POLYSEMY OF VERB TERMS IN MODERN GERMAN[1]

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INTRODUCTION

The scientific and technological revolution, as one of the most important social phenomena of our time, is bringing about significant changes in the linguistic picture of the world. These changes are primarily due to the fact that the number of terms in developed languages now exceeds the number of common words many times over and reaches several million lexical items, and this number tends to grow[2].

A term is a word or phrase that denotes a clearly defined special concept in a field and enters into systemic relationships with other words and phrases in a particular field[3]. They denote a concept used in a particular field of knowledge with the most precise semantic definition. The following requirements are imposed on the term: unambiguity, accuracy, consistency, absence of synonyms, brevity[4]. However, a number of works have shown that a term is a function, a type of use of a lexical unit, but not a special type of lexical unit, i.e. any word can act as a term. Terms are not special words, but only words in a special function, which are characterised by polysemy[5].

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[2] Д'яков А. С., Кияк Т. Р., Куделько З. Б. *Основи термінотворення. Семантичні та соціолінгвістичні аспекти*. Київ : КМ Academia, 2000. 218 с.

[3] Термін. *Лексикон загального та порівняльного літературознавства* / за ред. А. Волкова. Чернівці : Золоті литаври, 2001. С. 561.

[4] Roelcke Th. *Fachsprachen*. 3. Aufl. Berlin : Erich Schmidt Verlag, 2010. S. 55; S. 68–69.

[5] Drozd L. Zum Eineindeutigkeitsprinzip. *Fachsprachen*. Sonderheft 1979. Nr. 1. S. 30–32; Roelcke Th. *Fachsprachen*. 3. Aufl. Berlin : Erich Schmidt Verlag, 2010. S. 70–74; Thurmair M. Doppelterminologie im Text oder: hydrophob ist wasserscheu. *Linguistik der Wissenschaftssprache*. Hrsg. von H. L. Kretzenbacher, H. Weinrich. Berlin,

Polysemy, i.e. the ability of a word to have two or more meanings, is a central property of lexical units, one of the most important linguistic universals. This is a very common phenomenon in language, it manifests the creative potential of language, which can serve the ever-growing needs of the cognitive process with the help of a limited inventory of formal means. It is believed that the presence of polysemy is primarily due to the discrepancy between the limited number of words and the infinite number of objects and phenomena of the world around us. However, as V. Levitsky notes, a word often acquires a new metaphorical meaning when referring to an object that already has a common name. This indicates that the emergence of ambiguity is caused not only by the principle of saving efforts, but also by other factors related to the performance of both nominative and emotive-expressive functions of language[6].

Some linguists argue that the polysemy of a word represents a violation of the *law of the sign* – i.e. the ideal of a one-to-one correspondence between the form and meaning[7]. They contend that in a fully formalized logical language, polysemy would be eliminated from the outset, as such a language should contain no ambiguity at all. However, the existence of polysemy in natural language is far from accidental. A strict one-to-one correspondence between expression and content would be highly inefficient, resulting in an excessive proliferation of words and making communication more burdensome for speakers. As the American linguist Edward Sapir observed, "No language could express every particular idea by an independent word or root element. The specificity of experience is infinite, while the resources of even the richest language are limited."[8] Thus, the polysemy of a large number of words may be considered a linguistic universal.

The relevance of our study is stipulated by the need to describe the relationship between the polysemy of terms and their semantic load, morphological structure, and the needs of practical lexicology and

New York : Akademie der Wissenschaften zu Berlin, 1995. S. 247–280. Levickij V. V., Kiiko J. J., Spolnicka S. V. Quantitative Analysis of Verb Polysemy in Modern German. *Journal of Quantitative Linguistics*. 1996. Vol. 3, No. 2. P. 132.

[6] Левицький В. В. Лексична полісемія та квантитативні методи її дослідження. *Мовознавство*. 2004. № 4. С. 17.

[7] Hoffmann L., Wiegand H. E., Cowie R. *Fachsprachen: Eine Einführung*. 2. Aufl. Tübingen: Gunter Narr, 1998 ; Laurén Chr. Fachkommunikation: Ein Leitfaden zur Theorie in der Praxis. Tübingen: Narr, 1993 ; Wiegand H. E. *Wörterbuch zur Lexikographie und Wörterbuchforschung*. Berlin/Boston: de Gruyter, 2013; Wüster E. *Einführung in die allgemeine Terminologielehre und terminologische Lexikographie*. 3. Aufl. Bonn : Romanistischer Verlag, 1979 ; Internationale Organisation für Normung (ISO): ISO 704: Terminology work – Principles and methods. Genf: ISO, 2009.

[8] Sapir E. *Language. An Introduction to the Study of Speech*. South Paris : Legare Street Press, 2022.

lexicography. The study of the regularities of the formation of terminological vocabulary, its structure, and peculiarities of functioning in speech is one of the most important tasks of modern linguistics.

The aim of this study is to identify the peculiarities of polysemy in verb terms in modern German and to determine the factors influencing the number of their meanings. To achieve this goal, the following tasks are set: 1) to determine the average number of meanings of verb terms in the engineering and technical domain of modern German; 2) to examine the correlation between the number of meanings and the semantics of these verb terms; 3) to analyze the relationship between polysemy and synonymy, and to characterize its nature and features; 4) to explore the connection between polysemy and the morphological structure of verb terms. The material for the study comprises a continuous sample of 789 polysemous verbs drawn from the "German-Ukrainian Engineering and Technical Dictionary"[9].

The further development and systematisation of knowledge about the multifaceted relations of verb terms polysemy with other linguistic phenomena contribute to the deepening of knowledge about the lexical level of the language as a whole. The obtained results give a more complete picture of the systematic nature of linguistic phenomena and the regularity of the functioning of lexical units in speech.

1. Terminology and its place in the language system

The 1970s marked a turning point in the linguistic paradigm, driven by socio-economic development. During this period, linguists increasingly focused on languages of special communication – or professional languages – as key objects of study. Their aim was to explore how terminological units accumulate and transmit intellectual information, taking into account principles such as semantic invariance, structural hierarchy, and content relevance. This shift facilitated more effective approaches to both theoretical and applied linguistic problems, ultimately leading to the emergence of a distinct field: terminology. Terminology is viewed both as a branch of applied linguistics and as the terminological framework of professional languages, encompassing their semantics, structure, etymology, functional scope, and hierarchical relationships[10]. Central concepts in this field – *term*, *terminology*, *term system*, and *professional*

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[9] Кійко С. В. Німецько-український інженерно-технічний словник: Близько 20 000 термінів і термінословук. Чернівці : ЧНУ, 2020. 474 с.

[10] Kontutyte E. *Einführung in die Fachsprachenlinguistik*. Vilnius : Vilniaus universiteto leidykla, 2017. S. 7.

language – are the subject of ongoing international research by linguists, lexicographers, philosophers, logicians, and domain-specific experts[11].

Due to the specific nature of the term as a nuclear component of the metalinguistic model, the problem of developing a general, accurate and unified definition of the term remains open in modern terminology. That is why it is necessary to establish, clarify, formulate and establish in the scientific literature the key characteristics and the actual definition of the main element of the terminology system – the term. By means of a review of studies carried out in line with the modern terminology tradition, we present and systematise the existing definitions of the term:

1)	a subset of commonly used vocabulary, which is expressed in the combination of a concept as a cognitive unit and its designation as a material representation and is integrated into the systematics of professional concepts available in the relevant field of scientific knowledge[12];

2)	a word or phrase with a clear definition, the use of which is conditioned by the implementation of its nominative function to denote a concept of a special field of knowledge[13];

3)	a verbal name (designation) of a concept of a specific professionally oriented field of knowledge or a standardised unit of a conceptual category of language for special purposes[14];

4)	a special word or phrase that verbalises the concepts of science, technology, culture, art or another scientific field[15];

5)	a concept verbalised and materialised in direct connection with the discourse that accompanies the process of cognition[16];

7)	a sign of a specialised language (word or phrase), which constitutes the substrate for verbalisation of the concept of a unified field of knowledge,

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[11] Державний стандарт України. Термінологічна робота. Засади і правила розроблення стандартів на терміни та визначення понять. *Держспоживстандарт України*. Київ, 2010. С. 16.

[12] Schnieder L. *Formalisierte Terminologien technischer Systeme und ihrer Zuverlässigkeit*. Dissertation zur Erlangung der Würde. Braunschweig. 2010. S. 52.

[13] Гаращенко Л.Б. Аналітичні терміни як особливі ономасіологічні знаки в мовній картині світу українців. *Studia Ukrainica Posnaniensia*. 2015. Vol. III. C. 71.

[14] Вакуленко М. О. *Сучасна українська термінологія: методологія, кодифікація, лексикографічна практика* : дис. …. д-ра філол. наук: 10.02.01 Українська мова. Київ: НАН України, 2023. С. 42.

[15] Ebd. P.43

[16] Вакуленко М. О. *Українська термінологія: комплексний лінгвістичний аналіз*: монографія. Івано-Франківськ: Фоліант, 2015. С. 20–21.

determines the existence of a special definition (dictionary definition), and also acts as a kind of reference point for all users of a special sign[17].

The above definitions complement each other and, in general, highlight the issues of defining the generally accepted 'term'. On the basis of the proposed theses, we understand a term as a lexical unit which serves as a means of verbalisation of a professional concept in a particular field, is a part of the proposed terminosphere, being in a systemic hierarchical relationship with other structural elements and is characterised by a high level of information content, acceptability and accuracy.

Many Ukrainian terminologists, including, in particular, A. Dyakov, T. Mykhailova, T. Kyiak, O. Romanova and others, consider in their scientific works the issue of the expediency of distinguishing and contrasting professional terminological units and non-terminological (quasi-professional) vocabulary[18]. In our linguistic study, following L. Hoffman and T. Roelcke, we are of the opinion that it is relevant to divide professional vocabulary into the following categories[19]:

1) intra-faculty vocabulary as a specific terminological composition;

2) interfacial vocabulary, which is considered as an interdisciplinary layer of vocabulary, since its functional content prevails in the studied professional sphere, but is not limited to the presented field of use;

3) extra-specialised vocabulary as constituent structural elements of the lexicon of other (related or unrelated) professional languages that are extra- or intralinguistically related to the classification formations of the professional language under study;

4) non-specialist vocabulary, i.e. the vocabulary of general use of the German language.

We consider intra-professional vocabulary to be the core of engineering terminology, while all other subcategories are peripheral.

The subject of our study is the polysemy of terms, which we investigate based on verbs in the sublanguage of technology. In general, the number of verbs in German terminology is not quite large in comparison with other parts of speech, in particular, with nouns. Thus, according to W. Ebert's estimates, the share of nouns among all terms of physical geography is 90%, while verbs account for only 5%[20]. We observe this tendency in our study:

[17] Фоміна І. Л. Формування української морської термінології та перші джерела її поповнення. *Науковий вісник Міжнародного гуманітарного університету*. *Сер. : Філологія*. 2018. Вип. 37. Т. 1. С. 76.

[18] Романова О. О. Спеціальна лексика української мови як об'єкт лінгвістичного дослідження: термін і номен. *Термінологічний вісник*. К.: ІУМ НАНУ, 2011. Вип 1. С. 43-44.

[19] Roelcke T. Fachsprachen. 3. Aufl. Berlin: Erich Schmidt, 2010. S. 52

[20] Hoffmann L. Kommunikationsmittel Fachsprache. Tübingen: Narr, 1985. S. 64.

the total sample of verb terms based on the studied dictionary amounted to 789 lexical items, while the number of noun terms is hundreds of times higher.

Thus, the trend in modern terminology is towards substantiation. However, this in no way diminishes the role and importance of the verb. In addition to their main function of naming actions, processes and states, verbs or their elements often perform other very different functions. The most characteristic elements for the formation of verb terms are prefixes and semi-prefixes. Their function is to distinguish and specify processes, e.g. *vorwärmen* "preparatory warming", *auswärmen* "warming up to a certain level". In addition, prefixes and semi-prefixes perform a linguistic and economic function by simplifying sentence models. For example, the term *unterkupfern* replaces the expression "apply a layer of copper before further treatment of a workpiece", *zwischenglühen* – "anneal a workpiece between two operations".

The meanings of the prefixes *be-, ge-, er-, ver-, zer-, ent-, emp-, miss-* coincide with their meanings in the literary language. Thus, the prefix *be-* means that something is fully made, finished, or equipped with something (*bereifen* "tyre"), the prefix *ge-* denotes a change of state (*gefrieren* "freeze"), *er-* indicates the beginning or end of a process (*ersticken* "suffocate"), *ver-* implies a change of state, the disappearance of something (*verformen* "deform", *verdrillen* "twist"), *zer-* indicates disappearance, malfunction, replacement, crushing (*zerlegen* "dismantle", *zersplittern* "splinter"), *ent-* indicates the beginning of a process, avoidance of something, separation, replacement (*entspannen* "relax"), *miss-* indicates something done incorrectly (*missbrauchen* "abuse").

Let us now consider the multifaceted connections of the term polysemy with other linguistic phenomena.

2. Semantic structure of the term and the degree of its polysemy

Structural linguistics considers a word as a unity of lexical-semantic variant, which is the stable, common formation that unites all variants into a separate sign that differs from others. The totality of lexical and semantic variants of a word that are in a relationship of semantic derivation with each other is called the *semantic structure* of a word. To define the semantic structure of a word means to identify, first of all, the order of internal connection and subordination of heterogeneous semantic elements within the word, to determine the differential feature by which one lexical-semantic variant is opposed to another, to establish by what linguistic means the word's semantics is delimited, i.e. to determine the type of semantic context and the place of each lexical-semantic variant in the entire lexical-semantic

system of the language. A lexical-semantic variant is a linguistic sign that constitutes a unity of sound and meaning (i.e., formative and seme), keeping the lexical meaning unchanged within its inherent paradigm and system of syntactic relations. In the analysis of semantic relations, sememes are distinguished whose meaning system consists of many semes: the archiseme of generic meaning and differential semes of species meaning or potential semes that reflect the side characteristics of the denotation. A seme is a set of elements of the reflection of reality structured in a specific way in a language, which has no correlation in terms of expression[21].

Thus, the set of semes is formed by sememes, which, in turn, are specific meanings in which the semanteme is realised – an abstract, generalised unit that is a generic definition for several specific meanings and expresses the most general features of such meanings.

The semantic structure of a word unites the entire system of lexical meanings attached to a certain sound shell, as well as certain emotional and stylistic shades. The degree of polysemy of a word is the number of meanings recorded in a particular dictionary entry. In the linguistic literature, there are various criteria for dividing verbs into polysemic zones. For example, S. Kiyko, studying the polysemy of German verbs based on the academic explanatory dictionary Duden[22], divided them into four groups:

1) first degree of ambiguity: unambiguous verbs;
2) second degree of ambiguity: verbs with two to five meanings;
3) third degree of ambiguity: verbs with six to fifteen meanings;
4) fourth degree of polysemy: more than fifteen meanings.

For each group, the correlation coefficient was used to establish statistical correlations with several verb features of different language levels. The most pronounced contrasts were obtained between the first and third groups of verbs. The second degree of polysemy was the least diagnostic[23].

It is also possible to divide the studied vocabulary into three zones according to the degree of its semantic and derivational activity: 1) the zone of active polysemy – words with two meanings; 2) the zone of productive polysemy – words with the number of lexical-semantic variants from three to seven; 3) the zone of saturated polysemy – words with more than

[21] Bergmann R. Homonymie und Polysemie in Semantik und Lexikografie. *Sprachwissenschaft* 1977. Nr. 2. S. 17–59 ; Schlaefer M. *Lexikologieund Lexikografie. Eine Einführung am Beispiel deutscher Wörterbücher*. 2. Aufl. Berlin: Erich Schmidt, 2002. S. 11–12.

[22] *Duden. Deutsches Universalwörterbuch. Das große Bedeutungswörterbuch*. 10. Aufl. Hrsg. von Dudenredaktion. Berlin: Dudenverlag, 2023. 2160 s.

[23] Кійко С.В. Статистичні дослідження полісемії дієслів сучасної німецької мови. *Проблеми квантитативної лінгвістики* : збірник наукових праць. Чернівці : Рута, 2005. С. 210–244.

8 meanings. Applying another criterion – the measure of semantic uncertainty, which is a logarithmic scale of the number of word meanings or the average number of meanings for all words in a given text, we can divide the entire vocabulary into the following zones: 1) words of zero degree of semantic uncertainty: with one meaning; 2) words of the first degree of semantic uncertainty: with two meanings; 3) words of the second degree: with 3-4 meanings; 4) words of the third degree: with 5-8 meanings, etc.[24]

The study distinguishes the following polysemic subclasses of words:

1) zero degree of polysemy – words with one meaning;
2) first degree of polysemy – words with 2-4 meanings;
3) second degree of polysemy – words with 5-9 meanings;
4) third degree of polysemy –words with 10-16 meanings, etc.

This classification seems to us quite convenient and logical, so in our study we will rely on it.

3. The average number of meanings and frequency distributions of polysemous technical verb terms in modern German

The material for the study includes polysemous words, the total number of which is 789 lexical items. A complete picture of the distribution of verbs in the dictionary is given in Table 1.

Table 1

Distribution of verbs in the dictionary

Number of meanings	Number of verbs	Total number of meanings	Number of meanings	Number of verbs	Total number of meanings
2	393	786	8	11	88
3	183	549	9	6	54
4	99	396	10	2	20
5	52	260	12	1	12
6	25	150	13	1	13
7	15	105	15	1	15
			∑	789	2448

To identify the tendency of verbs to be polysemous, we can use such an indicator as the polysemy coefficient or 'polysemy index'. In this case, it refers to the average number of meanings that a certain group of verbs has:

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[24] Кійко С. В. Зв'язок полісемії з лексико-семантичними парадигмами різних видів. *Проблеми загального, германського та слов'янського мовознавства* : збірник наукових праць до 70-річчя проф. В. В. Левицького. Чернівці : Книги-XXI, 2008. С. 254–263.

$$K_P = \frac{P}{t},$$

where K_p is the polysemy coefficient;

P – number of meanings of a certain group of verbs;

t – number of verbs in this group.

The average number of meanings calculated from the "German-Ukrainian Engineering and Technical Dictionary" is 3.10 meanings per term. This figure is higher than for common verbs. According to our calculations, the average polysemy coefficient calculated by the Duden dictionary[25] is 2.82 meanings per verb. The same indicator for the Wahrig dictionary[26] is 2.97. This means that polysemous verbs of the sublanguage of technology combine more sememes under one format on average than common verbs. This fact contradicts the opinion in linguistics about the low degree of polysemy of terms[27]. The reason for the higher polysemy of verbs in the sublanguage of technology may be the so-called interdisciplinary polysemy, by which we mean the use not only in different contexts, as is the case with common verbs, but also in different fields of technology. For example, if we look at the most polysemic verb terms in our sample, *rollen* (see below), we can state that 5 out of 15 meanings are due to the use of this verb in certain specific subdivisions of technical sciences (aviation, maritime, automotive and railway transport, mining, mechanical engineering):

rollen 1) котитися; 2) *ав.* рулити; 3) крутитися, обертатися, крутитися; 4) *мор.* випробовувати (бортову) хитавицю; 5) катати, котити; 6) *авто, залізн.* обкатувати; 8) закочувати (край); 9) зависати, звисати; скручувати; 10) формувати (труби зі смуги); 11) накочувати (різьблення); 12) *маш.* обкатувати; розгортати (оробляти внутрішню поверхню роликами); 13) обкатувати, підкочувати (у штампі); 14) галтувати, 15) кантувати.

A similar pattern is observed in other highly polysemous verb terms, such as *abziehen* (13 meanings), *abschlagen* (12), *einziehen* (10), *ziehen* (9), *aufnehmen* (9), and *abtreiben* (9), among others. These examples illustrate that the polysemy of terminological vocabulary exhibits distinct characteristics.

[25] Duden. Deutsches Universalwörterbuch. Das große Bedeutungswörterbuch 10. Aufl. Hrsg. von Dudenredaktion. Berlin: Dudenverlag, 2023. 2160 S.

[26] Wahrig. Wörterbuch der deutschen Sprache. Hrsg. von R. Wahrig-Burfeind. München : Dt. Taschenbuch-Verl., 2012. 1151 s.

[27] Кочерган М. П. Вступ до мовознавства. Київ : Академія, 2004. С. 220.

According to Table 1, the largest part of German verb terms are polysemic verbs, namely 393 words. This is followed by verbs with three (183), four (99) meanings, etc. This kind of distribution is, in our opinion, a universal quantitative and systemic characteristic of the polysemy of natural languages. In fact, here, as in most other cases, the well-known principle of concentration and dispersion of linguistic units is manifested.

4. Relationship between polysemy of verb terms and their semantics

The lexico-semantic system of verbs has not yet been sufficiently studied, despite the large number of verb classifications that differ not only in scope but also in detail. This is because it is quite difficult to create a complete, flexible classification that would cover the main large groups that differ from each other in significant ways. The lexico-semantic system of verb terms is even less studied, since the question of the peculiarities of terms, its interrelations with other lexico-semantic paradigms is debatable in linguistics.

The traditional division of all verbs into *action* and *state verbs* is based on the differential feature "$\pm$ action". The core of active verbs is made up of lexical units that express the occupation, labour activity of a person or indicate a profession, speciality, position. On the periphery are lexemes denoting the actions of an inanimate subject. The core of the lexico-grammatical category of verbs with the meaning of state is formed by verbs of physical and mental state, behaviour, physiological processes, and the periphery is formed by verbs of relation, affiliation, and position in space.

Along with action and state verbs, linguists distinguish other large semantic classes: procedural verbs that denote a change that has taken place in the subject; relational verbs that express the relationship between the subject and the object or between two objects. W. Chafe, for example, distinguishes between verbs with the meaning of state (*to be dry*), process (*to dry*), action (*to sing*), action and process (*to dry*)[28]. A simple, but recognised classification of verbs in German linguistics was developed by H. Brinkmann. He divided all verbs according to the nature of what is happening into:

1) action verbs, denoting a direct impact on the object;

2) verbs of process, conveying a change in the state of people and objects;

3) verbs of state, expressing the position of people and objects;

4) verbs denoting events, which reflect life as a course of events;

5) verbs denoting natural phenomena.

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[28] Chafe W. Meaning and the Structure of Language. Chicago : The University of Chicago Press, 1970. Pp. 113–123.

This classification differs from the above mentioned ones by the direct connection between semantic classes and grammatical categories of verbs. For example, action verbs are transitive, forming the perfect and pluperfect with the auxiliary verb *haben*, and differ from all other verbs in being able to form passive constructions. The next two classes, process and state verbs, are intransitive verbs with unrestricted case and number. Verbs denoting events and verbs denoting natural phenomena are used only in the third person singular. But the latter do not have a subject at all (e.g. *es regnet, es blitzt*), i.e. they are impersonal verbs, and the categories of person and number are neutralised in them[29]. The disadvantage of this classification is its low information content and the subordination of semantic criteria to grammatical ones.

A new classification, based only on semantic principles, was developed by G.Helbig. Based on the statistical feature, he divides all verbs into state verbs (+statics) and dynamic non-state verbs (-statics) at the first stage. The agent feature is used to divide non-state verbs into action verbs (+agent) and procedural action verbs (-agent) and determines the nature of the subject: only in action verbs the subject is an agent[30]. Each of these verb groups is divided into subgroups:

1) unmixed state verbs: *sein, existieren, es gibt, leben, schlafen* and others with semantic features *+static, -relation*;

2) symmetrical verbs of state: *sich decken, grenzen, gleichen, sich entsprechen* and others with the semantic features *+static, +relation, +symmetry*, etc. This classification also has its drawbacks. For example, the author combines such verbs as *arbeiten, aufschreien, spielen, brüllen* into one group of verbs of unrelated action, i.e. those whose action is not directed at the object, on the basis of the semantic features of *-static, +activity, -relation, -movement*. But in this case, the words appear to be grouped primarily based on syntactic criteria rather than semantic ones. It would be more logical to group the verbs *arbeiten* and *spielen* into the dynamic state group, and *aufschreien* and *brüllen* into the sound verb group.

In order to investigate the dependence of the polysemy coefficient of verb terms on their semantics, we divided them into semantic classes

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[29] Brikmann H. Die Wortarten im Deutschen (Das Ringen um eine neue deutsche Grammatik). 2. Aufl. Darmstadt: Wissenschaftliche Buchgesellschaft, 1965. S. 76 ; Cf. Kijko J., Kudrjawzewa O. Deutsche Grammatik: Theorie und Praxis. Tscherniwzi : Unidruckerei, 2018. S. 32–37.

[30] Helbig G., Buscha J. Deutsche Grammatik: ein Handbuch für den Ausländerunterricht. Berlin : Langenscheidt, Verlag Enzyklopädie, 1996. S. 69.

based on the classification of S. Kiyko[31]. As a result of the division, the following classes of verbal technical terms of the modern German language were obtained:

1. **Action verbs**:

1.1.   Verbs of motion causation. They are characterised by the following set of semes: /+HDL/, /+KONKR/, /+BEW/, /+AKT/, /+KAUS/. This includes verbs such as *versetzen, ziehen, wenden* etc.

1.2.   Verbs of active movement (/+HDL/, /+KONKR/, /+BEW/, /+AKT/, /-KAUS/): *eintreten, schweben, befahren*.

1.3.   Verbs of passive movement (/+HDL/, /+KONKR/, /+BEW/, /-AKT/): *flattern, rollen, fließen*.

1.4.   Verbs of disjunctive action (/+HDL/, /+KONKR/, /-BEW/, /-BEZ/): *steuern, erzeugen, betreiben* etc. These verbs express the most general action and do not contain any semes that would specify them.

1.5.   Verbs of goal achievement (/+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+Ergebnis/): *gewinnen, erzielen, erreichen*.

1.6.   Verbs of processing a subject (object) that contain in their semantic structure a modifier indicating a processing tool; the tool is reflected in the sound form of the verb, e.g.: *kämmen, klöppeln, hämmern*, etc. This group is called 'Processing with a tool (explicit)' and contains the following semes: /+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+HILFSM/, /+Instrument/, /-Implizit/.

1.7.   Verbs of processing a subject (object) that contain in their semantic structure a modifier indicating a processing tool; the tool is not reflected in the sound form of the verb, e.g.: *reinigen, abräumen, aufräumen*, etc. Such verbs are grouped under the name 'Processing with a tool (explicit)' and include the following semes: /+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+HILFSM/, /+Instrument/, /+Implizit/.

1.8.   Verbs of processing an object (subject) that contain in their semantic structure a modifier indicating the processing material. This material is reflected in the sound form of the verb (/+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+HILFSM/, /+Material/, /-Implizit/): *äschern, abschmieren, verbleien* etc. This group is called 'Processing with material (explicit)'.

1.9.   Verbs of processing an object that contain in their semantic structure a modifier indicating the processing material. This material is not reflected in the sound form of the verb (/+HDL/, /+KONKR/, /-BEW/,

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[31] Кійко С. В. Принципи семантичної класифікації дієслів німецької мови. *Науковий вісник Чернівецького університету: Германська філологія.* Чернівці : ЧДУ. Вип. 84. 2000. С. 30–41.

/+BEZ/, /+HILFSM/, /+Material/, Implizit/): *kleben, ankleben, lockern*. This group is called 'Processing with material (implicit)'.

1.10. Verbs of processing a subject (object) that contain in their semantic structure a modifier indicating the purpose of processing. This goal is reflected in the sound form of the verb, and its achievement requires mainly physical effort. These verbs include semes /+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+HILFSM/, /+ZIEL/, /+PHYS/: *ausbreiten, kanalisieren, abkürzen* and others, grouped under the name 'Verbs of physical processing'.

1.11. Verbs of subject (object) processing that contain in their semantic structure a modifier indicating the purpose of processing, which is reflected in the sound form of the verb and its achievement requires mainly intellectual effort. These verbs are grouped into the group of intellectual processing verbs and include seven /+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+HILFSM/, /+ZIEL/, /-PHYS/: *regeln, ausmustern, projizieren*.

1.12. Verbs of physiological actions (/+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+PHYS/): *essen, trinken, fressen*.

1.13. Verbs for sending and receiving (/+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /±GEBEN/): *geben, aufnehmen, auslassen*.

1.14. Verbs of physical action on an object that cause a change in its properties (hereinafter referred to as verbs of causation of a change in the object) (/+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+KAUS/): *abdichten, zerlegen, backen*.

1.15. Verbs of physical action on an object that do not cause a change in its properties (hereinafter referred to as verbs of physical action) (/+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+KAUS/, /-Veränd/): *auftragen, spritzen, spülen*.

1.16. Verbs of location (/+HDL/, /+KONKR/, /-BEW/, /+BEZ/, /+KAUS/, /+ORT/): *ansetzen, stopfen, einstellen*.

1.17. Verbs of mental activity (/+HDL/, /-KONKR/, /-KAUS/, /-WRN/): *bestimmen, annehmen, einteilen* etc.

2. **Verbs of state**

2.1. Verbs of organic being (/-HDL/, /+ZSD/, /-BEZ/, /+Org/): *existieren, vorkommen, ergeben*.

2.2. Verbs of inorganic being (/-HDL/, /+ZSD/, /-BEZ/, /-Org/): *ausstrahlen, absetzen, funken*.

2.3. Verbs of place (/-HDL/, /+ZSD/, /+BEZ/, /+ORT/): *liegen, sich befinden, sich erstrecken*.

2.4. Verbs of possession and belonging (/-HDL/, /+ZSD/, /+BEZ/, /±HABEN/): *haben, besitzen, genügen*.

2.5. Verbs of correspondence (/-HDL/, /+ZSD/, /+BEZ/, /+KRI/): *passen, sich decken, entsprechen*.

2.6. Verbs of temporary state (/-HDL/, /+ZSD/, /+BEZ/, /+ZEIT/): *gären, ersaufen, stagnieren*.

2.7. Verbs of qualitative characterisation (/-HDL/, /+ZSD/, /+BEZ/, /+ART/): *abarten, aushallen, mutieren*.

3. **Process verbs**

3.1. General process verbs (/-HDL/, /+VRG/, /-PHASE/, /-KONKR/): *wachsen, verlaufen, absterben*.

3.2. Verbs of a specific process (/-HDL/, /+VRG/, /-PHASE/, /+KONKR/): *bersten, karburieren, ausbrennen*.

3.3. Phase verbs (/-HDL/, /+VRG/, /+PHASE/): *starten, anbrennen, einsetzen*.

The results of the verb terms division are shown in Table 2 (see Table 2).

Table 2

Semantics of the verb terms and the number of its meanings

№	Semantic groups of verbs	Number of verbs	Number of meanings	Polysemy coefficient
1	2	3	4	5
1	Physiological actions	1	5	5.00
2	Giving and reception	11	49	4.45
3	Achieving the goal	1	4	4.00
4	Causation of movement	62	238	3.83
5	Causation of state	41	147	3.59
6	Inorganic being	7	25	3.57
7	Passive movement	36	127	3.52
8	Possessions and belongings	2	7	3.50
9	Phase verbs	6	21	3.50
10	Causation of object change	181	582	3.22
11	Physical impact	88	277	3.15
12	Processing with the use of a tool (implicitly)	7	22	3.14
13	Unrelated action	45	139	3.08
14	Correspondence	1	3	3.00
15	Active movement	23	68	2.96
16	Temporary state	9	26	2.89
17	Tooling (explicitly)	62	172	2.77

1	2	3	4	5
18	Processing with the use of material (explicitly)	8	22	2.75
19	Mental activity	27	74	2.74
20	Physical processing	103	280	2.72
21	Material handling (implicit)	3	8	2.67
22	Total process	5	13	2.60
23	Intelligent processing	22	52	2.36
24	Qualitative characterisation	3	7	2.33
25	Specific process	33	76	2.30
26	Location	1	2	2.00
27	Organic being	1	2	2.00
28	Sound	0	0	0
29	Feelings	0	0	0
30	Animal communication	0	0	0
31	Modal	0	0	0
32	Human communication	0	0	0
33	Moral influence	0	0	0
34	Sensory perception	0	0	0
35	Behavioural verbs	0	0	0
	$\sum$	789	2448	3.10

Based on the classification we have proposed, we can trace the peculiarities of the relationship between the number of meanings and the semantic status of verb terms (see Table 2). According to Table 2, the most numerous subgroups are verbs of physical impact on an object that cause a change in its properties (181 terms), verbs of processing an object that contain a modifier in their semantic structure indicating the purpose of processing (103 terms) and verbs of physical impact on an object without changing its properties (88 terms). The smallest subgroups include verbs of physiological actions (1 term), goal achievement (1), correspondence (1), location (1) and organic being (1).

The absence of verbs of sound, feelings, human and animal communication, moral influence, sensory perception, behaviour and modal verbs is natural for engineering verbs. The highest polysemy coefficient according

to the table is for the terms of sending and receiving (4.45). They are followed by the verbs of motion causation (3.83) and state causation (3.59) in descending order. The single terms for physiological actions (5.00) and goal achievement (4.00) are also highly polysemic. The lowest coefficient of polysemy is for verbs of location (2.00), organic being (2.00) and specific process (2.30). All other groups occupy a middle position.

If we combine the semantic classes under study based on the /HDL/, /ZSD/, /VRG/, /MOD/ functionaries, we get four large semantic groups, the degrees of polysemy of which vary as follows (see Table 3).

Table 3

Degrees of polysemy of large semantic groups

№	Semantic groups	Number of verbs	Number of meanings	Кр
1	Verbs of state	24	72	3.00
2	Modal verbs	0	0	0
3	Process verbs	44	110	2.50
4	Action verbs	721	2266	3.14

It should be noted that the most numerous group of verb terms in modern German with the largest number of meanings are action verbs (721 verbs). They are followed by process (44) and state (24) words.

Action verbs have the highest coefficient of polysemy (3.14 values per lexical unit), while process verbs have the lowest (2.50). Verbs of state are medium polysemic (3.00). If we compare the degree of polysemy of term verbs with the degree of polysemy of common verbs, we find that action verbs have the lowest degree of polysemy (1.65), while state verbs have the highest (1.77). Modal verbs and process verbs are moderately polysemic (1.75 and 1.70).

So, based on all the data we have obtained, we can say that the average number of meanings of semantic group is determined by the semantics of the verb terms that make up this group.

5. Interrelation of polysemy with synonymy of verb terms

The large number of terms that can be partially interchangeable in certain respects allows us to speak of their synonymy. Most linguists consider synonyms to be words that are close or identical in meaning, denoting the same concept, but differ from each other either in shades of meaning or stylistic colouring, or both. Synonyms have in their semantic structure at least one meaning with a common or very close subject-logical content and

can replace each other in certain contexts without significantly changing the meaning of the text[32].

Terminological synonymy is a natural fundamental phenomenon that traditionally first develops on the substrate of the respective national language and then extends to the area of a specific terminological system of professional languages. Sometimes this phenomenon can also operate within the inter-areal space of several professional languages. Synonymy of terms is detected when the form of verbalisation of concepts differs, provided that the content components are identical[33]. The fact of parallel use of term elements of the synonymous series is a natural act of diversifying the ways of transmitting coded information and avoiding lexical repetition, which reflects the functional potential of synonymous terms in the context of professional communication.

To investigate the relationship between polysemy and synonymy, we used a sample from the Duden Synonym Dictionary[34]. For each verb term written out of the studied engineering and technical dictionary, the corresponding number of synonyms from the synonym dictionary was written out[35].

In order to analyse the relationship between polysemy and synonymy of verb terms, we need two types of data:

1) 'language polysemy', i.e. the average number of verb meanings in the language.

2) 'synonymic polysemy', i.e. the average number of meanings by which these verbs enter into synonymous relations (see Table 3).

[32] Архипенко Л. М. Синонімія і варіантність в системі української економічної термінології. *Молодий вчений*. 2017. Вип. 9 (49). С. 233–237 ; Мартиняк О. А. Лексичні синоніми на національній основі в українській науково-технічній термінології. *Вісник Нац. ун-ту «Львівська політехніка». Серія «Проблеми української термінології»*. 2010. Вип. 676. С. 31–36; Ментинська І. Б. Синонімія в сучасній комп'ютерній термінології. *Термінологічний вісник*. 2015. Вип. 3(2). С. 177–183.

[33] Романова О. О. Синонімія як мовне явище у термінології. *Лінгвістичні дослідження* : зб. наук. праць ХнПУ ім. Г.С. Сковороди. 2017. Вип. 45. С. 200.

[34] *Duden. Deutsches Universalwörterbuch. Das große Bedeutungswörterbuch*. 10. Aufl. Hrsg. von Dudenredaktion. Berlin: Dudenverlag, 2023. 2160 s.

[35] *Duden – Das Synonymwörterbuch: Treffend formulieren mit 300 000 sinnverwandten Wörtern* (Duden – Deutsche Sprache in 12 Bänden). 8. Aufl. Berlin : Dudenverlag, 2024. 1120 s.

Table 3

Language and synonymic polysemy of the verb *verlegen*

Language polysemy	Synonymic polysemy
1. an eine andere als sonst übliche Stelle legen u. deshalb nicht wieder-finden: *Ich habe den Schirm verlegt.*	verlieren, umstellen, verstellen, nicht mehr finden, an den falschen Platz legen
2. etw. wofür ein bestimmter Zeitpunkt bereits vorgesehen war, auf einen anderen Zeitpunkt legen: *Die Premiere ist [auf nächste Woche] verlegt worden.*	verschieben, auf einen anderen Zeitpunkt legen, umbuchen, verlängern, verzögern, aussetzen, verlangsamen, hinauszögern, hinausziehen, hinausschieben, herausziehen, hinzögern hinziehen, vertagen, aufschieben
3. j-n, etw. von einem Ort an einen anderen Ort legen: *eine Haltestelle v., den Wohnsitz aufs Land v., den Pati-enten auf eine andere Station v., der Dichter verlegt die Handlung ins 18. Jh.*	verlagern, stationieren, übersiedeln, ausla-gern, umdisponieren, rücken, verschieben, umsetzen, versetzen, umstellen, hinziehen, verschleppen, zurückstellen
4. (Fachspr.) legen: *Gleise, Rohre, Kabel, Teppichboden v.*	befestiegen, umlegen, verdrahten
5. versperren, blockieren: *jmdm. den Weg v.; den Truppen war der Rückzug verlegt.*	unterbinden, blockieren hindern, ausschal-ten, abwehren, abwenden, vorbeugen, ersparen, abfangen, abstellen, vereiteln, verhüten, zurückschlagen, versperren, preisgeben, verunmöglichen, hintertreiben
6. (v. + sich) sich legen: *sich auf ein bestimmtes Fachgebiet v.; sie verlegte sich aufs Leugnen.*	greifen zu, (es) versuchen mit
7. (von einem Verlag) herausbringen, veröffentlichen: *seine Werke werden bei Faber & Faber verlegt; dieses Haus verlegt Bücher.*	editieren, publizieren, veröffentlichen, drucken, hervorbringen, herausgeben, abdrucken, edieren

Quantitative data for calculating the relationship between linguistic and synonymous polysemy are presented in Table 4 (see Table 4).

Table 4

The relationship between the number of verb meanings and their ability to enter in synonymous relations

Number of meanings	Number of synonyms	Language polysemy	Synonymic polysemy
1	2	3	4
2	819	2.00	2.08
3	462	3.00	2.52
4	435	4.00	4.39
5	304	5.00	5.84
6	123	6.00	4.92

1	2	3	4
7	76	7.00	5.06
8	56	8.00	5.09
9	75	9.00	12.5
10	17	10.00	8.5
11	29	13.33	13.33
Σ	2396	6.73	6.42

The analysis indicates that the phenomenon of 'language polysemy' associated with polytechnic terminology surpasses that of 'synonymic polysemy'. This implies that a verb does not establish synonymous relationships with all of its meanings, but rather with only a subset of them. The average number of synonyms for verb terms is 6.42 lexical items.

6. The relation between polysemy and the morphological structure of verb terms

The purpose of this subsection is to study the relationship between the semantic scope of verb terms and their morphological structure. In general, this problem is formulated by R. Koehler as the dependence of polysemy on word length. The author puts forward the thesis that the increase in the number of word meanings is inversely proportional to its length[36]. V. Drebet, studying the polysemy of German adjectives, has revealed a regularity that, according to the author, corresponds to the general semiological connection between the volume and content of a sign: the larger the morphological volume of a sign, the narrower its content. In this case, the author understands the morphological volume as the number of morphemes[37].

Verbs in modern German are a very productive and constantly expanding word class. This statement also applies to verb terms. W. Fleischer distinguishes the following 7 ways of verb word formation:

1) suffix-free formation of verbs from other verbal stems;
2) suffix-free formation of verbs from noun stems;
3) suffixation;
4) compounding;
5) prefixation;

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[36] Köhler R. *Zur linguistisehen Synergetik: Struktur und Dynamik der Lexik*. Bochum : Studienverlag Brockmeyer, 1986. S. 61.

[37] Дребет В.В. *Полісемія іменників і прикметників у сучасній німецькій мові (на матеріалі тлумачного словника німецької мови)* : дис. ... канд. філ. Наук : 10.02.04 Германські мови. Чернівці, 1998. 182 с.

6) formation of verbs by means of semi-prefixes (prepositions or adverbs);

7) suffix-free formation from noun stems with the simultaneous addition of a prefix[38].

To study the relationship between the semantic scope of verb terms and their morphological structure, we divided all the verbs under study into three traditional groups:

1. Simple verbs: *dauern, machen, lesen*.

2. Derived verbs. These include:

a) simple (or complex) verbs directly derived from other noun or verb stems that have not lost their semantic and etymological links with the latter, such as *grünen, schmieden*.

b) verbal and case suffixes such as *hausieren, zwitschern*;

c) verbs with separable and non-separable prefixes such as *entfliehen, ankleben*;

d) verbs formed by verbalising noun stems and prefixing them, such as *beflügeln, erblinden*.

3. Compound verbs with a noun, adjective, or adverb as the first component, such as *festklemmen*.

Table 5

Dependence of polysemy of verb terms on their morphological structure

Morphological structure of verbs		Number of verbs	Number of meanings	Average number of meanings
Simple verbs		84	274	3.26
derived verbs	Simple in form, derived from other verb or noun stems	102	378	3.7
	Verb and noun suffix formations	84	210	2.5
	With non-separable prefixes	94	238	2.53
	Verbalisation of noun stems + prefixation	47	133	2.82
	With semi-prefixes (separable)	358	1167	3.25
	Total	658	2126	3.1
Complex with the first component	Noun	4	11	2.75
	Adjective	12	27	2.25
	Adverb	4	10	2.50
	Total	20	48	2.40

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[38] Fleischer W. *Wortbildung der deutschen Gegenwartsprache*. Tübingen: Max Niemeyer Verlag, 1971. S. 280.

The results of the division of verbs by morphological structure are presented in Table 5. The group of derived verbs was the largest, while the group of compound verbs was the least numerous. For each group, we calculated the number of values and the polysemy coefficient.

The results obtained show that as the morphological structure of a word becomes more complex, the coefficient of polysemy decreases. The group of simple verbs has the highest coefficient of polysemy – 3.26, followed by the group of derived verbs – 3.10, and the smallest number of meanings – 2.40 – is for compound verbs. These results confirm the general semiological law of the scope and content of a sign: the wider the morphological scope, the narrower the content in terms of polysemy. Prefixes that have derived verbs narrow the verb semantics, make it more specific and do not contribute to the formation of new meanings. This is even more true for compound verbs, whose meanings are the most specific and show the least tendency to polysemy. Simple verbs do not have a morphological factor that carries additional information and thus limits polysemy and therefore have the greatest chance of simultaneously combining several meanings under one format and forming new lexico-semantic variants.

CONCLUSIONS

The study established various peculiarities regarding the polysemy of verb terms in contemporary German, utilizing quantitative methodologies for analysis.

1. The average number of meanings of verb terms in the sublanguage of technology is 3.10 meanings per verb. One of the reasons for the polysemy of verb terms in the sublanguage of technology is interbranch polysemy, i.e. the use of the same term not only in different contexts, but also in different branches of technology. The frequency distribution of polysemous verbs is mixed.

2. The most numerous subgroups of verb terms are verbs of physical action on an object that cause a change in its properties (181 terms), verbs of processing an object that contain a modifier in their semantic structure indicating the purpose of processing (103) and verbs of physical action on an object without changing its properties (88). The smallest in terms of volume are the subgroups of verbs of physiological actions (1), goal achievement (1), correspondence (1), location (1) and organic being (1). The absence of verbs of sound, feelings, human and animal communication, moral influence, sensory perception, behaviour and modal verbs is natural for verbs denoting polytechnic terms.

3. The more meanings a verb combines, the more often it can be used as a synonym. The 'language polysemy' of technical terms exceeds their

'synonymous polysemy'. This means that a verb does not enter into synonymous relations with all but only some of its meanings. The average number of synonyms for verb terms is 6.42 lexical units.

4. The group of simple verbs has the highest coefficient of polysemy of verb terms (3.26), followed by the group of derived verbs (3.10), and the lowest number of meanings is for compound verbs (2.40). The prefixes of derived verbs narrow the verb semantics, make it more specific and do not contribute to the formation of new meanings. This is even more true for compound verbs, whose meanings are the most specific and show the least tendency to polysemy. Simple verbs do not have any affixes that would clarify them and therefore have the greatest chance of simultaneously combining several meanings under one format and forming new ones.

SUMMARY

This study explores the polysemy of verb-terms within the sublanguage of technology. First, it examines theoretical aspects of polysemy as well as its role in the language system. The research also compares terminological and non-terminological vocabulary and investigates the specific features of verb-based terminology.

A comprehensive analysis was conducted on 789 polysemous verbs selected from the "German-Ukrainian Engineering and Technical Dictionary", revealing that intersectoral polysemy is the primary cause of multiple meaning. Furthermore, the study analyzed semantic classification principles and found a correlation between the number of meanings and the semantics of the verbs. A connection between polysemy and synonymy of technical verbs was identified and described. Finally, the study examined the influence of morphological structure on polysemy, confirming that the general semiotic law of volume and content also applies to German technical verb terms. Further research in this area is considered promising.

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