ISSN 1648-2824 KALBŲ STUDIJOS. 2005. 7 NR. * STUDIES ABOUT LANGUAGES. 2005. NO. 7

# The Role of the Verb in the Semantic Structure of the Text in Light of EL Teaching / EL Learning

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**Abstract**. The present paper is concerned with the role and status of the verb in the semantic structure of English scientific-technical text in the field of civil engineering. This is revealed by determining the types of relationships between verbs and nouns, in particular semantic subclasses of key nouns and verbal paradigmatic classes. It is obvious that not all nouns of any text refer to its main content. Therefore, the focus is on the most significant main and secondary key words of the text selected on the basis of quantitative criteria taking into account the absolute frequency of the word usage in the text (together with synonyms and pronoun substitutions) and the number of passages in which the word occurs. Linear verbal-nominal combinations were built in order to study the dynamics of the main content of the text and principles of its development. The verbal-nominal pairs were analysed on three levels of analysis: 1) level of lexis and semantics; 2) level of lexis and grammar; 3) level of object-process coordinates. Each type of these combinations reveals one aspect of the text dynamics but all of them taken together reflect the overall picture of the development of the text content from beginning to end via a medial part. The study results shed light on the regularities of the semantic structure of the text, in particular the function of the verb in the formation of verbal-nominal combinations describing the main content of the text. In addition, observations and conclusions can be used in giving a course of lectures on the semantics of the verb and text linguistics. In the light of ELT study, outcomes may be applied for the development of efficient learning strategies for vocabulary acquisition based on key words and collocations.

## Introduction

In linguistic research there are a great number of studies on the role of the noun in the organization of the text content. However, the role of the verb conveying meaning in textual structure has not been explored profoundly enough, in particular the relationship between the verb and its constant collocate – a noun in the function of a subject. This makes our research topic a matter of general concern. This issue is especially important with regard to the structure of the scientific-technical text.

*The aim of the research* is to analyse the semantic features of the functioning of the verb in scientific-technical texts in the field of civil engineering by studying a typology of correlations between semantic classes of verbs with semantic subclasses of the key nouns describing the main content of the text.

*The data of the study* are 45 English scientific-technical texts totalling 50,000 word usages in the domain of civil engineering selected on the basis of a common subject.

*The Research methods* involve semantic modelling, trans-formational, statistical and contextual analysis.

## Theoretical Background

Linguistic research has been carried out with the purpose of examining the role of the verb in the structure of English sentence. The verb is viewed as one of the major language units in current linguistic research. In terms of paradigmatics and syntagmatics it can be characterized by a set of grammatical and semantic features.

With the dissemination of ideas in the field of semantic syntax it is assumed that the verb is a structural and semantic centre of the sentence (Helbig, 1992; Seuren, 1996). Within this approach it is believed that sentence structure lies in the semantics of the verbal predicate. The verb not only names any concrete action, i.e., it is a unit of lexical, conceptual nomination but also predicts the meaning of an overall situation. In other words, the verb predicts a set of participants of the situation, their role status and hierarchy (Fillmore, 1977; 1978; 1994; Gaisina, 1992; Helbig, 1971; 1992; Seuren, 1996; Welke, 1988).

The situation may be viewed as a fragment of non-language reality, which a sentence describes. The sentence reflects some part of the fragment of the situation described by a passage of the text. This part of the situation may be called a *micro situation.* The term 'participants of the situation' implies persons and objects involved in the situation (Maslov, 1987:179).

In linguistic literature the capacity of the verb to collocate with other elements of the sentence specifying their semantic-syntactic role is called *a valency.* The number of elements collocating with the verb in terms of its semantic-syntactic role is determined by the lexico-semantic class of the verb.

The notion 'valency' has different meanings in various systems. We assume that for the present study the most appropriate is the interpretation of valency within a semantic approach. It relies on the correlation between an objective reality, mental structure and language semantics. In accordance with this approach there are three main types of valency:

- Syntactic valency;
- Logical valency;

- Semantic valency.

According to R. M. Gaisina, syntactic valency is realized on the surface-syntactic level of the sentence where verbal predicates collocate with corresponding forms of the verb (Gaisina, 1992:45-47). The syntactic valency of a verbal predicate can be defined as the number of complements it takes. The term 'complements' means those elements that satisfy the valency requirements of a verbal predicate at the formal syntactic level (Helbig, 1992).

Logical valency can be defined as a whole set of logical positions (arguments) with which the verbal predicate collocates. It is worth noting that logical valency has a universal character and reflects relationships between non-language phenomena (Helbig, 1992).

Semantic valency is a level, which supplements a logical one and reflects a semantic relationship between a verbal predicate and its arguments. It refers to the character of the arguments (ibid.).

In linguistic research there are a great number of terms to denote various types of semantic relationships between the verbal predicate and its actants such as 'deep case' or 'role' (Fillmore, 1977), 'semantic function' (Bogdanov, 1977), 'semantic relations' (Chafe, 1994), etc. In the present research we will use the term 'deep case' (Fillmore, 1977). In our view, it reflects the level on which the semantic relations between the verbal predicate and its actants are explored. In addition, the frequency of the usage of the term is high.

The number of 'deep cases' is different in the conceptions of different scholars: 7 types of semantic relations, 14 kinds of semantic relations (Bogdanov, 1977:52-55), etc. The composition and number of semantic functions depend on:

- The means of its syntactic expression;
- The principle of taking / not taking into account predicate and non-predicate signs in the conception of 'deep cases' developed by some scholars (Bogdanov, 1977:167).

According to some authors, the interaction of language and thinking allowed us an opportunity to single out a unified logical-semantic valency. The model of logical-semantic valency is made up of a verbal predicate and a certain number of arguments in the form of 'deep cases' ('roles'). They are semantic units that are language analogues of the participants of the situation (Bogdanov, 1977; Chafe, 1994; Zolotova, 1982). It should be noted that a logical-semantic structure reflects the situation of the verbal state and coincides with it according to the number of elements. The situation is a fragment of non-language reality whereas a logico-semantic structure is a fragment of the reality processed by thought and language.

In terms of the theme / rheme division of the sentence the verb in the syntactic function of the predicate of the sentence mainly belongs to the rhematic part of the sentence providing a theme / rheme progression in the text. Grammatical and meaningful context of the sentence plays a significant role in revealing theme / rheme of the sentence (Zolotova, 1982:10-12).

From a grammatical perspective the verb has more morphological characteristics than other parts of speech. Verbal morphological forms of tense and aspect have the text-producing and cohesive features, which affect the logic of statement and text type (e.g., narration, description, argument) and its characteristics.

**Empirical Research**

We will make an attempt to study the role of the verb conveying meaning in scientific-technical texts. It is generally assumed that a scientific-technical text has a nominal structure, i.e., its main content is expressed by nouns. However, there is a certain hierarchy among them. The main content of the text can be expressed by a list of main and secondary key words selected on the basis of the statistical analysis taking into account the absolute frequency of the word usage in the text (together with synonyms and pronoun substitutions) and the number of passages in which the word occurs. It could be expressed by the following formula (Marusenko, 1983):

$$K_{sig.} = \frac{F \cdot m}{N \cdot n} \qquad (1)$$

Where: $K_{sig.}$ – the coefficient of the word significance in the text;

F – the absolute frequency of the word usage in the text;
m – the number of passages in which the word occurs;
N – the total number of the word usages in the text;
n – the total number of passages in the text.

The optional content of the text can be expressed by a string of additional key words that are singled out on the basis of contextual analysis.

The results of the statistical analysis of the main static content of the text corpus totalling *50,000* word usages in the field of civil engineering are shown in Table 1.

**Table 1.** The key word frequency of the text corpus in the field of civil engineering.

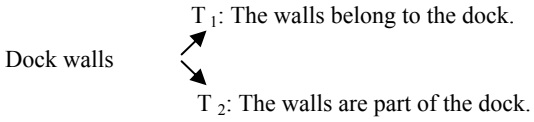
| The Key Word Type<br>The Key Word Class | The Main Key Word | The Secondary Key Word | The Additional Key Word |
|---|---|---|---|
| The Noun | 203 | 291 | 67 |
| The Verb | 9 | 24 | – |
| The Adjective | 14 | 41 | – |

Table 1 shows low frequency of usage of main key-words-verbs (9 units) and secondary key words-verbs (*24 units*). The frequency of occurrence of main key words-nouns (*203 units*) and secondary key words-nouns (*291 units*) is high. The quantity of main key words-adjectives (*14 units*) and secondary key words-adjectives (*41 units*) is not large. In other words, adjectives without their connection with nouns do not convey the main content of the text. Overall, the statistical data confirm a nominal character of the scientific-technical text.

It is worth noting that research data have been expanded by revealing implicit verbal predicates with the help of transformations. Implicit verbal predicates, which can occur

on the level of type constructions (e.g., attributive-nominal constructions (AN), prepositional-nominal constructions ($N_1$ prep $N_2$), nominal collocations ($N_1$ $N_2$), etc.), have become explicit on the sentence level.

*For instance:*




Where: $T_1$ is transformation $_1$; $T_2$ is transformation $_2$

In other words, it is possible to carry out 2 types of transformations:

1) to transform the nominal construction into the sentence with a possessive verbal predicate 'to belong';

2) to transform the nominal construction into the sentence with the verbal predicate of composition 'to be (is / are) a part of'. The number of this type of transformations is 155 (11.76% out of the total number of transformations).

The expanded research data made it possible to trace a sequence of actions in which each key noun is involved throughout a text and give a set of verbal features. As a result, we have selected a chain of linear verbal – nominal combinations. They are composed of linear successive pairs 'noun * verbal predicate' and fall into two main classes:

1) 'subject-predicate chains' (381) (92%);
2) 'predicate-subject chains' (33) (8%).

The definition of the 'subject-predicate chain' suggests that it is made up of linear successive pairs 'noun * verbal predicate' where the same key word-noun (or its synonym) occurs in the first position while all the explicit and implicit verbal predicates collocating with the key word in the successive passages of the text occur in the second position.

*For instance*:

> Building (plant) (No. 1) * is framed (No. 1) → building (plant) (No. 1) * manufactures (No. 1) → building (plant) (No. 4) * is placed (No. 4) → building (plant) (No. 8) * is occupied (No. 8) → building (plant) (No. 12) * has been functioning (No. 12) (PCI journal, 2004).

Where: 'No.' (number) in round brackets – the number of the passage in which the word occurs;

The sign '*' ('asterisk') – combined with

The definition of the 'predicate-object chain' suggests that it is made up of linear successive pairs 'noun * verbal predicate' where the same key verb (or its synonym) occurs in the second position while the main, secondary and additional key nouns occur in the first position.

*For instance:*

> Exterior (No. 1) * has (No. 1) → columns (No. 3) * have (No. 3) → slab (No. 8) * has (No. 8) (ACI Structural Journal, 2004).

Where: 'No.' (number) in round brackets – the number of the passage in which the word occurs;

The sign '*' ('asterisk') – combined with

The results of statistical analysis of the main types of the 'verbal-nominal chains' of the text corpus in the domain of civil engineering indicate that out of the total number of 'chains' (414) 'subject-predicate chains' (381) (92%) predominate.

'Verbal-nominal chains' have been developed on three levels of analysis:

1. Level of lexis and semantics;
2. Level of lexis and grammar;
3. Level of object-process coordinates.

The level of lexis and semantics was singled out on the basis of lexical and semantic classification of the nominal and verbal corpus of texts; the level of lexis and grammar – on the basis of typology of verbal and grammatical features; the level of object-process coordinates – on the basis of the data of the object-process matrix.

Each sort of verbal-nominal combinations reveals one aspect of text dynamics, but all of them taken together reflect a total picture of the semantic structure of the text from the dynamic standpoint.

**Aspects of ELT**

Corpus-based data show that word frequency and collocation are two important aspects of the functioning of words in English. The implication for ELT here is that high-frequency words should deserve a fair degree of emphasis in teaching / learning English. Frequency lists can be a useful tool for vocabulary testing and a key indicator for the importance of words.

As it has already been pointed out above, high-frequency words function as key words in the text.

Key words and the lexical items with which they collocate make up the essential vocabulary, which the students are supposed to acquire. They constitute a large part of learners' active vocabulary. Key words are generally learnt first because they are universal in meaning, easy to translate and carry no connotative or emotional load (Carter, 1987). They help learners to predict the content of the text.

Key words are associated with the main concepts of the special field studied. It follows that a professional English language teacher should have not only knowledge of linguistics, competence in teaching EFL but also knowledge of the subject. Moreover, it is preferable to coordinate and integrate the contributions of specialists in different fields. For example, vocabulary fields as part of the curriculum can be planned jointly by content-area specialists and teacher of English. This could contribute to the realization of integrative tendencies and interdisciplinary links in the teaching process at higher education institutions.

In traditional terms key words and collocations occurred within a certain written text or a dialogue. Tasks involved comprehension questions based on the text and various types of vocabulary exercises:

- Using contextual clues of different types (e.g., structural, definition or inference clues) as a way of guessing the contextual meaning of the word;
- Teaching / learning lexical chunks;
- Organizing vocabulary in different lexical sets by topics or word families;
- Semantic mapping;
- Semantic feature analysis;
- Definitions;
- Synonym and antonym activities;
- Utilizing word morphology (e.g. prefixes, suffixes, roots);
- Playing word games, etc.

However, there was no focus on language usage, e.g., how language learners will use the language in real life.

With the rapid development of communicative – functional approach to ELT key words and word collocations were used in functional language activities (e.g., role plays, simulations, case studies, etc.) (Ellis, Johnson, 1994:196-208). This enabled learners to develop greater fluency in speech production and thus promoted a sense of achievement. The learners could apply the language in practice more efficiently.

It is worth mentioning that the choice of approach or combination of several approaches to vocabulary building depends on a particular group of learners, their specific needs, proficiency level, psychological features, background knowledge, individual learning and cognitive styles, etc. It is important to note that the approach should be adapted for each particular case.

## Conclusions

To conclude: the paper has explored the regularities of the functioning of the verb in the semantic structure of scientific-technical texts in the field of civil engineering. We have made an attempt to examine the function of the verb in the formation of the verbal-nominal combinations describing the main content of the text.

Verbal-nominative combinations reveal the linear development of the main content of the text. The dynamic aspect of the semantic structure of the text is determined by the types of linear 'verbal-nominal chains' and the kinds of the semantic subclasses of the key nouns linked by the semantic classes of verbal predicates. They can form the semantic patterns of the development of text content and determine its semantic and grammatical features.

Theoretical results of the study, observations and conclusions can be used in giving a course of lectures on the semantics of the verb and text linguistics. In addition, in the ELT context the study results may contribute to the further development of efficient learning strategies for vocabulary acquisition based on key words and collocations.

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**Veiksmažodžio vaidmuo semantinėje teksto struktūroje mokant ar mokantis anglų kalbos**

Santrauka

Šiame straipsnyje aptariamas veiksmažodžio vaidmuo ir padėtis mokslinio techninio statybos inžinerijos anglų kalbos teksto struktūroje. Tai atskleidžiama aprašant veiksmažodžių ir daiktavardžių santykių tipus, ypač pagrindinių daiktavardžių ir veiksmažodinių tipinių klasių semantinius poklasius.
Linijiniai veksmažodiniai vardažodiniai junginiai sudaryti tam, kad būtų tiriama pagrindinio teksto turinio dinamika ir jo vystymo principai. Veiksmažodinės vardažodinės poros buvo analizuojamos trimis lygiais: 1) leksiniu ir semantiniu; 2) leksiniu ir gramatiniu; 3) objekto veiksmo sujungia-muoju. Kiekvienas šių kombinacijų tipas parodo vieną teksto dinamikos aspektą, o visi kartu perteikia bendrą teksto turinio vystymo procesą nuo pradžios iki pabaigos. Šio tyrimo rezultatai atskleidžia semantinės teksto struktūros taisyklingumą, ypač veiksmažodžio funkciją formuojant veiksmažodines vardažodines kombinacijas pagrindinio teksto turinio aprašymui. Pastebėjimai ir išvados taip pat gali būti vertingi skaitant semantikos paskaitų kursą apie veiksmažodžio ir teksto lingvistiką. Žvelgiant iš anglų kalbos mokymo perspektyvų, tyrimo rezultatai gali būti taikomi efektyviam žodyno išmokimui, kuris pagrįstas pagrindiniais žodžiais ir žodžių junginiais, mokymosi strategijų vystymui.

Straipsnis įteiktas 2004 04
Parengtas spaudai 2005 04

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DOI: 10.5755/j01.sal.1.7.43211