks.

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