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**NEW EXPLANATORY DICTIONARY IN A MODERN PARADIGM OF SCIENTIFIC KNOWLEDGE: WHAT ARE  
WE WAITING FOR?**

Research article

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**Abstract**

Scientific worldview is verbalized as a part of general linguistic worldview. Constructing a model of linguistic worldview is the main task of a full-type explanatory dictionary. To meet this requirement successfully and become a popular mean of distributing scientific knowledge, the dictionary is to be based on cognitive theoretical approach, use computer data processing technologies. It is necessary not only to include the terminology of various fields of knowledge in the vocabulary, but to reveal semantic connections and thematic correlations in it and to treat terms as active components of the lexical system. From this point of view some features of modern Russian lexicographical project, which is necessary nowadays, are analyzed in the article.

**Keywords:** lexicography, linguistic worldview, full-type dictionary, vocabulary, terminology.

**НОВЫЙ ТОЛКОВЫЙ СЛОВАРЬ В ПАРАДИГМЕ СОВРЕМЕННОГО НАУЧНОГО ЗНАНИЯ: КАКОВЫ  
НАШИ ОЖИДАНИЯ?**

Научная статья

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**Аннотация**

Научная картина мира вербализуется как часть общей языковой картины мира. Построение модели такой картины мира считается основной задачей толкового словаря полного типа. Чтобы отвечать этому требованию и стать популярным инструментом распространения научных знаний, словарь должен быть основан на когнитивном теоретическом подходе и использовать компьютерные технологии обработки данных. Необходимо не только включить в словарь терминологию различных областей знаний, но и выявить в ней семантические связи и тематические корреляции, рассматривать термины как активный компонент лексической системы. С этой точки зрения в статье анализируются некоторые особенности лексикографического проекта, насущного для описания русского языка наших дней.

**Ключевые слова:** лексикография, языковая картина мира, словарь полного типа, словник, терминология.

**Introduction**

The scientific worldview is among three components of the science foundations, with ideals and norms of scientific activity and philosophical and ideological justifications for considering them within the general cultural context. A generalized scientific worldview presents the main system-structural characteristics of a knowledge field and reality representations [11].

Language is a universal tool to verbalize the whole worldview, categorize concepts and distribute ideas in a human community. The concepts are presented as images with their interrelations at a nonverbal level. However, individuals do not communicate through abstract concepts that are mentally organized in their consciousness – they use signs of natural or artificial language. Language can be called a general cognitive mechanism of information representation and transformation. According to the cognitive approach, the linguistic worldview assumes that all concepts of human consciousness are mentally ordered and unified. The creation of a linguistic worldview model is the task of explanatory lexicography [9, P. 47], [13, P. 162].

Modern linguistics considers at least four aspects when examining worldviews: cognitive, psycholinguistic, cultural, and traditional [14]. The article [1] discusses differentiating between naive and scientific linguistic worldviews in lexicology and lexicography. Modern research suggests that the linguistic worldview consists of a naive worldview, as well as verbalized everyday and scientific worldviews [6, P. 140]. It is worth noting that the interpretations of scientific terminology in modern explanatory dictionaries tend to be encyclopaedic, moving away from a naive worldview towards a scientific one. Furthermore, in a full-type dictionary entry scientific and naive ideas may coexist, so the scientific meanings should be correctly formulated (taking into account modern scientific reference books) and labelled accordingly, such as “in anatomy”, “in mathematics”, “in chemistry”, etc.

Describing the history of paradigm shifts in linguistics, V. Tabanakova refers to the formation and development of lexicography during structuralism [12, P. 49]. Any description of a system model necessarily uses a structural approach. However, practical representations of polysemy, synonymy, homonymy, converses, etc., in a dictionary are based on a

cognitive approach to the main lexical and semantic categories. One of the active processes in the vocabulary of many modern languages is so-called “intellectualization” [7, P. 25], the widespread use of general scientific words, terminology and other units of Language for Specific Purposes. Explanatory dictionaries, both terminological and general, are to be widely recognized as a means of disseminating cultural and scientific knowledge to the scientific community.

### Research methods and principles

In contemporary society, the proficiency of native speakers in various fields of knowledge has increased to such an extent that they require precise definitions of technical terms in a dictionary. From this point of view, we can analyze the necessary features of a full-type explanatory dictionary of contemporary Russian. Let us use the example of “The Dictionary of Russian Language of the 21st Century”, edited by Professor G.N. Sklyarevskaya [10]. The first pilot volume was published at the end of 2019 (it contains more than 11 700 entries), and now the Dictionary Department of the Institute of Linguistic Research (Russian Academy of Sciences) have access to three fully edited volumes – a representative material for research. Also, we examined the explanatory dictionaries that represent the linguistic reality of the end of the last century – “The new dictionary of the Russian language. Explanatory-derivational” [4] (it reflects the Russian active vocabulary at the turn of the centuries, including new terminology, we suppose) and “Great Explanatory Dictionary of the Russian Language” [2].

Numerous linguistic and humanitarian studies are based on explanatory dictionary entries and vocabulary research. For our purposes, it is significant to investigate the main typological parameters of the dictionary, especially its vocabulary.

### Main results

A new explanatory dictionary of the Russian Language should have features which combine linguistic and scientific representation as an integral part:

- It should be a dictionary in the so-called “electronic”, or to be more precise “browser-based” form. This form of presentation is the only way to provide users with comprehensive and prompt access to the current content. This form of organization enables the compilation and editing of dictionary materials based on synonymic series, lexical or semantic groups, fields, etc. This helps to standardize dictionary entries rather than organizing them alphabetically;

- It should be a synchronous dictionary focused on the linguistic consciousness of modern Russian native speakers. The dictionary should include obsolete units used in literary genres but stylistically marked;

- It should be a dictionary containing at least 250 000 lexical units – in addition to the vocabulary of the fund, it should include actual terminology of different fields of knowledge, colloquial words, the slang of socially isolated groups, historicisms and neologisms with derivatives;

- It should be a dictionary with a great contextual base, covering materials of various genres, including educational, scientific and popular science texts. It should be based on the “National corpus of the Russian language” [8] and other open electronic resources, texts from blogs of various subjects and nontraditional explanatory lexicography sources;

- It should intentionally present vocabulary and semantics as a system. Using lexicographic tools it should reveal semantic connections and correlations in the vocabulary – hypero-hyponymic relations, synonyms and antonyms, relationships between meanings within a polysemous word, semantic fields, etc. “Browser-based” form of presentation involves the use of hyperlinks and tooltips for this purpose;

- It should present terminology not as a separate, closed, peripheral language area, but rather as an active component of the lexical system. The presentation of terminological systems in the dictionary should encompass all parameters of lexicographic description and acknowledge that the semantic structure of terms can evolve within the language's lexical system [5, P. 90].

If the dictionary aims to reflect the linguistic worldview, including its scientific component, lexicographers propose theoretical and practical methods to achieve this goal.

### Discussion

Lexicographical grounds for a comparative analysis of the representation of the words of modern technologies are limited.

In “The New Dictionary of the Russian Language” [4], containing about 160 000 dictionary entries, we find only one word of nanotechnology – “нанотехнология” (nanotechnology) itself. The noun is defined as “a new field of microelectronics based on the use of mini-particles”. “Great Explanatory Russian Language Dictionary” [2], published in the same period and containing about 130 000 words, includes only the entry “нано” (nano) as the first part of compound words, contributing to the meaning “equal to one billionth of the unit specified in the second part of the word (for naming units of physical quantities)”. “The Dictionary of Russian Language of the 21st Century” is not yet fully compiled, and the list of words with the first part “нано” (nano) has 210 entries, supported by real usage contexts. The list of the words with the first part “био” (bio) from “The New Dictionary of the Russian Language” counts 55 entries. “The Dictionary of Russian Language of the 21st Century” has 516 entries. Some meanings may exist in dictionaries for new words, but neology has not yet fully integrated them into the system of linguistic relations.

Explanatory dictionaries have traditionally been more successful in reflecting social and humanitarian fields of knowledge than natural sciences. The terms in these fields are often defined simplistically at the end of the dictionary entry and without examples. The new dictionary aims to demonstrate how words function in different practical contexts, while maintaining semantic unity and revealing language connections. It summarizes source materials and provides insights into the meanings of words. What scientific worldview would such a dictionary reflect?

It must reflect the interaction between different scientific disciplines (natural, technical, social or humanitarian) and technologies. According to this worldview, polysemous words incorporate multiple meanings that draw from various fields of knowledge [3, P. 26]. For example, the noun “иммобилизация” (immobilization) has four meanings in different contexts: “ensuring the immobility of the body or any part of it in case of certain injuries and diseases (in medicine)”; “transfer of a substance from a homogeneous mobile phase to the surface of the carrier and its fixation due to specific interactions” (in physics); “diversion of funds from the turnover of the organization for expenses not provided for by the plan and conversion of funds of a legal entity into funds of its private owners” (in economics). These examples involve objects from three fields of

knowledge that are associated with each other or with a prototypical meaning in the language consciousness of native speakers, according to cognitive theory.

The synthetic approach to the object of study demonstrated in meanings with two (or more) thematic labels: “коллапс” (collapse) “catastrophically rapid compression of massive bodies under the influence of gravity; a sharp decrease in volume with a slight change in external conditions” (in astronomy and physics); “реактивный” (reactive) “capable of acutely, violently reacting to external influences; related to such a reaction” (in biology and psychology). It is effective for readers to identify common regularities of scientific activity in different fields of knowledge by marking their meanings as general scientific vocabulary – like in nouns “изоморфизм” (isomorphism) “identity of different objects”; “структура” (structure) “an object that has a certain organization and retains its basic properties under various external and internal changes”, etc.

### Conclusion

Explanatory dictionaries from the 19th and 20th centuries had a simplistic worldview until the intellectualization of language became a key factor in the development of modern lexical systems. In addition, before the widespread use of computer technology in lexicography dictionaries had to fix data to a certain extent diachronically.

It is impossible to create a comprehensive dictionary without utilising computer science technologies throughout all stages. The synthetic approach to the word characterizes explanatory lexicography: it uses interdisciplinary research – within linguistics, involving data from phonetics, grammar, morphology, etymology, stylistics, semantics, word formation, phraseology, and outside of it, involving the actual information from all fields of knowledge and human activity. All these data conform to the integrative function in the explanatory dictionary, creating a lexicographic portrait of a word and, further, modelling the linguistic worldview.

We can conclude that the modern full-type explanatory dictionary should not be considered as being out of trends of Russian science and cultural development. This assumption increases the responsibility of lexicographers.

### Конфликт интересов

Не указан.

### Рецензия

Все статьи проходят рецензирование. Но рецензент или автор статьи предпочли не публиковать рецензию к этой статье в открытом доступе. Рецензия может быть предоставлена компетентным органам по запросу.

### Conflict of Interest

None declared.

### Review

All articles are peer-reviewed. But the reviewer or the author of the article chose not to publish a review of this article in the public domain. The review can be provided to the competent authorities upon request.

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