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Janusz Kaczmarek

ON THOUGHT AND PROPOSITION

We can easily understand the concept of proposition in the natural way: we start from any class of judgments as

The snow is white,

which can be thought or uttered by some people. What is common in such individual judgments is usually defined by the term *proposition*. However, we can ask: what is the common of different individual judgments? One usually answers: a content of judgment, sense, which is independent of its utterance or consciousness of it. So, independently of the author, place and time of an utterance of e.g. Pythagore's theorem the content of this theorem is invariable, is constant.

Nevertheless, as G. Frege has remarked, the same content (which was called 'Gedanke' – thought, by Frege) can be included in a declarative, interrogative or imperative sentence. It seems, however, that when we want to deliver an information, for example: to render the sense of Pythagore's theorem we use declarative sentences, we utter judgments. Thus we are inclined to conclude that what is common in different judgments is not only the content of the declarative sentence but also the form of a declarative sentence. Let us notice that apart from a common content expressed in utterances there is still one more factor in common i.e. the form. Consequently in my view, *proposition* comprehended as what is common any class of judgments is not only 'the content', but „the content with the form of declarative sentence”.

In logic tradition, the proposition is usually defined by means of the concepts of meaning and sense i.e. as meaning or sense of declarative sentence. However here a problem arises, the one of univocal understanding of those terms. The concept of meaning is defined in manifold ways in, for example, theory of meaning (among others J. S. Mill, B. Russell) and theory of meaning

treated as ideal object (E. Husserl, G. Frege, A. Church). Next, the term sense is the most often used intuitively although one can find in Frege or Husserl the following definition: the sense is something „which contains the way of being given”. There is also the proposal of Ajdukiewicz, who defines proposition by means of the concept of connotation.

Let us sketch out some characteristics of the notions of proposition.

1. FREGE. I think that the analysis of Frege text shows that understanding *Gedanke* as a *proposition* is not quite proper. Frege writes: „In declarative sentence two things should be distinguished: the content common to their question and assertion. The former is a thought (*Gedanke*) or includes the thought. Thus, the thoughts can be expressed without being put as true. In declarative sentences these things are so united that their are hardly distinguished (separated). So we distinguish

1⁰ grasping thought, that is thinking;

2⁰ acknowledging the truthfulness of thought, that is *Urteil*;

3⁰ asserting of *Urteil*, that is assertion”¹.

The most often *Urteil* is understood as the sense of a declarative sentences with the exception of the case when it is identified with the very sentence. However Frege distinguishes such senses of sentences in view of which the question of truthfulness can arise from those senses in view of which this question does not appears (e.g. in view of the sense of imperative sentence). In *Über Sinn und Bedeutung* Frege claims that *Urteil* is a passage from thought to its value².

2. CHURCH. In Church’s paper³ we meet such characteristic of proposition. Proposition is an abstract object (as a function or class) without psychological aspects characteristic for Ockham *propositio mentalis* and for traditional judgment. Church defines *proposition* by means of sense of a sentence; the sense of a sentence being either what a man apprehends while understanding a sentence or what have two sentences being correct translation in two different languages. Church follows Frege explaining the term ‘*Gedanke*’ which is to mean (and so term ‘*Gedanke*’ denote): „nicht das subjective Tun des Denkens, sondern dessen objektiven Inhalt, der fähig ist, gemeinsames Eigentum von Vielen zu sein”.

3. CARNAP. Using the concept of extension and intension Carnap shows that *propositions* are intension of sentences. Truth values are treated as extensions of sentences. Thus, proposition becomes the property of truth

¹ Cf. G. Frege, *Der Gedanke. Eine logische Untersuchung*, „Beiträge zur Philosophie des deutschen Idealismus”, 1918.

² G. Frege, *Über Sinn und Bedeutung*, „Zeitschrift für Philosophie und philosophische Kritik” 1892. C.

³ A. Church, *Introduction to Mathematical Logic*, Princeton Univ. Press, Princeton N. J. 1956.

values⁴. Vanderveken remarks⁵ that in Carnap propositions are limited to the truth conditions and, consequently, every proposition can be understood as a 0-1 sequence. In *Introduction to Semantics* Carnap treats propositions as a designatum of sentences similarly as individuals are taken for designatum of individual constants⁶. In *Introduction to Symbolic Logic* propositions remain designata but not of the individual level (i.e. extension of individual constants) but that of the sense of individuals (i.e. intension of individual constants)⁷.

4. AJDUKIEWICZ. The concept of proposition is introduced by mean of the concept of connotation. However Ajdukiewicz remarks that „the formulation that the connotation of a name is the set of properties which univocally determines its extension, cannot be considered as a definition of the connotation of a name, since a given class of objects, forming the extension of a name, can be univocally determined by different sets of properties. And a connotation of a name is not just any set of properties which univocally determines its extension, but a set distinguished among those which satisfy that condition”⁸. Analysing the examples as

„the brother of John's mother”

and

„the mother of John's brother”

Ajdukiewicz concludes that „it is necessary:

1^o to determine the connotation of the expression E in such a way that its component parts should be some objective referents of all component expressions of the expression E, and not only its component names.

2^o to determine the connotation of the expression E in such a way that it should reflect not only the words contained in that expression, but also the syntactic places which those words occupy in the expression E”⁹.

So, the connotation of the expression E is understood as the function determined for the ultimate syntactic places of the expression obtained from the expression E by the expansion of all the abbreviations it contains, which establishes a one-one correspondence between those places and the denotations of the words occupying such places in the expanded expression E.

The definition of connotation is general and it may also be used with respect to sentences. So, the concept of *proposition* we can define as

⁴ R. Carnap. *Introduction to Symbolic Logic*, Dover Publications, New York 1958.

⁵ D. Vanderveken, *What Is a Proposition?*, „Cahiers d'épistémologie” 1991, N° 9103 Université du Québec à Montréal.

⁶ R. Carnap, *Introduction to Semantics*, Harvard University Press, Cambridge, Mass. 1942.

⁷ Carnap, *Introduction to Symbolic...*

⁸ K. Ajdukiewicz, *Proposition as the Connotation of Sentence*, „Studia Logica” 1967, No. 21.

⁹ *Ibid.*

a connotation of a sentence. For example the connotation (proposition) of the sentence

Sokrates likes Alcibiades
(1,1) (1,0) (1,2)

is the function establishing a one-one correspondence between the syntactic places of its words and their denotation, i.e.:

<(1,1) – Sokrates, (1,0) – likes, (1,2) – Alcibiades>.

5. AUSTIN, SEARLE. These authors point out some specific elements of (uttered) sentences of different type as

(*) { Sam smokes habitually.
Does Sam smoke habitually?
Would that Sam smoked habitually.

Namely, what is in common here is the reference to some objects and predicating about it; the difference consists in illocutionary act: of asserting, asking about, and wishing, respectively. Thus the concept of reference and predication are detached from complete speech act. This reference to objects and predication about them, appearing in different illocutionary act, are called *proposition*¹⁰. Sentences (*) can be translated into schemes:

(‘P’), ‘?P’, W‘P’

where P is the name of proposition.

6. VANDERVEKEN. Vanderveken, who tries to combine Austin’s and Searle’s approach with the results of Frege and Church, understands *propositions* as a 3-elements sequence

$$\begin{aligned} \|\langle R_n(a_1, \dots, a_n) \rangle\| = & \langle \{ \|R_n\|, \|a_1\|, \dots, \|a_n\| \}, \\ & \{ j \in I: \langle \|a_1\|(j), \dots, \|a_n\|(j) \rangle \in \|R_n\|(j) \}, \\ & \{ f \in 2^{U_a}: f(\|A_a\|) = 1 \} \rangle, \end{aligned}$$

where a_1, \dots, a_n are individual constants, R_n is predicate of degree n , I is non empty set (the elements of which represent possible worlds), $\|*\|$ designate denotation of expression $*$, A_a is a atomic propositional term, which have a pair as a denotation, that is

$$\begin{aligned} \|\langle R_n(a_1, \dots, a_n) \rangle\| = & \langle \{ \|R_n\|, \|a_1\|, \dots, \|a_n\| \}, \\ & \{ j \in I: \langle \|a_1\|(j), \dots, \|a_n\|(j) \rangle \in \|R_n\|(j) \} \rangle \end{aligned}$$

and U_a is the set of atomic propositions¹¹.

¹⁰ J. L. Austin, *How to Do Things with Words*, Clarendon Press, Oxford 1962; J. R. Searle, *Speech Acts. An Essay in the Philosophy of Language*, Cambridge University Press, 1969.

¹¹ D. Vanderveken, *Meaning and Speech Acts*, Vol. 1 2, Cambridge University Press, 1990/1991; idem, *What Is a Proposition...*

The first element of the triplex we call the set of propositional constituents, the second element represents the set of possible world in which the relation satisfied and the third element represents truth conditions. Let us remark that in set of propositional constituents we speak about senses and not about objects. Vanderveken speaks: „All propositions are general propositions whose constituents are senses and not objects”¹².

It is the conception of Vanderveken and the approach of Ajdukiewicz mentioned above that seem to be the most interesting. Why? Because their analysis of propositions indicates the necessity of transfer to the structure of the proposition alone, and provides the manner of discerning the content of sentence.

Now, I am going to discuss the conception of Vanderveken in twofold perspective: philosophical and logical.

1. According to Austin, Searle and Vanderveken proposition is a component of an illocutionary act and, thus it appears in different utterances of type (*). In spite of our introductory remarks, the form of declarative sentence, which determines the type of illocutionary act is not considered a part of proposition (and other illocutionary force markers likewise). On the other hand Vanderveken tends to combine the results of Austin and Searle works with the ‘pure’ logical theories originating from Frege and Church. On this ground it is emphasized that propositions are ‘knowledge carrier’ and the basic component of scientific theories. Moreover, let us notice that we are rather concerned whether Pythagore claims that in a right-angled triangle $a^2 + b^2 = c^2$ and not just supposes or expresses his wish. Further, observe that if a theorem is translated from one language to another, then, to preserve the sense of proposition, its form must be properly rendered. Obviously, we do not translate Pythagore’s theorem into question. It seems that the conception of Vanderveken permits such situation; the proposition being identical.

Therefore, in my opinion, what Vanderveken calls proposition should be referred to as *thought* (in ideal sense), which corresponds to Frege’s ‘Gedanke’. And *proposition* should be acknowledged as a thought in the form of declarative sentences. I hope that the above definition of proposition remains in agreement with Frege claims:

¹⁰ „Proposition (Urteil) for me is not grasping of thought (Gedanke) also, but recognizing its truth value”;

²⁰ „In each proposition – even most trivial – there is a step made from the level of thought to the level of reference” (i.e. logical values in this case) and

³⁰ „Interrogative and declarative sentences contain the same thought; but the declarative sentence includes an extra, namely the assertion. And the interrogative contains an extra, namely the request”¹³.

¹² Vanderveken, *What Is a Proposition...*

¹³ Frege, *Der Gedanke...*

2. The logical remark. The concept of proposition in Vandervekens formulation is – as we have remarked – very general. It is so general that in case of such sentences as

(**) The president of the USA knows the miss of the world;
the following paradox occur: the possible world (context) in which the sentences are true are known, while we cannot speak about the sense of such sentences (propositions) in a possible world. So it is necessary to build a definition of proposition which would enable speaking about proposition in possible world. Each proposition comprises a relation between objects which are understood in some aspects (that is as concept). Let us remark, however, that considering the sense of a name we mean the way of 'being given' of this objects. Consequently, admitting the results of Frage, in understanding of proposition, we must take possible world into account, that is the reference to the concept of objects. The sentence (**) expresses different propositions depending on whether uttered in 1980 or in 1990 for example. While uttering this sentence we express the proposition in which

- 1) we mean some objects (for example G. Bush and the miss X);
- 2) these objects are understood by means of concept „being a president” and „being a miss of the world”;
- 3) the objects are in adequate relation.

Then, it seems, that the definition of proposition given by Vanderveken should be a little modified. Denotation of propositional term in possible world i is (in case – $n = 2$):

$$\|R_2(a_1, a_2)\|_i = \langle \{\|R_2\|, \|a_1\|, \|a_2\|\}, \{\|R_2\|_i, \|a_1\|_i, \|a_2\|_i\}, \{i \text{ or } *\} \rangle,$$

where * is gap and

$$\|(R_2(a_1, a_2))\|_i = \langle \{\|A_a\|_i\}, \{f \in 2^{(U_a^i)} : f(\|A_a\|_i) = 1\} \rangle,$$

where A_a is abbreviation for $R_2(a_1, a_2)$ and U_a^i is set of all atomic proposition (atomic thought) in possible world i .

The modified definition of proposition gives us the possibility to show that sentence (**) expresses different proposition ones in different context of utterance. Moreover, I think, the definition satisfies the conditions assumed by Vanderveken. It also seems that the modification of semantics should not come across greater difficulties. For example, we define

$$\|A_p \wedge B_p\|_i = \langle \{\|A_a\|_i\} \cup \{\|B_b\|_i\}, \text{id}_2(\|A_p\|_i) \cap \text{id}_2(\|B_p\|_i) \rangle,$$

$$\|\neg A_p\|_i = \langle \text{id}_1(\|A_p\|_i), \{f : f \in 2^{U_a^i} \text{ and } f \notin \text{id}_2(\|A_p\|_i)\} \rangle$$

and

$\|t(A_p)\|_i = T$ iff exist at least one $f \in \text{id}_2(\|A_p\|_i)$ such that for all $u_a^i \in \text{id}_1(\|A_p\|_i)$ [$f(u_a^i) = 1$ iff $\text{id}_3(u_a^i) = i$],

where A_p, B_p are abbreviation for terms for propositions, t is syncategorematic expression, $t(A_p)$ is an elementary sentence of language L which is true in a world if and only if the proposition expressed by A_p is true in that world.

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O MYŚLI I SĄDZIE W SENSIE LOGICZNYM

Pojęcie sądu w sensie logicznym nie jest jednoznacznie scharakteryzowane w literaturze logicznej. Jednakże we wszystkich ważnych definicjach wskazuje się na znaczenie, sens lub konotację zdań oznajmujących. W artykule autor podaje różne definicje i charakterystyki wypracowane m. in. przez Fregego, Churcha, Ajdukiewicza i Vandervekena oraz wskazuje na główne czynniki, które należy poddać analizie przy opracowywaniu definicji sądu.

Wychodząc od pojęcia sądu jako tego, co wspólne w różnych sądach w sensie psychologicznym autor formułuje własną definicję sądu w sensie logicznym tak, aby uwzględnione były:

- 1) struktura sądu;
- 2) sens zdań oznajmujących;
- 3) możliwy świat, w którym dane zdanie jest wypowiedziane.