TERMS-METAPHORS IN SCIENTIFIC TEXTS

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НОМИНАТИВНИТЕ МЕТАФОРИ В НАУЧНИЯ ТЕКСТ

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ABSTRACT: The paper analyzes terms-metaphors (nominative metaphors) and their functions in scientific texts.

Keywords: terms-metaphors, nominative metaphors, scientific style.

Introduction

Cognitive approach to metaphor analysis revealed deep, conceptual mechanisms of different information transactions that reflect mechanisms of thinking. New understanding of metaphors has not only confirmed the traditional view on the close relationship of language and thought and made it possible to develop new approaches to the analysis of such cognitive processes as analogy, identity, similarity, etc., but also has led to the understanding of metaphor as a tool of human thought, which has a large heuristic power and can be applied to the modeling of the objects of complex nature.

A new look at the metaphor has become the starting point of research in a number of linguistic works of domestic and foreign scholars [H. Arutyunova, M. Kozhina, N. Nepiyvoda, N. Razynkina, G. Diadiura, D. Kolesnik].

Metaphor is an important component of scientific texts that fully reflects the dynamics of the functioning of language in science and technology communication.

Metaphorical process in scientific texts, particularly in scientific and technical literature is rich and diverse. Metaphorization in these texts is a process that results in obtaining new knowledge about the world through the use of already existing language phenomena.

Presentation of basic ideas

The use of metaphor in scientific style is marked by distinct characteristics, by the specific goals and objectives of scientific style. The researchers note that metaphors are widely used in scientific texts compared to the literary text (in this style the use of such metaphors is limited due to their traditional, non-original, non-individual evaluative character. The above-mentioned features make it possible to actively use linguistic metaphors to express logical coherent thought, reasoning, objective research. However, both common metaphors with worn imagery and individual metaphors with obvious imagery are met in fiction and scientific styles [1].

Linguistic metaphor quite often occurs in the texts belonging to different genres of research (including scientific and popular style) - articles, books, reviews.

Nominative metaphors are terms coined by imaginative reconsidering of common words. There are two types of terminologization: the first concerns referents, already known to man - these referents already have their names. To bring these objects to the frame of scientific knowledge one needs to clarify the meaning (to narrow, specify it), that’s why the part of the word’s semantics is cut off. The difference between the meaning of common words to describe specific referents and terms whose definitions reflect the same referents, is different in semantic richness of both words: common words are marked by greater semantic volume [5].

The first variant of terminologization lies in the attribution of definitions based on metaphorical or metonomimical transfers. Such transfers occur not in the process of terminologization but earlier, when an initial concept of denotation appears. Metaphorical character of the lexemes which lay the basis for later formed terms, indicates at least two steps of a new concept creation - a primary step where the resemblance of one
lish the motivation and associations with the terms in which it is extremely difficult to establish medical terms proved that there exist some terms that are vague that they are difficult to immediately determine [2].

A r i s e o n l y s o m e a s s o c i a t i o n s t h a t m a y b e s o of certain features of the object, even if there are similarities and functionalities with the claw of animals and technical objects. Technical terms involve numerous names of animals (cat, horse, goat, lamb, caterpillar, spider, chameleon, worm, dog), the names of body parts (eye, head, lips, teeth, leg, finger, cheek) [7]. Numerous medical terms are coined by metaphorization: tail, cape, brain, cup, drum etc. [2].

The second type of terminologization lies in giving definitions to the concept not presented in everyday knowledge. This is true for abstract notions arising within a purely scientific knowledge. Foreign language (mainly Greek and Latin) roots specifying the meaning of nuclear words are used in this case. The terms of this group (e.g., adaptation, absorption, assimilation) are often the members of different terminologies and are usually international, that is used at least in three unrelated languages [7].

In modern linguistic literature there are different views on the nature of the associative links that contribute to the metaphor creation. Thus, C. Galkina-Fedoruk, A. Kalmykov and others believe that metaphor appear due to the presence of substantial similarity between two objects. M. Pokrovsky, A. Lytvynenko, A. Nikiforov state that not only some individual characteristics but the entire contents of the message are associated with the image. H. Krakovetskiy supports the theory of E. Bursye, J. Vandriyesa, J. Lotte who believe that the metaphor can be carried out in conditions of coincidence or a relative similarity of certain features of the object, even if there arise only some associations that may be so vague that they are difficult to immediately determine [2].

G. Krakovetskiy, having analyzed metaphorical medical terms proved that there exist some terms in which it is extremely difficult to establish the motivation and associations with the words - names of everyday objects. This is due to the fact that the name, transferred to a new object or phenomenon, previously functioned or is currently functioning in the language with its primary non-metaphorical meaning. On the basis of certain associations this name was used to indicate a new object. Semantic transformations can be made any number of times, and therefore a characteristic feature in each new word received new meaning colors. Each subsequent name moved more and more from the original characteristic feature which complicates the selection of associative connections between objects and motivation of the transfer. Thus, the researcher concludes that if only significant, evident features of the concept were always the basis of any metaphor, the problem of the determining of its associative links would not arise. Since their discovery is based on deep semantic and etymological studies involving extra-linguistic factors, it indicates that the "essential features" is quite a conditional and individual notion [2].

M. Nikitin, describing lexical meaning, introduces the concept of "the intensional" (a core of a lexical meaning structure, which includes obligatory semantic features) and "the implication" (the set of semes, that are induced by intensional meaning due to the implicational links of features [6, 164-165]. The author notes that in the metaphorical connection of meanings the common part is formed by implicatsional semes (mainly) and intensional semes (not often) of the original word meaning. Variation of meanings in the metaphorical transfer is determined by a probable measure of implicational characteristics and the degree of nominative need for a new sense of words [6].

Component analysis of metaphor was made by Ukrainian linguists. Thus, N. Nepiyvoda, basing on J. Sokolowskaya’s system of terms and concepts described not only determinologization, which was the subject of her research, but also metaphor - as a phenomenon opposite to determinologization [4]. G. Krakovetska has used component analysis to analyze medical terms. She noted that in the early stage of science development common language was a key source of vocabulary development: a large number of terms was created by imaginative reconsidering of common words [2]. G. Krakovetska distinguishes the term and Nomen and describes the formation of nominative metaphors as follows: at the initial stage of perception a person identifies the most characteristic features of a phenomenon or an object and fixes them in a language sign,
using the words of common vocabulary. By means of semantic change, in particular by metaphorization, the word becomes the name of a particular object - Nomen. The name reflects the first stage of knowledge - sensual. Further disclosure of the nature of phenomena is based on logical understanding of human cognitive activity results, on the ability to create abstract notions. Abstract meaning of the word is the notion that is the product of mental activity which is given in the definition of the term [2]. On the examples of medical terms the researcher traces the stages in the evolution of terms - from words to Nomens and from the term to the Nomen - and emphasizes the fact that in a Nomen the internal form serves as the center of the image, one of its features which dominates over the others, and in a term this feature recedes into the background and the internal form may eventually completely disappear. Numerous medical terms have undergone such evolution [2].

Nominative metaphors are based, as noted above, preferably at the unconditional analogy. This is understandable, because the convention, incompleteness of the analogy results in the lack of motivation of the term, in the lack of compliance of a name with its essence. This is impossible when the analogy is absolute. Therefore nominative metaphors become equal members of terminology and differ from others only by the specificity of their origin.

Nominative metaphors, formed on the basis of unconditional analogies include such as “molecular chain” - a few molecules united by electrostatic interaction between the positively charged hydrogen atom of one molecule and negatively charged atoms nearby, “superstring theory”, “the formula of math expectation” etc. (see also the examples given above in the description of simple analogies).

There are also nominative metaphors that are based on simple analogies. For example, such common words as “wedge”, “rib”, “edge”, etc. have become the basis of coining terms: "A drop is projected by parallel beam of light at the input pupil of the lens through a wedge with an angle at the vertex, and the line through the first wedge beam is perpendicular to it ..." (OPS, 178). “A wedge” is a quartz glass, which is performed in the form of a right triangle (shaped like a wedge that is hammered into the tree to split it). "Consider the drop on the substrate with the circular rib ... " (IPOs, 190). Circular rib is a collar on the border of circular substrate. Actually, the word “rib” is often used in technical language. The comparison on the basis of external features - bulging over a flat surface, just as in human scraggy protruding ribs is the basis of analogy.

Obviously, a physical term “core” is formed on the analogy with the nut core: a fundamental pattern of reconsidering is that the nucleus of an atom is a central part of the atom. The fact that the relationship between the central part of the atom and the inside of the nut and the object as a whole differs significantly (the radius of the nucleus is hundreds of thousands times smaller than the radius of the atom itself (FS, 318), and a nut shell slightly increases its overall size) just indicates that the term is based on incomplete analogy.

Nominative metaphors, formed on the basis of simple analogies include also such as “hysteresis loop”, “knot”, “thread” (see also the examples given above in the description of simple analogies).

Conventional analogy can also form nominative metaphors. Thus, in modern terminology there are lots of terms with the components lying, creeping, swimming, standing etc.: "Lying drop method in comparison with other research methods at high temperatures has great advantages" (OPS, 4). This method estimated the surface energy of the substance by the size and shape of drops of other stuff that were dropped onto the surface of the examined substance. "The rational numbers are represented in the form of a floating point ..." (EI 16). Rational numbers are a fraction (ie, with the figures after the decimal point, e.g. 245, 37). This representation is called “with a floating comma”. And since in cybernetic science it is customary to divide with a point, but not with a comma thus, this form is called “a floating-point” (though in modern literature there exist a term” floating comma” formed by analogy). "Running wave is a wave that carries energy in the direction of its extension" (FC, 27) - the name is based on the comparison with a sea wave. “Standing wave” was formed on the analogy with this term to describe the specific energy output generated as a result of interference: "Running wave in the same body of finite size under certain conditions leads to the formation of so-called standing waves" (FC, 27).

The study has revealed many common words introduced into the terminology of Computer Science on the basis of similarity of functions and external features: ensemble, vacancy, version, win, window, node, branch, branches, deadlock, slot, needle, head, needle, play, player, playing, grating, tree, bottom, jam, pocket, coil,
step, step by step, stepping, chain, patch, shop, railway, mandate, route, mask, masked, border, menu, generation, field, field-meter, mouse (pointing device), target, mute, media, palette, password, loop, port, post, product, service, filter, filtration, converter, priority, status, alternate.

Specific concepts are nominated using a large number of common words with a central sense of action, process (including the derivitives): input, enter, input-output, introductory, entered, hang, hanging, remember, memory storage, protect, protecting, secure, preserve, preserved, save, dial, dialing, navigation, savings, accumulate, accumulating, processed, processing, cultivation, handling, serviced, service, serving, served, attendance, print, printing, unpacking, unpack, recognition, recognize and so on.

The terms that describe the doer of the action attract attention too. Typical pattern here is based on granting properties of human doings to mechanisms and their parts that is on personification: manager, archiver, architect, recognizer, sorter, sealant, driver, handler, etc.

Most terms are deprived of imagery, despite the fact that they are formed by reconsidering. But the analyzed terminology include some terms with strongly perceived imagery: demon, making "patch", "mouse," junk", "tail", cell, tire, name, branch, tree, etc.

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**Conclusion**

So, terminologization of common lexicon, carried out by reconsidering is a very efficient way of forming terminological units.

O. Potebnya paid a lot of attention to the history of stories from the figurative use to the direct meanings ("sign of thought"). The direction of words development from the figurative use to the direct meaning is, in his opinion, the characteristic feature inherent to all languages. O. Potebnya calles this process a positive development in language, it was possible to create a language of science through direct meanings of words.

Transformation of individual associations (subjective intellectual products), into general ones that is transformation of the author’s image into common language eventually lead to consolidation of the word figurative meaning due to conventionalization of semantics (meaning, sense) of words.

That is why the study of metaphor enables to see where the development of word meaning begins. "... In the history of all the innovations we always meet two separate points: 1) the time of its occurrence in individuals and 2) the time of its conversion into the fact of language when it is, apparently remaining the same, is taken by language society" [3].

Indeed, the newly formed figurative word or the first known use of the word with unusual subject relatedness - figurative use of the word – does not yet express concepts. The main feature of the concept is a holistic set of significant judgments and the characteristics of the object, summarizing the results of its cognition. A figurative use of the word gives some raw basis for the cognition of a new reality fragment. Some side of the well-known language meaning creates a picture of it and only in the process of its language use, in the long history of word’s development, a necessary set of judgments is created making it a well- known in the language with a new content which is sufficient for creation of the generalized abstraction - a concept [3].

**Literature**


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