Lexical analysis of two-word terminological phrases within distribution system

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ABSTRACT: This paper presents the analysis of two-word terminological phrases within distribution system, the specifics of word formation as well as the aspects of interrelation between expert terminology and general vocabulary. Certain lexical and semantic principles in power system terminology in Serbian were pointed out through the analysis of paradigmatic relations, as well as the variation i.e. consistency of their phrasal form upon translation into English. Cross-language influences are particulary discussed, especially foreign origin terminology penetration in the Serbian language. Research results indicate that analysed terms used in its syntactic form can hardly be applied outside the terminology circle which they belong to, given its precise reference to a specific phenomenon within the power system, the mode of operation of a specific device or the entire system, an individual part or the wide range of components used in the system, the position or different circumstances peculiar to this profession.

KEYWORDS: two-word terminological phrases, power system, distribution system, the lexeme origin, translation equivalents

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1 Introduction

As a profession with a large rise in the last decade at the global level, the energy has taken a leading role in society which brought about the publishing of a large number of scientific papers and glossaries in this area. Some of the most prominent glossaries in the field of energy are available via the Internet. Such as, for example,

EDF energy – Glossary of terms energy,[1] Bishop Victor-International Glossary of Biochemistry, Construction, Energy & Power Engineering,[2] Glossary of U.S. Energy Information Administration,[3] Glossary of electric industry terms.[4] The development of energy as a discipline is consequently accompanied by a growing number of terminology units. For this reason, a list of terms and their analysis, along with its general importance for business, education and communication, has an essential role in identifying the foreign terms impact on Serbian language (and culture as well) and represents an inseparable component of energy as a scientific discipline.

Although there is a large number of surveys related to general principles in terminology and detailed linguistic analysis of the power system terminology, an incentive for this research was "Linguistic analysis of scientific style of Russian and Serbian language in the field of electrical engineering," a doctoral thesis by Nadežda Lainović-Stojanović (Лаиновић-Стојановић, 1996).

Though frequently used, power distribution terms lack detailed lexical analysis which was the reason and incentive for the research of two-word terminological phrases of power system in Serbian, along with their equivalents in English, in order to bring this lexical system closer to its professional circles, at least to some extent.

This paper was a result of the power distribution utility companies' need for the translation of Electricity Distribution Grid Code into English.[5] As a by-law, this document is mandatory for the standardization of work, planning and maintenance of the power distribution system, respecting the rules of standardized technical terminology in both Serbian and English language.

Given the small number of enlisted terms[6] in the power system in Serbian, the list of these specialized phrases is one of the goals of this paper.

[1] https://www.edfenergy.com/large-business/glossary

[2] http://gen.lib.rus.ec/book/index.php?md5=FD402172420BD18B069D99A7DDB2FBF2

[3] http://www.eia.gov/tools/glossary/index.cfm?id=M

[4] https://www.xcelenergy.com/staticfiles/xe/Regulatory/EEIGlossaryIRPEEI2005Definitions.pdf

[5] The Electricity Distribution Grid Code document is available at: http://www.propisionline.com/IndOk/Legislation/52592

[6] Apart from the obligation of the European Integration Office of the Republic of Serbia, to translate the entire corpus of the EU *acquis communautaire*, as one of the goals for the Serbia's accession to the European Union, respecting the principle of expert, legal and linguistic review, no other serious attempt of collecting terms in the energy sector has been registered. The only significant attempt in terminology base creation was the manual published within Public Enterprise (PE) Elektroprivreda Srbije in 1997, published by the Electricity Coordination Center. "Statistical terminology used in the electric power industry in Serbian, English and French" was published with a goal to create a unique terminology for the experts in the field of statistics in PE Elektroprivreda Srbije. Although the terminology enlisted in this manual is not comprehensive, it still

2 Lexical analysis

As a part of the vocabulary that includes a set of special words and phrases from a specific scientific, technical and professional field, the terminology is very important for accurate and effective communication within the appropriate specialized language whereas a unified and precise terminology is crucial for proper translation of texts (Влада Републике Србије, Канцеларија за европске интеграције, 2013). As a scientific discipline, the terminology covers three basic concepts such as: basic principles and concepts that underpin the study of terms, the guidelines that are used in terminology work as well as the set of terms of the specific field (Castellví, 1999).

Electricity Distribution Grid Code contains more than a thousand two-word terminological phrases, but only the most frequently used phrases are selected for the purpose of this paper. Appendix at the end of this paper shows terminological phrases in Serbian and English with the origins of its constituents. Note: Columns signifying the origin of the first or the second lexeme are only filled in if lexemes are of foreign origin.

As it was emphasised in this analysis, the most frequent phrases in Serbian are adjective + noun phrases. Phrases such as noun + noun in the genitive case are also often used, and it will be discussed later in the paper.

A few examples of two-word terminological phrases such as adjective + noun, both of foreign origin, are given here:

elektroenergetski sistem	'power system'
energetska analiza	'power analysis'
stacionarni režim	'stationary regime'
energetski transformator	'power transformer'

As a discipline focused on collection, analysis, definition and presentation of terms that belong to a specific professional field, the primary role of terminology is finding the right equivalents for technical terms in the source language i.e. creating relations between terms and concepts that they represent (Bowker, 2015). There is a significant number of international technical terms among the analysed lexemes that retained their meaning from the language they are taken from. Majority of lexemes from the analysed corpus originate from Latin, while a significant number comes from Greek. In a few cases, analysed lexemes originating from Latin or Greek entered the Serbian language through French, German and English. Table 1 shows the lexemes

represents a positive attempt to create a database for some of the most frequently used terms.

of foreign origin with regard to their total number in the analysed corpus, classified according to the language they originate from.

Language	**Lexeme**	**Number of words**	**Perc.**
Latin	activus, apparatus, armarium transformator, coefficiens, consumere, polus, obiectum, condensator, minimalis, maximalis, differentialis, contactus, generator, factor, stationarius, combinare, frequens, directus, magnetizare, distributivus, frequentia, primarius, secundarius	24	11.0%
Greek	analysis, charakteristikos, elektron, energeia, energetikos, kriterion, metron, parallelos, pausis, phasis, synchronos, systema, thermos	13	6.0%
French	batterie, groupe(ital. gruppo), reserve, regime (lat. regimen), electrique (gr. electron)	5	2.0%
German	schema (gr. schema)	1	0.5%
English	impedance (lat. impedire), flick	2	1.0%
total		**45**	**21**%

Table 1: Foreign origin lexemes

In addition to the lexemes shown in Table 1, which are of international origin and which are already incorporated in the Serbian technical language, whilst retaining the meaning from their language of origin, it is important to point out the examples with different meanings of seemingly identical terms which can create confusion in translation because of their "mismatch". Such terms are called "false friends". False friends are words that sound the same but have different meaning in the two languages. Thus, the term regulator which is defined as a device used for automatic voltage control (*naponski regulator* 'voltage controller') in Serbian or device used for the turbine rotational speed control (*turbinski regulator* 'turbine controller'), is marked by the lexeme 'controller' in English.

On the contrary, the lexeme 'regulator' in English defines the regulatory body (institution), such as the Energy Agency. It is a noun of Latin origin and designates "the automatic maintenance of a balanced work" (Anić et al., 2002). Similarly, Serbian equivalent for the term 'capacity' is *instalisana snaga* (rather than *kapacitet*). This term is related to the electric element – capacitor. The term *transformatorska stanica* has an equivalent in English in the concept of 'substation' which, translated as such into Serbian, clearly refers to heat energy and heating rather than power system.

Another example frequently used in language for specific purposes (LSP) is the phrase *upravljanje sistemom* 'system control', where 'control' is not control in terms of supervision or audit but technical management of the system, notwithstanding that it was implemented by various control devices (regulators) or human factor that performs manipulations (connection and disconnection of the system elements) in the system. In this regard, it is noted that there is no unambiguous mapping from one language to another and that the terminology of foreign origin was adopted into Serbian technical language with prior detailed analysis of experts in a given field, relying on the practice in our region for more than a century. Such terminology is, in the analysed corpus of power system profession, now completely adapted and adopted.

The largest number of terminological phrases in analysed corpus of the Serbian language has phrase model adjective + noun which is most frequently translated into English as a phrase model noun + noun, as the most common one in English. Thus, from the above-mentioned examples we can see that only phrase *stacionarni režim* 'stationary regime' is translated into English by the same model adjective + noun, while the rest are translated by noun + noun model.

Moreover, we frequently have cases of foreign origin adjective in a combination with the noun of Slavic origin, such as:

re/aktivna snaga	're/active power'
transformatorsko	polje 'transformer bay'
in/direktno merenje	'in/direct (electricity) metering'
diferencijalna zaštita	'differential protection'
električni luk	'electrical arc'

Though it is not often the case, there are examples of an adjective of domestic and a noun of foreign origin in the analysed corpus.

merna grupa	'metering group'
prenosni sistem	'transmission system'
kružna frekvencija	'angular frequency'

There are several phrases examples in the analysed corpus of Serbian language where both lexemes are of domestic origin:

pad napona	'voltage drop'
vršna snaga	'peak power'

spojno polje	'busbar coupler'
uklopna šema	'topology diagram'
kratak spoj	'short circuit'

Having analysed the phrases, one can conclude that a very small number of examples has synonyms (which can be attributed to the precision and exactness of the analysed discipline), nevertheless, among these examples we have both parallel and equal use of domestic and foreign terms, so that *nazivni*, *naznačeni* or *nominalni napon* in the Serbian language is equivalent to 'rated voltage' in English. Similarly, the term *mala* or *mini hidroelektrana* is translated into English as 'small power plant'. Another example, *jednofazni* or *monofazni priključak* is translated into English as 'single phase connection'. Although the terminology variations and synonyms are typical for standard language, the spontaneous, free and unmotivated use of lexical variants and synonyms is not in the interest of any profession, precisely because it leads to inconsistencies in the use of its terminology (Schmitz and Straub, 2010). Therefore, it is necessary that each area of expertise shall establish its own terminology eliminating ambiguity and variations in terminology. Creation of terminology bases, such as database that contains information about the areas of application of certain concepts and terms that denote them (Melby, 2012), is one of the key elements in the standardization of terminology and basic precondition for achieving high quality in terminology work.[7]

Among terminological phrases of domestic origin, there is a certain number of phrases translated into English concisely, with a phrase consisting of a single lexeme (monolexemic word), such as:

transformatorska stanica	'substation'
razvodno postrojenje	'switchyard'
raskidač (strujnog) kola	'recloser'
instalisana snaga	'capacity'
električna energija	'electricity'
merni (razvodni) orman	'cubicle'

[7] Inter-Active Terminology for Europe (IATE) is the inter-institutional terminology database of the European Union and one of the biggest terminology databases of the EU institutions (http://iate.europa.eu/SearchByQueryLoad.do?method=load). Another positive example is Evroteka, the terminology database of the European integration Office of the Government of the Republic of Serbia (http://prevodjenje.seio.gov.rs/evroteka/index.php?jezik=engl).

Although there are monolexemic words in Serbian language translated into English as two-word terminological phrases, there are no such examples in the analysed corpus. However, there are multi-word phrases in English with its equivalents in two-word phrases in Serbian, such as:

dalekovodno polje	'overhead line bay'
podzemni vod	'underground power line'
generatorski prekidač	'generator curcuit breaker'
spojni prekidač	'connection circuit breaker'
mala elektrana	'small power plant'
visokoučinski osigurač	'knife blade fuse'
struje zemljospoja	'earth fault current'

As previously mentioned, frequently used phrase model in Serbian noun + noun in the genitive case is translated into English by the phrase model noun + noun, as in the following examples:

pad napona	'voltage drop'
gubitak snage	'power loss'
rastavljač snage	'power disconnector'
predaja energije	'electricity delivery'
mesto priključenja	'connection point'
odvodnik prenapona	'surge arrester'

It is interesting to note that certain examples of the phrase model adjective + noun and noun + noun in the genitive case in Serbian are translated by participle + noun model into English:

koeficijent svođenja	'referring coefficient'
pogonska snaga	'operating power'
rasklopni aparat	'switching device'
merna grupa	'metering group'
grana magnećenja	'magnetizing branch'

A limited number of examples in Serbian have the phrase model adjective (past participle) + noun translated into English as past participle + noun:

odobrena snaga	'approved power'
dozvoljena struja	'allowed current'
kombinovani rad	'combined operation'
naznačena struja	'rated current'
naznačeni napon	'rated voltage'

One fifth of the total number of analysed lexemes are of foreign origin. Only 13% of analysed corpus are two-word phrases where both constituents are of foreign origin, even 44% of phrases is characterized by the lexemes of domestic origin along with the remaining 43% of combined origin (where the first constituent is of foreign and second of domestic origin or vice versa). Most examples represent the phrase model adjective + noun (up to 84%) while the remaining 16% are modeled noun + noun in the genitive case. Figure 1 illustrates the percentage of domestic and foreign origin lexemes presence in the sample of 107 terminological phrases.

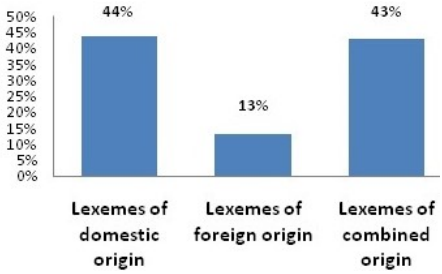

Figure 1. The origin of the phrase constituents in percentage

2.1 Word formation analysis

This section presents the main derivation and compositional abilities of lexemes within the two-word terminological phrases in Serbian and is represented by inventory of affixes within the analysed corpus.

Suffixation Having in mind the suffixation as a morphological process whereby a bound morpheme is attached to the end of a stem in analysed corpus, most examples in Serbian are characterized by adjective suffixes *–an* / *–ni* and *–ski*, while there are only two examples of *–ov* suffix, as in the following examples:

-an/-ni: sinhroni generator, vršna snaga, distributivni objekat/mreža, diferencijalna zaštita, dozvoljena struja, električna energija, električni luk, zaštitni namotaj, zaštitni uređaj, instalisana snaga, karakteristična impedansa, kombinovani rad, kružna frekvencija, konzumno područje, kontaktni termometar, maksimalno/minimalno opterećenje, merna oprema/grupa itd. (51 phrases in total consist of lexemes formed by suffix *-an/-ni*);
-ski: generatorski prekidač, energetski pretvarač/transformator, energetska analiza, kondezatorska baterija, ostrvsko napajanje, ostrvski rad, pogonsko stanje, pogonska snaga, transformatorska stanica/polje;
-ov: Buholcova zaštita, Tevenenova impedansa.

There are a few examples of noun suffixes:

-ač: rastavljač snage, raskidač kola, generatorski prekidač;
-ost: sigurnost napajanja, kriterijum sigurnosti;
-nik: odvodnik prenapona;
-ak: gubitak snage.

Figure 2 illustrates the use of the suffixes in lexemes for 107 analysed phrases.

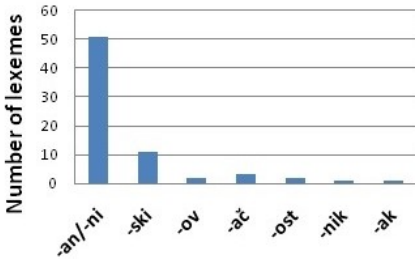

Figure 2. Suffixes

Prefixation Bearing in mind the prefixation as a morphological process of the analysed corpus in Serbian, most frequently used prefixes are of domestic origin: *pod-, nad-, pri-, pre-, raz-* and *bez-*. The emphasis is on the prefixes that form prefix-suffix derivates as shown in the following examples. In the following phrases, the first lexemes are characterized by adjective and prefix both of domestic origin:

beznaponska pauza 'voltage interruption'

nadzemni/podzemni priključak	'overhead/underground connection'
prenaponska	'overvoltage/undervoltage
(nadnaponska)/podnaponska zaštita	protection'
nadpobuđeni/podpobuđeni režim	'underexcitation/overexcitation regime'
prividna snaga	'apparent power'
priključni vod	'connection line'
razvodno postrojenje	'switchyard'
rastavljač snage	'power disconnector'

A combination of domestic origin prefix along with the foreign origin adjective rarely appears.

nadfrekventna/podfrekventna[8] *zaštita*	'overfrequent/underfrequent protection'

The following lexemes from the analysed corpus are formed by prefixes and adjectives, both of foreign origin and, as such, they are adopted in our use:

asinhroni generator	'asynchronous generator'
indirektno merenje	'indirect electricity metering'
reaktivna snaga	'reactive power'

Composition Each compound word is formed by joining stems of two or more separate words into single one, as in the following examples:

zemljospojna zaštita	'earth fault protection'
prekostrujna zaštita	'overcurrent protection'
kratkospojna zaštita	'short-circuit protection'
jednopolna šema	'single-line diagram'
jedno/trofazni priključak	'single/three-phase connection'
visokoučinski osigurač	'knife blade fuse'
poluindirektno merenje	'semi-indirect electricity metering'

[8] Lexemes "podfrekventan" and "nadfrekventan" are taken from the Electricity Distribution Grid Code as an official by-law. As we notice, the voicing assimilation in Serbian was not performed. Therefore, such form is maintained in this paper.

Bearing in mind that some authors considered *polu-* as prefix, primarily because it often serves to partially deny the same stems which prefix *ne-* denies entirely, limiting or mitigating the meaning of the adjective, the categorical affiliation of this formant is hard to determine because this element is very productive and helps in creating new words which is the reason why this formant is analysed as a compound word (Клајн, 2002, pp. 81, 116).[9]

There are several examples of phrases containing compound suffix derivatives:

dalekovodno polje	'overhead line bay'
elektroenergetski objekat	sistem 'power facility / system'

In the analysed corpus of Serbian language, compounds are formed by joining stems by the connecting vowel *-o-*. The only exception was made in the phrase *poluindirektno merenje* where the vowel *-u-* could be considered as a connecting vowel added on the stem *pola* or *po(l)* unless we take into consideration the interpretation of Barić (Barić, 1980, pp. 18–19), where the *polu-* is a prefix (Клајн, 2002, p. 25).

Analysing the total number of lexemes in question, it is easy to perceive the limited number and repetitive character of both prefixes and suffixes that form it (there are nine different forms of prefixes in the analysed corpus along with seven different forms of suffixes), which is the characteristic of the technical field concerned. Although they show greater diversity of formants at first glance, prefixes are much less used for the formation of the analysed corpus (only 17%), while the suffixes are present in 65% of examples. This certainly does not diminish their importance and irreplaceability in the formation of specific terminology database. Furthermore, only eight lexemes of the analysed corpus can be considered the true compounds characterized by clear motivation of both parts of lexemes which is certainly typical for technical field and its exactness, whilst only three phrases contain lexeme which is a compound-derived suffix.

There are 71 lexemes formed by suffix, 17 lexemes formed by prefix and only 11 compound lexemes in the 107 analysed phrases, as illustrated in Figure 3.

[9] An interesting question would be: why this terminology phrase is not set as *poludirektno merenje* instead of the *poluindirektno* because linguistically it is difficult to discern the difference between them. However, there is still a difference because the 'indirect metering' is made through a converter, voltage and current transformers. If we omit one of them, we get 'semi-indirect'. On the other side, as implied by name, the direct metering considers metering without voltage and current transformers via the electricity meter (in this sense, 'semi-direct' as a term in the power system is not used although it would basically mean the same).

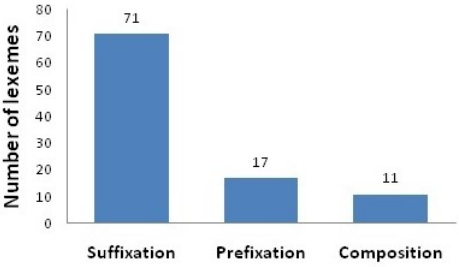

Figure 3. Word formation

3 Lexical and semantic features of terms

Although technical terms analysed by this paper are mostly monosemantic, it is very interesting to analyse their paradigmatic relations too (especially for the polysemantic terms), so the terminology analysis of lexical and semantic approach is addressing one of the most important linguistic issues: issues of polysemy, antonymy and synonymy, which is analysed by this section.

3.1 Polysemic terms

Though the uniformity of terms is of crucial importance in terminology standardization, it is very difficult to implement it completely. Given the fact that the technical terms belong to general vocabulary as well, considering the specificity of the analysed discipline, the right question is whether these terms, i.e. terminological phrases, can in general function independently of the terminology which they belong to?

Certainly, there are examples of terms functioning only in the closed terminology circle. The information as to which terminology field such terms belong to appears in the Dictionary of the Serbian language (DSL), published by Matica Srpska (Матица српска, 2011). For example, the qualifier *fiz.* precedes the lexeme generator which confirms that the term *generator* is the unit belonging to terminology field of physics. In this regard, it is hardly possible to use this term outside its field of terminology. However, due to the fact that the terms are units of the general language, with its defined conceptual content and the new one they develop in contact with other lexical units, when they leave their terminology field and enter the language of journalism and subsequently the standard language, they start to imply its explicit conceptual content, enriching it and developing the relevant elements of implementation (Гортан-Премк, 2004, pp. 122–123). When they develop it (even partly),

they begin with the creation of different lexical systems; they start developing polysemy (Гортан-Премк, 2004, p. 123), such as *generator brojeva* in the lottery, as an example of metonymy.

Terms have limited ability to develop polysemy. Such trait lies in the dualistic nature of the term as a sign of its belonging and the general vocabulary, and thus is subject to all the lexical laws, including polysemy (Гортан-Премк, 2004, p. 119). At the same time, the term belongs to a specific terminology field, having tendency for realization of monosemy as a symmetrical relation between the sign and the concept that is in its semantic content. That is the reason why the terms cannot develop its semantic structure by metaphorical means. However, they can develop it by metonymy and synecdoche very rarely by giving the secondary meaning. In the analysed corpus, we have the examples of the presence of the same term in different terminology fields but with different conceptual values. However, this phenomenon should be distinguished from the homonymy which is based on the similarities of form and disconnectedness of content (Шипка, 2006, p. 61). Actually, homonymy is the existence or the possibility of existence of two or more different semantic contents but according to external appearance, apparently in the same form (Гортан-Премк, 2004, p. 150).

The main reason for polysemy is considered to be the existence of considerably more objects and phenomena in comparison to the number of lexemes that could be used for naming these (Драгићевић, 2010, p. 130). If everything would have a separate title, we would not be able to communicate because we would not be able to remember all the existing lexemes. However, according to this author, the lack of vocabulary should not be characterized by the poverty of one language but by limited cognitive abilities of the language users. The derivation of meaning arises from the basic set of meanings of a lexeme, i.e. its polysemantic structure and consists of primary / basic / designative and secondary meanings (Драгићевић, 2010, p. 131).

Only 37 phrases from the analysed corpus of 107 terminological phrases contain a polysemy noun that is used outside its terminology field. Those are the following: *aparat*, *baterija*,[10] *vôd*,[11] *generator*, *gubitak*, *grana* (*magnećenja*),[12] *grupa*, *energija*,

[10] Noun *baterija* can be considered only in its syntactic form as it appears in the analyzed corpus and that is *kondenzatorska baterija*, because only in this way it undoubtedly refers to the element in the power system, which does not accumulate or convert energy from one form to another (a characteristic of the battery in general is to convert chemical energy into electricity and vice versa), but plays an important role in the compensation of reactive power.

[11] This noun indicates the power line via which the user (power plant or a consumer) is connected to the power system. As such, this noun realizes its secondary meaning.

[12] *Grana magnećenja* is known as lateral or island branch in the power sector. Although it is not present in the Dictionary of Serbian language of Matica srpska Матица српска

zaštita, *kolo*,[13] *lûk*,[14] *mesto*, *merenje*, *mreža*,[15] *napajanje*,[16] *napon*,[17] *objekat*, *oprema*, *opterećenje*, *osigurač*, *pogon*, *područje*, *polje*, *rad*, *režim*,[18] *svođenje*, *sigurnost*, *sistem*, *snaga*, *spoj*,[19] *stanica*, *stanje*, *struja*, *uređaj*, *upravljanje*, *frekvencija*, *šema*.

These 37 polysemy nouns are 17% of the total number of lexemes in the analysed corpus. However, a huge number of polysemic nouns are used more than once in different context, such as: *zaštite* (čak 11), *snage* (takođe 11), *opterećenja* (4), *struja* (5), *vodova* (3), *merenja* (3), *polja* (3), *rada* (3), *režima* (3), *sistema* (3), *generatora* (2), *energije* (2), *mesta* (2), *napajanja* (2), *napona* (2), *objekata* (2), *pogona* (2), *sigurnosti* (2), *stanja* (2), *uređaja* (2) i *šema* (2).

The meaning of the lexemes according to the DSL	**Number of lexeme**
Primary	16
Secondary	21
total	**37**

Table 2: The number of lexemes according to their meaning in DSL

Although analysed lexemes can co-exist in the general vocabulary, if isolated from the phrases we have analysed and used in syntactic relation of LSP, they lose such ability since they undoubtedly point to a particular occurrence in the power

(2011), magnetizing is defined as the process in which electrical energy is transferred by magnetic domains of ferromagnetic core of electric machine or it is defined as core magnetizing (in order to operate properly, the electric machine needs to magnetise its core).

[13] This noun defines the closed conductive flow by which the current circuit is closed: the current circuit.

[14] This noun defines the current flow through the low conductive environment whereby a large amount of heat which has strong light effect is released.

[15] According to DSL, the definition of the term analyzed here is on the 5th place, which means that the lexeme expanded its semantic structure by metaphorical way and got terminological meaning.

[16] This noun does not exist in DSL. It comes from the verb *napajati* which in its primary form represents a continuous verb according to napojiti se, but in its secondary meaning it means to supply, to replenish (the water, electricity etc.) according to DSL.

[17] The difference in the potential between two points is in the current circuit or electric field, which allows the flow of current through the closed circuit.

[18] It refers to a specific system operating condition. In the analyzed corpus there are: *stacionarni režim*, *podpobuđeni režim*, *nadpobuđeni režim*.

[19] In the analyzed corpus the following noun is not enlisted in the DSL: *zemljospoj* (fault current), which defines the current value after one of the three phase conductors touches the zero potential.

system, the position or the wide range of components used in the system. Therefore, the conclusion is that analysed terminology field is in its majority very hermetic. Table 2 shows the number of polysemic lexemes according to its meaning in the DSL.

3.2 Antonimy

While the nouns reflect polysemy in the analysed phrases, the adjectives reflect antonymy as in the examples below:

minimalno opterećenje –	'minimum load' –
maksimalno opterećenje	'maximum (peak) load'
podzemni vod/priključak –	'underground power line/connection' –
nadzemni vod/priključak	'overhead power line/connection'
podpobuđeni režim –	'underexcitation regime' –
nadpobuđeni režim	'overexcitation regime'
podfrekventna zaštita –	'underfrequent protection' –
nadfrekventna zaštita	'overfrequent protection'
prenaponska (nadnaponska) zaštita –	'overvoltage protection' –
podnaponska zaštita	'undervoltage protection'[20]

Whether examples of lexemes given are gradable antonyms or not, they belong to the same lexical and semantic group which means they have the same basic meaning of the word. In most cases, the selected adjectives have complex structure created in word formation, as it is the case with their antonyms.

In addition to that, there are certain examples of phrases presenting lexical antonyms but keeping in mind the difference in power system functioning, they do not have opposing function, so they can be described as complementary antonyms,[21] such as:

jednofazni priključak –	'single phase connection' –
trofazni priključak	'three-phase connection'
primarna struja –	'primary current' –
sekundarna struja	'secondary current'
primarni namotaj –	'primary winding' –
sekundarni namotaj	'secondary winding'

[20] There are two types of voltage protection and accordingly, the antonymy relationship cannot be: voltage – undervoltage or voltage – overvoltage protection.

[21] Reflecting the similarity in diversity of non-linguistic reality as well as the vocabulary part that it reflects, the antonymy embodies the opposite between the two lexemes. In accordance with the nature of this contradiction, it is possible to distinguish at least five basic types of antonyms - gradable, complementary, diametric, reciprocal and reversive (Prćić, 1997, p. 102).

direktno merenje –	'direct electricity metering' –
indirektno merenje –	'indirect electricity metering' –
poluindirektno merenje	'semi-indirect electricity metering'
aktivna snaga –	'active power' –
reaktivna snaga	'reactive power'
sinhroni generator –	'synchronous generator' –
asinhroni generator	'asynchronous generator'

In its prototypical manifestation, complementary antonymy expresses the impossibility of comparing the observed situations and things (Prćić, 1997, p. 105).

Among the analysed phrases, there is an example: *dozvoljena struja* that actually implies the 'maximum allowed current' where the maximum is understood and thus often excluded from the phrase, even in written texts. It also does not have its own antonym, which means that there is no 'inadmissible current' or 'minimum allowed current'. The same goes for *odobrena snaga* where its antonym in the general vocabulary is 'unapproved', and does not exist as such in the analysed field. In analysed corpus there is also an example: *prekostrujne zaštite*, while, analogous to the above examples, 'undercurrent protection' does not exist. The same holds true for *visokoučinski osigurač* which is translated as 'knife blade fuse' and has no antonym as *niskoučinski osigurač*.

Antonymy appears in basic lexemes; precisely in those lexemes demonstrate polysemy and derivation and which exclude synonymy (as a secondary lexical phenomenon). This leads to a conclusion that antonymy, together with variation (polysemantic and derivation), is the main mechanism in the organization of the lexical system (Гортан-Премк, 2004, p. 149). The same holds true for the lexical system of power sector as well.

In relation to the total number of examples in the corpus of 107 analysed terminological phrases, the 12 antonym pairs are selected (out of a total of 25 terminology phrases), which means that the antonymy occurs in 23% of cases in relation to the total number of phrases. It means that antonymy is largely the foundation for the formation of this terminology circle. The examples of synonymy in electricity or distribution terminology are rare, perhaps due to the specific nature of this discipline that is inclined to the greatest possible accuracy and precision. Only two examples can be selected in the analysed corpus where both lexemes are of domestic origin:

prenaponska zaštita – nadnaponska zaštita	'overvoltage protection'
grana magnećenja – poprečna grana – otočna grana	'magnetizing branch'

Both domestic and foreign origin terms are used as equivalents in translation into Serbian for the phrases: 'rated voltage', 'small power plant', 'single phase connection', as synonyms, which has already been discussed.

Table 3 shows an overview of the analysed lexemes according to their formative abilities for the sample of 107 analysed phrases.

4 Cross-language impacts and penetration of terminology from other languages

Even though modern experts in the field of power sector believe that every technical term in foreign language needs to have an appropriate equivalent in Serbian, there are a number of terms that are international and, as such, have been already incorporated in the vocabulary of modern Serbian language and adapted to its script and structure. This, of course, has numerous advantages such as the unification of terms which facilitates communication among scientists and experts in lectures, conferences and business contacts and also facilitates the use of technical and scientific literature. Taking into consideration the fact that language is a living process, this phenomenon is quite natural and expected, especially for the modern time, which is, among other things, characterized by the global connection of distant peoples and languages. Moreover, one of the key reasons why some terms are taken over is the dominance of the language of the nations whose science has a leading role in a global society.

Word formation mode			**No. of lex.**	**Perc.**
Compounds			8	7.5%
Compound suffix derivatives			3	3.0%
Prefix (prefix-suffix) derivatives: *nad-*, *pod-*, *raz-*, *pri-*, *in-*, *bez-*, *a-*, *in-*, *re-*			18	17.0%
Suffix word formation	Noun suffixes		7	6.5%
	Adjective Suffixes:	*-an/-ni*	49	46.0%
		-ski	11	10.0%
		-ov	2	1.9%
Polysemantic lexemes			37	34.5%
Antonymy			25	23.0%
Synonymy			5	4.7%

Table 3. Terminology phrases shown by the number of lexemes and their percentage in the analysed corpus

As regards Serbian language, it was strongly influenced by English in the past few decades, and the presence of certain terms which we can say are uncritically adopted has been noted. However, the attempts of modern power engineers to find the right equivalent in Serbian for the technical terms in English are encouraging. One of the most prominent examples of uncritically adopted term is 'recloser' which was at first translated as an *inteligentni linijski prekidač* and then as *uklopnik* (keeping its original form). Due to the fact that energy as a professional field is rich with devices that interrupt electrical circuits which are referred to as circuit breakers, it is clear that *inteligentni linijski prekidač* was not clearly pointing to the object it was representing and it was therefore necessary to make a difference in relation to the other switches. Thus, the term *raskidač* was accepted as its equivalent in Serbian language.

5 Conclusion

Although every scientific field can boast of distinct terminology, there are not many technical fields experiencing such expansion in recent years as it is the case with the power sector. Along with its development, but adapting to the trends and needs of modern society, there is a new, specific vocabulary which enriches our standard language at the same time through different media.

Considering the specific nature of this technical and scientific sector which is characterized by a universal tendency towards more precise and more exact, this feature is found on the morphological level where each phrase, used in the singular (or plural) is translated by the same number into English. Deviations from the general accuracy are found in the examples of two-word phrases in Serbian, which are translated into English by a single lexeme or in the examples of multi-word structures as their English equivalents are the two-word phrases in Serbian language.

Analysing the examples of the corpus, it is concluded that phrase constituents (standard lexemes) can coexist in the general lexical system even isolated from the analysed phrases, independently, yet they would lose such ability if used in syntactic relation of LSP because, since as such, they lack an inherent language generally and unambiguously signify a specific occurrence within the power system, the position or the devices necessary for the functioning of the system. This is supported by the fact that such words are used with the noun and function as attributes thus forming noun phrases characteristic for the power sector. For this reason, it is very difficult to use these terminological phrases independently of the terminology field which they belong to and thus they remain closed in its terminology circles. These phrases represent the unity of the concept and performance, making internal "form" of language (Белић, 1958), and we can freely add LSP.

In relation to the total number of analysed lexemes of the phrases in this paper, only a fifth of the entire collection of terms are of foreign origin (mostly taken directly from Latin and Greek, or taken over from French, German and English and adapted into Serbian). Only 13% of the analysed phrases consist of foreign origin lexemes, even 44% is characterized by the phrases in which both lexemes are of domestic origin while 43% is of combined origin, in the analysed corpus of 107 terminological phrases. Although the number of prefixes or suffixes is reduced to only a few different formants (there are nine different forms of prefixes and seven different forms of suffix in the analysed corpus), prefixes are less used for the formation of the analysed terminology corpus (17%) while the suffixes are present in even 65% of examples, compared to the total number of analysed lexemes. Nevertheless, although their derivation role is not the same in the formation of specific terminology base, it is equally important. In addition, only 11 lexemes of this selection have complex structure which is characterized by clear motivation of both lexemes in a phrase. A limited number of lexemes in the phrases analysed (only 37 of them), demonstrates polisemy. The characteristic of closed terminology circle is even confirmed by the examples of synonymy that are very rare (only five lexemes showed this trait) in the analysed corpus, while the antonymy is one of the most important mechanisms in the organization of the lexical system of the analysed professional field (23% of the analysed corpus).

Since analysed terminological phrases reflect a comprehensive knowledge of the power system field that provide a linguistic and conceptual accuracy by its semantic characteristics, even though their lexemes show a tendency to create antonyms, rarely creating synonyms and resisting polysemy, this research has shown that their exclusive reference to its own terminology circle is undubitable and that different relationships cannot be established in neither standard nor even in the informal use.

Given that this study is done on a small sample of terminological phrases, this linguistic analysis provides only a partial response to lexical issues analysed in this paper. Although modest in contribution, this paper represents an important starting point and a good foundation for further translation of official documents in power sector such as technical recommendations and internal standards that shall supplement the Electricity distribution Grid Code. In addition, it represents a solid incentive to consider lexical issues in professional circles in order to reach precise determination of the meaning of certain terms and terminology standardization within the specialized profession.

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Appendix – Terminological phrases in Serbian and English with words origins[22]

	Terminological phrase in Serbian	The origin of the first lexeme	The origin of the second lexeme	Terminological phrase in English
1	aktivna snaga	lat. *activus*		active power
2	asinhroni generator	gr. *synchronos*	lat. *generator*	asynchronous generator
3	beznaponska pauza		gr. *pausis*	voltage interruption
4	Buholcova zaštita			Buchholz protection
5	visokoučinski osigurač			knife blade fuse
6	vršna snaga			peak power
7	vršno opterećenje			peak load
8	generatorski prekidač	lat. *generator*		generator circuit breaker
9	grana magnećenja		nlat. *magnetizare*	magnetizing branch
10	gubitak snage			power loss
11	dalekovodno polje			overhead line bay
12	direktno merenje	lat. *directus*		direct electricity metering
13	distributivna mreža	nlat. *distributivus*		distribution network
14	distributivni objekat	nlat. *distributivus*	lat. obiectum	distribution facility
15	diferencijalna zaštita	nlat. *differentialis*		differential protection
16	dozvoljena struja			(maximum) allowed current
17	električna energija	fr. *electrique*	gr. *energeia*	electricity
18	električni luk	fr. *electrique* from grč. *elektron*		electrical arc
19	elektroenergetski objekat	gr. *elektron*; grč. *energetikos*	lat. *obiectum*	power facility
20	elektroenergetski sistem	gr. *elektron*; grč. *energetikos*	gr. *systema*	power system
21	elektroenergetska analiza	gr. *energetikos*	gr. *analysis*	power analysis
22	energetski pretvarač	gr. *energetikos*		power converter
23	energetski transformator	gr. *energetikos*	nlat. *transformator*	power transformer
24	zaštitni namotaj			protective winding
25	zaštitni uređaj			protective device

[22] Columns signifying the origin of the first or the second lexeme are only filled in if lexemes are of foreign origin

	Terminological phrase in Serbian	The origin of the first lexeme	The origin of the second lexeme	Terminological phrase in English
26	zemljospojna zaštita			earth fault protection
27	indirektno merenje	lat. *indirectus*		indirect electricity metering
28	instalisana snaga	srlat. *installatio*		capacity
29	jednopolna šema	lat. *polus*	germ. *schema*	single-line diagram
30	jednofazni priključak monofazni priključak	gr. *phasis*		single phase connection
31	karakteristična impedansa	gr. *charakteristikos*	engl. impedance from lat. *impedire*	characteristic impedance
32	koeficijent svođenja	nlat. *coefficiens*		referring coefficient
33	koeficijent flikera	nlat. *coefficiens*	engl. *flick*	flicker coefficient
34	kombinovani rad	lat. *combinare*		combined operation
35	kondezatorska baterija	nlat. *condensator*	fr. *batterie*	capacitor battery
36	konzumno područje	lat. *consumere*		consumption area
37	kontaktni termometar	lat. *contactus*	gr. *thermos* gr. *metron*	contact thermometer
38	kratak spoj			short circuit
39	kratkospojna zaštita			short-circuit protection
40	kriterijum sigurnosti	gr. *kriterion*		security criterion
41	kružna frekvencija		lat. *frequentia*	angular frequency
42	maksimalno opterećenje	nlat. *maximalis*		maximum / peak load
43	mala elektrana mini elektrana		fr. *electrique*	small power plant
44	merna grupa		fr. *groupe* from ital. *gruppo*	metering group
45	merna oprema			metering equipment
46	merni (razvodni) orman		srlat. *armarium*	cubicle
47	merni namotaj			metering winding
48	merni uređaj			metering device
49	merno mesto			metering point
50	mesto priključenja			connection point
51	minimalno opterećenje	nlat. *minimalis*		minimum load
52	nadzemni vod			overhead line
53	nadzemni priključak			overhead connection

	Terminological phrase in Serbian	The origin of the first lexeme	The origin of the second lexeme	Terminological phrase in English
54	nadpobuđeni režim		fr. *regime* from lat. *regimen*	overexcitation regime
55.	nadfrekventna zaštita	lat. *frequens*		overfrequent protection
56	nazivni napon naznačeni napon nominalni napon			rated voltage
57	naznačena struja			rated current
58	naponska zaštita			voltage protection
59	odvodnik prenapona			surge arrester
60	odobrena snaga			approved power
61	ostrvski rad			island operation
62	ostrvsko napajanje			island supply
63	pad napona			voltage drop
64	paralelni rad	gr. *parallelos*		parallel operation
65	pogonska snaga			operating power
66	pogonsko stanje			operating state
67	podzemni vod			underground line
68	podzemni priključak			underground connection
69	podnaponska zaštita			undervoltage protection
70	podpobuđeni režim		fr. *regime* from lat. *regimen*	underexcitation regime
71	podfrekventna zaštita	lat. *frequens*		underfrequent protection
72	poluindirektno merenje	lat. *directus*		semi-indirect electricity metering
73	poremećeni pogon			operation disturbance
74	pouzdan pogon			reliable operation
75	predaja (električne) energije		gr. *energetikos*	electricity delivery
76	prekostrujna zaštita			overcurrent protection
77	prenaponska zaštita nadnaponska zaštita			overvoltage protection
78	prenosni sistem		gr. *systema*	transmission system
79	prividna snaga			apparent power
80	priključni vod			connection line
81	primarna struja	lat. *primarius*		primary current
82	primarni namotaj	lat. *primarius*		primary winding

	Terminological phrase in Serbian	The origin of the first lexeme	The origin of the second lexeme	Terminological phrase in English
83	razvodno postrojenje			switchyard
84	raskidač (strujnog) kola			recloser
85	rasklopni aparat		lat. *apparatus*	switching device
86	rastavljač snage			power disconnector
87	reaktivna snaga	lat. *reactivus*		reactive power
88	rezervna zaštita	fr. *reserve*		reserve protection
89	sekundarna struja	lat. *secundarius*		secondary current
90	sekundarni namotaj	lat. *secundarius*		secondary winding
91	sigurnost napajanja			security of supply
92	sinhroni generator	gr. *synchronos*	lat. generator	synchronous generator
93	snaga transformatora		nlat. *transformator*	transformer power
94	spojni prekidač			connection circuit breaker
95	spojno polje			usbar coupler
96	stacionarni režim	klat. *stationarius*	fr. *regime* from lat. *regimen*	stationary regime
97	struje zemljospoja			earth fault current
98	strujno opterećenje			current load
99	Tevenenova impedansa		engl. *impedance* from lat. *impedire*	Thevenen's impedance
100	transformatorska stanica	nlat. *transformator*		substation
101	trafo (transformatorsko) polje	nlat. *transformator*		transformer bay
102	trofazni priključak	gr. *phasis*		three-phase connection
103	uklopna šema		germ. *schema*	topology diagram
104	uklopno stanje			topology condition
105	upravljanje sistemom		gr. *systema*	system control
106	faktor poremećaja	lat. *factor*		disturbance factor
107	faktor snage	lat. *factor*		power factor