

## SEMANTIC RELATIONS IN THE TERMINOLOGY FIELD OF MARINE ENGINEERING. POLYSEMY.

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**Abstract:** *The present article aims at analysing the cases of terminological polysemy in the field of marine engineering both in the English and the Bulgarian terminological systems. Although it has generally been assumed that a single term should correspond to a single concept, so that a clear and unambiguous communication is ensured, the research results prove that in practice this is far from being the case. The instances analysed are excerpted from corpus materials consisting of specialized and general language dictionaries as well as specialized scientific texts intended for students and professionals in the field. The comparative study results show that in both languages polysemantic terms can arise as a result of their interaction with words belonging to the general language or they can be motivated by a metonymic or metaphoric transfer within the given specialized language. A broad-based theoretical background has been presented and instantiations of all these types of polysemantic terms as well as their explanations have also been included in order to reveal a detailed account on the particularities of terminological polysemy in the field of marine engineering.*

**Keywords:** *terminology, polysemy, marine engineering, comparative study*

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## **Introduction**

Semantic relations, resulting in various linguistic variations, are inherent to human language and their analysis is related to the circumstances leading to the speaker's preference of one linguistic unit over another. Objects and phenomena are not one dimensional. They are a unity of diverse components and are related to other objects and phenomena by many links. The complexity of the surrounding world is reflected in our minds and expressed by means of language. One linguistic unit stands for an extra-linguistic item as a whole but reflects the most eminent aspects of its nature. It is impossible for any language, including specialized languages, to have a separate word for every separate aspect of the concept they reflect. A new term cannot be always coined for a new aspect and very often these are expressed by the old term which has acquired a new meaning or a new shade of meaning (Molhova, 1976). The fine-grained nature of an extra-linguistic item enables each of its aspects to be at a given moment perceived as the most outstanding and focus-attracting one and to be used as a reference to the whole phenomenon which can give rise to various semantic relations. Although it is generally expected that such meaning variety is not applicable to terminology and technical discourse, and that terms should be monosemantic, in fact this proves far from being the case. In general languages, as well as in terminology, it is impossible to separate a speaker's world knowledge about a concept from their purely linguistic knowledge since a word's meaning is broadly encyclopaedic in scope. This means that the meaning of a given term cannot be triggered only in a given context without evoking, although in the background, its related meanings belonging to the same or other conceptual fields (Taylor, 1995). Besides, no term can be fully understood without the conceptual frame it is a part of. This frame contains other concepts against which the concrete meaning of the term can be delineated. The relations between those terms are the relations of comparison, opposition, extension, contiguity, substitution, etc., which lead to polysemous, synonymous, homonymous, or antonymous terms. The purpose of the present article is to exemplify, analyse and compare the cases of polysemous terms in the field of marine engineering extracted from English and Bulgarian corpus materials of related technical texts.

## **Theoretical Background**

### *Semantic Variation in Terminology*

In terminology, semantic variation is mainly regarded in terms of the relations between the linguistic form and the concept it denotes. Traditionally, terminology has always aimed at one-to-one correspondence between a signifier and its signified, as well as at standardization of terms. Variation in the field of professional lexical subsystems which give rise to semantic relations such as polysemy, synonymy, and homonymy are treated as redundant and aimed to

be if not abolished, at least limited to cross-system relations, i.e. belonging to different professional fields.

Popova (2012) views semantic variation in terminology from an extralinguistic and an intralinguistic aspect. The extralinguistic terminological variation is associated to the idea that specialized scientific and professional languages are a variant of the general language, alongside territorial dialects and social speech. The relations between a specialized language and the general language are realized through the processes of terminologization and determinologization, while the relations between the different specialized languages are realized through the process of reterminologization. An interesting remark here is made by Cabré (1999) who states that specialized languages are autonomous with respect to the general language, in the sense that variation among special languages does not bring about variation in the general languages. As a result, a term which was subjected to determinologization tends to retain only its prototypical specialized meaning. The intralinguistic terminological variation is associated with the relations between the semantic and the formal level of the terminological unit. Semantic variation is defined as the ability of a term to denote more than one concept meanings, i.e. it concerns the various simultaneously existing meanings, denoted by a single specialized linguistic unit. Formal variation is defined as the parallel linguistic means of expressing in a different way one and the same meaning. These variants coexist in the different scientific fields (and lead to cross-system polysemy) or between the specialized languages and the general languages and denote one and the same concept (e.g. *мотовилка* in the specialized terminology, known also as *биела* in the general language).

The crossing point between the use of a terminological unit in a specialized language and a general language is in the scope of socioterminology and the Communicative Theory of Terminology (CTT). Socioterminology deals with the sociolinguistic aspects of terminology theory and accounts for terminological variation by identifying term variants in respect to different usage contexts. Terminological variants can reflect the knowledge, the social and professional status of the participants in expert communication, as well as the hierarchical relationships between speakers. It can also reflect the geographic and temporal location of those participants (Faber, 2012). CTT establishes a closer connection between terminology and linguistics. Variation is thus regarded from a linguistic point of view but always in the presence of the general context of specialized communication. CTT also removes the strict borderlines between the separate scientific fields to which a terminological unit is to belong as it is recognized as a node of knowledge which cannot be separated from the encyclopaedic knowledge of the participants in the communication. As a result, semantic variation is considered not only within a given scientific field but can also be extended to the relations with other nodes within the whole specialized structure of knowledge.

### ***Polysemy***

Polysemy is the phenomenon characterized by a single word form being associated with two or more distinct but related senses. It can be distinguished from monosemy (where a lexical form corresponds to only one meaning) on the one hand, and homonymy (where a lexical form corresponds to distinct unrelated meanings) on the other hand (Falkum & Vicente, 2015). Polysemy is pervasive in natural languages and manifests itself at all levels. Pernishka (2013, p. 524) describes it as a universal, necessary and regular linguistic phenomenon with a huge communicative and cognitive significance. It is indicative for the nominator's talent of acute and precise observation and detecting typical or unexpected signs of similarity of all sorts, or other dependencies between items of reality (the translation is mine).

The definition and delimitation of the polysemy phenomenon itself also remains a source of theoretical discussion among linguists. Legurska (2016) summarizes the three approaches discussed in the scientific literature devoted to polysemy. According to the first one, there are both monosemous and polysemous words. The second approach sees the one-to-one correspondence between a word and the concept it denotes as the only possibility and the apparent meaning differences are explained as an artefact of the different contexts in which the word appears. According to the third approach, all words are potentially polysemous. Morkovkin (Morkovkin, 1982 cited in Legurska, 2016) introduces the terms *actual* and *potential polysemy*, claiming that with some of the words polysemy is already explicitly manifested, while with others, it is an inherent potentiality, which can be actuated and revealed in the appropriate circumstances.

A possible approach to the monosemy – polysemy distinction is the prototype theory which treats lexical forms either as instantiating two distinct senses (polysemy), or as representing two exemplars of a single sense, one perhaps more central than the other (monosemy) (Taylor, 1995). The phenomenon of polysemy, in prototype theory, develops gradually over time in the cases when a non-central member of a monosemous category increases in salience to the point where it forms a secondary conceptual centre of the category. Hesitations whether the category is monosemous or polysemous are natural until the full establishment of the secondary prototype within the category. Thus, the linguistic categories of polysemy and monosemy are to be rather treated as the categories of the real-world items, which have fuzzy boundaries, than to be approached from a diachronic perspective. Lakoff (1987) shares the same opinion, claiming that related meanings of words form categories, and that meanings bear family resemblances to one another which gives rise to cases of motivated polysemy.

Polysemy, along with homonymy of a lexical item, are also treated as cases of sense ambiguity because they can affect the interpretation of a sentence in different ways. The understanding of a monosemous lexical unit, on the other hand, does not require specification of the meaning and can give rise

only to vagueness or indeterminacy. Thus, the distinction between polysemy and monosemy can be regarded as the distinction between ambiguity and vagueness. A number of linguistic tests have been devised to serve the purpose. A particularly well known one is Zwicky and Saddock's (1975) ambiguity identification test by conjunction reduction, where the coordination of two different senses or meanings of a word in a single construction gives rise to a *zeugma* – a sentence exhibiting certain oddity, typical for puns.

The issue of polysemy typology has not been univocally treated in literature. In his research on ambiguity (in his interpretation the term corresponds to the term *polysemy*), Apresjan (1974) distinguishes between *syntactic* and *lexical ambiguity*. Syntactic polysemy can be described as the phenomenon whereby multiple, related functions are expressed by a single grammatical morpheme or construction. These are comparatively rare in the English language and are possible with certain cases of ditransitive constructions, prepositions, the reflexive pronouns and in some cases of conversion. However, they rarely cause misunderstanding in the process of communication because they are easily disambiguated by the context. In the example “To an extent these can only be regarded as palliatives and it is necessary to consider how the motions *themselves* can be reduced” (Molland, 2008), the reflexive pronoun can be interpreted in either its emphatic use, or in the meaning of “without assistance”. Lexical ambiguity, on the other hand, is much more frequent and is associated with the cases of monosemous syntactic structures in which the sense variants result from variation in the lexical meaning of the phrase constituents. In the case of terminological polysemy, these are usually the intradisciplinary polysemous terms, which are usually disambiguated by the phrase constituents whose function is to outline the context and thus to specify the term sense (e.g. *ducting* – 1. a fluid flow passage; a system of ducts; – *тръбонпровод*; 2. conveying (something, such as a gas) through a duct – *прокарване на (флуид) през тръбонпровод*). Further, Apresjan (ibid.) distinguishes between *linguistic* and *speech ambiguity* (the translation is mine) which in the western literature are referred to as *semantic* and *pragmatic polysemy*. Semantic polysemy means the ability of a word, construction, or an expression to have different, although related, meanings, while pragmatic polysemy is characterized by the meaning specificity and diversity a given context may impose on a lexical unit. For the purposes of the current investigation, only the cases of semantic polysemy will be taken into consideration.

Depending on the method of meaning transfer, Apresjan (ibid.) further differentiates between *metonymically* and *metaphorically motivated polysemy*. Metonymy is considered a more regular and predictable way for creating sense variants than metaphor and metonymy-based senses have greater relatedness to the literal sense. Depending on whether the sense variants are derived and thus related to one central lexical unit, or each new variant is motivated by

another one – closest to it in meaning (although the extreme meanings may not have common semantic components with the initial one), Apresjan (ibid.) distinguishes between *radial* and *chain ambiguity*. A similar view is shared by Molhova (1976) who distinguishes between two types of meaning shift mechanisms: *radiation* – whereby the basic meaning is in the centre and all other connotations are directly related to it; and *concatenation* – whereby all the connotations are linked to the basic meaning through some kind of similarity. It is possible a shade of meaning to lose all its connections to the central meaning and thus grow into a separate word.

Polysemy typology is also discussed in terms of *regular* or *logical polysemy*, on the one hand, and *irregular* or *accidental polysemy*, on the other (Apresjan, 1974; Asher, 2011; Pustejovsky, 1995 cited in Falkum & Vicente, 2015). Regular polysemy is characterized by patterns of sense extension which are repetitive within a language and are often encountered across languages. Regular polysemy is mostly metonymically induced, it is characterized by productivity of its patterns and a high degree of systematicity. An example of regular polysemy is the relation *instrument* – *action* in which the polysemantic term *bolt* can be understood as 1. the action typically performed by the instrument – *завинтовам, захвацвам с болт*, or as 2. the instrument itself – *болт*. Polysemy is said to be irregular if the semantic difference between the meaning variants of a word is not present in any other word in the given language, or it is present only in synonyms. Irregular polysemy is mostly metaphorically induced, it is accidental and non-systematic. An interesting case is the polysemy of the terminological expression *waste heat* which has two meanings – 1. heat, produced as a result of burning waste and 2. heat, produced by internal combustion engines which is not directly used but expelled into the environment. The first one is the direct meaning and the second one is metaphorically based and can be considered a case of irregular polysemy.

### ***Terminological Polysemy***

In terminology, it has been generally assumed that a single term should correspond to a single concept, so that a clear and unambiguous communication is ensured. However, since most of the processes characteristic for the development of natural languages can be considered equally valid for specialized languages the practice proves the opposite. The factors making terminological monosemy so difficult and even impossible to achieve are defined by Popova (2012, p. 67) and correspond to the types of semantic variation determined by the author and stated above – intralinguistic and extralinguistic. As an intralinguistic factor she points to the asymmetry of the linguistic sign dualism which is an essential and inherent feature of the term and gives rise to phenomena such as polysemy and synonymy. On the other hand, the extralinguistic factor can be found in the impossibility of every new concept, phenomenon, or fact to be

designated by an independent linguistic unit, created and intended especially for it. Furthermore, the global transfer of ideas and the subsequent interlinguistic transfer of terms result in an abundance of new terminological units entering the already existing terminological systems of the receiving languages which also promotes polysemy and makes the one-to-one concept-term correspondence an impossible task. A possible solution, suggested by Popova (ibid.), is at least within a given subject field or terminological system, polysemantic terms to be avoided. This leads to the strict identification of a term as belonging to a special subject field and involves its placing in a specific conceptual system, and as a result what in lexicography is considered polysemy, in terminology becomes homonymy (Cabr e, 1999). This, unfortunately, is also difficult to achieve due to the interdisciplinary character of science and technology, a fact that is also undeniably true for marine engineering.

The phenomenon of terminological polysemy can find its motivation in a number of reasons. Some terminologists consider it a natural result of the constant volume specification of a concept designated by a term (Tatarinov, 1988). It can also be regarded as a manifestation of the principle of linguistic economy since a maximum amount of information can be transferred through a minimum amount of lexemes with a minimum loss of linguistic meaning. The reasons behind such a statement can be found in the aforementioned (Popova, 2012) impossibility of each and every new concept to be named by a new term. In this sense, terminological polysemy cannot be treated as an indication of a term's inaccuracy. It rather indicates the degree to which a given object of knowledge has been studied since the more detailed and precise the description of an object is, the more developed the polysemous relations are (Georgieva, 2014). Terminological polysemy can also be motivated by the scientific and technological development which either leads to the emergence of a new concept that has similar features to the concept designated by the given term, or leads to the modification of an existing concept (Grinev-Grinevich, 2008). In both cases the old and the new concept continue to coexist, synchronically or diachronically, in both practice and specialized literature which may obscure the intended meaning and cause misunderstanding.

There are cases in which a concept becomes an anachronism and vacates a term and a new concept is attached to it. The new concept may share some of the features of the old one, as it is pointed out by Grinev-Grinevich (ibid.) but it can also have a completely different motivation for designation. Examples of these cases in the field of marine engineering are the terms *bell* and *square engine*. *Bell* is used as part of the ship signalling system in analogues with the old-time bells used to perform the same function. The term is preserved although the construction and the mode of operation of the new concept are changed. *Square engine* was once used to stand for a particular type of a marine steam engine which is no longer produced and used. Nowadays, the term is used for a type

of internal combustion engine whose bore is equal to its stroke, whence the new motivation. Other sources of terminological polysemy are the processes of terminologization and determinologization in the cases when a term coexists in two contexts – a general and a specialized one, as well as the polysemy based on metonymy. The processes of terminologization and determinologization result in terminological units which are respectively transferred either from or into the general language and have changed their meanings. As it was mentioned above, these cases, from terminological point of view, are treated as instances of *cross-system homonymy*. Although convenient, such a position can be rather simplified and Faber (2012) refers to these cases as *diachronic polysemy*. The explanation is that, even sometimes lost or obscured in time, the meaning relations with the source unit are readily traceable through metaphorization and metonymization. Instances of terminologization which lead to polysemy in the field of marine engineering are in their majority metaphorically motivated (e.g. *tail shaft* – *гребен вал*; *blade root* – *основа на лопатка*; *чело на буталото*; *зъбно колело*). Formed as a result of determinologization is the polysemy of words such as: *captain* – 1) the person in command of a ship; 2) the leader of a team, especially in sports; *screw* – 1) an act of turning a screw or another object having a thread; 2) cheat or swindle (someone), especially by charging them too much for something.

### ***Polysemy in the Field of Marine Engineering***

Terminological polysemy in the field of marine engineering can be regarded from the point of view of its motivation. Polysemantic terms can arise as a result of their interaction with words belonging to the general language and thus lead to the instances of cross-system homonymy or diachronic polysemy, as it was illustrated above. Another type of terminological polysemy, based on its motivation, is the *metonymically induced polysemy* or the so-called *category polysemy*. In category polysemy, the content of the concept consists of features simultaneously belonging to several logically related categories, for example: action – result of action, process – magnitude, property – magnitude (Golovin & Kobrin, 1987). Thus, the cases of category polysemy can be considered a subtype of metonymically induced polysemy, or as Apresjan (1974) refers to them – regular polysemy. Another perspective on the problem is presented by the Generative Lexicon theory (Pustejovsky, 1995) which introduces the term *dot type* or *dot object* referring to a type of a noun that is simultaneously a member of more than one semantic class. According to Rumshisky (Rumshisky, 2007 cited in Martinez Alonso et al., 2011), the senses that a dot object presents are metonymically related to one another. This means that the relation between the semantic classes of a dot type is one of a regular polysemy.

Regular polysemy (or dot type) examples extracted from the corpus materials in the field of marine engineering can be found in the category relations below.



The terminological definitions in the examples are excerpted from a variety of terminological dictionaries in the field of marine and mechanical engineering: Babicz, 2015; Licker & Geller, 2003; Escudier & Atkins, 2013; Semerjiev et al., 2000; Todoriev et al. 2009; Artobolevskii et al., 1979.

• **action/result – forging** – 1. a method of component manufacture by hammering metal by hand or by a machine (drop forge, press) – *изработване на детайл чрез процес на изковаване*; 2. a part made by the process of forging – *изковка*;  
**casting** – 1. the process of pouring molten metal into a mould so as to obtain, after cooling, a component having the shape of the mould – *изработване на детайл чрез процес на отливане*; 2. a component produced by the process of casting – *отливка*.

Similar relations may be observed in the Bulgarian language with the term *корозия* which may refer to the 1. process/activity or to 2. the result of the process. This can be exemplified through the following examples: 1. “Същността на електрохимичната корозия е в това, че...” (‘The essence of the electrochemical *corrosion* is that...’)<sup>1</sup> 2. ‘Прибавки за намаляване на корозията на металните повърхности.’ (‘Additives which reduce the metal surface *corrosion*...’) (Aleksiev & Kostova, 2009, p. 52).

• **instrument/action – screw** – 1. a cylindrical body with helical grooves cut into it – *винт*; 2. to attach, fasten, or close by means of a screw – *завинтвам*. In the Bulgarian language such relations are rarer and are rather indirectly and implicitly expressed compared to the English language where the zero derivation provides many more possibilities. An example can be given by the different meanings – 1. *instrument* and 2. *action* – of the term *ГПВН (горивна помпа високо налягане)* found in the following sentences: 1. “...горивото... се насочва към всмукателната страна на ГПВН.” (‘...the fuel is directed to the suction side of the HPFP.’) and 2. “...ГПВН обединява няколко функции: създаване на налягане, изпреварване на гориво-подаването...” (‘...HPFP combines several functions: pressurizing, fuel injection timing’) (Aleksiev & Kostova, 2009, p. 11).

• **action/event – overhaul** – 1. to rebuild a used machine, replacing components as necessary, to restore it to its original working condition – *извършивам основен ремонт*; 2. the act of rebuilding a used machine, replacing components as necessary, or restoring it to its original working condition – *основен ремонт*.

• **entity/ measurement – bore** – 1. the hollow part inside of a pipe, a tube or a cylinder – *отвор на цилиндъра (напр. при двигател с вътрешно горене)*; 2. the inside diameter of a pipe, a tube, or a cylinder, such as in a reciprocating compressor, pump, or piston engine – *диаметър на цилиндъра (при двигател с вътрешно горене*. In Bulgarian terminology an example is the term *диапазон*

1. All translations of terms and their definitions from Bulgarian are done by the author.

which can mean 1. област на стойностите на измерваната величина (which is the entity) ('the measured values range') and 2. област на стойностите на скалата на измерване ('measurement scale range').

• **instrument/operator – burner** – 1. the part of a fluid-burning device at which the flame is produced – *горелка*; 2. a worker who uses a flame-cutting torch to cut metals. In Bulgarian, the term *охладител* expresses a similar relation. It can stand for 1. охлаждащ агент – which is the instrument ('refrigerant'): "Хлорофлуоровъглеродните газове (CFC) са били използвани за охладители ... в продължение на години..." ('Chlorofluorocarbons (CFCs) have been used as *refrigerants*...for years...') and 2. система, устройство, уред и др. който служи за охлаждане – the operator ('a cooler'): "Интервалът между почистванията се определя конкретно за всеки вид охладител..." ('The interval between cleanings is individually specified for each cooler type...') (Aleksiev & Kostova, 2009, p.79). In this case, the operator is an inanimate entity, which is the more potential instantiation for this type of relation in the Bulgarian language due to its morphological specificities.

• **action/force – thrust** – 1. to push forward; press onward – *тласкам, бутам*; 2. the reaction force exerted on an aircraft, rocket, marine craft, structure, etc. due to fluid flow, especially a jet, caused by a gas turbine, rocket motor, propeller, etc. – *теглителна сила, упор*; **pressure** – 1. the application of force to something by something else in direct contact with it – *натиск* 2. in thermodynamics and fluid mechanics, the compressive force exerted by the fluid per unit area (unit Pa) – *налягане*. A Bulgarian term expressing the same relation is *съпротивление* which can be regarded in its more general sense: 1. противопоставяне, противодействие ('opposition') and in the meaning of a physical force: 2. силата, с която една среда противодейства на движещо се в нея тяло ('the force a medium exerts on a body moving in it').

• **event/location – drain** – 1. the act of draining; drainage "...deposit or sludge formation is prevented over prolonged drain interval periods" (Woodyard, 2004); 2. A channel which carries off surface water or a pipe which carries off liquid sewage.

• **property 1/property 2 – toughness** – 1. the ability of a material to resist crack initiation and propagation (fracture toughness) – *якост*; 2. the ability of a material to absorb strain energy without fracturing – *якост*. The term *якост* in the Bulgarian language is also not univocally defined. For example, *Politehniчески Talkoven Rechnik* (Artobolevskii et al., 1979) as a definition of *якост*, also provides two definitions: 1. свойство на материалите да не се разрушават в определени условни граници и да възприемат едни или други въздействия ('a property of materials not to be destroyed under certain pre-defined limited conditions and to be subjected to various impacts'), which rather corresponds to the first definition of *toughness*, and 2. якост на

материала, намиращ се продължително в условията на пълзене ('toughness of a material which has long been under creep conditions'), which is closer to the second definition of *toughness* and is represented as a synonym of *издържливост*. On the other hand, the second definition corresponds to the definition of *якост* provided by Milkov (2008) who does not include the term *издържливост*. The term *издържливост* is also not included as an entry in the other dictionaries which are part of the corpus materials. The term *якост* can be also considered polysemous from the point of view of the object it refers to. Thus, the above mentioned dictionary differentiates between 1. *якост на материалите* (toughness of materials) and 2. *якост на конструкцията* (toughness of constructions). The same relation can be found with the term *вискозитет* meaning: 1. *вискозитет на течностите* ('viscosity of fluids') and 2. *вискозитет на твърдите тела* ('viscosity of solids').

• **process 1/process 2 – *truing*** – 1. adjusting a wheel so that its rim is concentric with its axis and its faces which are in a plane perpendicular to the axis – *подравняване, центриране, фино регулиране*; 2. grinding or otherwise machining a surface to ensure it is flat – *фино шлифоване*. An example from the Bulgarian terminological system is the term *девиация* whose dictionary representation reveals the following five cases in which the term can be used: 1. *отклонение на кораб от зададен курс* ('ship deviation from the set course') ; 2. *отклонение на магнитна стрелка на компас; отклонение на компас* ('a compass (magnetic needle) deviation'); 3. *отклонение на радиовълните на приемаща радиостанция* ('a deviation of the radio waves of a receiving radio station'); 4. *отклонение на движението на точка от траекторията за малък интервал от време* ('a deviation of the movement of a point from its trajectory for a small interval of time') 5. *отклонение на честотата от средната стойност при честотна модулация* ('frequency deviation from the frequency modulation average value').

• **container/content – *sluice*** – 1. a passage fitted with vertical sliding gate or valve to regulate the flow of water in a channel or lock – *шлюз*; 2. a body of water retained by a floodgate – *шлюзна вода*.

• **measurement 1/measurement 2 – *turndown ratio*** – 1. the ratio of maximum to minimum flowrates over which a fluid-flow device, such as a steam desuperheater valve, or flow meter, can operate – *коэффициент на намаляване*; 2. the ratio of maximum to minimum firing rates over which a boiler or burner can operate – *коэффициент на намаляване*.

• **entity 1/ entity 2 – *air-release valve*** – 1. a valve that releases air trapped at a high point in a pressurized pipeline filled with a liquid – *изпускателен клапан за въздух*; 2. a valve that prevents liquid in a water-supply, wastewater, or sewage system from coming in contact with the sealing mechanism by creating an air gap – *изпускателен клапан за въздух*. An example from the

Bulgarian terminological system is the term *вихрова помпа* which can stand for: 1. вакуумна помпа, чието действие е основано на понижено налягане по оста на вихъра ('a vacuum pump whose action is based on reduced pressure along the axis of the vortex'). 2. хидравлична машина, предаваща енергията на течността чрез завихрянето ѝ с работно колело ('a hydraulic machine which transmits the energy of a liquid by swirling it by means of an impeller'). Another example is the term *гребен нож* which stands for: 1. зъбонарезен нож ('a gear cutter') and 2. винтонарезен нож ('a threading tool').

• **force 1/force 2 – back pressure** – 1. in a piping system, the pressure that opposes a fluid flow as a consequence of baffles, bends, valves, etc. – *обратно налягане*; 2. the exhaust pressure for an internal-combustion engine – *обратно налягане*.

In the above three examples, the terminological polysemy is a result of one term being used simultaneously in its broader sense and in its more specialized meaning. Usually when the more specialized meaning is concerned the term is accompanied with a short definition in order to avoid misunderstanding. The same goes for the cases of the so called *author polysemy*, when the author chooses to attach additional meaning to an already existing term to better serve the purposes of the specialized text. In those cases, the Bulgarian equivalent is rendered through the broad sense term. In Bulgarian, these terms are also polysemous and are rendered by only one terminological unit, respectively: *коефициент на намаляване, изпускателен клапан за въздух, обратно налягане*.

The other type of terminological polysemy, based on its motivation, is the *metaphorically induced polysemy*, or the so-called *irregular* or *non-systematic polysemy*. The meanings of such polysemous words may be associated to each other secondarily, i.e. their senses may be considered similar by the conceptual systems concerned or may be contextually triggered. Most often, there is a transfer of one and the same characteristic feature between the source domain and the target domain throughout the separate senses of the polysemous term. The following examples of metaphorically motivated polysemous terms were extracted from the corpus materials in the field of marine engineering:

**1. shell** –

1. the case of a pulley block
2. a thin, hollow cylinder
3. a hollow hemispherical structure
4. the outer wall of a vessel or tank

Here, the metaphorical transfer is direct and transparent, based on visual perception and more specifically on the form (2,3), or the form and the function (1,4).

**2. *plug* –**

1. An object, usually tapered, used to block a hole to prevent fluid from escaping or flowing.
2. The central moveable part of a valve.
3. In the flow of a yield-stress fluid through a pipe or duct, the central region often takes the form of a plug with uniform axial velocity.
4. In thermoforming, a shaping tool that forces a heated plastic sheet into a female mould.

Here, 1 is metaphorically transferred onto 2, 3, and 4. The transfer is based on the form similarity to the source domain object.

**3. *quench* –**

1. The process of rapid-cooling by plunging an object into a bath of water, oil, salt, molten metal, or other media.
2. The suppression of combustion.
3. In a piston engine, the cooling of a fraction of the gases during combustion, typically by reducing the clearance between the piston crown and the cylinder head

Here, the metaphorical transfer is based on the action characteristics.

Metaphorically-induced terminological polysemy in the Bulgarian language is an even more rarely encountered phenomenon than in the English language. In her investigation on polysemy, resulting from a metaphorical transfer, Popova (2012) proves that although present such cases are not common. The results from her research conducted on terminological dictionaries show only one case in the field of biology, three – in the field of chemistry, five – for physics, four – for geography, and four – for linguistics. Popova also highlights that metaphor is a more productive source in the cases of terminologization an reterminologization.

Another type of polysemy may occur due to polysemantic affixes which have been analysed by Toncheva and Velikova (Toncheva, 2003 cited in Velikova, 2017). The suffixes *-age* and *-ing* have been discussed in their capacity to form polysemous terms. The suffix *-age* generates meanings such as: 1. aggregate or whole; 2. process; 3. outcome; 4. measure or charge (Toncheva, 2003 cited in Velikova, 2017), and the suffix *-ing* generates meanings such as: 1. (from verbs) the action of, process of, result of, or something connected with a verb; 2.

(from other nouns) something used in, consisting of, involving, etc. (Velikova, 2017). In the field of marine engineering an example can be the noun *linkage*, meaning: 1. the action of linking; 2. the state of being linked; 3. a system of links, as well as the noun *gearing*, meaning: 1. the act or process of providing or fitting with gears; 2. the parts by which motion is transmitted from one portion of machinery to another.

## Conclusions

The excerpted examples show that the cases of regular polysemy outnumber the cases of irregular polysemy in both the English and the Bulgarian terminological systems of marine engineering. This means that the categories are logically related and sense extension is more readily achieved on the basis of metonymical transfer. This probably is due to the more systematic character of regular polysemy and the fact that the strife for systematicity is typical for specialized languages. The results also show that in both languages it is predominantly nouns and nominal deverbal forms whose meanings are extended to polysemous terms. In the cases of the verbs, it is usually the action which has additionally acquired the nominal meaning as in the instances of *action – force* and *action – event* terms.

Some of the instantiations of polysemy are not directly and overtly expressed but are only contextually identifiable. These cases are not usually included as dictionary entries and are only revealed by the immediate constituents of the sentences. It can be concluded that the additional meanings developed by polysemantic terms can be regarded as a manifestation of and explained through the principle of linguistic economy since a maximum amount of information can be transferred through a minimum amount of lexemes with a minimum loss of linguistic meaning.

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