

MORPHOLOGICAL PATTERNS OF LOGISTICS TERM FORMATION. DERIVATION

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Abstract. This paper focuses on morphological patterns of logistics term formation in English and Bulgarian terminology concentrating mainly on derivation. The analysis and conclusions reached relate to a detailed exploration into the English and Bulgarian logistics terminological systems with regard to the tendencies in their development. It applies a comparative approach on the basis of the principles of synchronicity and systematicity when relating English terms to their Bulgarian equivalents and discusses the meanings of the most productive prefixes and suffixes recurrent in them. The findings can be relevant when teaching English for Logistics.

Keywords: logistics terminology; term formation; affixation

Introduction

Term formation by using morphological patterns usually relies on modification of existing resources (Sager 1990, p. 72). It involves derivation or affixation and compounding. Affixation consists in adding derivational affixes (i.e., prefixes, infixes and suffixes) to roots and stems to form new words. Compounding consists in linking together two or more bases to create a new word. Plag offers a slightly different division in derivation distinguishing between affixation and non-affixation as a generic term for conversion, truncation (shortening and clipping) and blending (2003, p. 17).

Term formation follows the same patterns of word formation in general language but in specialized domains it serves for expressing a definite meaning and fulfilling a classificatory function as well as expressing the relation of the terminological concept with regard to the other members of the class. Danilenko specifies that in single-word terms this function is fulfilled by word-forming morphemes (Danilenko 1977, p. 95).

This paper reflects on morphological patterns of logistics term formation in the English and Bulgarian terminological system of logistics concentrating mainly on derivation. It is part of a larger study delineating the tendencies in the development

of English and Bulgarian logistics terminology with regard to the processes evolving in it (Velikova 2017; Velikova 2018b). The study itself is based on a large corpus of terms excerpted from existing dictionaries, online glossaries, related websites and course materials (Velikova 2018a, Velikova 2018c; Velikova, Toncheva 2009) developed for students in the specialty “Logistics”, B. Sc. and M.Sc. at the “Nikola Vaptsarov” Naval Academy in Varna, Bulgaria.

Derivation

1. Derivation in the English Terminological System of Logistics

One of the most productive types of terms formation is derivation. It “is widely applied in Bulgarian terminology as a morphological technique to create the linguistic form of a term. [...] And if there is a difference with general vocabulary, it is not in its essence, but rather in the way it affects the relationship between the native – foreign (borrowing) means” (Popova 2012, p. 375). Overall, affixation may lead to a meaning change, a word-category change or both.

Typical of term formation is the large number of affixes of Latin and Greek origin and logistics terms are no exception, e.g. *tachograph* – *тахосграф*, *supervision* – *надзор*, *intermodal* – *интермодален*, etc. Subject to analysis here are those that are language-specific for the subject-field.

1.1. Prefixes

1.1.1. The most common **prefixes** in the terminological system of logistics are those **denoting movement in time and space, position, succession of activities, result**, etc.

a. position

on-: *onshoring* – *онишоринг*; *on-hand inventory* – *наличен инвентар*;

off-: *offshoring* – *офшоринг*; *offlying* – *отделно лежащ*

out-: *outputs* – *изходни резултати*; *outstation* – *филиал, изнесен надалеч от главния офис*

over-: *overpass* – *надлез*; *overland* – *по суша*

under-: *underpass* – *подлез*; *undercar* – *подвагонен*

b. movement in space – very often the opposites are used together

downstream – *надолу по веригата (към клиентите)* → *upstream* – *нагоре по веригата (към доставчиците)*

downtime – *прекъсване на работа; престой* → *uptime* – *(чисто) работно време*

inbound / inward logistics – *входяща (на входа) логистика* → *outbound / outward logistics* – *изходяща логистика*.

Some of the above prefixes may indicate both **place** and **movement**, e.g.

in-: *incoming goods* – *входящи стоки*, *inland haulage* – *вътрешен превоз*, *in-transit* – *транзитен*; *insourcing* – *връщане на изнесените услуги обратно в компанията*, *инсорсинг*

on-: **on track commodity** – стока в движение според плана; **on-carriage** – **краен** превоз; доставка на товара до разтоварния пункт след основния етап; **onshoring** – **оншиоринг**.

The latter is a type of outsourcing which involves the contracting out of a business process to another party, other types being *inshoring* – **иншиоринг**, *nearshoring* – **ниъриоринг** and *offshoring* – **офшиоринг**, therefore besides place and movement, the concepts denote a degree of relocation.

c. movement in time or succession

pre-: **pre-carriage** – **начален** превоз; доставка на товара до товарен пункт преди основния етап на транспорт; **pre-assembly** – **предварителен** монтаж; **pre-delivery inspection** – проверка **преди** доставяне

post-: **postponement** – **отлагане** на индивидуализацията на продукта; **post-delivery** – **след** доставката; **post-manufacturing** – **след** производствен

d. movement back or repeated movement

re-: **re-exportation** – **реекспорт**; **re-entry** – **влизане обратно**; **reconditioning** – **възстановяване** but

re-engineering – **реинжинеринг**; **re-organize** – **реорганизирам**; **reusable pallet** – палет за **многократна** употреба

e. simultaneous activity or movement

co-: **co-packing** (grouping products together in batches as part of a promotional campaign) – **опаковане в полиетиленово свиваемо фолио**, **co-sourcing** – **ко-сорсинг**, **co-location** – **съвместно** разположение, **ко-локация**.

1.1.2. Prefixes denoting quantity:

a. more than necessary

over-: **overtime** – **извънредни** часове работа; **overload** – **претоварвам**; **overstow** – **подреждам отгоре** (товар), **затискам** (товар); **overcarry** – **превозвам по-дълго** от необходимото

b. less than required

under-: **underuse** – **недоизползвам**; **undercrossing** – **кръстовище**, при което един от пътищата минава **под** другия

A similar meaning is conveyed with *short-* in the following examples:

short-: **short-delivered** – **предаден в по-малко**; **short-received** – **разтоварен в по-малко**; **short-shipped** – **натоварен в по-малко**, etc.

1.1.3. Negative prefixes denoting *contrary to* or *not having*, the latter being more common. These are usually associated with antonyms.

un-: **uncertainty-based** (e.g. natural disasters) – **основан на опасност/нестигурност**; **unloading** – **разтоварване** but **unaccompanied vehicle** – **автомобил без шофьор** which may either be temporary (e.g. during transport by rail or ferry) or permanent; **uncertified copy** – **несертифицирано копие**, **незаверен екземпляр**; **unclaimed freight** – **непотърсен товар**.

non-: **non-certificated (carrier)** – **несертифициран**; **non-returnable packing** – **амбалаж за еднократно ползване**.

Other negative prefixes such as de- and dis- are of Latin origin:

de-: **deconsolidate** – **деконсолидирам (пратки)**; **decoupling** – **разделяне**; **dismountable** – **демонтируем**.

dis-: **disassemble** – **разглобявам**; **diseconomy** – **икономическа неефективност**; **disabled worker** – **работник с увреждания**.

1.1.4. Prefixes denoting state and place

Although not very frequent in term formation, the prefixes a- and inter- are typical in logistics terminology. Toncheva (2003, 105) highlights them as characteristic of the conceptual structure of Maritime terminology denoting state (e.g. *aground* – **заседнал**, *aloft* – **нависоко**) and place (e.g. *ashore* – **на брега**, **към брега**; *alongside* – **по протежение на кея**). However, the prefixes indicate direction, as well, as in *ahead* – **напред**; *aback* – **назад**. See also inter-: **intermodal** – **интермодален**, **interorganizational** – **междуетаблизационен**.

1.1.5. Prefixes denoting partitive relations

Last but not least, mention should be made of prefixes denoting partitive relations to form number compounds such as mono-, bi-, semi-, multi-, single-, mono-, etc. Cf. **single-card Kanban system** – **система KANBAN с използване на една карта**, **bi-fuel vehicle** – **автомобил с възможност да работи с бензин или метан**, **dual-purpose vehicle** – **автомобил с двойно предназначение**, **semi-finished products** – **полуфабрикати**, **semi-trailer** – **полуремарке**, **multi-modal transport** – **мултимодален транспорт**, **multi-axle bogie** – **многоосна талига**.

1.2. Suffixes

English uses both prefixation and suffixation productively and actively. Thus, in English the suffix -er/-or can be added to virtually any verbal stem to produce a word meaning ‘a person performing an.... action or a person engaged in’ (Pencheva 2004: 148).

In logistics -er/-or is very productive but does not only refer to a doer/agent as in *sub-contractor* – **подизпълнител**, *haulier* – **сухопътен превозвач**, *shipper* – **товародател**; *order selector* – **складов работник** (which is somewhat an inaccurate equivalent; so is an *order picker*) but also to equipment as in *sidelifter* – **страничен товарач**, *front-end loader* – **челен товарач**, *conveyor* – **конвейерна лента**.

1.2.1. Of all suffixes referring to an activity or process the most common are -ing and -age.

The suffix -age, for instance, may denote not only an action or process, but also a result, a place, an instrument, e.g.

– action – **salvage** – **спасяване на кораб или имущество**, **passage** – **преброд**, **carriage** – **превод**

– result – *breakage* – счупване, *groupage* – групаж, *shrinkage* – загуба на стоки в резултат на изпаряване, течове, влошаване на качеството, кражба и пр.

– charge – *pilotage* – пилотска такса, *brokerage* – комисионно възнаграждение на агента

– rate – *mileage* – изминато разстояние в мили

– place – *broken stowage* – нарушена/незапълнена вместимост на товарно пространство, *sabotage* – каботаж (крайбрежно плаване)

– instrument – *dunnage* – дънидж (постелъчен материал), *buoyage* – система за ограждане с буйове

Sometimes the noun may refer to two or more meanings in combination, e.g. *breakage* – 1. счупване, авария; 2. компенсация за щета; 3. товарен обем, загубен при подреждане на стоките; 4. разрешен процент чупливост при стоките denotes a result, a charge, a rate and a place at the same time.

The -ing suffix is accountable for a great number of verbal nouns to indicate a specific process associated with a more general verbal action. Verbs forming nouns in -ing can also indicate either the process or an entity associated with the process (Sager 1990: 74). In logistics terminology the suffix is most frequently associated with:

a. Processes – *banking* – банкиране; *scanning (of goods)* – сканиране

b. Methods of handling – *trimming* – тримиране (на насипен товар); *accumulating* – консолидиране; *bundling* – групиране в пакет за продажба на по-ниска цена; *collating* – процес на подреждане и сравняване на отделните елементи and

c. Results – *covering* – покритие, опаковка; *securing* – укрепване; *wrapping* – амбалаж, опаковка.

As can be seen from the examples in c. the polysemantic suffix denotes not only a result of an activity but also

d. The entity associated with it, which is usually a material, e.g. *fitting* – фитинг; *lashing* – материал за увързване. In this case the nouns thus formed may become countable.

e. Something connected with a specified thing or concept: *siding* – разклонение на жп линия; *offing* – част от морето, отдалечена, но видима от брега.

Besides, in nouns the -ing suffix takes part in forming present participles used as adjectives which is also very productive in compounds in both languages – e.g. *backing distance* – разстояние, изминато (от кораба) на заден ход до момента на достигане на зададената скорост; *performing carrier* – фактически превозвач; *scanning technologies* – сканиращи технологии.

Other suffixes gravitating round actions, processes and results are **-ment**, **-tion** and **-ance**, e.g.

-ment specifying actions, results and instruments – *procurement* – снабдяване; *consignment* – 1. изпращане на стока; 2. пратка, партия; 3. пращане на

стока на консигнация; *transshipment* – прехвърляне на товари; *endorsement* – джиро, заверка

-tion referring to actions, processes, or results, as well as state and condition: *junction* – транспортен възел; *distribution* – дистрибуция; *utilization* – усвояване, утилизация; *destination* – местоназначение, *disruption* – срив, сътресение

-ance – *insurance* – застраховка; *acceptance* – приемане; акцентиране; *usage* – обичайна практика/традиция.

The idea of state, quality is expressed by -ity, e.g. *liability* – отговорност, *modularity* – модуларност, *utility* – полезност; *mobility* – мобилност.

1.2.2. Suffixes Denoting Direction and Movement

Going back to the idea of expressing direction and movement, this is conveyed by the suffixes -ward and -bound as in *backward integration* – интеграция назад в посока на доставчика; *forward linkage* – връзка с потребителя; *inbound cargo* – входящ товар; *outbound distribution* – изходяща дистрибуция.

2. Derivation in the Bulgarian Terminological System of Logistics

2.1. Prefixes

If we compare the English prefixes with their Bulgarian terminological equivalents, we can outline the following three models:

With the corresponding Bulgarian prefixes which may express movement in time and space, position, and quantity:

в-: *входящ* – *inbound*; *вливане* – *inflow*

из-: *изтичане* – *outflow*; *изходящ* – *outbound*

под-: *подизпълнител* – *subcontractor*; *подвъзел* – *subassembly*

над-: *надзор* – *supervision*, *наднормено (тегло)* – *overweight*

пред-: *предплащане* – *prepayment*, *предоставяне* – *submission*

извън-: *извънгабаритен (товар)* – *out-of-gauge*, *извънреден (труд)* – *overtime*

пре-: *претоварване* – *transshipment*, *прехвърляне (на стока)* – *cross-docking*, *преадресиране* – *diversion*.

As can be seen, there is not always one-to-one correspondence of prefixes.

Typical negative prefixes in Bulgarian are раз-, не-, де- as in *неживи органични товари* – *non-living organic cargoes*; *неустойка* – *demurrage*; *разтоварвам (контейнери)* – *unstuff*; *деконсолидирам (пратки)* – *deconsolidate*, etc.

With a prefix and an explication of a permanent characteristic: e.g. *подземен проход* – *subway*; *изходни резултати* – *outputs*; *вертикална интеграция назад в посока на доставчика* – *backward integration*; *превозвач по вътрешни водни пътища* – *inland water carrier*; *вътрешноведомствен* – *in-house*, etc.

With different lexical items to explain the meaning of the derived terms, e.g. *закъсняла (неизпълнена) поръчка* – *backorder*; *прекъсване на работа* –

downtime; *interline* – *обща* авиолиния; филиал – *subsidiary*; *пренасяне* на производствени капацитети *във вътрешността* на самата държава – *onshoring*; *обратно* привличане на производствени процеси и функции – *insourcing*, etc.

As far as prefixes denoting number are concerned, they can be rendered either directly or with a long explanation. Examples are *двустранен договор* – *bi-lateral agreement*, but *автомобил с възможност да работи с бензин или метан* – *bi-fuel vehicle*; *превоз на товари и/или пътници с помощта на един вид транспорт* – *unimodal transport*; *превоз с поне два вида транспорт* – *multimodal transport*; *интермодален терминал* – *intermodal terminal* and so on.

2.2. Suffixes

The suffixes in the Bulgarian logistics terminological system correspond in meaning to the most commonly used English suffixes to express an agent/instrument and activity, action, process, result, state, condition, etc.

The most productive Bulgarian equivalents to -er/ -or are -ер, -ор, -ач, -ник, -тел, -ман and -ар, in descending order of frequency, e.g.

-ер: *танкер* – *tanker*; *контейнер* – *container*; *конвейер* за обработка на насипен товар или торби – *ship loader*; *лихтер* – *lighter*; *брокер* – *broker*; *шкипер* – *skipper*; *докер* – *docker*; *спредер* – *spreader*; *стакер* – *stacker*.

-ор: *партньор* – *partner*; *шофьор* – *driver*; *чартъор* – *charterer*; *спедитор* – *forwarding agent*; *сървейор* – *surveyor*; *стифадор* – *stevedore*; *тарифен регулатор* – *tariff regulation*

-ач: *влекач* – *tractor*, *тук*; *страничен товарач* – *side loader*, *портален автотоварач* – *straddle carrier*; *превозвач* – *carrier*; *водач* – *driver*

-ист: *кранист* – *crane operator*; *мотокаруист* – *(fork) lift truck operator*; *моторист* – *motorcyclist*; *motorman*

-ник: *подемник* – *lift*; *посредник* – *broker*; *отговорник* – *person in charge*;

-тел: *товародател* – *shipper*; *получател* на стоки – *consignee*; *износител* – *exporter*; *застраховател* – *insurer*

-ман: *талиман* – *tallyman*; *вахтсман* – *watchman*; *боцман* – *boatswain*

-ар: *винчар* – *winchman*; *дрехар* (*камион за дрехи*) – *hanging garment truck*.

Judging by the examples, it is hard to decide if there are suffixes only chosen to express an agent or an instrument or both. Obviously, the suffix -er is most productive due to the great number of direct borrowings in Bulgarian from English. Oddly enough, the typical English suffix -man is rarely rendered directly in Bulgarian.

The suffixes denoting a specific action or process and the subsequent result in Bulgarian are -не/-ние, -ка and -(а)ция. The first two are obviously native while the latter is foreign. Clearly the -ing suffix is usually rendered with -не/-ние and transfers the meaning of a process, an activity in Bulgarian terms

as in *планиране* – *planning*; *натоварване* – *loading*; *използване на ресурса на тълпата* – *crowdsourcing*; *фактуриране* – *billing* or the result thereof, e.g. *консолидиране* – *accumulating*; *групиране на товарите* – *grouping*; *пазаруване от дома* – *home-shopping*; *комплектоване на свързани изделия* – *kitting*, etc.

However, the suffix denoting a verbal noun in Bulgarian does not always correspond to a noun ending in -ing, cf. *попълване на запаси* – *inventory replenishment*; *отпечатване на документация* – *literature fulfilment*; *изследване на движенията* – *motion study*, *разположение* – *disposal*, etc.

The suffix -ing is kept in directly borrowed terms in Bulgarian preserving the sounds of the source language as in the *шоринг* derivatives; *реинженеринг* – *re-engineering*; *ритейллинг* – *retailing*, *лизинг* – *leasing*, etc. There is a proof that they are undergoing some morphological adaptation, cf. the parallel forms of *outsourcing* – *аутсорсинг* and *аутсорсване*.

The other commonly used suffix -(а)ция is polysemantic and can denote:

- state – *позиция* – *position*; *промоция* – *promotion*; *интеграция* – *integration*
- condition – *гарантия* – *security*; *комбинация* – *combination*
- action, process, or result – *комерсиализация* – *commercialization*; *къстамизация* – *customization*; *експедиция* – *dispatch*; *продукция* – *production*; *дистрибуция* – *distribution*
- document – *декларация* – *declaration*; *публикация* – *publication*; *конвенция* – *convention*.

The latter three examples may also be perceived as a recorded result of an activity. As with the suffix discussed above there is no one-to-one correspondence between the English and the Bulgarian suffix, cf. *интеграция на участниците във веригата на нива* – *tiering*; *експедиция* – *dispatch* (zero suffix), *инвестиция* – *investment*, etc.

The native suffix -ка is accountable for a great number of Bulgarian terms to indicate:

- a device or instrument – *количка за палети* – *pallet truck*, *поставка* – *rack*
- a document – *разписка* – *receipt*; *сметка* – *account*; *бланка* – *blank form*
- a process – *обработка* – *handling*; *подготовка за път* – *marshalling*
- a method or technique – *тактика* – *tactics*
- a result – *опаковка* – *packing*, *маркировка с етикет* – *labelling*; *пратка* – *shipment*; *злополука* – *accident*; *поръчка* – *order*
- a place – (котвена) *стоянка* – *anchorage*; *отбивка (от магистрала)* – *lay-by*
- an organization – *офшорка* – *offshore company*; *логистика* – *logistics*.

The examples prove the nominal character of the suffix and its meanings fit with the key concepts typical of the domain unlike maritime terminology where they are few (Toncheva 2003, p. 112).

As mentioned above, the idea of state and quality which in English is expressed by -ity in Bulgarian has its counterpart -ост, e.g. *обезпеченост* – *availability of stock*; *пространствена полезност* – *place utility*; *устойчивост на стифа* – *stack stability*; *обращаемост на запасите* – *stock rotation*, etc.

The most productive suffixes to form adjectival terminological elements are -ен and -ски as in *логистичен* – *logistic(al)*; *поименен коносамент* – *straight bill of lading*, *национален превозвач* – *national carrier*, *приходен стоков ордер* – *credit order*; *митнически агент* – *clearing agent*, *технически преглед* – *maintenance*, *търговски обект* – *point of sale* and many others. Participial forms to denote characteristics are also common in Bulgarian: *комплектуващ склад* – *assembly warehouse*, *съпътстващ сервиз* – *regular service*, *саморазтоварващ се жп вагон за насипни материали* – *gondola*, *плаващ док* – *floating dock* and *автоматизиран склад* – *automated warehouse*, *специализиран склад* – *special-commodity warehouse*, *придружаван* – *accompanied*, etc.

Finally, the essential idea of direction and movement in logistics, which is expressed by the suffixes -ward and -bound are generally overtly explicated, e.g. *заплащане при пристигане* – *carriage forward*, *clearance inwards* – *разрешение за влизане*; *товар, натоварен за експорт* – *outbound cargo*, etc.

The observations made when comparing English and Bulgarian prefixes prove to be identical concerning suffixes. Very few suffixes have a corresponding Bulgarian equivalent. The Bulgarian terminological system makes use of both foreign and native means to form terms, but if they are not available, it uses long explanations to render an activity or a process, a result, quality or relationship.

Conclusions

Derivation is a morphological pattern of term formation widely applied both in English and Bulgarian terminology. The prefixes most commonly used are those denoting an activity or process, agent, method of handling, result as well as direction, movement and quantity while the suffixes refer to an activity, process, result and direction and movement again. There is not always a one-to-one correspondence with Bulgarian terminological equivalents. Therefore, prefixes expressing movement in time and space, position and quantity as well as suffixes signifying agent, activity, process, result, etc. are only one of the ways employed to convey the meaning of the English terms in Bulgarian. More frequently, however, the Bulgarian terminological system uses not only native but also foreign means to form terms or resorts to long explanations to render the above meanings.

The findings in this study are applicable in teaching English for Logistics for better presentation and understanding the semantic relations in terminology. Without a doubt, new words are better learned associatively, not mechanically. This is where the knowledge of derivational means will come in handy for students when faced with new vocabulary.

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