Text linguistics, Discourse analysis. Typological linguistics (UDC 81`4)

DOI: 10.18454/RULB.4.16

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РЕПРЕЗЕНТАЦИЯ ФАНТАЗИЙНОГО ЗНАНИЯ В НАУЧНОМ ТЕКСТЕ

Аннотация

В статье обсуждается феномен фантазийного знания, раскрывается его природа, рассматривается, каким образом фантазийное знание используется исследователями для вербализации в научном тексте нового научного знания, а также для убеждения адресата научного текста, приводятся основные способы репрезентации фантазийного знания в научном тексте.

Ключевые слова: наука, научный текст, фантазийность, фантазийное знание, объективное знание.

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REPRESENTATION OF FABRICATED KNOWLEDGE IN SCIENTIFIC TEXTS

Abstract

In the article the phenomenon of fabricated knowledge is considered. The author views its nature, its use by researchers for verbalisation of new objective knowledge and for persuasion. The author names the main ways of representation of fabricated knowledge in scientific text.

Keywords: science, scientific text, fantasticity, fabricated knowledge, objective knowledge.

Scientific texts are traditionally viewed as carriers of objective knowledge. This notion of science as an activity dealing with only verifiable, objective phenomena came into circulation in the seventeenth century with the serious breakthroughs in natural sciences. Since that time science has come to be associated with exclusively objective knowledge. But besides objective knowledge proper science may also transfer fabricated knowledge. In this article I regard fabricated knowledge as a product of imagination of a researcher.

The phenomenon of fabricated knowledge can be interpreted in two ways.

1. In the narrow (traditional) sense fabricated knowledge is associated with fiction in literature, poetry, art, architecture, etc. In this sense figments of imagination of men of art create the world which exists parallel to the real world. Fabricated knowledge in this way serves to create a fabricated world dissimilar to reality.

2. In the broad sense fabricated knowledge represents a special way of cognition that reflects the ability of language and thought to reveal the essential characteristics of the real world by means of subjective abilities of the mind of a researcher. Fabricated knowledge in science taken in this broad sense also mirrors misconceptions and errors of scientists of the past.

The latter interpretation of fabricated knowledge is assumed as a basis for this research.

The research of fabricated knowledge is based on the following theoretical foundations.

1. Fabricated knowledge is an epistemologically objective means of scientific cognition of both ontologically and epistemologically objective world realised via ontologically subjective entities, i.e. consciousness and mind of a researcher.

2. Fabricated knowledge has a sign form of expression. As such it is founded on the semiotic notion of semiosis and the idea of signs' ability to gain secondary (and unlimited in potential) meaning.

3. Fabricated knowledge as a product of speculative thinking of a researcher is an instrument of re-conceptualising of older information about the world or conceptualising of any new data obtained. In this sense fabricated knowledge has cognitive basis.

Let us consider these theses.

1. The problems of objectivity of scientific knowledge have been widely discussed in philosophy and logic (D.Davidson, R.Karnap, K.Popper, B.Russel, J.Searle, A.Tarski et al.). In these classical researches verifiable utterances are considered to be true and objective and therefore scientifically acceptable. According to Tarski's views verifiability of an utterance is dependent on speaker's understanding of the terms 'truth' and 'reality'. In this sense cognition can be considered as a subject-dependent activity. But in case of scientific cognition only one notion of truth and reality, independent of the feelings and attitudes of particular investigators, is acceptable. Thus, according to John Searle objectivity in science has an epistemic nature, i.e. scientific claims must be either false or true irrespective of "the preferences, attitudes or prejudices of particular human subjects" (Searle 2002: 22). As far as cognition is realised on the basis of ontologically subjective entity (i.e. human thinking) it may employ such an instrument inherent to human thought as speculative (or creative) thinking which is considered by investigators as a subject-dependent means of cognition of both epistemologically and ontologically objective and subjective world, i.e. both physical and mental reality (N.Bohr, T.Kuhn, M.Polany, S.Shaumyan, etc.).

According to S.Shaumyan speculative thinking allows the researcher to understand reality in terms of ideal entities, it provides an aesthetic sense of beauty of universal structures that constitute the essence of reality and it has a certain heuristic value (Shaumyan 1987: xiv). It means that speculative thinking is a necessary condition for creative and fruitful research. In this research I associate speculative thinking also with the ability to understand reality in terms of abstract and unreal entities.

2. The ability to comprehend and conceptualise the new knowledge about the world is based on the linguistic grounds. Language as a sign system has the potential for expressing ideas in imaginative, fabricated form. This potential is grounded on the notion of semiosis. The secondary sign which appears as a result of the process of secondary signifying I view as a fabricated sign. In other words the ability to add the secondary meaning to a sign and then to comprehend this secondary meaning is dependent on capability of a human being for imagination and creative thinking.

One of the specific features of fabricated knowledge viewed from the semiotic standpoint lies in the peculiarities of referential relations between the signifier and the signified. The idea of fabricated knowledge presupposes that the secondary sign formed to conceptualise new scientific ideas refers to the signified that doesn't exist in reality.

Let me illustrate this idea by considering the concept of quark, an elementary particle in physics. The existence of quark is said to be "a question of pure deduction from experimental observation" (Crump 2002: 346) as quarks can occur only in combination. In order to describe properties of quarks scientists applied the notions of 'flavour' and 'colour' to them though quarks possess neither any real flavour nor colour. Quarks can be of six 'flavours': u (up), d (down), s (strange), c (charm), b (bottom) or t (top), and three colours (red, green or blue) that correspond to charge for the electromagnetic interaction. In this way researchers actualise the potential of their imagination to make clear the properties of the 'unseen'. The properties of quark unseen and unobservable with the naked eye are made explicit with the help of non-referential signs.

3. The history of science keeps many examples of fabricated knowledge, representing both erroneous knowledge and conceptually new knowledge.
One of the outstanding peculiarities of modern science is that it investigates such phenomena that cannot be perceived with the five human senses. Data about such phenomena obtained by means of complex instruments and methods needs to be described and transferred to academic society in an adequate language. For this purpose natural language is used. Natural language has the potential to describe some utmost abstract ideas and unperceived phenomena the concepts of which are already formed in researchers' mind. The idea of the adequacy of natural language for the description of the real world has been uttered by such outstanding researchers as Nils Bohr, Werner Heisenberg and others. They viewed natural language

as an appropriate means to describe the invisible world of potential and probabilistic entities.

According to the views of a Russian philosopher and linguist V.V. Nalimov (1979), metaphor has a probabilistic nature and it is founded on probabilistic logic. Metaphor is considered to be one of the most resourceful devices to do that as it provokes creative potential of language and thought and allows researchers to verbalize their ideas. That is why metaphor seems to be a better means to verbalize probabilistic knowledge.

Such metaphorical terms as 'absolute zero', 'black hole', 'big bang', 'superstring theory', 'soft / hard science', 'centaur concepts', 'island constraints' etc., represent hypothesised objects. These terms refer to the entities whose existence is theoretically derived from the properties of the world and have probabilistic nature. Metaphorical terms express theoretical phenomena in 'ordinary' natural language. Non-specific language used to describe these entities reveals the cognitive processes that occur in researcher's mind when the phenomenon acquires the name.

Besides the function of conceptualising new knowledge fabricated knowledge in scientific texts may represent theoretical misconceptions. It is important to realise that erroneous knowledge in science can be considered as such only at a distance of time. Such physical concepts as 'ether', 'phlogiston' and 'magnetism' that were once regarded as fundamental concepts of scientific theories are perceived nowadays as mere figments of imagination. In linguistics the same holds for the concepts of 'mentalism', 'deep and surface structures' etc. (Harris 2005). I refer these concepts to fabricated knowledge in the sense that they represent figments of imagination of researchers. At the time of their creation they represented hypothetical knowledge about the world as in the case with 'absolute zero' or 'superstring theory' nowadays.

In my research I consider two main types of fabricated knowledge representation – conceptual representation and linguistic representation. These forms of fabricated knowledge representation differ in their function. Fabricated knowledge in scientific text may serve 1) as a means of conceptualising new knowledge (cognitive approach) and 2) as a means of reasoning and persuasion (communicative approach).

1) Metaphorical terms and metaphors, as it was said before, are efficient means for conceptualising new knowledge. They represent cognitive processes actualised in the mind of a researcher when the potential of a language sign to verbalise the knowledge of the objective properties of the world is being realised. Moreover, metaphors in science serve as models of knowledge and represent conceptual structures of new theories. At representing models of reality metaphorical terms serve as both linguistic and conceptual representations of fabricated knowledge. The term 'centaur concept', proposed by S.Shaumyan (1989), describes the specificity of a phoneme to function as a sound and a diacritic at a time referring to a mythological, non-referential creature, half-man and half-horse. The analogy drawn between the mythological creature and the abstract entity of language reveals the specificity of the latter. This metaphorical term represents the model of the scientific knowledge about phoneme, showing its complex structure.

2) Fabricated knowledge is also used by investigators as a means of reasoning or persuasion. At this point by fabricated knowledge I mean a) false statements, intentionally used by the author of the scientific text, b) mental experiments based on fabricated knowledge, c) non-scientific metaphors.

a) False statements like "The body of a man has in itself blood, phlegm, yellow bile and black bile" (Harris 2005: 11) or "It was still the old Adamic language in which items supplied by God were given names by a human nomenclator (preferably a scientist, because only scientists really understood what they were naming)" in a contemporary scientific text are used as a means of persuasion in the argument about erroneous views of the past. These statements have a linguistic form of fabricated knowledge representation and are recognized in course of logical verification. The factual knowledge proves the falsity of such statements. b) Fabricated knowledge is an inherent part of a mental experiment because the ability to perform mental experiments is based on the capacity of a researcher for imagination and creative thinking (Shaumyan 1989). In mental experiment fabricated knowledge may be represented by linguistic signs having no referents and existing as imaginary entity. Let us consider the passage from U.Eco's article "On truth. A Fiction":

The members of Putnam's expedition on Twin Earth were defeated by dysentery. The crew drank as water what the natives called so, while the chief of staff were discussing rigid designation, stereotypes and definite descriptions. Next came Rorty's expedition. In this case, the native informants, called themselves Antipodeans, were tested in order to discover if they had feelings and/or mental representations elicited by the word water (Eco 1988).

This passage represents a mental experiment undertaken to reveal the peculiarities of mental processes occurring in the mind of a speaker, but to make the results of the experiment less dependant on the stereotypes of man's thinking the setting is changed from Earth to imaginary Twin Earth, and the informants are changed from human-beings, earthlings to aliens, Antipodeans. These fabricated signs do not add new knowledge but serve as a means of making scientific narration more reasonable and argumentative.

c) Scientific texts may contain not only scientific metaphors that represent conceptual knowledge but also linguistic metaphors that express author's attitude to the theory or serve as arguments rather than verbalize new knowledge. Consider the sentence: "Meaning is the network of cultural and formal conventions that turns it into a stick of gum at the candy store" (Harris 2005: 5). The metaphor "meaning is a stick of gum" conveys the idea that meaning became a favourite object for investigation in the humanities. This metaphor has a fabricated characteristic of meaning (an abstract entity) as a referent. This fabricated characteristic is an expressive way of communication of information.

Conclusion

Study of fabricated knowledge in scientific texts might help to prove the fact that ontologically fabricated knowledge is a fruitful means and method of obtaining ontologically and epistemologically objective data about the real world rather than a hindrance. Fabricated knowledge in scientific text is a means of conceptualising new information or new scientific theories or a device for reasoning or persuasion in argumentation of the researchers. Thus, fabricated knowledge is inherent to scientific research and may be actualised in natural sciences as well as in the humanities.

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