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## ENGLISH TERMINOLOGICAL COMPOUND LEXEMES, THEIR SERBIAN EQUIVALENTS AND TRANSLATION PATTERNS\*\*

### Abstract

The aim of this article is to precisely express the semantics of 82 English compound lexemes in Serbian as reflected in transport and traffic engineering. To achieve this aim, we develop a semantico-morphological translation method, which helps the establishment of translation patterns. The 34 patterns adopted here reveal the order in which English constituents can be translated, display the exact number of components contained in the English terminological compound lexemes and their Serbian translation equivalents under consideration, and show how specific meanings of the English compound terms are morphologically transformed into Serbian. The translation patterns may have theoretical and practical implications. The study is intended as a potential contribution to the standardization of terminological compound lexemes in the Serbian language.

**Key words:** a semantico-morphological translation approach, translation patterns, English specific compound lexemes, Serbian equivalents, transport and traffic engineering

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## 1. Introduction

The English language has the capacity for forming multiword expressions. Compound lexemes (i.e. compound nouns, compounds or phrase compound lexemes), phrasal verbs, idioms and collocations are considered multiword expressions.

In this article, we deal with the semantics and morphological structure of contemporary English terminological compound lexemes as used in various fields of transport and traffic engineering. English scientific and technical writing contains a great number of terminological compound lexemes. They are created daily in specialized settings as a result of rapid developments in different professions and sciences. It is therefore understandable why linguists analyze compound terms. Translators are also tempted by these lexical items, which often make them work hard to produce good translations in different languages. Similarly, teachers and learners also find them difficult to teach and learn.

A compound lexeme (Lyons 1977) or a multiword expression (Sag et al. 2002) can be defined as “[...] a lexical unit consisting of more than one base and functioning both grammatically and semantically as a single word [...] in English” (Quirk et al. 1985: 1567). Huddleston and Pullum (2002: 1647) claim that binominal endocentric compounds which do not contain verbal elements are the most productive type of English word formation. In contrast, Klajn (2002: 15) maintains that compounds have low productivity in Slavic languages, i.e. in Serbian (see Dimković-Telebaković 2014a: 116). If a grammatical category is typical of one language and untypical of another, investigations into the process of translating meanings and finding the appropriate forms in the target language are always challenging and interesting. To reveal what is actually going on in the two structures under discussion, we set translation patterns by adopting a new method named a semantico-morphological translation approach.

## 2. Method and corpus

The semantico-morphological translation method was introduced at the Faculty of Transport and Traffic Engineering in Belgrade in 2013 to help my students find ways to achieve Serbian translation equivalents. This approach focuses on the meaning of an English compound lexeme that is to be transferred to the target language. This semantic transfer from one language

to another requires the use of an adequate morphological structure in the Serbian language. Being aware of the fact that different parts of speech can be contained in an English compound lexeme, the student learns that almost any element can be the starting point in the translation process, and that “[...] (s)he then can take any direction – forwards or backwards, forwards and backwards, and backwards and forwards – through the compound structure being translated. It is assumed that these movements form certain patterns” (Dimković-Telebaković 2015a: 146).

The corpus is built from 82 English terminological compound lexemes, having two, three, four, five, six or seven elements, and their Serbian translation equivalents, containing up to twelve constituents. The morphological composition of the compound lexical units analyzed is not considered in detail in this paper (this aspect is discussed in Dimković-Telebaković 2013a: 51–58; Dimković-Telebaković 2014b: 10–16, for instance), as the focus here is to establish translation patterns which show how the semantic transfer from one language to another is realized. English compound terms are mainly created by primary formation, while Serbian terms are formed as the most appropriate translation equivalents of their English lexical units. The terms examined in this paper are in use in telecommunications and postal traffic, air and road traffic, waterways and railways transport and traffic engineering, as well as in logistics (intermodal transport /combined transport). The English terminological compound lexemes under scrutiny have been chosen from the *English-Serbian Dictionary*, which forms part of the textbook *English in Transport and Traffic Engineering* (Dimković-Telebaković 2015b: 369–410), from the specialized texts contained in the textbook *Testovi, zadaci i teme iz engleskog jezika* (Dimković-Telebaković 2015c), from the textbook *English Grammar for Transport and Traffic Engineers* (Dimković-Telebaković 2018), and from the *English-Serbian Dictionary of Road Traffic Engineering* (Fišer-Popović et al. 1992). In order to set various types of translation patterns, we considered English compound lexemes of different composition.

### **3. Analysis and discussion**

In this section of the paper, we analyze English specialized compound lexical units with different numbers of constituents, and their corresponding Serbian equivalents. The translation patterns set here show the exact order in which the components appear in the two structures.

### 3.1. Two-element English terminological compound lexemes, their equivalents in Serbian and translation patterns

We now present some of the translation patterns developed between two-component English compound lexemes and their Serbian equivalents as reflected in the fields of transport and traffic engineering.

The first translation pattern (1 2 → 1) is established in those cases when two elements in English result in one element in Serbian. The examples given in pattern I illustrate that the components of English compound lexemes can be written as one word, e. g. *cableway*, *cutoff*, *interchange*, or as two separate words, e. g. *shock absorber*, *sparking plug*, *taxiing up*, or as two words hyphenated, e. g. *tow-boat*, *station-wagon*, *drop-off*. These compound lexemes also reveal that two nouns, a verb and a noun, or a verb and a particle, or a gerund and a noun, or a gerund and a particle, or a prefix and a noun can be joined together. The Serbian equivalents for the English terms in pattern I are as follows: “žičara”, “amortizer”, “potiskivač”, “karavan”, “prečica”, “smanjenje”, “svećica”, “rulanje”, “pretovar” or “petlja” (AmE).

## I

	$1 \quad 2 \quad 1$	$1 \quad 2 \rightarrow 1$
<i>cableway</i>	= žičara	
<i>shock absorber</i>	= amortizer	
<i>tow-boat</i>	= potiskivač	
<i>station-wagon</i>	= karavan	
<i>cutoff</i>	= prečica	
<i>drop-off</i>	= smanjenje	
<i>sparking plug</i>	= svećica	
<i>taxiing up</i>	= rulanje	
<i>interchange</i>	= pretovar; petlja	

The second pattern (1 2 → 1 2) is developed when the same number of elements occurs in the two languages. We translate the first component first and then work forwards in pattern II. The combination of an adjective and a noun in English is illustrated by *capital equipment*, *international service*, *articulated vehicle* and *automated storage*. Their Serbian translation equivalents are “glavna oprema”, “međunarodni saobraćaj”, “zglobno vozilo” and “automatsko skladištenje”, respectively. These examples show total congruity, since the constituents comprising the compound lexemes are the same word class and are ordered in the same way. The examples *braking distance*, *leading edge*, *loading base* and *cooling system* illustrate that a gerund and a noun are joined, which results in the translation combination of an adjective and a noun in Serbian (“zaustavni put”, “napadni ugao”, “utovarni front” and “rashladni sistem”). The compound lexemes, made up of two nouns (e. g. *cargo hold*, *copper pair* and *cockpit*), or a noun and a gerund (e. g. *axle loading*), and their Serbian equivalents “tovarni prostor”, “bakarna parica”, “pilotska kabina” and “osovinsko opterećenje”, respectively, demonstrate that English nouns in compounds can be translated into Serbian as adjectives. It is of importance to point out that the ESP/EAP student should learn that this is a characteristic of the target language – Serbian (see Dimković-Telebaković 2013a: 56). The last example in pattern II, *undercarriage* → “stajni trap”, shows that even prepositions in English compound lexemes can be translated as adjectives.

## II



1	2	1	2	1 2 → 1 2
<i>capital equipment</i>	=	<i>glavna oprema</i>		
<i>international service</i>	=	<i>međunarodni saobraćaj</i>		
<i>articulated vehicle</i>	=	<i>zglobno vozilo</i>		
<i>automated storage</i>	=	<i>automatsko skladištenje</i>		
<i>braking distance</i>	=	<i>zaustavni put</i>		
<i>leading edge</i>	=	<i>napadni ugao</i>		
<i>loading base</i>	=	<i>utovarni front</i>		
<i>cooling system</i>	=	<i>rashladni sistem</i>		
<i>cargo hold</i>	=	<i>tovarni prostor</i>		
<i>copper pair</i>	=	<i>bakarna parica</i>		
<i>cockpit</i>	=	<i>pilotska kabina</i>		
<i>axle loading</i>	=	<i>osovinsko opterećenje</i>		
<i>undercarriage</i>	=	<i>stajni trap</i>		

We have just seen that the translation process in patterns I and II starts from the first component in the English compound units and moves forwards. The same direction is preserved through the lexical units in the third translation pattern (1 2 3 → 1 2 3), which contains one more component in Serbian than in English, as shown in III. The semantics of compound lexemes causes the introduction of additional elements in Serbian, the nouns “frekvencije”, “razgovor” and “letenja”, which are designated by a smaller number (3) in pattern III.

## III



1      2 3      1      2      3      1 2 3 → 1 2 3

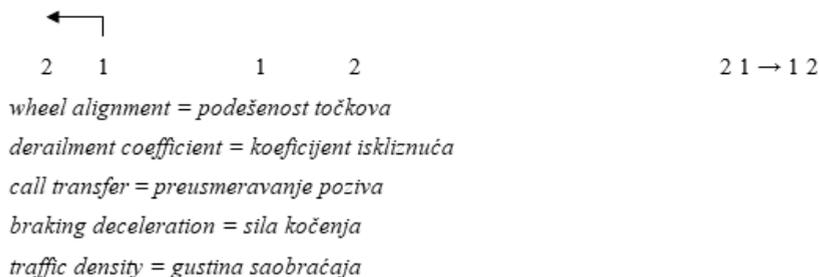
*Doppler shift = Dopleterovo pomeranje frekvencije*

*live telephone = direktni telefonski razgovor*

*approach control = prilazna kontrola letenja*

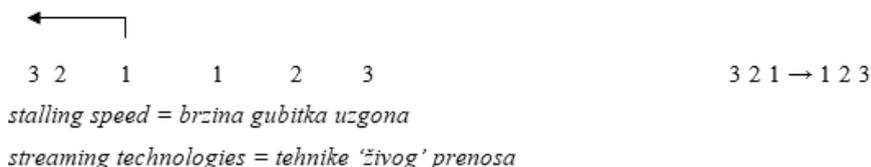
The examples given in pattern IV show that equivalents in Serbian can be obtained if we begin from the second element in a two-element English compound unit, and then work backwards. Pattern IV also illustrates that the components of the lexemes are mirrored in the two languages. In other words, the head word *alignment* (“podešenost”) is followed by the modifying word *wheel* (“točkova”), which appears in the genitive in Serbian, and the whole pattern has the form of 2 1 → 1 2. The examples *derailment coefficient* → “koeficijent iskliznuća”, *call transfer* → “preusmeravanje poziva”, *braking deceleration* → “sila kočnja” and *traffic density* → “gustina saobraćaja” have the same patterning, where we start at the end (from the head word) and then work backwards (to the modifier). The modifying word is used in the genitive case in Serbian in all these cases. The examples in this pattern illustrate partial congruity, because the elements in the two structures are the same word class, but are ordered differently.

## IV



Pattern V (3 2 1 → 1 2 3) shows how two elements in an English compound lexical unit can result in three elements in Serbian.

## V



In the case of VI (2 3 1 → 1 2 3), the translation process also starts from the second element in the sequence, i. e. *link* → “veza”, *clearance* → “dozvola”, *tank* → “rezervoar” and *draught* → “gaz”, moves backwards to the inserted components “ka”, “za” “bez” and “s”, designated as (2), and continues forwards to the first elements (*down*, *taxi*, *fuel*, *light* and *load*) in the English compounds, as shown below. The compound lexeme *down-link* can be translated as “veza prema dole”. In order to express the meaning of this compound lexical unit more precisely, we suggest the Serbian equivalent “veza ka Zemlji”. Our previous investigations of English compound lexemes and their equivalents in Serbian (Dimković Telebaković 2013b: 359–401; Dimković Telebaković 2017a: 101–124) show that the head word is frequently followed by prepositional phrases in Serbian translations of English compound terms. Pattern VI provides examples “ka Zemlji”, “za rulanje”, “za gorivo”, “bez tereta” and “s teretom”, which also point to this conclusion. The last example in VI illustrates that the head word *reduction* is followed by the modifiers “cene karata”, of which the noun “cene” (2) is the inserted element. The modifying words appear here in the genitive form.

VI



2 3 1      1 2 3

2 3 1 → 1 2 3

*down-link* = *veza ka Zemlji*

*taxi clearance* = *dozvola za rulanje*

*fuel tank* = *rezervoar za gorivo*

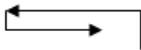
*light-draught* = *gaz bez tereta*

*load-draught* = *gaz s teretom*

*fare reduction* =  *smanjenje cene karata*

Pattern VII (2  $\overline{3\ 4}$  1 → 1 2  $\overline{3\ 4}$ ) and pattern VIII (3 4  $\overline{1\ 2}$  →  $\overline{1\ 2}$  3 4) demonstrate that two elements in English compound lexemes can result in four elements in Serbian. To express the meanings of the English compound lexical units more clearly, the preposition “za” (2) and the noun “motora” (4) are added in VII, as well as the adjective “pešački” (1) and the preposition “sa” (3) in VIII. The examples in patterns VII and VIII also confirm what has already been said about prepositional phrases in the paragraph above.

VII



2  $\overline{3\ 4}$  1      1 2  $\overline{3\ 4}$

$\overline{2\ 3\ 4}$  1 → 1 2  $\overline{3\ 4}$

*ignition switch* = *prekidač za paljenje motora*

VIII



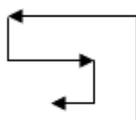
3 4  $\overline{1\ 2}$        $\overline{1\ 2}$  3 4

$\overline{3\ 4\ 1\ 2}$  →  $\overline{1\ 2}$  3 4

*Pelican crossing* = *pešački prelaz sa semaforima*

In pattern IX, two English constituents result in five elements in Serbian. In order to obtain the exact translation equivalent, one begins from the head word *device*, works backwards, introduces the preposition “za” (2), works forwards to (4), and then backwards again to reach (5). The acronym *ATC* (Automatic Train Control) is viewed as one unit, and the patterning obtained is 2 3 5 4 1 → 1 2 3 4 5.

## IX



2 3 5 4 1      1 2 3 4 5      2 3 5 4 1 → 1 2 3 4 5

*ATC device = uređaj za automatsko vođenje voza*

Based on the analysis carried out so far, it is possible to claim that two-element English compound units end up in Serbian as one-component lexemes if the compounds in English are written as one word, or as two separate words, or if they are hyphenated, and in two- or multi-element units if the English compounds are written as two separate words, or when hyphenated. The ideal translation of an English compound is one word, and such solutions are the most appropriate Serbian lexemes for standardization. The analysis also suggests that the use of prepositional phrases in Serbian translation equivalents is a characteristic of Serbian, as shown by patterns VI, VII, VIII and IX. Patterns IV and V, and the examples “Doplerovo pomeranje frekvencije” and “prilazna kontrola letenja” in III, however, illustrate that the modifying word in two-element English compound lexemes can also appear in the genitive case in Serbian equivalents, which points to the fact that the two languages are structurally different.

### 3.2. English specialized compound units containing three components, their Serbian equivalents and translation patterns

Patterns X and XI demonstrate that the translation of three-element English terminological compound lexemes can begin from the first component in the sequence. The result of this process is either three morphological

elements in Serbian, as in pattern X (1 2 3 → 1 2 3), or two components, as in pattern XI ( $\overline{1\ 2}3 \rightarrow \overline{1\ 2}3$ ). The examples in pattern X confirm our earlier claim that nouns in English compound terms are often translated as adjectives in Serbian, as illustrated by *navigation* → “navigacioni”, *telecommunications* → “telekomunikacione”, *-seas* → “-morski” and *-cast* → “-difuzni”. The hyphenated words in X and XI (e. g. *double-stack*, *head-on* and *rear-end*) are translated as one word, as adjectives, since they have one meaning as a whole. Their translations are “dvospratni”, “čeonni”, and “lančani”.

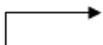
X



1            2            3            1            2            3            1 2 3 → 1 2 3

*electronic navigation aids* = *elektronska navigaciona sredstva*  
*digital telecommunications links* = *digitalne komunikacione veze*  
*overseas traffic* = *prekomorski saobraćaj*  
*broadcast system* = *radiodifuzni sistem*  
*double-stack train* = *dvospratni voz*

XI



$\overline{1\ 2}$     3             $\overline{1\ 2}$     3             $\overline{1\ 2}$  3 →  $\overline{1\ 2}$  3

*head-on collision* = *čeonni sudar*  
*rear-end collision* = *lančani sudar*  
*inland transport* = *unutrašnji transport*  
*lineside signals* = *pružna signalizacija*  
*cross sectional area* = *poprečni presek*

In pattern XII, we also start from the first element, then translate the third component in the sequence, and end up with the translation of the second element. Pattern XII (1 3 2 → 1 2 3) is illustrated in the following way:

XII



1 3 2 1 2 3 132 → 123

*Centralised Traffic Control* = *centralizovano upravljanje saobraćajem*

Patterns XIII and XIV contain additional elements. In XIII (4 3 2 1 → 1 2 3 4), the preposition “za”, designated by a smaller number (2), appears in “oprema za rukovanje materijalom”, and the prepositions “u” (3) and “na” (3), and the nouns “mašinovođe” (5) and “zgrade” (5) emerge in XIV. In pattern XIV, *display* and *equipment* are transformed into “instrumentalna tabla” in Serbian, whereas *car park* becomes “parkiralište”, which ends up in the following patterning: 5 4 3 [1 2] → [1 2] 3 4 5. The translation in these two patterns begins from the head words *equipment*, *display* *equipment*, and *car park*, and then the translation of the modifiers follows. The modifying words here have the form of prepositional phrases.

XIII



4 3 2 1 1 2 3 4 4321 → 1234

*material handling equipment* = *oprema za rukovanje materijalom*

XIV



5 4 3 [1 2] [1 2] 3 4 5

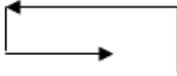
*cab display equipment* = *instrumentalna tabla u kabini mašinovođe*

*roof car park* = *parkiralište na krovu zgrade*

543 [1 2] → [1 2] 345

Pattern XV (2 3 1 → 1 2 3) shows that the head words (e. g. *routes*, *electronics* and *unbundling*) are the starting point for the translation. The first and second components (the modifying words) in the given English compound lexical units are then translated. In order to be able to precisely translate *local loop unbundling* into Serbian, one should be familiar with the context in which the term is used. The examples in XV illustrate that all the modifiers are translated into the genitive in Serbian.

## XV



2 3 1

1 2 3

2 3 1 → 1 2 3

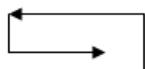
*medium-haul routes = letovi srednjeg dometa*

*high-frequency electronics = elektronika visokih učestalosti*

*local loop unbundling = rasnopljavanje bakarnih petlji*

In pattern XVI (2 3 4 1 → 1 2 3 4), the order in which we translate the compound lexeme *non-propelled barge* is the same as in the previous pattern. The difference between patterns XV and XVI lies in the number of constituents. While XV contains three elements in Serbian, XVI has four elements, as the nouns “pogona” (4) and “broda” (4) are added to clearly convey the meanings of the compounds under discussion. The modifying words “bez sopstvenog pogona” is a prepositional phrase, whereas the noun “broda” is used in the genitive, which confirms our earlier claim that these morphological forms are typically employed in Serbian translation equivalents. The compound lexeme *turn-round time* is translated as “vreme utovara/istovara broda”. The translation result points to the fact that the constituents contained in the compound lexeme are translated as a whole. Some other examples of this kind are as follows: *honeycombing* and its Serbian translation equivalent “prazan skladišni prostor”, or *cut and cover tunnel* → “tunel građen otvorenim iskopom”. These examples also demonstrate that the meanings of the elements in the English compound lexemes do not pattern with the meanings of the individual components in the Serbian translation equivalents, which shows that the process of translation from one language into another is realized based on the meaning of the compound lexeme as a whole, as determined by the specialized context in which the lexical unit is used. This conclusion leads us to question Zgusta’s claim that the semantic criterion is not the main criterion for multiword lexical units (cf. Zgusta 1971: 144–148).

XVI



2 3 4 1 1 2 3 4 2 3 4 1 → 1 2 3 4  
*non-propelled barge* = *barža bez sopstvenog pogona*  
*turn-round time* = *vreme utovara/istovara broda*

The translation process in pattern XVII begins from the head word (*fiber*), moves backwards through the English structure to the inserted preposition “s” (2), and then continues forwards to the noun “signala” (5), which is also introduced.

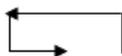
XVII



2 3 4 5 1 1 2 3 4 5 2 3 4 5 1 → 1 2 3 4 5  
*low attenuation fiber* = *vlakno s malim slabljenjem signala*

In pattern XVIII (2 3 4 5 6 1 → 1 2 3 4 5 6), there are three components added in the Serbian equivalent, and they are (2 3 4), i.e. (“s prenosom u”). The head word *systems* is translated first, then the additional words are introduced, and finally the central constituent is translated, so that three components in English (ADJ + N + N) result in six elements in Serbian (N + PP + PP).

XVIII



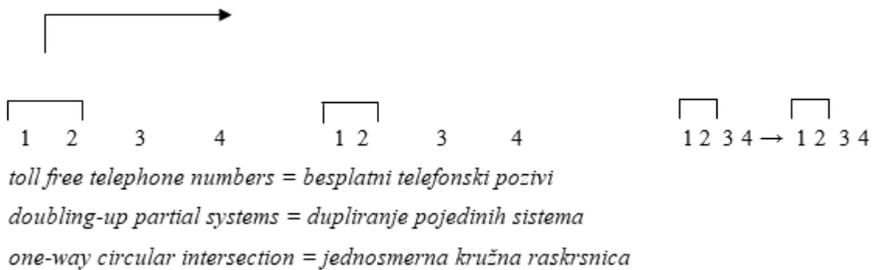
2 3 4 5 6 1 1 2 3 4 5 6 2 3 4 5 6 1 → 1 2 3 4 5 6  
*broadband systems* = *sistemi s prenosom u širokom opsegu*

The examples provided in patterns X and XI illustrate that nouns and hyphenated words in English compound terms are translated as adjectives in Serbian. The examples in Section 3.2 confirm that the modifiers in English compound lexemes are typically translated into Serbian as a genitive or a prepositional phrase, and follow the head word(s).

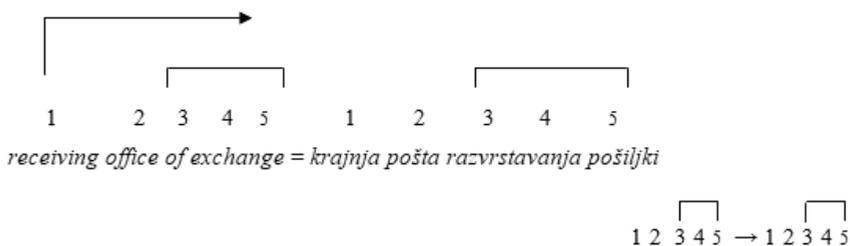
### 3.3. Four-element English terminological compound lexemes, their Serbian equivalents and translation patterns

In patterns XIX and XX, we start from the beginning of the English structures. In XIX, the first two elements *toll free*, *doubling-up* and *one-way* result in one word “*besplatni*”, “*dupliranje*” and “*jednosmerna*”, whereas in XX, the last two components of *exchange* are translated into Serbian as two words “*razvrstavanja pošiljki*”, where the element “*pošiljki*” (5) has been added. The reasons for this outcome are the meanings of the English compound lexemes as a whole. These examples show that literal translations of the components contained in the lexical units analyzed do not provide exact translations.

#### XIX

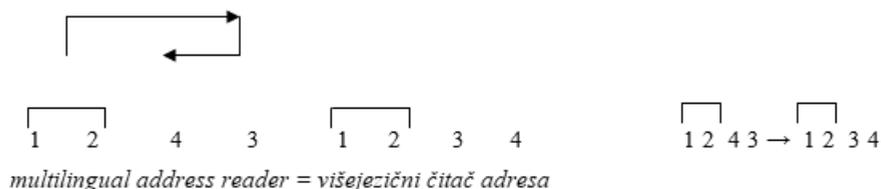


#### XX



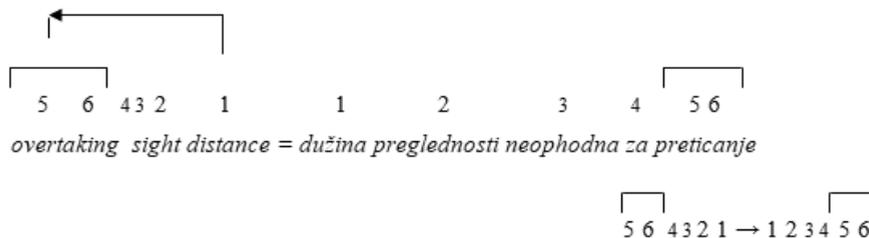
A different patterning is established when the head words *multilingual reader* are translated first into “višejezični čitač”, and then the modifying word *address* → “adresa” appears in the genitive in Serbian. Pattern XXI shows that one starts from the fore-end of the compound noun, works forwards, and then backwards.

XXI



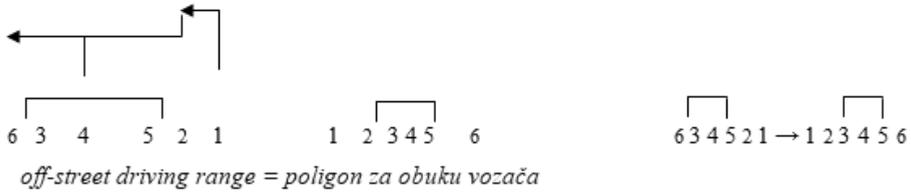
The starting point of the translation in XXII ( $\overline{5\ 6\ 4\ 3\ 2\ 1} \rightarrow 1\ 2\ 3\ 4\ \overline{5\ 6}$ ) are the head words *sight distance* → “dužina preglednosti”, then one works backwards, introduces two new elements “neophodna za” (an adjective and a preposition), and finally translates *overtaking* → “preticanje”.

XXII



The same direction of translation is taken in pattern XXIII ( $\overline{6\ 3\ 4\ 5\ 2\ 1} \rightarrow 1\ 2\ \overline{3\ 4\ 5}\ 6$ ), where the head word *range* → “poligon” is translated first, and then the prepositional phrase “za obuku vozača” is introduced. The additional elements here are the preposition “za” (2) and the noun “vozača” (6). The modifying words *off-street driving* → “obuku” were the most difficult part to translate. In cases when the meaning of an English compound noun is not easy to find, the context in which the compound lexical unit is used always helps a great deal. We therefore say that meanings are context-dependent.

XXIII



In pattern XXIV (4 5 3 2 1 → 1 2 3 4 5), the head word *environment* (“okruženje”) is the starting point for the translation, then the preposition “s” (2) is introduced, and *controlled* and *safe* are translated next, and finally *temperature*. Thus, a four-element English compound lexeme is transformed into a five-component Serbian equivalent, where the head word is followed by the prepositional phrase “s kontrolisanom bezbednom temperaturom”.

XXIV



Pattern XXV is characterized by the combination of elements 3 4 5 <sup>1 2</sup> → <sup>1 2</sup> 3 4 5, where the additional elements are the prepositions “s” (3) and “za” (3). To translate the compound lexemes *four-engined aircraft*, *two-lane carriageway* and *long-haul telecommunication systems*, we translate the head words first, *aircraft*, *carriageway* and *telecommunication systems*, and then the modifiers as the prepositional phrases “s četiri motora”, “s dve trake” and “za velika rastojanja”.

XXV



*four-engined aircraft = letilica s četiri motora*

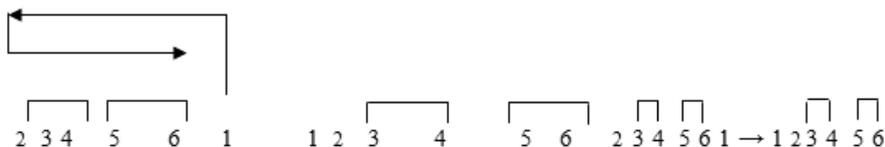
*two-lane carriageway = kolovoz s dve trake*



*long-haul telecommunication systems = telekomunikacioni sistemi za velika rastojanja*

In pattern XXVI, the translation direction is the same as in the previous pattern. The preposition “s” (2) has been inserted into the Serbian translation to exactly express the meaning of the English compound lexeme *dual carriageway road*, and the corresponding Serbian equivalent obtained is “put s dva razdvojena kolovoza”.

XXVI



*dual carriageway road = put s dva razdvojena kolovoza*

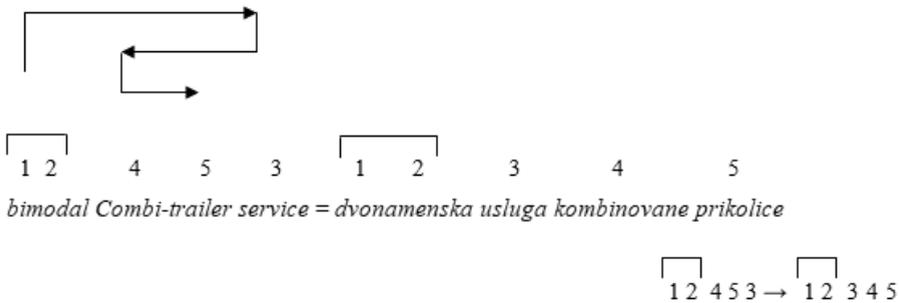
The examples in patterns XXV and XXVI show that numbers are also incorporated into English compound lexical units and their Serbian equivalents, together with nouns, adjectives and prepositions. Patterns XX and XXI illustrate that the modifying words in English compound lexical units can be translated as the genitive in Serbian, whereas patterns XXII, XXIII, XXIV, XXV and XXVI confirm that prepositional phrases are also used in Serbian translation equivalents as morphological translation forms for the modifiers in English.

### 3.4. English specialized compound units containing five constituents, their Serbian equivalents and translation patterns

The patterns presented in Section 3.4 demonstrate that the more elements an English specialized compound lexical unit has, the more heterogeneous the Serbian equivalents are. The examples provided here show that it is not easy to translate phrasal compound lexemes.

Pattern XXVII illustrates the order in which the constituents in *bimodal Combi-trailer service* are translated into Serbian to obtain “*dvonamenska usluga kombinovane prikolice*”. The translation of the head words *bimodal service* is followed by the genitive “*kombinovane prikolice*”, the modifying words, as shown below.

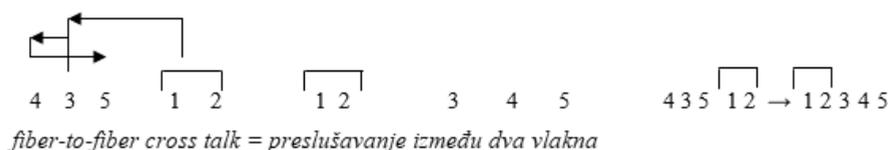
XXVII



In pattern XXVIII, we start from the head words *cross talk* → “*preslušavanje*”, work backwards to the preposition *to* (3) → “*između*”, continue to (4), which is translated as “*dva*”, and reach (5), translated as the expected “*vlakno*”. This example proves that special translation skills are required for phrasal compound lexemes. Hlebec (2009: 183) uses the term ‘the contrastive competence of the translator’ to explain what the translator should know in order to be able to translate competently from one language to another. *Fiber-to-fiber cross talk* → “*preslušavanje između dva vlakna*” is a good example which shows that linguists should be linguistically competent in the two languages (the language from which they translate and the language into which the terms are translated), should be familiar with the basics of the disciplines involved in their translations, and should cooperate with telecommunications traffic engineers in order to be able

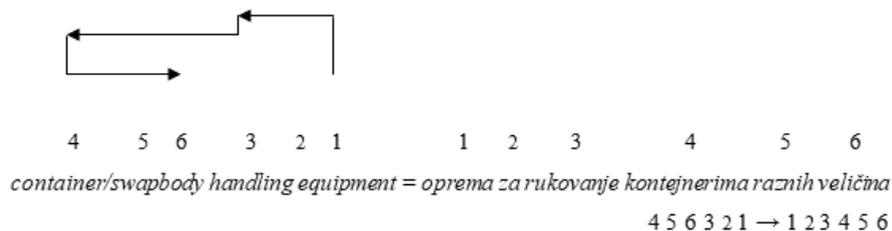
to understand and translate the English phrasal compound lexeme in question. In other words, the collaboration between experts of different profiles is necessary to create Serbian terms which can be standardized.

XXVIII



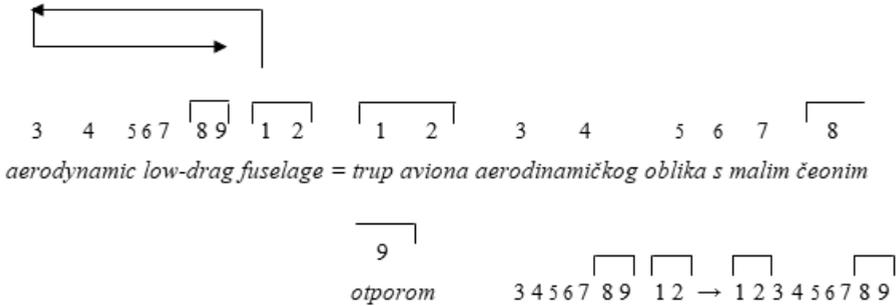
The translation direction is the same in patterns XXVIII and XXIX, but the number of constituents differs, as does their patterning. The translation of the English modifying words in pattern XXIX results in the prepositional phrase “za rukovanje kontejnerima raznih veličina”. It is significant to say that the meaning of the lexeme *swapbody* in XXIX is different from the meaning it has in General English when it is a primary lexical unit. The shift in meaning occurs when the lexeme is used in logistics, i.e., when it functions as a secondary lexical unit (see Cruse 1986: 79–80).

XXIX



In pattern XXX, one begins from the head word *fuselage* → “trup aviona”, moves to *aerodynamic* (3 4 – “aerodinamičkog”), introduces the noun “oblika” (5) and the preposition “s” (6), translates *low* → “malim” (7), and ends with “čeonim otporom” (8 9 – *drag*).

## XXX

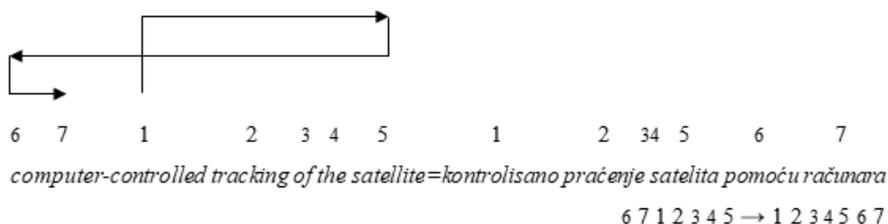


The analysis and discussion of patterns XXVII to XXX show that the modifiers in the English compound lexemes considered are either translated as prepositional phrases or a genitive in Serbian, and that English five-component complex terms result in up to nine-element Serbian equivalents.

### 3.5. Six-element English terminological compound lexemes, their Serbian equivalents and translation patterns

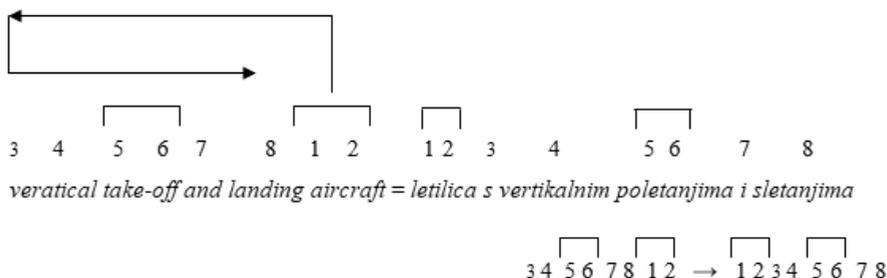
Pattern XXXI (6 7 1 2 3 4 5 → 1 2 3 4 5 6 7) illustrates how six elements, making up an English compound lexeme, can become five components in its corresponding Serbian translation equivalent. To obtain this patterning, one starts from the second element *controlled*, works forwards to *satellite* (5), then backwards to (6), i.e. the inserted component “pomoću”, and finally forwards to (7) *computer*. This example shows that English compound lexemes can comprise prepositions and articles (e. g. *of* and *the*). The components *of* and *the* are omitted in the Serbian equivalent, since Serbian does not have articles, and *of*, as a grammatical element, appears in Serbian in the genitive form – “satelita”.

XXXI



In pattern XXXII, the head word *aircraft* is translated first, then the preposition “s” (3) is introduced and the modifying words *vertical take-off and landing* are translated into the prepositional phrase “s vertikalnim poletanjima i sletanjima”. This pattern also illustrates that conjunctions can appear in both English compound terms and their Serbian equivalents.

XXXII



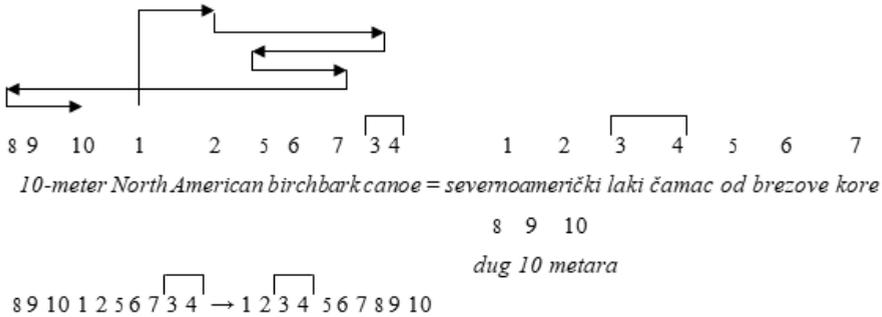
To sum up the results in this section, we can say that pattern XXXI illustrates that it is possible to omit some elements in Serbian equivalents which are contained in English compound lexemes, and that pattern XXXII shows that conjunctions can emerge in both English terminological compound lexical units and their Serbian translations.

**3.6. English specialized compound units containing seven components, their Serbian equivalents and translation patterns**

Pattern XXXIII (8 9 10 1 2 5 6 7  $\overline{3 4}$  → 1 2  $\overline{3 4}$  5 6 7 8 9 10) illustrates that two elements are inserted into the structure below, the preposition “od” (5) and the adjective “dug” (8), and that the translation process

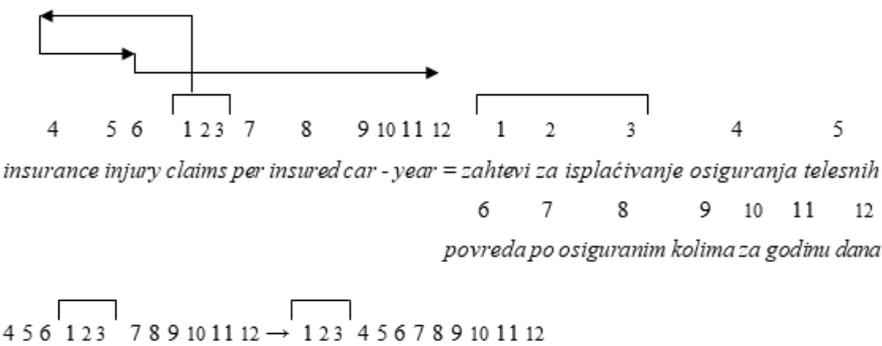
begins from the third element *North*, continues forwards to *canoe* (3 4), then moves backwards to “od” (5) and reaches *birchbark* (6 7) by working forwards, and finally changes direction backwards to (8) in order to end with *meter* (10).

XXXIII



In pattern XXXIV, a seven-element English compound lexical unit is transformed into a twelve-component Serbian equivalent. The following elements are inserted: “za isplaćivanje” (2 3), “za” (10) and “dana” (12). The translation begins from *claims*, moves backwards to *insurance* (4), then forwards to (5 6), and on to (12).

XXXIV



The last two examples illustrate how complicated it can be to find the corresponding Serbian equivalents. They also show that additional elements

in Serbian equivalents are normally prepositions, nouns and adjectives, or their combinations.

#### 4. Conclusions

The purpose of this study was to determine the meanings of 82 English terminological compound lexemes as used in the fields of telecommunications and postal traffic, air and road traffic, railways and waterways transport and traffic engineering, as well as logistics (combined transport), and to create adequate Serbian translation equivalents. To achieve this aim, we developed a semantico-morphological translation approach. By employing this method, 34 translation patterns have been established. These patterns illustrate possible movements through the English compound structures, containing up to 7 constituents, and identify the corresponding Serbian equivalents with up to 12 constituents. The translation patterns set show that almost each element comprised in the English specialized multiword lexemes can be the starting point in translation with the exception of prepositions and conjunctions, that the number of components in the target equivalents can differ from or be equal to the number of English units, that the order of constituents in the English compound terms and their Serbian equivalents can considerably vary, and that the two languages differ structurally in most cases. If the constituents of compound lexemes in English and Serbian are not the same word class, they are said to be incongruent (e. g. *turn-round time* → “vreme utovara/istovara broda”). In cases when the structures in the two languages are equally represented, such as in the ADJ + N structure, for example, their elements have total congruity (e. g. *articulated vehicle* → “zglobno vozilo”), whereas the components of the N + N structure and the N + N + N structure are partially congruent (e. g. *derailment coefficient* → “koeficijent iskliznuća”, and *Centralised Traffic Control* → “centralizovano upravljanje saobraćajem”), since the elements in the two structures are the same word class, but are ordered differently.

The findings reveal that Serbian equivalents frequently comprise additional elements, which are typically prepositions, nouns, or adjectives, or their combinations, whose occurrence is caused by the semantics of English specialized compound lexemes and the structural characteristics of the Serbian language. It has also been found that some elements can be omitted in the process of translation (see pattern XXXI). The results

suggest that the translation process usually starts from the head word(s) and all the other constituents contained within a structure are the modifiers. Translation pattern XXXII, for instance, shows that *aircraft* is the head word and all the other components (*vertical take-off and landing*) of the compound term *vertical take-off and landing aircraft* make up the modifying words. This compound lexical unit and its Serbian equivalent “letilica s vertikalnim poletanjem i sletanjem” also demonstrate that both English specialized compound lexemes and their equivalents in Serbian can contain conjunctions (e.g. *and* and “i”). Thus, the examples provided in this article illustrate that nouns, gerunds, adjectives, verbs, numerals, prepositions, conjunctions, articles and particles can be contained in English compound lexical units. The corresponding Serbian equivalents, on the other hand, do not comprise verbs, or of course articles. In Serbian, the head word can be followed by a genitive or a prepositional phrase, that is, it can be postmodified, or an adjective can precede the head word of a compound, i.e., the head word can be premodified by an adjective. Our earlier explorations show that relative clauses and sentences are also used in Serbian equivalent terminological lexemes, which is named descriptive semantization (see Dimković-Telebaković 2014b: 11). This feature of the Serbian language requires close attention when it comes to the standardization of Serbian terms in different fields (see Dimković Telebaković 2017b). It is evident that the patterns developed in this article reveal a diversity of structure in the two languages considered. These differences between the two languages cause difficulties. The English language expresses meanings in a concise way, which is achieved by using compound lexical units, specifically phrasal compound lexemes. Being a language of a different type, Serbian normally uses different linguistic devices to convey the same meaning, as illustrated here.

The translation patterns established may have theoretical and practical implications, because they may help design strategies for translating terminological compound lexemes and create appropriate translation equivalents, may contribute to the development of a translation theory, and may facilitate teaching and learning English specialized compound lexemes. It is believed that these patterns are also applicable to compound lexical units used in General English, as well as in other disciplines besides traffic engineering.

It would be useful if English occupational and scientific practitioners helped their students understand how sequences of English compound lexeme constituents can be transformed into corresponding Serbian equivalents, directed their students towards finding solutions which make sense in the target language, and taught them that compound terms are not translated word for word, but that the meaning is translated, which should be expressed in Serbian by adequate forms.

The semantico-morphological translation method is being developed at the Faculty of Transport and Traffic Engineering in Belgrade particularly in the master's programme *English in Transport and Traffic Engineering Science and Profession*. The results achieved in practice encourage further investigations. Moreover, having in mind the fact that the number of compound lexemes is constantly growing in English and that they cause problems in both theory and practice, future explorations of the issues associated with the topic discussed here seem to be necessary and inevitable.

The analysis concludes that when translating English specialized compound lexemes one should take into consideration their meanings as the most prominent feature and try to find forms in Serbian which can convey them precisely. The same starting procedure can be proposed for standardizing terms in different disciplines. It is essential to convince authorities of the need for experts from various fields to be involved in the process of creating Serbian terms and standardizing them.

Finally, it is also of importance to point out that polysemous and synonymous lexical units, Anglicisms and inadequate translations of English compound terms, and terminological gaps and principles of translating and standardizing traffic engineering compound lexical units are not considered in this paper. They are examined in our previously published articles (see References below).

## References

- Cruse, D. A. (1986). *Lexical Semantics*. Cambridge: Cambridge University Press.
- Dimković-Telebaković, G. (2013a). Engleske složene lekseme i njihovi srpski ekvivalenti u oblasti drumskog saobraćaja. In: G. Dimković-Telebaković (ed.), *Foreign Language in Transport and Traffic Engineering Profession and Science – Strani jezik u saobraćajnoj struci i nauci*,

- Belgrade: University of Belgrade, Faculty of Transport and Traffic Engineering, 49–70. (10 November 2018) <[http://www.sf.bg.ac.rs/images/download/dokumenta/Foreign\\_Language\\_in\\_transport\\_and\\_traffic\\_engineering\\_profession\\_and\\_science.pdf](http://www.sf.bg.ac.rs/images/download/dokumenta/Foreign_Language_in_transport_and_traffic_engineering_profession_and_science.pdf)>.
- Dimković-Telebaković, G. (2013b). *Studies on English and Serbian Language*. Belgrade: Svet knjige.
- Dimković-Telebaković, G. (2014a). Prevođenje engleskih specijalizovanih složenih leksema na srpski jezik i njihovi prevodni obrasci. In: T. Prčić et al. (eds.), *Engleski jezik i anglofone književnosti u teoriji i praksi*, Zbornik u čast Druginji Pervaz – *English Language and Anglophone Literatures in Theory and Practice, Festschrift in Honour of Druginja Pervaz*, Novi Sad: Filozofski fakultet, Univerzitet u Novom Sadu, 115–124.
- Dimković-Telebaković, G. (2014b). The Dynamics of English Terminological Compound Lexemes and Their Serbian Equivalentents. *Romanian Journal of English Studies*, 11(1), 9–20.
- Dimković-Telebaković, G. (2015a). Teaching and Learning English Specialised Compound Lexemes. In: V. Cakeljić et al. (eds.), *Book of Proceedings, III International Conference Language for Specific Purposes: Past, Present, Future*, 26–27 September 2014, Belgrade: Faculty of Organizational Sciences, 145–152.
- Dimković-Telebaković, G. (2017a). *English and Serbian Language in Contact*. Belgrade: Svet knjige.
- Dimković-Telebaković, G. (2017b). Standardizovanje saobraćajne terminologije u srpskom jeziku. In: M. Kovačević and J. Petković (eds.), *Srpski jezik, književnost, umetnost*, knj. I, (*Srpski jezik u komunikativnoj funkciji*, Kragujevac: Filološko-umetnički fakultet, 103–112.
- Hlebec, B. (2009). *Opšta načela prevođenja*. Beograd: Beogradska knjiga.
- Huddleston, R. and G. K. Pullum (2002). *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.
- Klajn, I. (2002). *Tvorba reči u savremenom srpskom jeziku. Prvi deo. Slaganje i prefiksacija*. Beograd: Zavod za udžbenike i nastavna sredstva/Institut za srpski jezik SANU; Novi Sad: Matica srpska.
- Lyons, J. (1977). *Semantics*. Cambridge: Cambridge University Press.
- Quirk, R. et al. (1985). *A Comprehensive Grammar of the English Language*. London /New York: Longman.
- Sag, I. A. et al. (2002). Multiword Expressions: A Pain in the Neck for NLP. In: *Proceedings of the Computational Linguistics and Intelligent Text*

*Processing: Third International Conference: CICLing / 2002*, Lecture Notes in Computer Science, 2276, Springer, 1–15.  
Zgusta, L. (1971). *Manual of Lexicography*. The Hague/Paris: Mouton.

### **Sources**

- Dimković-Telebaković, G. (2015b). *English in Transport and Traffic Engineering*. 6<sup>th</sup> edition. Beograd: Univerzitet u Beogradu, Saobraćajni fakultet.
- Dimković-Telebaković, G. (2015c). *Testovi, zadaci i teme iz engleskog jezika*. 6<sup>th</sup> edition. Beograd: Univerzitet u Beogradu, Saobraćajni fakultet.
- Dimković-Telebaković, G. (2018). *English Grammar for Transport and Traffic Engineers*. Beograd: Univerzitet u Beogradu, Saobraćajni fakultet.
- Fišer-Popović, A., V. Mijušković and J. Radoš (1992). *English-Serbian Dictionary of Road Traffic Engineering, Englesko-srpski rečnik drumskog saobraćaja*. Drugo izdanje. Beograd: Savremena administracija.

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ЕНГЛЕСКЕ ТЕРМИНОЛОШКЕ СЛОЖЕНЕ ЛЕКСЕМЕ, ЊИХОВИ  
ЕКВИВАЛЕНТИ У СРПСКОМ ЈЕЗИКУ И ПРЕВОДНИ ОБРАСЦИ

### **Сажетак**

Циљ рада је да се у српском језику тачно изрази значење 82 енглеске сложене лексеме које су у употреби у саобраћајном инжењерству. Како би овај циљ био остварен, коришћена је семантичко-морфолошка преводна метода. Она помаже да се установе преводни обрасци. Добијена су 34 обрасца, који откривају редослед превођења конституената у енглеским лексичким јединицама, приказују тачан број елемената у саставу анализираних терминолошких сложених лексема и њихових преводних еквивалената, и показују како се одређена значења енглеских сложених термина морфолошки изражавају у српском језику. Преводни обрасци могу имати теоријске и практичне импликације. Резултати истраживања могу помоћи при

стандардизовању термилошких лексема у српском језику и у настави енглеског језика науке и струке.

**Кључне речи:** семантичко-морфолошка преводна метода, преводни обрасци, енглеске специјализоване сложене лексеме, еквиваленти у српском језику, саобраћајно инжењерство