LEXIC SEMANTIC FEATURES SCIENTIFIC TERMS.

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ABSTRACT

Scientific terms play a crucial role in the communication and understanding of complex concepts within the scientific community. This article provides an overview of the lexicosemantic features of scientific terms, exploring their precision, specificity, morphology, word formation, nominalization, hierarchical organization, and the delicate balance between precision and accessibility. It's important to note that the lexic semantic features of scientific terms can vary depending on the specific scientific field or discipline. Different branches of science may have their own unique terminologies and characteristics. Therefore, it's essential to consider the context in which scientific terms are used when analyzing their lexic semantic features.

KEY WORDS: term, lexica-semantic system, Scientific terms, Terminology, system of concepts, lexical subsystem, nature of vocabulary, synonymous terms, unambiguous terms.

INTRODUCTION

Scientific terms are the building blocks of knowledge in various fields, ranging from physics and biology to psychology and computer science. Understanding the lexical and semantic features of scientific terms is crucial for effective communication, knowledge dissemination, and interdisciplinary collaborations. In this article, we delve into the fascinating world of scientific terminology, examining the key lexical and semantic characteristics that make these terms unique and essential in their respective domains.

Lexical semantics is the branch of linguistics which is concerned with the systematic study of word meanings. Probably the two most fundamental questions addressed by lexical semanticists are: (a) how to describe the meanings of words, and (b) how to account for the variability of meaning from context to context. These two are necessarily connected, since an adequate description of meaning must be able to support our account of variation and our ability to interpret it. The study of contextual variation leads in two directions: on the one hand, to the processes of selection from a range of permanently available possibilities; and on the other hand, to the creation of new meanings from old, by such means as metaphor and metonymy, in response to contextual pressure. An understanding of synchronic variation of meaning (variation observable at any one time in a language) is essential to an understanding of diachronic

change (change over time). Another important area of inquiry is how the vocabularies of languages are structured by means of sense relations (systematic relations between meanings), such as antonymy (long:short, fast:slow), hyponymy (animal:dog, fruit:apple), and incompatibility (dog:cat, apple:banana).[1]

DISCUSSION

The study of the linguistic features of the term is of great practical importance for the creation of industry dictionaries, the selection of a vocabulary minimum for educational purposes, and for describing the features of the scientific and technical style of speech. The theoretical aspect of the study of the term is associated with such an important linguistic problem as the systemic nature of vocabulary. The terminology of any science can be viewed as an extensive semantic field that covers part of the vocabulary of the language. The limitations and visibility of the terminological field make it convenient for studying systemic relations within such a lexical subsystem, which ultimately serves as a step in understanding the systemic organization of vocabulary.[2]

The development of linguistic lexical semantics appears to be characterized by a succession of distinct theories. Crucially, each of the competing theoretical frameworks has contributed to the descriptive expansion of lexical semantics, i.e., each of them has drawn the attention to specific phenomena. Focusing on the major phenomena, these contributions successively include the links between the various senses of words in prestructuralist historical semantics, the semantic relationships within the vocabulary in the structuralist era, and the importance of semasiological and onomasiological salience effects in cognitive semantics. Regardless of the theoretical oppositions, these phenomena all belong to the descriptive scope of current lexical semantics: the emergence of new points of attention has not made the older topics irrelevant. To give just one example, prototype theory may trigger a reconsideration of what it means for two words to be synonymous, but the notion of synonymy remains a serious topic of investigation for lexical semantics.[3]

Next to the theoretical shifts and the descriptive expansion, a methodological evolution characterizes the historical path of lexical semantics: a structuralist focus on syntagmatic relations, boosted by the growing availability of text corpora, has led to a distributional method of corpus-based semantics. Together with the theoretical and descriptive innovations introduced by cognitive semantics, this new quantitative and computational method is likely to shape the evolution of lexical semantics in the following years.[4]

[1] T.L. Kadelaki. Semantics of the terms of the category of processes. Abstract M., 1970

[2] L.V. Morozov. Differential features of the term. Proceedings., v.64, issue 2. Kaliningrad., 1969.

[3] Fodor, Jerry; Lepore, Ernie (Aug 1999). "All at Sea in Semantic Space". The Journal of Philosophy. 96 (8): 381–403. doi:10.5840/.

[4] L.V. Morozov. Differential features of the term. Proceedings., v.64, issue 2. Kaliningrad., 1969.

Lexical semantics also involves semantic features, such as word concreteness. This has been explored with a view to testing the notion that abstract words make use primarily of neural assemblies in the left hemisphere while concrete words make use of bilateral representation. Kounios and Holcomb (1994) showed that concrete items are associated with more negativity at 300-500 and 500-800 msec than abstract items (with the two-time frames providing separate components). In both time ranges, ERPs to concrete and abstract words were different over the right hemisphere sites but were not different at left hemisphere sites, consistent with dual-coding theory, with the effect being more anterior at the 300-500 msec period and more evenly distributed at 500-800 msec.

A characteristic feature of the term as a word in the function of the name of a special concept is its belonging to two systems. A term is a member of a certain terminological system that reflects the system of concepts of a given science.

In the field of science, each concept has a logically justified place, which is reflected in its classification links. The systematization of concepts is expressed in the allocation of categories of concepts - objects (device), processes (compensation), their properties and magnitudes, interaction, etc.

As a lexical unit included in the lexical-semantic system of the language, where it occupies a certain place among other units of this level based on its linguistic characteristics. The object of linguistic research is the description of the term in the language and speech by the component composition of the meaning of the given word in the language. Different types of ambiguity are also characterized by a different ratio of the meaning of the term and context. A term that is unambiguous in each system or a word whose terminological meaning is direct is characterized by the least conditional context. A word with a semantically derived terminological meaning has a more complex contextual formula with many mandatory positions. In addition to polysemy, the systemic connections of the term are also reflected in the presence in the terminologies of different sciences of such semantic phenomena and lexical groupings as synonymy, homonymy, and the formation of phraseological combinations. In terminology, the same types of synonyms are distinguished that are known in common vocabulary. Synonymous terms in paradigmatic terms can differ in shades of meaning (with incomplete coincidence of differentiated semantic components), the degree of ambiguity, the degree of semantic derivativeness, stylistic affiliation, the degree of motivation, word-formation possibilities. In syntagmatic terms, they can differ in frequency, the degree of conditionality of the context, the semantic features of the combining words.

The language is constituted of two parts: langue and parole. And the linguistic communication is just not possible if these two works independently and individually. The Langue represents the system of language having signs, rules, and patterns devised

by a particular social group for communication. The parole meaning the utterance of that Langue and thus, it varies from community to community and region to region. (However, this dichotomy is now overshadowed by Chomsky's distinction between competence and performance.)

For example, in English, an apple is called an apple whereas it is called яблоко (yabloko) in Russian. Hence, the langue in English has rules and patterns of letters which allows the parole to utter an apple as an apple. The same goes with the latter.[5]

In the terminology, there are also stable combinations of words, the components of which have undergone semantic shifts, i.e., became phraseological units, for example, work force - labor force. These semantic relations have a natural character in the terminology.

The foregoing allows us to conclude that the term is a functional unit, not a structural one. The opposition of wordterms and non-terms does not reveal any linguistic signs of terms that are not characteristic of the vocabulary of a commonly used language. Establishment of systemic links between terms among themselves, with other lexical units and with elements of other levels of the language, as well as the ratio of the logical structure of scientific terminology and the systemic organization of this lexical subsystem, both in terms of expression and in terms of content.

One of the manifestations of the connection of special terminology with the general lexical-semantic system of the language is the formation of new terms. Numerous studies have shown that the ways of forming new terms do not differ from the ways of replenishing the vocabulary as a whole: these are derivation (derivation), compounding (composition), borrowing (word borrowing), abbreviation, changing the meanings of existing words, expanding, or narrowing word meanings. There is a constant two-way interaction between scientific terminology and general language vocabulary. This is evidenced by the transition of words from the area of special use to the general vocabulary, the possibility of using everyday words as terms in their direct meaning or the development of their derivative terminological meanings through specialization. The formation of derivative meanings from existing words is one of the most productive ways of replenishing special terminology. At the same time, the new terminological meaning remains in the semantic structure of a polysemantic word as an independent meaning, connected with other meanings of this word, by relations of semantic derivativeness. In other words, it forms oppositions, being correlated with other meanings based on a common semantic invariant and opposed to them on a differential basis: direct - figurative or general - specialized.

The logical organization of scientific terminology is reflected in paradigmatic relations that connect the terms of one lexica-semantic group, united by some invariant

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[5] Fodor, Jerry; Lepore, Ernie (Aug 1999). "All at Sea in Semantic Space". The Journal of Philosophy. 96 (8): 381–403. doi:10.5840/.

meaning and contrasted by differential features, the set of which for each lexica-semantic group is limited and quite specific.

The problem of polysemy in terminology is of particular interest both in paradigmatic and syntagmatic terms. Observations show that there are all kinds of ambiguity in terminology, i.e., absolute terms. Having no other meanings. In addition to terminological, polysemantic terms within the same specialization, for example, size 1. size, 2. size, 3. format, as well as a special kind of polysemy, when different categories are combined in the meaning of the term, for example, action and value in the word increase - increase, increase, rise in prices. Or another example of a combination of property and action, for example, solvency - solvency, taxation - taxation.

All types of polysemy, as is typical for non-special vocabulary, find their resolution in the syntagmatic plan. Typical contextual conditions inherent in the terminological variant remove the ambiguity of the word and provide an unambiguous understanding of the statement. In the relationship between the meaning of the word and the context, the close interaction of syntagmatic and pragmatics is manifested. Recall that the first allows you to reveal the relationship between the meaning of the term and the concept, as well as the component composition of the term, and the second allows you to study polysemy from the point of view of the conditions for the implementation of the terminological meaning in speech. So, the context, which is the conditions for the use of words and speech and includes both syntactic and lexical connections with other words of the linear environment.[6]

There are terms: borrowed, motivated and unmotivated, single-valued, and multi-valued. All types of lexical meanings are observed - direct, specialized, and figurative, basic, and derivative. The terminological system, which unites the terms of a certain science, is a part of the general vocabulary of the language and is in relation to it in the ratio of parts to the whole.

Counting words in industry dictionaries according to certain specified features, for example, grammatical category, morphological structure, number of syllables, etymology, number of meanings, will allow you to get a picture of the lexical composition of a given terminological system. In addition to the statistical method, other methods of studying vocabulary can be used to describe the systemic nature of special terminologies. For example, component analysis, contextual analysis, and others. All forms of linguistic study of terms are necessary not only to clarify their speech and language characteristics, but also to work on streamlining and standardizing special terminology.

RESULT

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[6] Fodor, Jerry; Lepore, Ernie (Aug 1999). "All at Sea in Semantic Space". The Journal of Philosophy. 96 (8): 381–403. doi:10.5840/.

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1. Precision and Specificity:

Scientific terms are known for their precision and specificity. They are carefully crafted to convey precise meanings and concepts. These terms often have well-defined definitions that leave little room for ambiguity. For example, in biology, the term "photosynthesis" refers specifically to the process by which green plants convert light energy into chemical energy, involving the synthesis of glucose and the release of oxygen.

2. Morphology and Word Formation:

Scientific terms frequently exhibit complex morphology and word formation processes. Many terms are derived from Greek or Latin roots, combining different prefixes, suffixes, and word stems to create new words. This systematic approach allows scientists to create meaningful terms that convey specific ideas. For instance, the term "electromagnetism" combines the words "electricity" and "magnetism" to describe the phenomenon of the interaction between electric and magnetic fields.

3. Nominalization and Abstraction:

Scientific terms often involve nominalization, where verbs or adjectives are transformed into nouns to represent abstract concepts. This process helps to generalize and categorize phenomena, making them easier to study and analyze. For example, the term "evolution" is a nominalization of the verb "to evolve" and represents the broader concept of genetic changes in populations over time.

4. Hierarchical Organization:

Scientific terms are organized hierarchically, allowing for the classification of concepts and establishing relationships between them. This hierarchical structure provides a systematic framework for understanding complex phenomena. In biology, for instance, terms like "kingdom," "phylum," "class," "order," "family," "genus," and "species" are used to classify living organisms based on their evolutionary relationships.

5. Precision vs. Accessibility:

While precision is a crucial aspect of scientific terms, there is also a need to strike a balance with accessibility. Scientists aim to use language that is understandable to their peers while remaining accurate and concise. This balance ensures effective communication within the scientific community and facilitates interdisciplinary collaboration. Efforts are made to simplify complex terms for broader audiences, as seen in popular science writing or science communication initiatives.

CONCLUSION

Scientific terms possess unique lexical and semantic features that contribute to their precision, specificity, and ability to represent complex concepts accurately. The careful construction of scientific terminology allows scientists to communicate effectively within their respective fields and fosters interdisciplinary collaborations. Understanding the lexical and semantic characteristics of scientific terms is not only essential for scientists but also for educators, science communicators, and anyone interested in expanding their knowledge in various scientific domains.

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