

Productivity of prefixation: A case of Lithuanian prefixes *nu-*, *pri-*, *į-* and *iš-*

Prefiksācijas produktivitāte: lietuviešu valodas prefiksu nu-, pri-, į- un iš- piemērs

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The aim of this paper is to measure the productivity of four distinct morphological constructions – verbal derivatives with prefixes *nu-*, *pri-*, *į-* and *iš-*. It is measured in quantitative way, employing the calculation methods of Harald Baayen (e.g., 2009). The primary foundations of these measurements are the so-called *hapax legomena* or simply *hapaxes*. The data for the investigation was gathered from morphologically lemmatized corpus “LithuanianWaC v2”. The analysis reveals that the prefix *iš-* is the most productive prefix in terms of realized and expanding productivity, and *nu-* – in terms of potential. The analysis raises a question – what factors could possibly explain, why constructions with one prefix are more productive compared to others? This leads to a partly confirmed hypothesis that suggests a correlation between productivity and the number of meanings associated with each prefix.

However, this investigation extends beyond mere quantitative measurements. Hapaxes were categorized on the basis of their meanings. This categorization aimed to identify the most productive semantic models. Meanings were identified using cognitive analysis of semantics associated with these prefixes. Categorization shows that the most productive ones are prototypical spatial meanings, as well as those meanings which are based on metaphors including CONTAINER as a source domain. Furthermore, this paper raises discussion about the nature of hapaxes – which part of them consists of real neologisms and which represents just rarely used lexemes, and what are the tendencies and motivation of prefixal neologisms’ usage.

Keywords: prefixes; productivity in language; cognitive semantics; conceptual metaphors; derivative morphology.

Introduction

This paper investigates the productivity of verb derivatives with the prefixes *nu-*, *pri-*, *į-* and *iš-* within the Lithuanian language. It aims to reveal the productivity exhibited

by these morphological constructions, additionally – to explore, what might account for the differences in their productivity using corpus-based analysis. Productivity is examined through a quantitative perspective, using the calculations of scholar Harald Baayen (e.g., 2009). In addition to the general assessment of prefix productivity, the study also investigates which of the prefix meanings exhibit the highest degree of productivity. The meanings were distinguished using an approach of cognitive semantics: the theory of image-schemas, the principled polysemy model, and the theory of conceptual metaphors. Since the number of meanings of each prefix varies (*nu-* 23, *pri-* 12, *i-* 16, and *iš-* 19), the paper raises a question whether a correlation may exist between the number of meanings each prefix has and their corresponding productivity, i.e., the more meanings a prefix has, the higher is the productivity.

The object of this study is the derivatives of the prefixes under investigation, found in the “LithuanianWaC v2 corpus”, accessible via the “Sketch Engine” platform. The corpus in question comprises Lithuanian texts that have been made publicly available on the internet, encompassing a substantial dataset with a total word count of 63,645,700 words. Given that the corpus is grammatically lemmatized, the lists of the prefixed verbs were obtained, using the *wordlist* function and specifying that verbs starting with *nu*, *pri*, *i* and *iš* were searched. Nevertheless, it is important to note that despite the lemmatization of the corpus, the words are not parsed morphemically, so the lists include not only prefixed verbs, but also other verbs whose roots have the same letter sequences as prefixes do, such as *priešinti* ‘to oppose’, *nuomoti* ‘to rent’, where *prie* and *nuo* are not prefixes, but parts of the roots. Such verbs were rejected as unsuitable. Other inspection criteria were likewise applied: words with misspellings, without diacritical marks, and words listed for lemmatization errors were rejected. For example, in the corpus a word *priori* from the Latin phrase *a priori* is listed as the verb *priorėti* ‘to get air into something’. In addition, those derivatives in which prefixation is not the last step of the derivation have been eliminated, usually with the suffix *-inėti*: *išpjaustinėti* ‘to dissect’ ← *išpjauti* ‘to cut out’, *išpaudinėti* ‘to press into repeatedly’ ← *išpausti* ‘to press into’, etc. Approximately 10 to 15 percent of the received data were discarded or rejected. The table below shows the number of derivatives remaining after the manual inspection (see table 1).

The primary aim of this study is to determine the productivity of the prefixes under investigation and to compare them in this respect. Additionally, to find out which meanings emerge as the most productive and which as least productive. The hypothesis of this study is that the productivity of prefixes is directly proportional to their number of meanings, i.e., the more different meanings a prefix has, the more productive it is,

Prefix	Number of words before inspection	Number of words after inspection
<i>nu-</i>	1541	1365
<i>pri-</i>	1128	949
<i>i-</i>	1002	860
<i>iš-</i>	1865	1658

Table 1. Investigated prefixed verbs

as there are more possible semantic patterns. The aim of this paper is to confirm or refute this hypothesis. To achieve these goals, a corpus-based productivity counting method is chosen.

1. Theoretical framework

When investigating a morphological system of a language, one may observe that certain types of derivation exhibit a static or fixed number of members, without further expansion, such as the derivatives of the suffix *-th* in English (*warm-th* ← *warm*, *streng-th* ← *strong*) or the Lithuanian diminutives with the suffix *-okšnis* (*up-okšnis* ‘small river’ ← *upė* ‘river’, *piev-okšnis* ‘small meadow’ ← *pieva* ‘meadow’). Other types are continually expanding, such as English abstracts with the suffix *-ness* (*abroad-ness* ← *abroad*, *laptopness* ← *laptop* (The Rice University Neologisms Database) or Lithuanian verb abstracts with the suffix *-imas / -ymas* (*skrol-inimas* ‘scrolling’ ← *skrolinti* ‘to scroll’, *tinderinimas* ‘using tinder’ ← *tinderinti* ‘to use tinder’ (Database of Lithuanian Neologisms)).

In modern linguistics, productivity is usually related to quantitative indicators. Harald Baayen (e.g., 2009) is a ground-breaking scholar in the measurement of productivity using corpora, whose calculations are applied in this paper. In his work, productivity is divided into three types, depending on the way it is measured: realised, expanding and potential productivity (Baayen 2009, 904–907). The latter two are measured in terms of so-called *hapax legomena* or simply *hapaxes*, which are words used once in a corpus. The three types of productivity are explained below:

- 1) Realised productivity. This corresponds to the total number of derivatives belonging to a specific type in the corpus or, in other words, the type frequency. The importance of this number is highlighted when it is compared to token frequency. A high token frequency is usually an indication of the unproductiveness of the morphological category, since frequent use protects the forms from changing, e.g., English irregular verbs are very frequently used, but the set is essentially finite. On the other hand, the productive categories are characterised by a large variety of different derivatives with low frequency of use.
- 2) Expanding productivity. This indicator is calculated by dividing the number of hapaxes of the morphological category by the total number of hapaxes in the corpus. However, in principle, this division is not necessary if a single corpus is used, and the expanding productivity can also be simply understood as the number of hapaxes. This number is considered as an estimate of the contribution of morphological category in the growth of the lexicon. It is important to stress here that not all hapaxes are neologisms, they may include old but rarely used words. However, the number of hapaxes is assumed to be proportional to the number of neologisms.
- 3) Potential productivity. This is the ratio of hapaxes to frequency of use. It is calculated by dividing the number of hapaxes of morphological category by the frequency of use (all same type derivations in the corpus). As Baayen argues

(2009, 906), productivity can be a self-defeating process, where a particular category becomes oversaturated and has no further potential for expansion.

There are other ways to measure the productivity, such as the experimental method of asking participants to come up with as many new words with a given affix as possible in each amount of time (Anshen, Aronoff 1988, 641–655). However, the approach chosen in this paper involves calculations of realized, expanding and potential productivity. This methodology is susceptible to criticism on the grounds that the concept of productivity inherently pertains to potentiality and the future. Conversely, the calculations employed herein are rooted in past data, as highlighted by Bauer (2005, 331). It should be noted that there is a lot of automaticity in these calculations, which can distort the results, because corpora always contain spelling and lemmatization errors. In this work, such inaccuracies are avoided by manual data inspection.

Researchers also ask what factors determine whether one form of language is productive, and another is not. Structuralists identify grammatical constraints as the determining factor, i.e., that the degree of productivity is inversely proportional to the number of grammatical constraints on the form (Schultink 1961). This approach could explain why, for example, verb abstracts with the suffix *-imas* / *-ymas* are so productive in Lithuanian (as it is stated in *A Grammar of Modern Lithuanian* (Ambrasas 1994), “the suffix *-imas* ranks first in terms of its productivity among those affixes which are used in the Lithuanian standard language to derive verbs’ abstracts”). Such derivations can be formed from any verb, so, if any new verb appears in Lithuanian, its abstract with these suffixes is likewise possible. However, the proportionality in question is difficult to measure, and Bauer argues that “words are only formed as and when there is a need for them, and such a need cannot be reduced to formal terms” (Bauer 2001, 143). Cognitive factors, too, impose constraints on productivity. It has been observed that more productive models are those with greater grammatical transparency (Gaeta, Ricca 2015, 851). If the structure of the derivatives is clear to the speaker, such a model should be more productive than in the case where the structure is unclear and such derivatives are stored in the mental lexicon as whole units. Transparency is determined by the frequency of use and the phonotactic aspect – a clear boundary between morphemes (Hay 2001, 1041–1070).

As mentioned above, the author also intends to find out which meanings of the prefixes under study are the most productive. To accomplish this task, the hapaxes were categorized according to their meanings, utilizing the author’s prior analysis conducted during their master’s thesis (Kietytė 2021). That analysis was based on cognitive linguistics approach. According to this view, the meanings of language units are seen as related to each other through variously motivated semantic relations (Langacker 1986; Evans, Green 2006; Murphy 2010; etc.). One meaning is regarded as prototypical, while others descend (not necessarily directly) from it (Lakoff 1987; Wittgenstein 1978; etc.). Some semantic relations are explained by using the theory of conceptual metaphors and metonymies (Lakoff, Johnson 1980; Barnden 2010, etc.). In the study of the meanings of prefixes, similar principles can be applied as studying the meanings of prepositions and the relations between them (Brugman 1981; Lakoff 1987; Tyler, Evans 2003, etc.) The prototypical meaning of prefixes is always spatial and can be described through image schemas (Langacker 1986), by identifying what

is a trajector, a landmark, and what is the relationship between them in the situation described by the prefixed verb. The polysemy of prefixes has probably been studied most extensively in Slavic languages. In such studies, the meanings of a particular prefix are usually extracted by analysing the semantics and usage of its derivatives with various verbs (Brala-Vukanović, Memišević 2014; Janda 1986; Tchizmarova 2006; etc.). In Lithuanian, the meanings of prefixes were categorised and analysed mostly in a structuralist way (e.g., Ambrazas 1994, Paulauskienė 1994). Recently, there is also an increase in research of the prefixes in Baltic languages using the approach of cognitive linguistics (Deksne 2021; Šeškauskienė 2021).

2. Productivity of derivatives with prefixes *nu-*, *j-*, *pri-* and *iš-*

As it was mentioned before, the paper contains an assessment of three productivity indicators: realised, expanding and potential (Baayen 2009, 904–907). The realised productivity indicator is obtained by using the *wordlist* function and applying manual inspection. The expanding productivity is given by the number of hapaxes (also after inspection). Potential productivity is calculated by dividing the number of selected hapaxes by the frequency of use of the prefixed derivatives under study.

The table below (see Table 2) shows the productivity calculations of prefixes. To calculate the potential productivity, the number of hapaxes is divided by the frequency of derivatives with corresponding prefixes, which is: *nu-* (258 638), *pri-* (236 943), *j-* (274 078), *iš-* (324 066). For the sake of convenience, the resulting number is rounded to four decimal places.

Measure	NU-	PRI-	I-	IŠ-
Realised	1365	949	860	1658
Expanding	363	277	189	376
Potential	0.0014	0.0011	0.0007	0.0012

Table 2. Productivity measurements of the prefixes

As can be seen from the data, the prefix *iš-* has the highest realised productivity, and the prefix *j-* the lowest. The difference between them is nearly twofold. The second highest is *nu-* and the third is *pri-*. The numbers of expanding productivity are similar, with the most productive prefix being *iš-*, followed closely by *nu-*, then *pri-* and *j-*. The percentage of hapaxes in the total number of derivatives ranges from 21 % (*j-*) to 29 % (*pri-*). However, the prefixes rank slightly differently in terms of potential productivity. The most productive is *nu-*, not *iš-*. This is due to the frequency of use of *iš-* derivatives being higher than that of *nu-*, which results in a lower potential productivity. In other words, the formation schema with *iš-* is slightly more “saturated”. Meanwhile, the potential productivity of the prefixes *pri-* and *j-* is in line with the other prefixes, with *j-* being the least productive and *pri-* the third most productive.

3. Semantic distribution of prefixed hapaxes

The resulting hapaxes were divided according to their meanings to calculate the most productive semantic patterns of the prefixes. In some cases, hapax meanings could not be determined due to insufficient context, and this group is indicated in the tables by the mark “not identified”. In the analysis of the meaning distribution, the most frequent (more than 5 %) and the least frequent (less than 1 %) meanings are discussed in greater detail and examples of hapaxes are given. In some cases, hapax meanings are difficult to understand without context, so a corresponding usage example from the corpus “LithuanianWaC v2” is also provided. Usage examples are given after the analysis of each prefix, and they are numbered in such order that each has a unique number. The following are the lists of prefix meanings with brief explanations and examples of possible derivations.

NU-

1. AWAY. Trajector moves away from the landmark (<i>nueiti</i> ‘to go away’, <i>nuplaukti</i> ‘to swim away’, <i>nunešti</i> ‘to bring away’)	2. MOVING DOWN. Trajector is moving downwards from the landmark (<i>nukristi</i> ‘to fall down’, <i>nulipti</i> ‘to climb down’)
3. POSSESSION. Trajector becomes the property of someone during the action (<i>nupirkti</i> ‘to buy’, <i>nusavinti</i> ‘to expropriate’)	4. WIN. Victory is understood as throwing the opponent down (<i>nukauti</i> ‘to kill’, <i>nuginčyti</i> ‘to win a dispute’, <i>nurungti</i> ‘to beat in a contest’)
5. MENTAL ACTIVITY. Thinking is perceived as a movement of a trajector (<i>numatyti</i> ‘to foresee’, <i>nuspėti</i> ‘to predict’)	6. NEGATIVE CHANGE. Negative change is understood as moving down (<i>nukankinti</i> ‘to torture completely’, <i>nudėvėti</i> ‘to wear out’)
7. CHANGE OF STATE. Initial state is perceived as being near the landmark and a change of that state is perceived as moving away (<i>nubusti</i> ‘to wake up’, <i>nuliūsti</i> ‘to become sad’)	8. SEPARATION. Trajector is separated from the landmark (<i>nuskinti</i> ‘to pluck’, <i>nuplėšti</i> ‘to peel off’)
9. RESULT. Emergence of a trajector is perceived as a movement from non-existence to existence (<i>nupiešti</i> ‘to draw’, <i>nulieti</i> ‘to cast’)	10. DESTRUCTION. Trajector is separated from the landmark by damaging it (<i>nupjauti</i> ‘to cut off’, <i>nukąsti</i> ‘to bite off’)
11. FINALITY. The result is abstract (<i>nuspręsti</i> ‘to decide’, <i>nudirbti</i> ‘to get work done’)	12. NON-INTENSITY. A prefixed verb denotes a short or non-intensive action (<i>numigti</i> ‘to sleep a bit’, <i>nulyti</i> ‘to rain a bit’)
13. ABILITY. A prefixed verb has a meaning ‘to be able to do the action denoted by the root’ (<i>nulaikyti</i> ‘to be able to hold’, <i>nustovėti</i> ‘to be able to stand still’)	14. REMOVAL FROM A SURFACE. A landmark is a surface and a trajector is either many objects or a substance removed from a landmark (<i>nuvalyti</i> ‘to wipe off’, <i>nudžiūti</i> ‘to dry’)

15. MOVING AROUND THE AXIS. Trajector moves around its own axis (<i>nusisukti</i> 'to turn away', <i>nusigrēžti</i> 'to turn away')	16. REMOVAL. Prefixed verb means general removal (<i>nublusinti</i> 'to remove fleas', <i>nugrybauti</i> 'to pick all the mushrooms')
17. OFF COURSE. Landmark is a path and a trajector deviates from the path (<i>nukrypti</i> 'to go off course', <i>nuslysti</i> 'to slip away')	18. METAPHORICAL REMOVAL. Trajector that is removed is abstract (<i>nutautinti</i> 'to take away nationality', <i>nuprasminti</i> 'to take away meaning')
19. NORM VIOLATION. The wrong action is perceived as a deviation from the path (<i>nusikalbėti</i> 'to talk nonsense', <i>nuprotėti</i> 'to go mad', <i>nusidainuoti</i> 'to sing badly')	20. TRANSFER. A prefixed verb denotes a process by which something is transferred to another medium (<i>nurašyti</i> 'to copy something by writing', <i>nukopijuoti</i> 'to copy')
21. EXCESS. Norm violation is quantitative in this meaning (<i>nusūdyti</i> 'to salt too much', <i>nukietinti</i> 'to harden too much', <i>nuploninti</i> 'to thin too much')	22. SURFACE CHANGE. Trajector changes the landmark as it moves over it (<i>nudažyti</i> 'to dye', <i>nublizginti</i> 'to make shining', <i>nugelsti</i> 'to become yellow')
23. METAPHORICAL SURFACE CHANGE. Both the landmark and the trajector are abstract (<i>nužiūrėti</i> 'to look over', <i>nupasakoti</i> 'to describe')	

Table 3. Meanings of prefix *nu-*

PRI-

1. TO. Trajector is moving towards the landmark (<i>prieiti</i> 'to go to something', <i>priplaukti</i> 'to swim to something')	2. MANIPULATION. Trajector is a person and a landmark is a forced action he performs (<i>prikalbinti</i> 'to talk into', <i>priprašyti</i> 'to ask')
3. POSSESSION. Landmark is a human being and trajector is a property (<i>privogti</i> 'to steal a lot', <i>prielgetauti</i> 'to get money by begging')	4. SUPPORT. Landmark becomes a physical support to a trajector (<i>prilipti</i> 'to stick to something', <i>pridžiūti</i> 'to dry to something')
5. ABILITY. Prefixed verb means 'to be able to do the action denoted by the root' (<i>primatyti</i> 'to be able to see', <i>prigirdėti</i> 'to be able to hear')	6. ADD. Landmark is a quantity of rate, and a trajector is an addition to that rate (<i>primokėti</i> 'to pay extra', <i>pridėti</i> 'to add', <i>prirašyti</i> 'to write extra')
7. REACH LEVEL. Landmark is a purpose reached by the trajector (<i>prinokti</i> 'to ripe', <i>priaugti</i> 'to reach something by growing', <i>prilygti</i> 'to become as good as someone')	8. FILLING CONTAINER. Landmark is a container and a trajector is a substance that fills that container up (<i>pripilti</i> 'to fill something by pouring', <i>pripūsti</i> 'to fill something by blowing')
9. METAPHORICAL NEAR. Being near is perceived metaphorically (<i>pritarti</i> 'to agree', <i>prijaukinti</i> 'to domesticate')	10. MULTIPLICITY. Prefix gives a verb a meaning of multiplicity (<i>prigaminti</i> 'to make a lot of something', <i>privalgyti</i> 'to eat a lot')

11. NON-INTENSITY. Prefixed verb means an incomplete, non-intensive or short action (<i>prigulti</i> 'to lie for a bit', <i>pridengti</i> 'to cover up a bit', <i>primiršti</i> 'forget a little')	12. NEGATIVE RESULT. Prefix gives a verb a meaning of a negative result (<i>pridirbti</i> 'to get into trouble', <i>prisišnekēti</i> 'to talk yourself into trouble')
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Table 4. Meanings of prefix *pri-*

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1. INTO. Landmark is a container and the trajector moves into it (<i>jeiti</i> 'to go into', <i>iplaukti</i> 'to swim into', <i>ipilti</i> 'to pour into')	2. INTENSITY. Intensity of an action is perceived as a moving into container (<i>īsiklausyti</i> 'to listen carefully', <i>īsijausti</i> 'to empathise')
3. STUCK. Landmark is an obstacle to the trajector (<i>īkliūti</i> 'to get caught', <i>īklimpti</i> 'to get stuck', <i>īšalti</i> 'to freeze into')	4. INCHOATIVE. Initial stage of the process is perceived as a container into which the trajector enters (<i>īkurti</i> 'to set up', <i>īsinorēti</i> 'to start wanting', <i>īdegti</i> 'to lit')
5. POSSESSION. Landmark is a human being and trajector is a property (<i>īduoti</i> 'to give', <i>īteikti</i> 'to present', <i>īsigyti</i> 'to purchase')	6. CULMINATIVE. Culminative stage of the process is perceived as a container into which the trajector enters (<i>īsilyti</i> 'to reach a certain stage of raining', <i>īmigtī</i> 'to reach deep sleep')
7. METAPHORICAL INTO. Both the trajector and the landmark are abstract (<i>īslaptinti</i> 'to classify', <i>īprojektuoti</i> 'to project into')	8. SUPPORT. Landmark becomes a physical support to a trajector (<i>īsikibti</i> 'to grab', <i>īsegti</i> 'to pin')
9. METAPHORICAL POSSESSION. Trajector is an abstract entity which comes into metaphorical possession (<i>īprasminti</i> 'to give meaning', <i>īkainoti</i> 'to give price')	10. DESTRUCTION INTO. A landmark is damaged by a trajector inwards (<i>īdurti</i> 'to stab into', <i>īpjauti</i> 'to cut into', <i>īlūžti</i> 'to break into')
11. CHANGE OF STATE. A state of an entity or abstract is perceived as a container into which a trajector moves (<i>īmagnetinti</i> 'to magnetise', <i>īteisinti</i> 'to legalise')	12. MINIMAL DESTRUCTION. Landmark is minimally damaged by a trajector (<i>ībrēžti</i> 'to scratch', <i>īgnybti</i> 'to nibble', <i>īdužti</i> 'to dent')
13. MANIPULATION. The forced action corresponds to the container in which the object is placed or entered in the prototypical meaning (<i>īkalbēti</i> 'to talk into', <i>īsakyti</i> 'to command', <i>ītikinti</i> 'to convince')	14. INSERT. Trajector is inserted between several landmarks or becomes part of one landmark (<i>īpinti</i> 'to braid into', <i>ījausti</i> 'to wove into', <i>īmaišyti</i> 'to mix into')
15. ABILITY. Prefixed verb means 'to be able to do the action denoted by the root' (<i>īžiūrēti</i> 'to be able to see', <i>īpirkti</i> 'to be able to buy')	16. METAPHORICAL INSERT. Inserted trajector and a landmark are abstract (<i>īskaičiuoti</i> 'to count in', <i>īregistruoti</i> 'to register into')

Table 5. Meanings of prefix *į-*

IŠ-

1. OUT. Trajector moves out of the landmark, which is a container (<i>išēiti</i> 'to go out', <i>išplaukti</i> 'to swim out', <i>išnešti</i> 'to bring out')	2. DIVISION. Trajectors or parts of one trajector are detached from each other (<i>išpinti</i> 'to unbraid', <i>išdarinēti</i> 'to gut')
3. EXTINCTION. Trajector disappears during the process denoted by verb (<i>išnykti</i> 'to become extinct', <i>ištīrti</i> 'to melt', <i>išeikvoti</i> 'to use up')	4. METAPHORICAL DIVISION. Division is understood metaphorically (<i>išstudijuoti</i> 'to study', <i>išsprēsti</i> 'to solve')
5. REMOVAL. Trajector is removed from the landmark (<i>išvalyti</i> 'to clean', <i>išskinti</i> 'to pick everything out of something')	6. EXPANSION. Trajector expands outwards (<i>išplisti</i> 'to expand', <i>ištīsti</i> 'to stretch', <i>ištinti</i> 'to swell')
7. MULTIPLICITY. Prefix gives a verb a meaning of multiplicity (<i>išdainuoti</i> 'to sing all the songs', <i>išparduoti</i> 'to sell everything')	8. METAPHORICAL EXPANSION. Expansion is understood metaphorically (<i>išgarsēti</i> 'to get famous', <i>išreklamuoti</i> 'to advertise')
9. METAPHORICAL OUT. Both the trajector and the landmark are abstract (<i>išvargti</i> 'to get tired', <i>išplepēti</i> 'to spill the beans')	10. SURFACE CHANGE. Landmark is a surface covered by the trajector (<i>išasfaltuoti</i> 'to asphalt', <i>išdažyti</i> 'to paint', <i>išraudonuoti</i> 'to blush')
11. POSSESSION. Landmark is a human being and a trajector is a property (<i>išmokēti</i> 'to pay', <i>išnuomotu</i> 'to rent')	12. DURATIVE. Time is understood as a surface which is covered up by the process (<i>išgulēti</i> 'to lie for a certain amount of time', <i>išlaukti</i> 'to wait for a certain amount of time')
13. CHANGE OF STATE. Changing is understood as coming out of the container (<i>išgyti</i> 'to recover', <i>išdrāsēti</i> 'to get courageous', <i>išsausēti</i> 'to dry out')	14. METAPHORICAL SURFACE CHANGE. Both the surface and a substance are abstract (<i>išgirti</i> 'to praise', <i>išjuokti</i> 'to mock', <i>išbučiuoti</i> 'to kiss over')
15. ABILITY. Prefixed verb means 'to be able to do the action denoted by the root' (<i>išlaikyti</i> 'to be able to hold', <i>ištylėti</i> 'to remain silent')	16. DESTRUCTION. The landmark is damaged from the inside (<i>išpūti</i> 'to rot from the inside', <i>išdeginti</i> 'to burn from the inside')
17. RESULT. The emergence of a trajector is perceived as a movement from non-existence to existence (<i>išdrožti</i> 'to carve', <i>iškepti</i> 'to bake', <i>išspausdinti</i> 'to print')	18. FINAL DESTRUCTION. The landmark is destroyed (<i>išsprogdinti</i> 'to bomb', <i>išdaužti</i> 'to brake', <i>iškirsti</i> 'to cut down')
19. CURVE. The trajector changes its form (<i>išlinkti</i> 'to bend', <i>išriesti</i> 'to arch')	

Table 6. Meanings of prefix *iš-*

It is worth noting that within the category of prefixed derivatives, there are instances that, according to the classification by Laura Janda (2007), are identified as natural perfectives. These are derivations that differ from the base word solely by

signifying a completed action, with no other semantic change (e.g., *darē* ‘was doing’ and *padarē* ‘did’, *rašē* ‘was writing’ and *parašē* ‘wrote’).

In later research, Janda (2012) highlights that, while natural perfectives exclusively serve a perfectivization function, the semantic factors determine which prefix will form a natural perfective with a particular verb. She has proposed the hypothesis of semantic overlap, i.e., that the natural perfective of a verb is formed with a prefix, one of whose meanings is the same as the meaning of the verb. Those meanings overlap and that gives the impression that the prefix is semantically “empty”, serving only a grammatical function. This thesis can be illustrated by the verb *nukristi* ‘to fall’. Here, the prefix *nu-* does not seem to provide any additional semantic content, but only performs perfectivization. However, the fact that it is *nu-* which specifically performs this function, is due to the fact that *nu-* itself has the meaning of downward movement, which can be given to other verbs (e.g., *lipti* means ‘to climb’ and *nulipti* ‘to climb down’, *lenkti* means ‘to bend’ and *nulenkti* ‘to bend down’). On this basis, the natural perfectives are incorporated into the division of meanings.

3.1. Semantic distribution of prefix *nu-* hapaxes

The table below (see Table 7) shows the number of hapaxes for each meaning of the prefix *nu-* in the data under study.

Meaning	Hapaxes	%	Meaning	Hapaxes	%	Meaning	Hapaxes	%
Away	64	17.63	Possession	12	3.31	Off course	4	1.10
Negative change	51	14.05	Removal	12	3.31	Non-intensity	2	0.55
Surface change	36	9.92	Excess	9	2.48	Ability	1	0.28
Removal from a surface	26	7.16	Meta-phorical surface change	9	2.48	Moving around the axis	0	0.00
Norm violation	24	6.61	Not identified	9	2.48			
Change of state	20	5.51	Finality	6	1.65			
Down	18	4.96	Separation	6	1.65			
Result	14	3.86	Mental activity	5	1.38			
Destruction	13	3.58	Transfer	5	1.38			
Meta-phorical removal	13	3.58	Win	4	1.10			

Table 7. Meanings of prefix *nu-* hapaxes

The distribution of the prefix *nu-* hapaxes is quite even, with no single meaning showing a significant dominance. The most frequent use of *nu-* hapaxes appear in the prototypical meaning AWAY (17.63 %). In this group, there are various synonyms of walking, such as *nuliuokšēti* (*nu* + *hop*) ‘to hop away’, *nukicenti* (*nu* + *tittup*) ‘to walk away in small steps’. There are also verbs denoting sound that become verbs of movement with the prefix: *nuplerpti* (1) (*nu* + *throb*) ‘to go away with throbbing sound’, *nučiurlenti* (*nu* + *burble*) ‘to burble away’.

- (1) *Ir nuplerpē trijuļē ģ kovq.*
 and throb.PST.3 three.NOM.SG to fight.ACC.SG
 ‘And the trio drove to the fight with a throbbing sound.’

The NEGATIVE CHANGE meaning is 14.05 %. In this group, there are less frequent verbs meaning physical change: *nubrigzti* (*nu* + *fray*) ‘to fray’, *nučiurti* (*nu* + *wear out*) ‘to be worn out’, as well as words that do not have a negative meaning in the root but acquire such meaning with a prefix: *nureklamuoti* (*nu* + *advertise*) ‘to advertise in a negative way’. There are some derivatives whose non-reflexive formations are quite common, and which have become hapaxes because of their unusual (at least in this data sample) reflexive form (with reflexive particle *-si-*): *nusivarginti* (*nu* + *si* + *tire*) ‘to tire oneself’.

Among the hapaxes meaning SURFACE CHANGE (9.92 %), there are verbs with roots referring to various substances applied to the surface: *nuglazūruoti* (*nu* + *glaze*) ‘to glaze over’, *nukruvinti* (*nu* + *blood*) ‘to smudge with blood’. In addition, there are less common verbs featuring a reflexive particle *-si-*, such as *nusipoliruoti* (*nu* + *si* + *polish*) ‘to polish oneself’, and verbs meaning less common ways of changing surface (*nuskrudinti* (*nu* + *toast*) ‘to toast over’, *numynioti* (2) (*nu* + *tramp*) ‘to tramp over’.

- (2) *Visi takeliai kruvinai numynioti.*
 all.NOM.PL track.NOM.PL bloody tread.PTCP.PST.NOM.PL
 ‘All the tracks are bloody trod.’

In the group of hapaxes meaning REMOVAL FROM A SURFACE (7.16 %), there are verbs whose roots refer to the object that is removed from the surface: *nubintuoti* (*nu* + *bandage*) ‘to remove bandage’, *nusikelnēti* (*nu* + *pants*) ‘to remove pants’, less common reflexive verbs: *nusisaisinti* (*nu* + *si* + *dry*) ‘to dry oneself’, *nusigrandyti* (*nu* + *si* + *grain*) ‘to grain something from oneself’. Likewise, we can mention cases of prefix competition, when derivatives with the prefix *iš-* are more common: *nusilukštenti* (*nu* + *si* + *shuck*) instead of *išsilukštenti*, both meaning ‘to shuck something oneself’.

Among the hapaxes (6.61 %) of the NORM VIOLATION meaning, there are verbs denoting various processes to which *nu-* gives the meaning of an error: *numodifikuoti* (3) (*nu* + *modify*) ‘to modify too much’, *nusiekperimentuoti* (*nu* + *si* + *experiment*) ‘to make mistakes experimenting’. Furthermore, there are also various speech verbs, to which the prefix gives the meaning of incorrect, silly talking, e.g., *nusiplepėti* (*nu* + *blather*) ‘to blather nonsense’.

- (3) *Nebent tie genai jau taip numodifikuoti,*
 unless those.NOM.PL gene.NOM.PL already so modify.PTCP.PST.NOM.PL
kad nebeina be pamokeliu, nieko isstenet.
 that no longer go.PRS.3 without instruction.GEN.PL nothing.GEN.SG groan.INF
 ‘Unless those genes have been so modified that nothing can be done without instructions.’

Hapaxes with meaning CHANGE OF STATE account for 5.51 %. Of these, the prefix competition cases can be distinguished: *nuvēsti* (nu + cool) ‘to cool down’, *nušventinti* (nu + sanctify) ‘to sanctify’. Usual derivatives would be *atvēsti*, *pašventinti* (with the same meanings).

The rarest meanings of the hapaxes are NON-INTENSITY (*nuniurnėti* (nu + murmur) ‘to say something in a quiet, vague voice’), ABILITY (*nusiturėti* (nu + si + have) ‘be able to refrain from performing an action’). There were no hapaxes with meaning MOVING AROUND THE AXIS.

3.2. Semantic distribution of prefix *pri-* hapaxes

The table below (see Table 8) shows the number of hapaxes for each meaning of the prefix *pri-* in the data under study.

When categorizing hapaxes with the prefix *pri-* by their meanings, a notably predominant sense emerges: MULTITUDE (51.62 %). This abundance likely arises from the inherently extensive nature of the concept of plurality, resulting in relatively few semantic constraints. Multitude can be understood physically, when the prefix is used with verbs referring to crafting or otherwise acquiring things: *pridrožti* (pri + carve) ‘to make a lot of carvings’, *pridžiovinti* (pri + dry) (4) ‘to dry a lot of goods’. There are also verbs of speech: *priklausinėti* (pri + ask) ‘to ask a lot’, *prikliedėti* (pri + ramble) ‘to talk a lot of nonsense’, and verbs of emotional impact: *primylėti* (pri + love) ‘to give a lot of love’, *primaloninti* (pri + please) ‘to give a lot of pleasure’. When verbs are used with a reflexive particle *-si-*, these derivatives refer to an activity that the speaker has had enough of: *prisikeliauti* (pri + si + travel) ‘to travel enough’, *prisilinksinti* (pri + si + have fun) ‘to have enough fun’.

Meaning	Hapaxes	%	Meaning	Hapaxes	%
Multitude	143	51.62	Add	8	2.89
Filling container	37	13.36	Reach level	5	1.81
Negative result	21	7.58	Possession	4	1.44
Non-intensity	15	5.42	Manipulation	3	1.08
Support	14	5.05	Ability	2	0.72
To	13	4.69	Not identified	1	0.36
Metaphorical near	11	3.97			

Table 8. Meanings of prefix *pri-* hapaxes

- (4) **Prižiovus** jaujā, šēimininkas kūrendavo pečiņ.
dry.PTCP.PST barn.ACC.SG owner.NOM.SG fire.PST.HAB.3 stove.ACC.SG
'After filling the farmhouse [with grain, etc.] to dry, the owner used to fire up the stove.'

The meaning FILLING CONTAINER (13.36 %) likewise has broad semantics, resulting in a significant number of hapaxes. Container can be understood not only as a prototypical object, such as a box or a bowl, but also, for example, a body part (5).

- (5) nuo penktos nėštumo savaitės **pribrinksta**
from fifth.GEN.SG pregnancy.GEN.SG week.GEN.SG swell.PRS.3
pieno liaukos.
milk.GEN.SG gland.NOM.PL
'From the fifth week of pregnancy onwards the mammary glands swell.'

A variety of derivatives gain a meaning of NEGATIVE RESULT with the prefix *pri-* (7.22 %). It is reasonable to infer that the meaning is relatively new and thus highly context dependent. When used in a particular context, it can include hapaxes such as *prisibendradarbiauti* (6) (*pri* + *si* + cooperate) 'to gain a poor result from cooperating', *prireformuoti* (*pri* + reformuoti) 'to gain a poor result from the reforms', *priřbulinti* (*pri* + improve) 'to gain a poor result from improving'.

- (6) *Lukařenka* jau **prisibendradarbiavo** strategiškai, dabar
Lukashenka.NOM.SG already cooperate.PST.3 strategically now
jau iřeities nelabai turi.
already choice.GEN.SG not_likely have.PRS.3
'Lukashenka has already cooperated strategically, now he has no choice.'

NON-INTENSITY meaning is 5.42 %. It can be assumed that by using them, speakers seek economy of language, avoiding lexical expressions: *prisilpti* 'pri + weaken' instead of *truputį nusilpti* 'to weaken a little', *priskandinti* (*pri* + drown) instead of *truputį paskandinti* 'to drown a little'.

From the SUPPORT meaning (5.05 %), we can distinguish the less frequent verbs meaning various ways to attach something: *pricementuoti* (*pri* + cement) 'attach something by cementing', *prikomponuoti* (*pri* + compose) 'attach something by composing'.

Less than one per cent comprised the meaning of ABILITY: *prigirdėti* (*pri* + hear) 'to be able to hear', *pristovėti* (*pri* + stand) 'to be able to stand'.

3.3. Semantic distribution of prefix *j-* hapaxes

The table below (see Table 9) shows the number of hapaxes for each meaning of the prefix *j-*.

More than a third of the prefix *j-* hapaxes have prototypical meaning INTO (34.92%). As in the case of other prefixes, a significant part of them are various walking synonyms: *įkerėplinti* (*į* + shamble) 'to walk into awkwardly', *įpėdinti* (*į* + pad) 'to walk into slowly and quietly'. There are also cases where the prefix *j-* gives various verbs the meaning of a movement into caused by an external force: *įšluoti* (*į* + sweep)

Meaning	Hapaxes	%	Meaning	Hapaxes	%
Into	66	34.92	Intensity	6	3.17
Metaphorical inside	24	12.70	Not identified	4	2.12
Change of state	23	12.17	Stuck	3	1.59
Culminative	18	9.52	Manipulation	3	1.59
Support	9	4.76	Minimal destruction	2	1.06
Metaphorical possession	9	4.76	Possession	1	0.53
Metaphorical insert	8	4.23	Inchoative	1	0.53
Destruction	6	3.17	Ability	0	0.00
Insert	6	3.17			

Table 9. Meanings of prefix *j*-hapaxes

‘to sweep into’, *īvibruoti* (7) (*ī* + vibrate) ‘to vibrate into’. These verbs denote specific ways (sweeping, vibrating) of putting objects into containers, which is why they are rare.

- (4) *Polių gramzdinimo technologija, kai į pagrindą jie įvibruojami nuo žemės.*
 pile.GEN.PL scraping.GEN.SG technology.NOM.SG when to
 base.ACC.SG 3PL.NOM.M vibrate.PTCP.PRS.NOM.PL from ground.GEN.SG
 ‘Pile scraping technology, when the pile is vibrated into the substrate from the ground.’

METAPHORICAL INTO accounts for 12.70%. This meaning includes various derivatives denoting abstract processes that are perceived as a movement into the container, such as becoming a slave (*īverginti* (*ī* + enslave) ‘enslave’) or recording (*īmelsti* (8) (*ī* + pray) ‘to pray into’). The metaphor of CONTAINER is notably universal, and as such, derivatives lack significant semantic constraints.

- (5) *Dar Lesley į diktofoną įmeldė poterius.*
 also Lesley.NOM.SG to recorder.ACC.SG pray.PST.3 prayer.ACC.PL
 ‘Lesley also prayed some prayers into the recorder.’

Hapaxes representing the CHANGE OF STATE meaning account for 12.17 %. Of these, the prefix competition cases are noteworthy: *īdžiūti* (*ī* + dry) ‘to dry completely’, *īsibosti* (*ī* + si + bore) ‘to bore’. The more usual derivatives would be *sudžiūti*, *atsibosti*. Likewise, note the derivatives formed from rare verbs: *ītilžti* (*ī* + soak) ‘to get soaked’, *īsiširdyti* (*ī* + si + get offended) ‘to get offended’. In the corpus, when considering pre-fixed derivatives as well, *tilžti* appears twice, while *širdyti* appears once.

The semantic group of the CULMINATIVE (9.52 %) includes the derivatives, where prefix *j*- is used to denote the culminating phase of a process. Most often such verbs have a reflexive particle, although there is no reflexivity in their meaning: *īsi-karaliauti* (*ī* + si + reign) ‘to settle in reigning’, *īsipulsuoti* (*ī* + si + pulse) ‘to reach culmination in pulsing’. However, derivatives without-*si*- are possible, too – *īvakarėti* (*ī* + get late) ‘to get late’.

Only one hapax each occurred in the POSSESSIVE (*iškolinti* (*i* + borrow) ‘to mortgage’) and INCHOATIVE (*išbraukti* (*i* + scratch) ‘to light a fire by scratching’) groups. The meaning of ABILITY, at least within the limits of this study, is counter-productive as no hapaxes occurred.

3.4. Semantic distribution of prefix *iš-* hapaxes

The table below (see Table 10) shows the number of hapaxes for each meaning of the prefix *pri-* in the data under study.

Meaning	Hapaxes	%	Meaning	Hapaxes	%
Out	85	22.79	Expansion	12	3.22
Metaphorical out	58	15.55	Durative	11	2.95
Surface change	40	10.72	Destruction	11	2.95
Change of state	38	10.19	Metaphorical expansion	11	2.95
Metaphorical surface change	20	5.36	Not identified	7	1.88
Metaphorical division	16	4.29	Ability	3	0.80
Multiplicity	14	3.75	Extinction	3	0.80
Division	14	3.75	Final destruction	3	0.80
Result	13	3.49	Curve	2	0.54
Removal	12	3.22	Possession	0	0.00

Table 10. Meanings of prefix *iš-* hapaxes

The most abundant group of *iš-* hapaxes have prototypical meaning OUT (22.79 %). As in the case of other prefixes, there are various walking synonyms: *iškrypuoti* (*iš* + waddle) ‘to walk out waddling’, *išliuoksėti* (*iš* + skip) ‘to walk out skipping’, as well as sound verbs which, with the prefix, perform the function of verbs of movement, e.g. *išklegeti* (*iš* + clatter) ‘to walk out clattering’. Some hapaxes denote situations with less common containers, such as clouds (*išlyti* (*iš* + rain) ‘to rain out’) or udders (*išžįsti* (9) (*iš* + suckle) ‘to suckle out’). Some hapaxes are due to the unusual use of the particle *-si-*, e.g., *išsitremti* (*iš* + *si* + deport) ‘to deport oneself’.

- (9) *Pieningų karvių veršeliai nepajėgia išžįsti.*
 Dairy.GEN.PL cow.GEN.PL calve.NOM.PL not be able.PRS.3 suckle.INF
 ‘However, the calves cannot suckle out dairy cows.’

Hapaxes which denote the action where the container is perceived metaphorically (METAPHORICAL OUT) account for 15.55 %. Of these, we can mention the verbs denoting sound, where a person or an animal is perceived as a container from which a sound comes out: *išdeklamuoti* (*iš* + recite) ‘to recite out’, *išloti* (*iš* + bark) ‘to bark out’. In this group, there are also verbs with abstract meanings, denoting the removal of

some aspect of a phenomenon: *išdvasinti* (iš + spiritualize) ‘despiritualize’, *iškultūrinti* (iš + culturize) ‘to deculturize’. Achievement (*iškauti* (19) (iš + fight) ‘to win’) and development (*išprogresuoti* (10) (iš + progress) ‘to progress out’) can also be perceived as going out of a container.

- (10) *Mes taip ir nesugebėjome išprogresuoti iš*
 1.PL.NOM so and not_be able.PST.1 progress.INF from
tarybinės šalies vystyklų.
 Soviet.GEN.SG.F country.GEN.SG diaper.GEN.PL
 ‘We have never been able to progress out of the Soviet diaper.’

In the SURFACE CHANGE group (10.72 %) there are hapaxes with the root denoting the material used to cover the surface: *iščukruoti* (iš + sugar) ‘to coat with sugar’, *išgleivėti* (iš + slime) ‘to cover with slime’. Furthermore, there are unusual formations with *-si-*: *išsiasfaltuoti* (iš + si + asphaltize) ‘to asphaltize for oneself’), and cases of prefix competition, where the derivative is more common with the prefix *nu-*: *išgludinti* (iš + smooth) ‘to smooth out’, *išpudruoti* (iš + powder) ‘to powder’.

There is also competition between prefixes in the CHANGE OF STATE group (10.19 %), e.g., *išdienoti* (iš + day) ‘to reach a middle of a day’, *išsusti* (iš + mangy) ‘to get mangy’. The more usual forms would be *įdienoti* and *nususti*.

In the group of METAPHORICAL SURFACE CHANGE (5.36 %) the derivatives denote situations when the action is perceived as covering the surface. Noteworthy are those that signify emotional impact: *išgėdinti* (iš + shame) ‘to shame someone’, *išmylėti* (iš + love) ‘to give love’, as well as physical impact: *išglamonėti* (iš + caress) ‘to caress all over’, *išpliekti* (iš + whip) ‘to whip all over’.

The rarest semantic groups in the corpus were those of ABILITY (*išsigalėti* (iš + si + can ‘to be able’), FINAL DESTRUCTION (*išsitėkšti* (iš + si + swash) ‘to scatter over’), EXTINCTION (*išgesinti* (22) (iš + extinguish) ‘to extinguish completely’, CURVE (*iškreivinti* (iš + curve) ‘to make curved’). No hapax occurrences of the POSSESSION meaning have been found.

3.5. Tendencies in the use of prefixed hapaxes

The primary objective behind categorising hapaxes into meanings was initially quantitative, driven by the goal to find out which meanings are the most productive. However, this categorisation led to more observations about the nature of the hapaxes and the tendencies that can be discerned.

First, it should be noted that the most productive meaning of even three prefixes (*nu-*, *į-*, *iš-*) is prototypical. In all cases, a significant proportion of such hapaxes consisted of various synonyms of walking. There were cases when sound verbs used with a prefix become verbs of movement. In addition, in the prototypical meaning of *į-* and *iš-*, the landmark is a container that can be interpreted in various ways which, likewise, allows the emergence of various hapaxes.

The universality of the CONTAINER metaphor also determines the productivity of certain meanings. The concept of container participates in the various prefixes’

meanings, such as: prefix *pri-*: MULTIPLICITY, prefix *į-*: METAPHORICAL INTO, CHANGE OF STATE, and CULMINATIVE, prefix *iš-*: METAPHORICAL OUT and CHANGE OF STATE.

In general, it has been observed that the usage of a rare or recently formed derivative can be associated with the intention to describe a situation as precisely as possible. For example, the word *įmelsti* ‘pray into’ is used instead of *įrašyti* ‘record’ to indicate that the words being recorded are prayers. In other cases, the unusual derivative is used for stylistic reasons, e.g., *išbirbinti langą* instead of *išdaužti langą*. They both mean ‘to break the window’, but the base word *birbinti* has a meaning ‘to blow a hornpipe’ (“Dictionary of the Lithuanian Language” (LKŽ)), so it highlights the auditory aspect of the situation. It is to be noted that in Lithuanian slang *birbinti* means sexual intercourse, thus it gives a non-formal, slang style to a derivative.

Some tendencies can also be seen in the group of non-productive meanings. For example, the POSSESSION meaning appeared to be completely unproductive or very unproductive. This can be explained with the presence of frequently used verbs that already imply the gaining or granting of property, for example, the prefix *į-* derivatives: *įsigyti* ‘to purchase’, *įgyti* ‘to gain’, *įteikti* ‘to present’. Moreover, the process itself does not have much conceptual diversity; in simple terms, there are limited ways of obtaining or granting property, and the existing ways already have the words for them.

Inevitably, the question arises as to how many of the studied hapaxes are neologisms, and how many are simply less frequently used words. In certain cases, the word is old, but less prevalent in contemporary usage, e.g., verb *nu-vėsti* ‘to cool down’ ← *vėsti* ‘to cool down’ (it is a natural perfective, so the prefix only performs a perfectivization without changing lexical meaning). LKŽ lists 7 meanings of this derivative and gives several examples of its use. However, it has possibly been replaced by the semantically undifferentiated *at-vėsti*. However, some hapaxes are not found in the dictionaries, suggesting that they are neologisms: *įvibruoti* ‘to vibrate into’, *nusimirti* ‘to die oneself’, *numodifikuoti* ‘to modify too much’, *prireformuoti* ‘to gain a poor result from the reforms’, *išdaiktinti* ‘to dematerialize’. Additionally, there are instances when hapax is mentioned in dictionaries, but with a different meaning, e.g. *išpresuoti* ‘to iron the clothes’ (LKŽ), *iškultūrinti* – ‘to make cultured’. Surprisingly, *iškultūrinti* is used in the corpus in the opposite meaning – ‘to take away culture’ (*iškultūrinti tautą ir antikultūrą?* ‘to **deculturise** the nation and spread an anti-culture?’). Furthermore, regarding the neologisms, the question arises – how to interpret the unusual uses of the reflexive particle *-si-*, which occurred among all the prefixes.

Conclusions

The productivity of the prefixes has been calculated, and it was found that the prefix *iš-* is the most productive prefix in terms of realised and expanding productivity, and *nu-* is the most productive prefix in terms of potential productivity. This difference is due to the higher frequency of use of the prefix *iš-* derivatives. The hypothesis that

the productivity of prefixes is directly proportional to their number of meanings can be partially confirmed. A certain correlation can be seen between the number of meanings and potential productivity of prefix: *nu-* has the highest number of meanings and the highest productivity, while the second most productive prefix according to both measures is *iš-*. However, *pri-* has fewer meanings than *i-*, but its potential productivity is higher. Thus, if there is a correlation, it is not strong, which could be verified by including more prefixes in the study.

When the prefixed hapaxes were divided into meanings, certain trends emerged: prototypical meanings appeared to be very productive, and there was a tendency for meanings based on the metaphor with CONTAINER as a source domain to be productive.

Concerning the hapaxes examined in this paper, it is important to note that not all of them qualify as neologisms: certain instances are old words, solely less frequently used, and it is not clear whether the unusual uses of the reflexive forms, which make up a large part of the hapaxes, can be considered as prefixed neologisms. However, some hapaxes can be considered as neologisms – in cases when a previously unnamed concept is named, when they are used with intention to describe a specific situation as precisely as possible, or when the principle of language economy is observed.

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Kopsavilkums

Raksta mērķis ir izmērīt četru morfoloģisko konstrukciju – verbālo derivātu ar priedēkļiem *nu-*, *pri-*, *ī-* un *iš-* – produktivitāti. Produktivitāte tika aprēķināta, izmantojot Haralda Bājena metodi, kurā izšķir trīs rādītāju veidus: realizēto, ekspansīvo un potenciālo produktivitāti (Baayen 2009). Galvenais šo mērījumu pamats ir t. s. *hapax legomena* – vārdu skaits, kas attiecīgajā morfoloģiskajā kategorijā sastopami tikai vienu reizi korpusā. Dati pētījumam tika iegūti no morfoloģiski anotētā korpusa „LithuanianWaC v2”. Analīze liecina, ka priedēklis *iš-* ir visproduktīvākais realizētās un ekspansīvās produktivitātes ziņā, bet *nu-* – potenciālās produktivitātes ziņā. Šī analīze rada jautājumu – kādi faktori varētu izskaidrot, kāpēc konstrukcijas ar vienu priedēkli ir produktīvākas par citām? Tā rezultātā daļēji apstiprinās hipotēze, ka produktivitāte korelē ar katra prefiksa nozīmju skaitu.

Tomēr šis pētījums neaprobežojas tikai ar kvantitatīviem mērījumiem. Iegūtie hapaksi tika analizēti arī kvalitatīvā veidā. Katra priedēkļa tikai vienu reizi lietotie atvasinājumi tika kategorizēti pēc nozīmes, lai noskaidrotu, kuri semantiskie modeļi ir visproduktīvākie. Nozīmes tika identificētas, izmantojot kognitīvo šo priedēkļu semantikas analīzi. Kategorizācija liecina, ka visproduktīvākās ir prototipiskas telpiskās nozīmes, kā arī tās nozīmes, kas balstās uz metaforām ar TILPĪBU kā sākotnes domēnu. Šis raksts arī rosina diskusiju par hapaksiem – kura daļa no tiem ir īsti neoloģismi un kura tikai reti lietotas leksēmas, kā arī kādas ir priedēkļu neoloģismu lietošanas tendences un motivācija.

Atslēgvārdi: priedēkļi; produktivitāte valodā; kognitīvā semantika; konceptuālās metaforas; vārddarināšana.



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