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Words Functioning in Lexicon

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Abstract

Investigations of word semantics focusing on forms of words formation and their functions in memory lead to the theory of lexicon organization. Interest in the theory of lexicon organization lies in the linguistics sphere and the personality of the speaker (the subject of the language). Particularly noteworthy is the question of the place of the image when discussing the lexical, phraseological values and the relationship of imagery and metaphors.

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1. Introduction

According to cognitive scientists, the meanings of the words are originated and formed not at the semantic level but in some conceptual formations, schemes, i.e. are relevant to the cognitive system. Relatively small set of basic concepts (conceptual structures) bind and correlate derived meanings, combining them in the common pool of human knowledge. Stored in consciousness, the meanings are waiting for an impulse to be realized.

The invariant meaning is formed in person's mind gradually in the course of different actualizations of secondary meanings in various contexts. When we are talking about variation, the issue of invariant of all variants is inevitable.

The critical issues related to functions of words in verbal and mental processes are linked to the problems of the lexicon structure and functionality. A closer look needs to be taken at the theories of organization and functioning of the lexicon as a mental and lexical component of the communication activity.

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Initially the term “lexicon” was used to characterize a list of morphemes of a specific language different from a word list. As the ideas of transformational generative grammar developed, some researchers started to treat the lexicon as a component of the generative language model playing an auxiliary role in respect of grammar. The word was defined as a meaningful unit that can be identified in a syntactic chain, and the lexicon was seen as a list of indivisible finite elements regulated by morpholexical rules.

Later lexis was included into the so-called «basic component» of a language along with the transformational rules which operate the original dictionary units. It was believed that inclusion of words occurred in the last phase, when the issue of sentence phrasal markers was already resolved; and the rules of transcription of these symbols lead to their substitution with specific lexemes (according to the categorical meanings of the latter). To make this step, the speaker must recall units reflecting his/her concepts from his/her memory. Thus, one started to treat the lexical component as lexicon, and no special differences were made between the dictionary and its reflection in the consciousness.

2. Lexicon Formation

The research of 1960s and 1970s stressed that words are means of experience organization, while the set of attributes associated with the word represents its major part. The studies of this kind laid a foundation for establishment of the cognitive approach to be used for analysis of the “brain lexicon”. The commitment inspired by C. Osgood to find the internal (categorical) structure of the lexicon and to identify the peculiarities of its development in children had a significant impact on the lexicon concepts. Experimental research results were published with a focus on word’s connotative meaning and on the united verbal and cognitive structure. It was mentioned that the lexicon represents one of the most important mechanisms of cognitive processing of information linked to the level of representation and responsible for recoding in two directions: from perceived units – percepts (perceptive and language signs) to meanings and from intentions to the activity program (language or other). The lexicon is rather a process, than «storage». The lexicon contains a very large set of links between signs and codes of semantic attributes (Osgood, 1980).

Since mid-1960s many representatives of generative grammar started analyzing the problem of word synthesis, its assembly from semantic attributes. This meant that a word is not reproduced, but constructed from components. When a concept of a sentence is born, firstly, its semantic representation is generated, then, if a certain configuration of semantic elements coincides with the semantic representation of lexical units, then this configuration is replaced with a phonological form.

During that period the mental lexicon (*lingua mentalis*) was postulated, i.e., nonverbal units of the conceptual system – images, schemes of actions, *gestalts*, pictures, on one hand, and the language lexicon where concepts and notions have verbal form, on the other hand. The hypothesis that words are synthesized in the lexicon and not simply stored arose from a suggestion that the thought is created in the word, and was not given beforehand. Moreover, the concept groupings are so much linked with the sign language that they do not involve synthesis and exist as *gestalts*.

Some researchers of the Soviet period lexicon merit to be called cognitive scientists. They believed that there existed the world and its projection in the human brain, and that reflection of the world refracted as a united conceptual system with its images, concepts and notions had a powerful verbalized part (proper lexicon). While the language itself in no way reflected the world, it gave a concept of the latter by verbalizing (symbolizing) individual concepts of the world obtained through active world cognition.

So the lexicon concepts which gained a language form and meaning are used for two functions – representation of the contents of an individual quant of information about the world and for its storage, accumulation and further use. Words help to easily and naturally combine two types of knowledge, two levels of consciousness: verbal and nonverbal. They act as means required, firstly, to detect the object in question from the totality of objects, and, secondly, to identify it verbally in the subsequent speech. A word represents a body of the sign for a concept or a group of concepts, as a carrier of a certain quant of information attributed to its shell in the act of nomination of a respective object. Simultaneously, it acts as an operator which brings to life a chain of complex associations, whatever long, when the consciousness is activated. The operational role of the word also involves “matching” of the speaker’s knowledge with that of his/her partner; in normal speech a word (especially in the identifying position)

is used with an aim of transferring segregated knowledge.

Important is to mention that some researchers consider the lexicon not as a passive storage of data about the language, but as a dynamic functional system which organizes itself due to continuous interaction between processing and structuring of the verbal experience and its products. The new in the verbal experience which goes beyond the system leads to its restructuring; each subsequent system status serves as the basis for comparison in further processing of the verbal experience.

3. Organization of Lexicon and its Functioning

Many authors admit that lexicon has an internal structure with diverse links between units and inside them. It would be naïve to believe that it is a «storage» of lexical units or a set of certain mental conditions. In terms of speech production, a lexicon unit meaning can represent a list of conceptual conditions which must be satisfied so that a certain unit could be chosen for a relevant message. A lexical unit can also contain syntactic, morphological and phonological information. However, there are grounds to believe that speakers construct a “scheme” of an expression without addressing the phonological part of the word. Levelt, a lexicon researcher, applies the term *lemma* for the non-phonological part of lexical information used for construction of such a scheme taking into account the syntactic environment of a word (Levelt, 1989).

In his theory J. Morton asserts that each word is stored in the mental lexicon as a logogen which includes not only phonological and semantic information about the word, but also its morphological characteristics. Logogens accumulate data about word frequency. Each logogen sets a certain threshold of word accessibility which decreases when word frequency grows making it more accessible. This explains a faster perception of frequent words compared to words of low frequency (Morton, 1976)

The modularity problem is discussed in parallel with the issues of existence of different approaches to the lexicon and the proportion between the linguistic and encyclopedic knowledge. The module is a relatively autonomous knowledge domain for processing of specific information with limited access to other information types. Thus, visual perception and syntax are separate autonomous systems of knowledge; they function relatively independently from contextual information and are linked to certain brain divisions. There are evidences (especially, in aphasiology), which support the modular organization idea: a certain mental ability may be disrupted, while the other continues to function normally.

The modular organization of the lexicon obviously envisages a special «compartment» for functioning of morphologically complex words. Thus, morphologically complex words may originally belong to the basic lexicon as a whole, i.e., without decomposition into constituents. As similar cases accumulate, an “auxiliary storage” is formed. These words are arranged by morphologically similar elements, thus, a special lexicon component, the so-called lexical tool-kit is created. Native speakers remember lexical units in contexts, in thematic groups. Therefore, words are not as interchangeable as it is normally believed.

It is worth while noting that words are not «so interchangeable» because absolute synonyms do not exist. One needs to clarify the thesis about lexical units being remembered in contexts: a person keeps the most frequent context actualizations in his/her memory, but «assembly» from the main dictionary is based on functions of the speech mechanisms (derivational, combinational etc.) which apparently have intrinsic nature. For instance, in an individual's consciousness words are subject to unconscious processes of synthesis, analysis, comparison, i.e. conceptualization and categorization, interacting with the products of processing of what was perceived before. So, the meanings are decomposed into attributes and attribute characteristics (differentiation processes). Besides, there is deviation from differing attributes (integration processes) which leads to higher extent of generalization. This allows creation of two types of units: differential attributes and *generalizing components* which differ in the integrity level. The results of these processes may exit via «the consciousness window». They may resist verbalization, since they remain «behind the scenes», thus providing for actualization of some recoding products available to enter the consciousness.

As a result, a word is included into the broadest network of multilateral links and relationships. These relationships must include bringing the results to a common code and its further use as an abstract thinking tool. Visual impressions associated with the word may be integrated into complex mental images which act as higher

rank units and ensure synchronous storage of a vast information volume.

The lexicon of an individual language is deemed by many authors as the final code. Lexical meanings just codify stable sets of abstract semantic properties. This means detachment from the context which is connected with the experience of the majority of language use aspects in the social life. Lexicon researchers also believe that it is structured not as a list, since it would be quite primitive. Instead, it has a complex structure with many outputs. Some linguists propose interesting opinions about the lexicon core. When expressions are formed, the chosen concepts are brought to those signs for which the lexicon has units with a required list of semantic components. Thus, the lexicon core and the periphery are formed. The lexicon core signifies words in the «nearest» meanings reflecting everyday notions: The core comprises units of specific meaning which easily evoke mental images. They are central for a group of other words belonging to this category which are more abstract in their meanings. Core words ensure transition from «sensual concretes» to «abstracts».

In fact, in a human memory all similar objects are merged into average results. These average products are signs which substitute multiple homogeneous objects. Thus, a person thinks about an oak, a birch, a fir-tree as generalized images, although during the lifetime he/she saw these objects a thousand times in various forms.

It is interesting to mention that a plain analysis of how we recall a forgotten word prompts us that there are many different “paths” to get the forgotten word. Obviously, words are arranged in alphabetical order; there exist synonymic and antonymic word rows. Apparently, words are linked into lexico-semantic or thematic fields and belong to stylistic and terminological groups. Undoubtedly, along with such paradigmatic organization, there are also grammar and syntactic differentiations, as well as integration, for instance, by parts of speech, functions in expressions etc.

4. Lexicon Core

The lexicon core should obviously consist of the most frequent vocabulary. Therefore, one can assume that consciousness contains a «counter» which continuously counts the number of usages (certainly, conventional) and produced an index of word usage or citing frequency of a phrase or an expression. Frequent words and structures «accumulate» extensive links, so access to them is easier; they are always «on the tongue». «Assembly» from the main dictionary during formation of expressions can occur on the basis of mechanisms (derivational, combinational etc.) which exist in the lexicon.

On the whole, one can state that the semantic organization of the lexicon comprises a multitude of diverse models. This is true, because for our lexicon’s efficient functioning the word must have as many outlets and interrelationships as possible.

The above theories of mental lexicon description focus on various features of its structure and functioning. In some concepts these features are linked with speech production processes. Other concepts relate to speech understanding. One can admit that among all structures of knowledge representation in linguistics the most popular were the frames theories and the memory network models. There are also interesting theories which explain easy access to highly frequent words forming the lexicon core. Obviously, such theories are to be studied yet.

In our opinion, in the lexicon each unit is associated with an abstract *complex meaning*. This complex meaning represents a stem common for all variants of a polysemantic word and consists of semantic primes. In many cases complex meanings do not reflect natural concepts. They rather mean open conceptual schemes which gain a meaning depending on the context, and this occurs as a result of operations at the conceptual level.

The central meaning of a polysemantic word will be the one from which derivative meanings can be generated with least cognitive efforts. Linguists Caramazza and Grouber have discovered a dependency between the extent of a lexeme polysemy development and the abstractness level of its core meaning: «The core meanings will vary in the degree of abstractness, being essentially determined by the degree to which they allow polysemy; the more polysemous, the more abstract the representation, while the less polysemous, the less abstract the representation» (Caramazza, 1976)

The meanings of a polysemantic word represent notional domains, unique semantic fields whose components are linked by a common conceptual core. The meaning of any lexical unit is presented at the semantic level as the core. The core meanings represent the semantic composition of the lexeme, and lexicalized concepts determine an adequate context choice.

In our opinion, «presence» of all lexico-semantic variants of a word in the consciousness does not guarantee that at first request one can reproduce a full list of all these meanings. Very often some meanings are omitted in reproduction. Native Russian speakers would hardly recall all meanings of any polysemantic word at once. Therefore, uncertainty about the choice of required meanings coincides with psycholinguists' observations about the fact that consciousness does not store words. This provision can be used as an argument against listed representation of word meanings in the mental lexicon.

Some word functioning models in the lexicon describe meanings as self-sufficient independent essences. Conversely, we believe that it is strictly necessary to keep a polysemantic word in a generalized form (as a semantic core), because due to communicative time pressure such substantive core is able to cover more real and potential “precise” individual notions, if required, saving time and cognitive efforts.

Obviously, at the language system level in the long-term memory polysemantic words have a single direct link between the shape image and one generalized (invariant) meaning. It is updated at the speech level as one of individual variants. In other words, both levels (language and speech) demonstrate the principle «one shape – one meaning».

5. Lexicon Core and a Polysemous Word

To derive the *systematic* meaning of the polysemantic word covering all other possible meanings, it is important to take into account the role of the first nominative underived meaning, since the native speakers usually use the first meanings when it comes to the relevant speech forms. The next stage of generalization is an extension of the first meaning with the help of comparison component (Pesina, 2014)

Thus the word “head” has a very developed semantic structure containing more than one hundred meanings. In accordance with nationally biased units of the native English speakers, the **lexical invariant** of this word may be formed as follows: the head is first of all the upper part of the human body that contains the eyes, nose, mouth, ears and brain or something resembling it (the top, round and/or the most important part of a larger object; the beginning or end of it). The selected part of the definition is the abstract scheme formed in the native speaker's consciousness as a result of various actualization of more than a hundred meanings (Pesina, 2014 Gusserl, 2009)

For instance, similar to the human head, the beginning of the human body, the “head” of a ship is the *beginning* of the ship. Similar to the human head, the most important part of the body; the head of fire is the *top* of the flame, the hottest and most active part of it. The head of a stick, roll paper, violin bow, cigar, arrow, spear, axe, etc. are all oriented in space the way the head versus the rest of the body. It means it can be located on the top position and be the beginning of the object depending on its vertical or horizontal position in space.

The “head” of a table, grave, bed is not just a beginning; it is the most *important* part. The head of a stream/river, i.e. the source, is compared with the human head in the sense of the *origin* (comparison in terms of space orientation). It means that actualization of one or another meaning of the word “head” is based on one or several components of abstract nature or the whole lexical invariant.

Each separate meaning refers to some regulative structure and points to a general rule governing the processes of categorizations and conceptualization of a social realm which are possible within the frames of some preliminary defined tunica. The lexical invariant, meeting the principle of economy, enables actualization of all existing word meanings with least possible cognitive efforts. It ensures semantic ties between the meanings of the word, keeping the polysemantic word from splitting into homonyms (Pesina, 2005, Pesina, 2011)

The discovered abstract semantic core helps with comprehension of the most complicated lexical semantic invariants “remote” from the original meaning: *head of beer*, *head of milk*, *head of the bridge*, etc. If the basis is the same invariant – something on the top, something important and the beginning of something – these meanings can be easily understood and explained: they are the *foam*, *cream* and *start of the bridge*, respectively.

6. Conclusion

The special feature of the natural language with its polysemanticism, metaphorical reframes and implications very often turn out to be an obstacle to a successful communication. The difficulty is about the impossibility of

using all the semantic wealth and the constant need of choosing the most substantial components of meanings of a polysemantic word.

The interaction of all meanings of a polysemantic word in the constant communicative time pressure (minimum time to comprehend and react in the flow of speech) would not meet the most important principle of economy that implies the usage of the least cognitive effort in the verbal and cogitative processes. The neglect of this and other factors presented above will cause the fragment knowledge without advancing us to the synthesis in the understanding of the language and thinking phenomena.

Denial of the meaning representation in the polysemic word structure implying that the word is present in the consciousness in the whole meaning system was the ground to look at a hypothesis of existing of the meaningful core of the polysemantic word, i.e. the lexical invariant. We proceed from the assumption that, no matter how many meanings are associated with a particular form, it is always the system meaning that is connected with it. It is identified as the meaning of this form at linguistic level, and it is the basis for making the actual meaning of the word at the speech level given the speech context on “one meaning – one form” principle. LI’s have identifiable attributes (with differential among them) and being a sort of stereotypes within the frames of ordinary consciousness, are created by the members of a language community as a result of uniform division of reality.

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