
SYNTACTIC PATTERNS OF LOGISTICS TERM FORMATION IN ENGLISH AND BULGARIAN LOGISTICS TERMINOLOGY

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Abstract: This paper dwells on syntactic patterns of logistics term formation in English and Bulgarian logistics terminology. The analysis and conclusions are part of a detailed exploration into the English and Bulgarian logistics terminological systems. The methods applied are a comparative approach implemented on the basis of the principles of synchronicity and systematicity when relating English terms to their Bulgarian equivalents and a semantic-syntactic method when revealing the relations between components in phrases with a component analysis of their semantic structure. Based on the examples included in the corpus developed especially for the study, the paper offers a classification of terminological phrases in the English and Bulgarian terminological system of logistics. The findings can be relevant when teaching English for Logistics.

Keywords: logistics terminology, terminological phrases, typology of phrases

1. INTRODUCTION

This paper is intended to focus on syntactic patterns of logistics term formation in the English and Bulgarian terminological system of logistics. First, it defines what is a terminological phrase and distinguishes between term compounds and phrases. Then it offers a classification of terminological phrases in logistics depending on the constituents they are made up of and the relations between them. It is part of a larger study dedicated to the tendencies in the development of English and Bulgarian logistics terminology with regard to the processes evolving in it (Velikova, 2017, 2018b). The study itself is centred on a large corpus of terms excerpted from existing dictionaries, online glossaries, related websites and course materials (Velikova, 2018a, 2018c; Velikova, Toncheva, 2009) created for students in the specialty “Logistics”, B. Sc. and M.Sc. at the “Nikola Vaptsarov” Naval Academy in Varna, Bulgaria. The methods applied are a comparative approach implemented on the basis of the principles of synchronicity and systematicity when relating English terms to their Bulgarian equivalents and a semantic-syntactic method when revealing the relations between components in noun compounds and phrases with a component analysis of their semantic structure. It should be highlighted that terminological phrases belong more to the so-called real terms considering the distinction between an ideal and real term, the latter being the term functioning in scientific and specialized texts (Popova, 2017, p 298).

2. DEFINING TERMINOLOGICAL PHRASES

Terminological phrases result from lexico-syntactic term formation. They are made up of individual elements – words, each of which retains its autonomy as a lexical, grammatical and lexical-semantic unit (Popova, 1986, p. 152). In terminology terminological phrases prevail because they tend to explain the essence of a concept in greater detail. Referred to as word combination terms, terminological phrases or groups, even multi-word terms, will be called phrases here in order to distinguish them from single-word and compound terms.

The analysis is based on the relationship between components in the phrase - attributive, objective, adverbial – and on structure-positional models which represent a) the constituent elements (terminological elements) of the terminological phrase as parts of speech; b) the linear position (word order) of the constituent elements and c) the presence or absence of grammatical words (see Popova, 1985, p. 107-108).

This type of term formation is extremely productive in scientific English, hence in logistics terminology. In her investigation of the European Logistics Association (ELA) Dictionary, Kuptsova has found that only 15% comprise single-word terms, and 85% are compound terms or phrases. Of these, 55% are made up of two constituents, 21% – of three, 18% – compound words, 6% – combinations of four words and more (for example, *operational profit through time and inventory management* – *оперативна печалба чрез управление на времето и материалните занаци*). The majority of them are nouns (95%), which give rise to other parts of speech. And yet another interesting fact is that 73% of the terms are built on the model N + N and only 23% – on an Adj + N model (Kuptsova, 2015, p. 71). So far, the data obtained by Kuptsova has coincided within reasonable margin with our corpus and confirmed its validity, therefore I am going to accept it.

Terminological phrases are complex syntactic structures, “... that are governed by the same rules that combine free phrases and are not formally distinguished by any specific feature...” (Cabr e, 1999, p. 86). This definition focuses on an essential difference between compounds and phrases – syntax. Compared to phrases compounds are not accessible to syntactic operations, i.e., they display lexical integrity. They also seem to be more restrictive in terms

of interpretability. That is why they are more suited to provide names for entities, properties or actions. On the contrary, the function of syntax and of phrases, respectively, is to provide descriptions (Bauer, 1988, p. 102). Whether a combination of words is a compound or a phrase is very much determined by the phonological, syntactic, semantic and contextual characteristics of the whole. Finally, if all criteria fail, the hypothesis that if each constituent is grammatically formed in a structure, it is considered to be a terminological phrase, (Gorelikova, 2002, p. 133-134) if not – it is a compound, might come in handy. Applying this morphological criterion will mean to have a preposition or a suffix attached to the premodifier, e.g. *bill of lading* – *коносамент*, *international carrier* – *международен превозвач*, *cash with order* – *доставка с наложен платеж*, *non-durable goods* – *стоки за кратковременно ползване*, but *air carrier* – *въздушен превозвач*, *charter party* – *чартър*, *road consignment note* – *автомобилна товарителница*, etc. will be compounds.

3. CLASSIFICATION OF LOGISTICS TERMINOLOGICAL PHRASES

3.1. Phrases in the English Terminological System of Logistics

Syntactic phrases are made up of different segments of speech: nouns, adjectives, numerals, prepositions, adverbs, even proper names, etc. to produce new phrases with one of the elements being a headword and the rest – modifiers. Depending on the number of terminological elements they can be two-word or multi-word terminological phrases. Furthermore, with regard to the semantic relations within a phrase they can be divided into collocations, phraseological unities and phraseological fusions or idioms proper (according to Ginsberg et al., 1979, p.75) or collocations, fixed expressions and idioms (Cowie, 1998, p. 1-20). The criterion is related to the ability of a word to appear in various combinations with other words, known as its lexical collocability or valency. The degree of motivation differs depending on the type of phrases. Compare:

be in the same boat – *намирам се в същото положение*

travel light – *пътувам без багаж*

hit and run – *катастрофа, след която нарушителят напуска местопрестъплението*

go off the rails – *излизам от релси*

hit the road – *хващам пътя*

off the beaten track – *встрани от утъпкания път*

know the ropes – *ориентирам се*

Similar to compounds terminological phrases are subdivided into **coordinate** and **subordinate** types. In coordinate phrases the constituents are functionally and semantically equal as in *pick and pack* – *събирам (артикули по) поръчка и опаковам*; *rack and check* – *опаковам и проверявам*; *packing and packaging* – *производствена и потребителска опаковка*, *hub and spoke* – *главина и спици*, etc. In subordinate phrases, one of the elements functions as an attribute to the other, the difference being that the head is not necessarily the component that occurs first in the word-group, e.g. *certificate of origin* – *свидетелство за произход*; *distance run* – *разстояние (изминато от кораб или друго превозно средство)*; *coastal shipping* – *каботажни превози*; *base stock* – *текущ запас*; *dead stock* – *неликвидни запаси*, etc.

Syntactic term formation allows for a large number of prepositions to be present in terminological phrases to explicate the relations between the constituents, so **prepositional** and **non-prepositional** phrases can be distinguished. In non-prepositional types there is a syntactic correlation between the terminological elements while in prepositional types it is missing; rather the type of non-concord is compensated for by the preposition.

Depending on the constituents phrases in the English terminological system of logistics may be classified into the following patterns:

A. **Noun phrases** in various combinations: N+N (noun+noun), V+N (verb+noun), Adj+N (adjective+noun), PP+N (past participle+noun), etc.

N + N - *cargo insurance* – *застраховка за стоката*; *carriage contract* – *договор за превоз*; *parking control* – *контрол над паркирането*; *security declaration* – *декларация за сигурност*.

They express a variety of semantic relations between modifier and head, the most common being expressed with **of** and **for**, i.e. purpose, origin, or attribute. Next come the phrases denoting place – *littoral zone* – *крайбрежни води*, *production logistics* – *вътрешна логистика*, *logistics zone* – *логистична зона*, etc.

Eponyms can also be added to this class. They are a combination of proper and common nouns used to designate substances, materials, objects, instruments, methods, processes and measurements (Sager, 1990, p. 77) such as *Mafi trailer* named so after the German manufacturer and shortened to *мафи* in Bulgarian, *Roadrunner shuttle* (not the cartoon character but the US transport and logistics service provider Roadrunner Transportation Systems), *Maersk container*, *Bobcat loader*, *Pareto principle* and so on.

Further, noun phrases may be classed into the following types:

N + V-ing – *capacity planning* – планиране на капацитет; *materials handling* – складово-манипуляционни дейности; *продвижване на материалите*; *consignment selling* – стоки на консигнация; *order processing* – обработка на заявките; *package shipping* – експедиране на пакет, etc.

The V-ing form acts as a noun here; therefore the above examples illustrate N + N relations. Most of them express processes, others – methods to reach a goal, but do not imply movement.

V + N – *pull system* – система с изтегляне; *push system* – система с избутване; *overrun brakes* – инерционни стирачки.

V-ing + N – *driving standards* – стандарти за шофиране; *forwarding agent* – спедитор; *holding costs* – разходи за съхранение на запаси; *waiting time* – време на изчакване; *incoming goods* – входящи стоки; *loading facilities* – товарни съоръжение, etc.

The model is illustrated with two types of phrases depending on the function performed by V-ing. In one of them V-ing readily lends itself to an N + N interpretation. In the other V-ing is a present participle and acts as a modifier to the head of the phrase. Therefore the V-ing form indicates either a state or a property in the examples above. The examples can also be grouped depending on the relations between the constituents – purpose, cause, location, time, etc.

Adj + N – *obsolete stock* – залежали количества; *reverse logistics* – обратна логистика; *empty running* – празен курс; *head-on collision* – челен сблъсък; *direct carriage* – директен превоз; *coastal carrier* – крайбрежен превозвач (на близки разстояния); *intercoastal carrier* – превозвач между пристанища

PP + N – *finished goods* – готова продукция; *integrated transport* – интегриран транспорт; *permitted tolerances* – допустими отклонения; *insulated container* – изолиран контейнер; *collated packaging* – групово опаковане.

The last two non-prepositional groups express typical attributive relations where the modifiers point to a permanent property and state.

What follows are two types of prepositional phrases:

N + prep + N (noun+preposition+noun) – *trailer on flatcar* – вагон за ремарке; *container on flatcar* – контейнерен вагон; *work in process* – продукция в процес на обработка; *goods in transit* – товари на път; *cash against documents* – плащане срещу документи; *cash on delivery* – плащане при доставка/наложен платеж

Prep + N + N (preposition+noun+noun) – *in-flight survey* – наблюдение на полетите; *on-hand inventory* – наличен инвентар; *in-process inventory* – незавършено производство; *on-scene security survey* – оглед за проверка на сигурността.

With regard to the syntactic relation between the term constituents these are: 1) attributive or 2) appositive or 3) adverbial phrases. The formal structure is extended by the relevant preposition. Here is an attempt at classifying prepositional phrases depending on the preposition used in them:

a. partitive → of – *means of transportation* – транспортно средство; *limit of liability* – предел на отговорност; *transport of goods* – транспорт на стоки; *date of maturity* – дата на падеж; *terms of sale and delivery* – условия за търговия и доставка; *declaration of security* – декларация за сигурност

b. instrument → to – *abandonment to insurers* – изоставяне на кораб в полза на застрахователя; *aid to navigation* – средство за навигация

c. place → from ... to – *access to and from the sea* – достъп към и от морето; *from cradle to grave* – по време на целия жизнен цикъл; *from stem to stern* – от носа до кърмата

in – *drive in racking system* – проходен палетен стелаж с достъп от едната страна; *work in process* – продукция в процес на обработка

on – *on-scene co-ordinator* – ръководител на операцията по търсене и спасяване в района на бедствие; *on-board computer* – бордови компютър; *on-hand inventory* – наличен инвентар

through – *drive through racking system* – проходен палетен стелаж с достъп от двете страни, *flow through warehouse* – склад с отложено претоварване. With some of the examples movement is also sensed.

d. purpose → for – *products for sale* – продукти за продажба; *standards for driving* – стандарти за шофиране; *mechanism for forecasting* – механизъм за прогнозиране; *instructions for shipping* – указания за товарене

e. time → in – *goods in transit* – товари на път; *cash in advance* – авансов превод.

B. Adjective phrases acting as pre modifiers are not very common, rather they tend to function as post modifiers, e.g.

Prep + (adj) + N (preposition+(adjective)+noun) – *in-bond* – под митнически контрол; *beyond economic salvage* – икономически неизгодно за възстановяване; *beyond economic repair* – икономически неизгодно за ремонт

PP + N + PP (past participle+noun+past participle) – *delivered duty paid / unpaid* – доставен с платено / неплатено мито.

The remaining two groups are more likely to appear as pre-modifiers. An interesting point is that they seem to be shortened versions of prepositional phrases, e.g. *pressure sensitive* = *sensitive to pressure* – чувствителен на натиск; *capital-intensive* = *relying on high cash* – изискващ големи капиталови инвестиции; *asset rich* = *rich in assets* – богат на активи, i.e. they illustrate the principle of linguistic economy.

N + PP (noun+past participle) – *temperature controlled* – температурно регулиран; *immigration-cleared* – проверен от гранична полиция; *level controlled* – регулиран за ниво

N + Adj (noun+adjective) – *road-weary* – изтощен от пътуване; *labour intensive* – трудоемък; *cargo poor* – с малко товари.

Restricting and specializing the meaning of the head word adjectives may give rise to a large number of phrases. Non-predicative groups which do not comprise the subject and the predicate are subject to special interest because they predominate in terminology. They may be subdivided into phrases with the modifier denoting a relation to:

a.an activity – *protective equipment* – защитни средства, *operating temperature* – работна температура

b.place – *vertical integration* – вертикална интеграция, *storage in-transit* – транзитно съхранение

c.shape – *bulbous bow* – булбов нос, *liner shipping* – линейно плаване

d.size – *oversize load* – извънгабаритен товар за сухопътен превоз, *short-delivered cargo* – доставен в по-малко товар

e.measurement – *general average* – обща авария, *short supply* – ограничено предлагане

f.quantity – *unit price* – единична цена, *maximum payload* – максимално натоварване

h.quality – *crew list* – екипажен списък, *rate of exchange* – валутен курс

i.property – *finished product* – готово изделие, *special rates* – специални такси

j.state – *consolidated cargo* – консолидиран товар, *open account* – открита сметка

k.structure – *divergent logistic system* – разклоняваща се логистична система, *dyadic supply chain* – двукомпонентна верига на доставките

l.process – *transfer risk* – трансферен риск, *receiving papers* – документи при получаване

m.industry – *tax haven* – данъчно убежище, *customs allowance* – митническа квота

n.instrument – *trade terms* – търговски условия, *fast track* – ускорена процедура

o.time – *urgent examination* – спрочна експертиза, *delayed differentiation* – забавено обособяване

p.sequencing – *aftersales service* – следпродажбено обслужване, *follow-up measures* – последващи мерки.

C. Verb phrases – for the purposes of this analysis these are narrowed down to collocations, combinations and phrasal verbs only. The examples in the corpus yield the following subtypes:

– V + N – *break bulk* – разрупнявам, *make bulk* – окупнявам; *consolidate freight* – консолидирам товари; *collect a shipment* – вземам пратка, etc.

– V + prep + N – *drop off a consignment* – доставям пратка с превоз; *put away articles* – прибирам на склад; *take away goods* – снемат от продажба; *make to stock* – произвеждам по поръчка, *engineer to order* – проектирам по поръчка, etc.

These are mostly phrasal verbs common for logistics texts as well as collocations coined to identify segments of supply chain management.

The examples given prove that all multi-word units are worth noting, even the so-called free combinations. While they are often presented as predictable, they have been reinstated by recent studies of learner language showing that what is felt to be predictable by native speakers of the language may in fact present problems for foreign learners.

3.2. Phrases in the Bulgarian Terminological System of Logistics

Syntactic phrases in Bulgarian terminology have been studied in detail by Popova (2012, p. 385-389). I accept the typology offered by her, distinguishing between coordinate and subordinate phrases. The Bulgarian **coordinate** subtypes are generally a mirror image of the source language phrases, e.g. *цени и ценообразуване* – *prices and pricing*, *търсене и предлагане* – *supply and demand*, *транспорт и застраховка платени до* – *carriage and insurance paid to*, *доставка и заплащане* – *delivery and payment*, etc. Sometimes, however, there are exceptions, if one of the languages lacks a term combining two semantically equal concepts as in *наситни и наливни товари* – *bulk cargo or експлоатация* – *operation/servicing and maintenance* of any system, piece of equipment or enterprise.

In Bulgarian **subordinate phrases** are of two types:

a.non-prepositional in which the constituents are exocentric or endocentric-related, i.e. in gender and number agreement and

b.prepositional.

Exocentric non-prepositional phrases are rare in Bulgarian illustrated by *проформа фактура* – *proforma invoice*, *автомобил комби* – *station wagon* and *бокс-палет* – *box pallet*.

The examples belonging to the **endocentric non-prepositional type** are the greatest in number because they account for several English phrase classes:

– Adj + N which corresponds to English N + N and Adj + N, e.g. *речно корабоплаване* – *river shipping*; *товарен контейнер* – *cargo container*; *корабен агент* – *shipping agent*; *обществен превозвач* – *common carrier*; *безопасен превоз* – *safe carriage*

– Participle + N which corresponds to English V-ing + N and PP + N phrases, e.g. *текущи разходи* – *running expenses*; *сканиращи технологии* – *scanning technologies*; *върнати стоки* – *returned goods*; *платежно нареждане* – *draft*; *изкопаеми горива* – *fossil fuels*, etc.

– Num + N – *многоцелеви кораб* – *omnicarrier*; *мултимодален транспорт* – *multimodal transport*; *еднороден превоз* – *unimodal transport*

– multi-word phrases – *непридружаван интермодален транспорт* – *unaccompanied combined transport*; *открита товарна платформа* – *truck*; *регулируем палетен стелаж* – *adjustable racking system*; *вътрешен речен транспорт* – *inland navigation*; *товароподемно устройство* – *cargo lifting gear*, etc.

The illustrations point to a heterogeneous class consisting of various constituents in different combinations – adjectives, participles and nouns, which we are not going to examine in detail. Suffice it to say that they are both symmetric and asymmetric when comparing the source and target language equivalents.

Even though multi-word phrases are not subject to investigation here, there are a few points to consider regarding them:

1. The greater the number of constituents, the more the structural model phrases that follow.

2. The greater the number of constituents, the fewer the phrases in a specialized text.

3. The longer the phrase, the more transparent it is.

4. The longer the phrase, the more inconvenient it is to use giving rise to abbreviations.

Prepositional phrases abound in Bulgarian, the reason being probably due to the different structure of the respective language and the effort to explicate the semantic relation between the constituents. Depending on the prepositions used in them we may classify Bulgarian prepositional phrases into the following subtypes:

на – *товар на палубата* – *deck cargo*, *вземане на поръчка* – *order picking*

за – *договор за продажба* – *sales contract*, *страна за уведомяване* – *notify party*

от – *товар от различни стоки* – *freight all kinds*, *превозвач, освободен от облагане с данъци* – *exempt carrier*, *икономии от мащаба* – *economy of scale*

в – *поставяне в палети* – *palletization*, *товар в насипно състояние* – *bulk cargo*

по – *превозвач по договор* – *contract carrier*, *изработен по поръчка* – *tailor-made*

под – *под попечителство* – *in custody*, *под митнически надзор* – *in bond*

над – *пристанищен надзор над корабите* – *port state control*; *военноморски контрол над корабоплаването* – *naval control of shipping*

без – *обществен превозвач без кораби* – *non-vessel operating common carrier*, *документ без забележки* – *clean document*, *бряг без убежища* – *open coast*

при – *плащане при доставка с наложен платеж* – *collect on delivery*, *загуби при спасяване* – *salvage loss*

към – *бизнес към бизнес* – *business to business*, *пълен курс към клиента* – *headhaul*

до – *превоз до сборна точка* – *pool point shipping*, *товар до поискване* – *hold for pickup*, *стойност (на товара) до склада* – *landed costs*, *транспорт (на контейнери) от помещението на товарачите до товарния кей или от разтоварния кей до помещението на получателите* – *local haulage*.

Clearly, there may be more than one preposition used in a phrase as in the last example. Furthermore, because of the polyvalent nature of prepositions in Bulgarian, they can express various semantic relations, e.g. *от* – partitive, cause, manner, cf. *товар от различни стоки* – *freight of all kinds*, *превозвач освободен от облагане с данъци* – *carrier exempt from taxes*, *икономии от мащаба* – *economy caused by scale*.

Other relations transpiring from the examples are place, movement, method and circumstances, which compared to compounds far exceed the range of meanings expressed by syntactic phrases.

4. CONCLUSIONS

Syntactic terminological phrases are by far the most productive means of term formation both in English and Bulgarian. Researchers argue whether compounds and phrases overlap or not. They agree, however, that both consist of at least two constituents. They also point out that compounds and phrases tend to differ in the unity of semantic content, the character of constituent combinability, the order of the constituents, orthography, etc.

Like compounds terminological phrases can be categorized as coordinate and subordinate which are further subdivided into exocentric, endocentric and attributive except that this division is further broken down to include non-prepositional and prepositional phrases.

A morphological classification applied on terminological phrases in logistics terminology provides the following models: noun phrases, adjective phrases and verb phrases. Attributive non-prepositional phrases are found to be plentiful with the modifying element being an adjective or a participle.

Considering semantic correspondence between English and Bulgarian terms prepositional phrases predominate in Bulgarian because of the different word-order in English and Bulgarian and the effort to explicate the semantic relation between the constituents; hence asymmetric phrases tend to prevail over symmetric types.

Prepositional phrases present a special case where similar semantic relations are realized by using prepositions typical of both languages; the most recurrent being partitive, cause, manner, place, movement, method and circumstances. Although fairly predictable, they should be paid special attention to because foreign learners may find some of them problematic.

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