The Structural Patterns of Lithuanian Affixes

Lietuvių kalbos afiksų struktūra

LINGUISTICS / KALBOTYRA

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The aim of this research is to identify the main structural patterns of affixes of Lithuanian inflective words, their productivity and frequency. We present a survey of the structural diversity and productivity of these morphemes rendered in *The Dictionary of Modern Lithuanian* and in *The Grammar of Modern Lithuanian*. The frequency data was collected from *The Database of the Morphemics of the Lithuanian Language*.

The morpheme analysis revealed the following tendencies: 1) while prefixes are always monosyllabic, suffixes and flexions can vary from non-syllabic to trisyllabic, and 2) within these morphemes, consonant clusters are not frequent.

Prefixes in Lithuanian can have $C_{0-2}VC_{0-2}$ structure. The most productive and frequent pattern is C_1V. Suffixes have structures C_{1-2}, $C_{0-2}V(W)C_{0-3}$ and $C_{0-1}VC_{1-2}VC_{0-2}$. The most productive are VC_1 of nominal words and C_1, VC_{0-1} verbal suffixes. In usage, VC_1 suffixes of nominal words and V, C_1 as well as VC_1 verb patterns dominate. Flexions can have the following structures: C_1, VC_{0-2}, VC_1VC_{0-1} or $VC_1VC_1VC_{0-1}$. The most productive pattern is simple VC_{0-1}, which also dominates the usage.

The analysis revealed the influence of a root on the structure of other morphemes. The most typical root structure $C_{1-2}VC_{1-2}$ entails a C_1V structure prefix on the one side, while a suffix or a flexion with VC_{0-1} structure on the other. The result of such a combination is quite a consistent chain *a consonant + a vowel + a consonant (+ a consonant) + a vowel + a consonant (+ a consonant) + a vowel (+ a consonant)*: $C_1V + C_{1-2}VC_{1-2} + VC_{0-1}$.

KEYWORDS: morpheme, prefix, suffix, flexion, vowel, consonant.

Abstract

Roman Jakobson's (1965) idea that affixes differ from other morphemes by a restricted and selected use of phonemes and their combinations prompted linguists to investigate and compare the structure of morphemes (more in Plank, 1998; Bybee, 2005; Booij, 2011).

The aim of the research presented here is to identify the main structural patterns of affixes of Lithuanian inflective words (nouns, adjectives, pronouns, numerals and verbs) and to determine productivity and frequency of these patterns. While Lithuanian researchers have more concentrated on the syllable and root structure, the affix structure of the Lithuanian language has been barely analysed (Kazlauskienė, 2011; Kazlauskienė & Raškinis, 2013). So far, there has been no comprehensive study of affix productivity and frequency of all parts of speech. For this reason, the Lithuanian language is almost never within the scope of typological studies

Introduction

of this area; meanwhile, nowadays a particular focus in the research of phonotactics is placed namely on typological regularities of the morphemic structure of languages of the world.

The Lithuanian language has the following affixes: a prefix (a derivational affix preceding a root, e.g., **per**skaito[1] 'he completes reading, has read'), a flexion (a derivational or inflectional affix, following a root or a suffix and showing morphological characteristics of a word: gender, number, case, etc., e.g., skait**o** 'he reads/they read' – Pres 3 Sg or Pl[2]), a suffix (a derivational or inflectional affix following a root or the other suffix, e.g., skait**ym**as 'reading', skait**om**as 'being read'), a connecting vowel (a derivational affix in some compounds that joins two roots, e.g., darb**o**tvarkė 'agenda') and a reflexive affix (it follows a flexion in non-prefix words, e.g., prausia**si** 'he washes himself', in prefixed words – between a prefix and a root, e.g., ne**si**prausia 'does not wash himself').

In this article, we provide a survey of the structural diversity of affixes rendered in *The Dictionary of Modern Lithuanian* (DML) and in *The Grammar of Modern Lithuanian* (GML), thereby establishing the productivity of structural patterns. Then we analyse and discuss the results of real usage. The frequency data for the study were collected from *The Database of the Morphemics of the Lithuanian Language* (DbML) (for more about the material and its preparation, see Kazlauskienė & Cvilikaitė, 2018); here we would like to draw attention only to several aspects of the research data.

The structure of morphemes investigated in this article is based on morphemic rather than derivational analysis of words. Thus, a word is divided into the maximum number of morphemes that can be identified. For this reason, for example, when discussing the structure of prefixes, we focus on all prefixes, not only on words of prefixation, e.g., the noun **pa**rašas 'a signature' derives from the verb **pa**rašyti, **pa**rašo, **pa**rašė 'to write, he writes, he wrote'. In derivational analysis, the word parašas cannot be included into the list of prefixed nouns, because it is a derivative of the flexion -as; however, it is necessary to single out a prefix in the morphemic analysis, and it was done so in this study.

The focus of this study is structural analysis; therefore, the issue of affix variability (allomorphs) is not discussed here, as it relates to the meaning rather than to the structure. For instance, Lithuanian są-, san-, sam- are variants of the same affix. Their choice depends on the beginning of a root: before root labials b and p, sam- is used, e.g., **sam**būris 'a rally', **sam**prata 'a conception'; san- is used before dental t and d, e.g., **san**tykis 'a relation', **san**dūra 'a junction', while in other cases są- is used, e.g., **są**rašas 'a list' or **są**mokslas 'conspiracy'. Thus, the research data contain structurally twofold prefixes: *a consonant + a vowel* (są-) and *a consonant + a vowel + a consonant* (san-, sam-). Other prefixes also have variants, e.g., apy- (ap-, api-), at- (ata-, ato-) and už- (užu-, užuo-), although they are not as frequent in standard Lithuanian.

During the preparation of the data for the research, we tried to follow the synchronic principle. Due to this decision, the historical stem-final in nominal words and verbs was not considered as an individual morpheme and was attributed to flexions and suffixes (for more, see Valeckienė, 1998). For example, stalams 'for tables' Pl Dat is divided into the root stal- and the flexion -ams (although from the historical viewpoint, here we have *a root + a stem-final + a flexion*: stal-a-ms).

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[1] Morphemes discussed in the article are presented in bold font.

[2] The following abbreviations are used: 1 – 1st person, 2 – 2nd person, 3 – 3rd person, Acc – Accusative, Act – Active, Comp (Pass Ptcp) – Comparative Degree (Passive Participle), Dat – Dative, Dim – Diminutive, Fem – Feminine, Fut – Future tense, Ger – Gerund, Gen – Genitive, Half Ptcp – Half Participle, Imp – Imperative Mood, Ind – Indicative Mood, Inf – Infinitive, Ins – Instrumental, Loc – Locative, Masc – Masculine, N – Noun, Nom – Nominative, Pass – Passive, Pl – Plural, Pres – Present Tense, Pst – Past Tense, Pst Freq – Past Frequentative Tense, Ptcp – Participle, Ptcp Necess – Participle of Necessity, Sbjv – Subjunctive Mood, Sg – Singular, Sup (Pass Ptcp) – Superlative Degree (Passive Participle), Voc – Vocative.

During the formation of other word forms, the stem-final and the flexion change (e.g., *stalo* Sg Gen, *stalui* Sg Dat, *stalai* Pl Nom); thus, the flexion in this work is treated synchronically: it is a morpheme that changes in different word forms and indicates grammatical features thereof.

Prefixes

In the Lithuanian language, nouns, adjectives and verbs can have prefixes. Numerals and pronouns rarely have a prefix, which then is usually the negation *ne-*, only in exceptional cases written together with a word, i.e., in the position of a prefix, e.g., **ne**koks 'poor, bad', **ne**savas 'strange', cf. **ne** *pirmas* 'not first', **ne** *aš* 'not me', **ne** *kiekvienas* 'not everybody', etc.

The Structure of Affixes

There are not many structural patterns of prefixes in the Lithuanian language. They can be grouped into 8 patterns:

- V – **į**kalnė 'uphill' (1; ~180)[3], **į**žvalgus 'penetrating' (1; ~45), **į**nešti 'to bring in';
- VC_1 – **at**spalvis 'a shade' (4; ~120), **at**šiaurus 'stark' (4; ~40), **at**nešti 'to fetch';
- C_1V – **ne**laimė 'a disaster' (8; ~710), **ne**gražus 'ugly' (7; ~200), **ne**nešti 'not to carry';
- C_1VC_1 – **per**tvarka 'reconstruction' (4; ~75), **per**mainingas 'changeable', **per**nešti 'to carry over';
- VC_2 – **ant**akis 'an eyebrow' (1; ~95), **ant**žeminis 'overground';
- C_2V – **pra**vardė 'a nickname' (4; ~50), **pra**kaulus 'scraggy' (4; ~15), **pra**nešti 'to report';
- VC_1V – **apy**varta 'turnover' (5; ~60), **apy**kreivis 'somewhat crooked' (4; ~100), **api**pilti 'to slop';
- C_2VC_1 – **prieš**piečiai 'lunch' (1; ~30), **prieš**pietinis 'related to lunch', **prieš**tarauti 'to object'.

Almost all prefixes, except for pattern VC_1V[4], which is made up of unproductive prefixes, are monosyllabic.

It is difficult to cover the productivity of prefixes, i.e., how many words with specific prefixes are provided in dictionaries. This is not only because of their huge number in the dictionary (verbs with prefixes number in hundreds), but also because not all words with prefixes, especially with the negation *ne-*, are recorded in dictionaries. For this reason, although the data presented in this article clearly shows regularities, it may contain some errors.

Based on the data from the dictionary, we can assume that prefixes VC_1 and C_1V will dominate the usage, as prefixes of such a structure are the most abundant.

The research data of connected speech contained examples of almost all Lithuanian prefixes (there were no adjectives with prefixes *pro-*, *užu-* and *užuo-*). As we can see from Table 1, almost three-fourths of all prefixes in connected speech are binomials of a very simple structure: C_1V and VC_1.

Not only is this abundance due to the largest number of prefixes with such a pattern, but also because this group includes the negation *ne-*, surpassing the other prefixes by its occurrence frequency. C_1V pattern is especially frequent and makes up approximately 60% of all prefix examples in the DbML. Prefixes of a reverse pattern, i.e., binomials starting with a vowel VC_1, are slightly rarer (on average, 16% in each group).

[3] In brackets, the first number indicates the quantity of different prefixes, while the second number shows the approximate quantity of words in the DML. Examples with *ne-* were not included into the number, because this prefix can be added to any word and not all of them are provided in the DML. Here we do not provide the number of adjectives with suffixes *-in-* and *-ing-*, because they are very productive and can be made from any noun; thus, they also take prefixes of those nouns, e.g., **są**mata → **są**matinis 'an estimate – estimated'. The noun derivatives *-im-* were not counted for the same reason, as they can be made from any verb and, consequently, take prefixes of those verbs, e.g., **į**rišti – **į**rišimas 'to bind – binding', **su**rišti – **su**rišimas 'to fasten – fastening'. Due to the large number, the quantity of verbs with prefixes is not provided, either. From the diachronic perspective, the prefix *į-* derives from *in-*. Without this historical phenomenon, there would be no monophonemic prefixes in the Lithuanian language.

[4] Prefixes with this structure are allomorphs of C_1V: *ap-, api, apy-; at- ato-, ata-; už-, užu-, užuo-*.

Structural patterns	Usage instances			Examples
	Nouns	Adjectives	Verbs	
C1V	54.4	64.9	59.4	***pa****saulio* 'a world' Gen Sg Masc, ***pa****grindinis* 'main' Masc Nom Sg, ***pa****deda* 'he helps'[5] 3 Pres Sg
VC1	16.4	14.0	17.1	***ap****saugos* 'protection' Gen Sg Fem, ***at****skirų* 'separate' Gen Pl Fem, ***iš****ėjo* 'he/they left' 3 Pst Sg/Pl
V	14.7	16.2	11.5	***į****monės* 'an enterprise' Gen Sg Fem, ***į****vairių* 'various' Gen Pl Fem, ***į****vertinti* 'to assess' Inf
C2V	7.5	1.9	7.3	***prie****monių* 'means' Gen Pl Fem, ***pri****dėtinės* 'additional' Nom Pl Fem, ***pri****klauso* 'he belongs' 3 Pres Sg
C1VC1	5.3	1.7	2.0	***per****davimo* 'a transfer' Gen Sg Masc, ***per****keltinės* 'figurative' Gen Sg Fem, ***par****duoti* 'to sell' Inf
VC1V	1.2	0.6	1.1	***apy****linkės* 'surroundings' Nom Pl Fem, ***apy****tiksliais* 'approximate' Ins Pl Masc, ***ati****tinka* 'he matches' 3 Pres Sg
VC2	0.3	0.1	-	***ant****akius* 'eyebrows' Acc Pl Masc, ***ant****gamtiniais* 'supernatural' Ins Pl Masc
C2VC1	0.2	0.7	0.1	***prieš****taravimų* 'objections' Gen Pl Masc, ***prieš****taringos* 'contradictory' Nom Pl Fem, ***prieš****tarauja* 'he objects' 3 Pres Sg
C1[6]	-	-	1.5	***n****ėra* 'he is not' 3 Pres Sg

Suffixes

In Lithuanian, all inflective parts of speech can have a suffix[7]. Nominal words usually have derivational suffixes, except synthetic forms of adjective degrees expressed with suffixes *-esn-, -iaus-* (pronounced as [-ɛʊs-], e.g., *geras – ger**esn**is – geri**aus**ias* 'good – better – the best'). Verbs have quite a lot of inflectional suffixes. Notwithstanding, such a classification is not relevant for the morphemic analysis; thus, all suffixes are discussed together.

In total, 446 suffixes of nominal words were selected from the GML for the research. Lithuanian suffixes of nominal words can be classified into 10 common patterns:[8]

[5] For the sake of text economy, we provide only *he* in the translations, although *she* and *it* are equally possible.

[6] Verb prefixes of C_1 structure deserve separate mentioning: *n-* (e.g., ***n****esate* 'you are not'), *b-* (e.g., *te**b****esate* 'you still are'), which are shortened from *ne-* and *be-*. The omission of a vowel is not common to the Lithuanian language; thus, here we have one of the few examples of this phenomenon.

[7] In some cases, suffixes are not difficult to recognise, especially the syllabic ones, e.g. *ėj**im**as* 'walking', *berni**uk****as* 'a boy'. Problems arise only when a suffix is non-syllabic, e.g. *pykt**is* 'anger', *mok**sl****as* 'science'. The analysis of suffixes is aggravated by the different treatment of segments between a root and a suffix. GML (2006) regards the endings of adjectives *-las, -lus, -mas, -mus, -sčias, -ščias, -štas, -štus* as flexions with consonant formants without a derivational meaning. In this article, we consistently hold to the synchronic point of view about flexions, and said consonant segments are treated as suffixes respectively *-l-, -m-, -sč-, -šč-, -št-*.

[8] This list does not include complex diminutive suffixes, e.g., *sveik**utėlyt****is* 'healthy' Dim, *balt**utėlait****is* 'snowy' *(-ut-+-ėl-+-yt-/-ait-)*. According to the GML and the DML, their diversity is impossible to cover, because there are almost no examples in dictionaries. Such derivatives appear only in spontaneous speech. During a morphemic analysis, they can be separated into individual suffixes, because in the present usage, there are examples without one or the other component, e.g., *sveik**ut****is, sveik**utėl****is* 'healthy' Dim.

- C_1 – *pyktis* 'anger' (54; ~550)[9], *baltas* 'white' (17; ~190);
- C_2 – *mokslas* 'science' (27; ~ 200), *tikslus* 'precise' (11; ~40);
- $V(W)C_1$ – *senelis* 'a grandfather' (163; ~2550), *stiklinis* 'glass' (40; ~2650);
- $V(W)C_2$ – *mokykla* 'a school' (35; ~660), *laimingas* 'happy' (8; ~1050);
- $V(W)C_3$ – *upokšnis* 'a rivulet' (11; ~40), *pernykštis* 'of last year' (5; ~30);
- C_1VC_1 – *degtukas* 'a match' (21; ~1270), *atsitiktinis* 'random' (~140);
- C_2VC_1 – *balzganas* 'whitish' (5);
- VC_1VC_1 – *visuomenė* 'society' (12; ~60), *pusėtinas* 'mediocre' (28; ~20);
- $V(W)C_1VC_2$ – *mokslininkas* 'a scientist' (~670), *savotiškas* 'oddish';
- VC_2VC_1 – *vienintelis* 'the only' (9).

Suffixes of nominal words can be non-syllabic (23%), mostly monosyllabic (67%) and disyllabic (10%). All suffixes end on a consonant. Syllabic suffixes start on a vowel more often, and only C_1VC_1 and the unproductive C_2VC_1 pattern (the adjective suffix *-zgan-*) start on a consonant.

$V(W)C_1$ and $V(W)C_2$ patterns are the most productive. Their suffixes show rich diversity, too; the DML provides numerous examples of their derivatives. Thus, we can infer that the suffixes of these patterns will dominate the real usage.

Suffixes of numerals and pronouns are represented by only three patterns: C_1 (6 suffixes, e.g., *ketvirtas* 'fourth'), $V(W)C_1$ (5 suffixes, e.g., *abeji* 'both') and $V(W)C_2$ (2 suffixes, e.g., *mūsiškis* 'ours').

We can find examples of all patterns in the DbML (Table 2). However, their usage frequencies are very different. As expected, the most recurrent are suffixes with the $V(W)C_1$ pattern (almost 60% of examples of both nouns and adjectives); pattern C is also frequent, as well as the suffix pattern VC_2 for adjectives. Noun suffixes of $V(W)C_1$ and C_1 patterns make up 79% of all examples. There are examples of this pattern among numerals and pronouns, too. Numerals and pronouns are parts of speech that have almost no borrowings[10]; therefore, we can conclude that this structural pattern is quite old. All three mentioned adjective suffixes amount to even nine-tenths of all suffixes.

The GML (1994, pp. 394–395) counts up to 80 suffixes. In Lithuanian, suffixal verbs are made with 9 verbal derivational suffixes[11]: {-ė-/-ėj-}, -in-, {-y-/-ij-}, {-o-/-oj-}, {-uo-/-uoj-/-av-}, {-au-/-auj-/-av-}, -en-, {-inė-/-inėj-}[12], {-telė-/-telėj-}. Suffixes can be expanded by one or two sounds or even a syllable, e.g., *pasakoti* 'to narrate', *keiksnoti* 'to curse', *vingiuoti* 'to snake', *vinguriuoti* 'to snake', *vinguliuoti* 'to snake'. In the spoken language, the derivatives of suffixes {-telė-/-telėj-} are sometimes shortened, e.g., *kilstelėti* 'to lift', *kilstelėja* 'he lifts', *kilstelėjo* 'he lifted' and *kilstelti* 'to lift', *kilsteli* 'he lifts', *kilstelėjo* 'he lifted'.

Thus, the suffixes in this group can have the following structures:

- $V(W)-V(W)C_1-V(W)C_1$ – *dalyti, dalija, dalijo* 'to divide, he divides, he divided'; *grybauti, grybauja, grybavo* 'to mushroom, he mushrooms, he mushroomed';

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[9] In this list, next to the examples of suffixes, the number of different suffixes is provided in brackets (based on the data from the GML). The second number indicates how many derivatives with such suffixes are provided in the DML.

[10] In the Lithuanian language, numerals signifying a large quantity are borrowings: *milijonas* 'million', *bilijonas* 'billion', *milijardas* 'milliard'.

[11] Many suffixes have more than one allomorph. This is related to the aim to avoid the hiatus in present and past tense forms by inserting *j*, e.g., *plonė-ti, plonė-j-a, plonė-j-o* 'to thin, he thins, he thinned'. This list contains allomorphs in curly brackets {} separated by slashes.

[12] This is a complex suffix made of a suffix *-in-* and *-ė-*. It used to be considered as an expanded suffix *-ė-*. However, due to the difference in meaning of the derivatives, *-ė-* and *-inė-* are understood as two distinct suffixes.

Table 2

The distribution of structural patterns of suffixes of nominal words in the DbML (%)

Structural patterns	Usage instances				Examples
	Nouns	Adjectives	Numerals	Pronouns	
V(W)C1	61.8	59.8	46.8	85.3	*gyven**im**o* 'a life' Gen Sg Masc, *did**el**is* 'large' Nom Sg Masc, *dv**ej**us* 'two' Acc Masc, *t**ok**ia* 'such' Nom Sg Fem
C1	17.3	15.6	53.2	13.8	*mais**t**o* 'food' Gen Sg Masc, *bal**t**as* 'white' Nom Sg Masc, *ketvir**t**as* 'fourth' Nom Sg Masc, *vis**k**as* 'everything' Nom
C1VC1	5.6	1.1	-	-	*darbuo**toj**ų* 'employees' Gen Pl Masc/Fem, *perkel**tin**ės* 'figurative' Gen Sg Fem
C2	5.3	4.6	-	-	*mok**sl**o* 'science' Gen Sg Masc, *mok**sl**inių* 'scientific' Gen Pl Fem/Masc
VC2	3.3	15.9	-	0.9	*special**ist**ai* 'specialists' Nom Pl Masc, *nelaim**ing**ų* 'unhappy' Gen Pl Fem/Masc, *kel**int**ą* 'which' Acc Sg Fem/Pl
V(W)	3.3	0.2	-	-	*darbu**o**tojų* 'employees' Gen Pl Masc/Fem, *raš**y**tinis* 'written' Nom Sg Masc
VC1VC2	2.1	0.1	-	-	*pirm**inink**as* 'a chairman' Nom Sg Masc, *puslaid**inink**iniai* 'semiconductor' Nom Pl Masc
VC1VC1	0.7	2.0	-	-	*vis**uomen**ės* 'a society' Gen Sg Fem, *pask**utin**is* 'last' Nom Sg Masc,
C1V	0.4	-	-	-	*šal**dy**tuvo* 'a fridge' Gen Sg Masc,
C2V	0.1	-	-	-	*dė**sty**tojas* 'a lecturer' Nom Sg Masc,
V(W)C3	0.05	0.1			*vaik**iūkšt**į* 'a nipper' Acc Sg Masc, *pern**ykšč**ių* 'of last year' Sg Pl Fem/Masc
VC1V	0.04	-	-	-	*tyr**inė**tojų* 'researchers' Gen Pl Fem/Masc
C1VC1VC1	0.02	-	-	-	*stab**telėj**imas* 'a pause' Nom Sg Masc
WC1VC2	0.01	-	-	-	*baudž**iaunink**ai* 'villeins' Nom Sg Masc
C2VC1	0.003	0.01	-	-	*verk**šlent**ojas* 'a whimperer' Nom Sg Masc, *bal**zgan**a* 'whitish' Nom Sg Fem
WCC	0.002	0.04	-	-	*mieg**uist**umas* 'drowse' Nom Sg Masc, *lig**uist**as* 'weakly' Nom Sg Masc
VC2VC1	-	0.4	-	-	*aukšt**ielnink**as* 'supine' Nom Sg Masc

- VC$_1$-VC$_1$-VC$_1$ – *gyv**en**ti, gyv**en**a, gyv**en**o* 'to live, he lives, he lived';
- VC$_1$V(W)-VC$_1$V(W)C$_1$-VC$_1$VC$_1$ – *lūk**urio**ti, lūk**uriuo**ja, lūk**uria**vo* 'to tarry, he tarries, he tarried'; *main**ikau**ti, main**ikauj**a, main**ikav**o* 'to barter, he barters, he bartered';

- VC_1VC_1V-$VC_1VC_1VC_1$-$VC_1VC_1VC_1$ – *grab**alinė**ti, grab**alinėj**a grab**alinėj**o* 'to grope, he gropes, he groped';
- $C_1V(W)$-$C_1V(W)C_1$-C_1VC_1 – *kil**no**ti, kil**noj**a, kil**noj**o* 'to lift, he lifts, he lifted'; *žio**vau**ti, žio**vauj**a, žio**vav**o* 'to yawn, he yawns, he yawned';
- C_1VC_1-C_1VC_1-C_1VC_1 – *šok**din**ti, šok**din**a, šok**din**o* 'to dance, he dances, he danced';
- C_1VC_1V-$C_1VC_1VC_1$-$C_1VC_1VC_1$ – *apgau**dinė**ti, apgau**dinėj**a, apgau**dinėj**o* 'to cheat, he cheats, he cheated';
- C_2V-C_2VC_1-C_2VC_1 – *keik**sno**ti, keik**snoj**a, keik**snoj**o* 'to curse, he curses, he cursed';
- C_2VC_1V-$C_2VC_1VC_1$-$C_2VC_1VC_1$ – *pil**stelė**ti, pil**stelėj**a, pil**stelėj**o* 'to pour a little, he pours, he poured'.

While some suffixes are highly productive[13] like {*-uo-/-uoj-/-av-*} (~1350 derivatives), {*-o-/-oj-*} (~1210), *-in-* (~1100), other suffixes are not: {*-ė-/-ėj-*} (~520), {*-au-/-auj-/-av-*} (~510), {*-telė-/-telėj-*} (~500), {*-inė-/-inėj-*} (~470), {*-y-/-ij-*} (~230), and *-en-* (~190).

Mixed verbs have suffixes *-y-*, *-ė-* and *-o-* in the infinitive, and some in the past tense (*-ėj-*, *-oj-*), e.g., *mok**y**ti* 'to teach', *moko* 'he teaches', *mokė* 'he taught' (~380 in the DML); *bij**o**ti* 'to be afraid', *bijo* 'he is afraid', *bij**oj**o* 'he was afraid' (~150); *myl**ė**ti* 'to love', *myli* 'he loves', *myl**ėj**o* 'he loved' (~600). These suffixes can also be expanded with consonants and the consonants appear in present and past tenses, even when these forms do not contain a vocal suffixal segment, e.g., *gy**dy**ti* 'to cure', *gy**d**o* 'he cures', *gy**d**ė* 'he cured'; *skir**sty**ti* 'to distribute', *skir**st**o* 'he distributes', *skir**st**ė* 'he distributed'; *žiop**so**ti* 'to gape', *žiop**s**o* 'he gapes', *žiop**soj**o* 'he gaped'; *am**sė**ti* 'to yap', *am**s**i* 'he yaps', *am**sėj**o* 'he yapped'; *sken**dė**ti* 'to welter', *sken**d**i* 'he welters', *sken**dėj**o* 'he weltered'.

The structural patterns of suffixes of mixed verbs are as follows:

- V- $\varnothing$ - $\varnothing$ – *mok**y**ti, moko, mokė* 'to teach, he teaches, he taught';
- V-$\varnothing$-VC_1 – *saug**o**ti, saugo, saug**oj**o* 'to guard, he guards, he guarded';
- C_1V-C_1-C_1 – *gy**dy**ti, gy**d**o, gy**d**ė* 'to cure, he cures, he cured';
- C_1V-C_1-C_1VC_1 – *žiop**so**ti, žiop**s**o, žiop**soj**o* 'to gape, he gapes, he gaped';
- C_2V-C_2-C_2 – *skir**sty**ti, skir**st**o, skir**st**ė* 'to distribute, he distributes, he distributed'.

The following suffixal patterns are possible in the stem of an infinitive: V(W), $C_1V(W)$, VC_1, $VC_1V(W)$, C_1VC_1, C_1VC_1V, VC_1VC_1V and C_2V. Suffixes can start with a consonant or a vowel. Only two suffixes in the infinitive end on a consonant (*-in-* and *-en-*). The only consonant cluster that occurs in a suffix of mixed verbs is *-sty-* (ST type).

The suffixes of verbs in present tense forms can have $V(W)C_1$, $C_1V(W)C_1$, $VC_1V(W)C_1$, $C_1VC_1VC_1$ and $VC_1VC_1VC_1$ structural patterns. In past tense forms, suffixes of the same structure remain; however, there are no suffixes with diphthongs (Pres suffix *-auj-* turns into *-av-* in Pst) – VC_1, C_1VC_1, VC_1VC_1, $C_1VC_1VC_1$, $VC_1VC_1VC_1$. There can be no suffix ($\varnothing$) in mixed verbs in the present tense or there are just consonants expanding a suffix (C_1 and C_2 structure). The structure of suffixes in the past tense can be C_1 - C_2 - VC_1 - C_1VC_1. It is important to mention that the suffixes of the present and past tenses always have a coda, i.e., they end on a consonant, because the hiatus disappears in all cases (the same process takes place at the juncture of a root and a flexion), in present tense the consonant *j* is added before a vowel of a flexion, in past tense, *j* is inserted (in case of a vowel *ė* or *o*) or *v* is added (if a vowel is *a*).

The structural diversity of inflectional suffixes is poor; they can be generalised into 5 patterns:

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[13] The data is provided together with the expanded variants (based on DML and Kavaliauskas 2000).

C_1 – Ind Fut[14]: *eisiu* 'I will go', Sbjv: *eičiau* 'I would go'[15], Imp: *eik* 'you go', Pass Pst Ptcp: *eitas* 'he who was gone';

$V(W)C_1$ – Act Pst Ptcp: *ėjusio* 'he who went' Gen, Pass Pres Ptcp: *einamas* 'he who is gone', Pst Ger: *ėjus* 'having gone', Sup (Pass Ptcp): *mylimiausias* 'the most loved' Masc;

- VC_2 – Act Pres Ptcp: *einantis* 'he who goes', Comp (Pass Ptcp): *mylimesnis* 'more loved' Masc, Pres Ger: *einant* 'while going';
- C_1V – Inf: *eiti* 'to go';
- C_1VC_1 – Ind Pst Freq: *eidavęs* 'he who used to go', Ptcp Necess: *eitinas* 'he who should be gone', Half Ptcp: *eidamas* 'while going'.

However, some forms can be formed by connecting several suffixes[16]:

- $C_1VC_1+ \varnothing$/ $C_1VC_1+VC_1$ – Act Pst Freq Ptcp: *eidavęs* 'he who used to go', *eidavusi* 'she who used to go', Pst Freq Ger: *eidavus* 'having been going';
- C_1+VC_2 – Act Fut Ptcp: *eisiantis* 'he who will go', Fut Ger: *eisiant* 'to be going';
- C_1+VC_1 – Pass Fut Ptcp: *eisimas* 'he who will be gone'.

It should be noted that the only suffix of the infinitive *-ti* does not have a coda (this is the only suffix that is also the end of a word, there is no flexion after it); all the other suffixes end on consonants.

Table 3

The distribution of structural patterns of verb suffixes in the DbML (%)

Structural patterns	Usage instances	Examples
V(W)C1	31.8	*turėjo* 'he had' Pst 3
C1	22.9	*trukdo* 'he disturbs' Pres 3
C1V	16.6	*atidėlioti* 'to procrastinate' Inf
V(W)	15.1	*turėtų* 'he would have' Sbjv 3
VC2	6.0	*apgailestavo* 'he regretted' Pst 3
C1VC1	4.8	*įgyvendinti* 'to implement' Inf
C2	1.5	*skirstomi* 'are distributed' Pass Ptcp 3 Nom Pl Masc
VC1VC1	0.4	*nagrinėja* 'he analyses' Pres 3
C2V	0.3	*suskirstyti* 'to classify' Inf
C1VC1VC1	0.3	*linktelėjo* 'he nodded' Pst 3
VC1V	0.2	*nagrinėti* 'to analyse' Inf
C1VC1V	0.1	*spragtelėkite* 'click' Imp 2 Pl
VC1VC2	0.04	*ūkininkauti* 'to farm' Inf
C2VC1	0.01	*tapšnoji* 'you tap' Pres 2 Sg
C2VC1VC1	0.004	*žilstelėjusio* 'grizzled' Pst Ptcp Gen Sg Masc

[14] In most cases, we provide only singular nominative masculine of declinable forms and Sg 1 or 2 of conjugated forms.

[15] The interpretation of suffixes for subjunctive and imperative is debatable. In this article, we hold that suffixes *-t-* and *-č-* pertain to the subjunctive mood, while suffix *-k-* to the imperative, e.g., *dirbtų* 'he would work', *riškite* 'you tie' Pl (cf. the other view originating from the identification of a stem-final: GML, pp. 342–343; Valeckienė, 1998: 377–380).

[16] Some forms have two inflectional suffixes: the first means the past frequentative or the future tense, the second means a participle or a gerund; in such cases, + is added.

15 structural patterns of verb suffixes were found in the DbML (Table 3).

The most frequent pattern is V(W)C$_1$ (slightly less than a half of all used verbs with derivational suffixes). This is not a surprising result because even 7 suffixes of past tense forms and 5 suffixes of the present tense have this structure, and these forms are quite frequent in coherent texts. Among these examples, there are 4% of suffixes originating from an underlying word, e.g., *dalyvauti (← dalyvis ← dalis),* 'to participate (← a participant ← a part)', *vadovauti (← vadovas ← vadas)* 'to lead (← a head ← a leader)'.

There are also quite a lot of monomial suffixes. The quantity of V(W) structure depends on the fact that many verb forms are made from an infinitive where a suffix is just one vowel which remains in derivative forms, too, e.g., *važiuoti* 'to go' → *važiuotų* 'he would go' Sbjv, *važiuočiau* 'I would go' Sbjv, *važiuodavo* 'he used to go' Pst Freq, *važiuos* 'he will go' Fut, etc. This group contains examples only of verbal derivational suffixes. There are no suffixes deriving from a base stem.

C$_1$ structure suffixes make up 22.9%, and half of them originate from an underlying word. There are especially many examples made from adjectives, e.g., *gyvas*: *gyventi, gyveno* 'alive, to live, he lived' and others. However, as discussed in the introductory section, the identification of this suffix is a debatable question.

The structure of other suffixes found in the DbML is diverse: the suffixes may be monosyllabic or disyllabic, with an onset and without it, with a coda and without one. The DbML did not provide examples of trisyllabic suffixes.

Flexions

In Lithuanian, flexions can be derivational (new words are formed, e.g., *bėga* 'he runs' → *bėgis* 'a rail', *puodas* 'a pot' → *puodžius* 'a potter') and inflectional morphemes (they express grammatical categories of case, gender, number, tense, person, mood, etc., e.g., Nom Sg *puodas*, Gen Sg *puodo*, Dat Sg *puodui*, etc., Pres 1 Sg *einu* 'I go', Pres 2 Sg *eini* 'you go'). Thus, every derivational flexion naturally becomes inflectional. Lithuanian flexions are polysemous: in a word, a flexion shows grammatical categories inherent to a specific part of speech (number, gender, a case, etc.). Therefore, a flexion is a compulsory attribute of every inflective word.

Lithuanian nominal words are inflected for 7 cases, number (Sg and Pl), gender (adjectives, some numerals and pronouns); while nouns have one grammatical gender, and only gender-related nouns can be inflected, e.g., *šokėjas* "vyras" 'a dancer (man)' – *šokėja* "moteris" 'a dancer (woman)'[17]. For nominal words, the indicator of a declension, the declining paradigm, is the Nom and Gen Sg flexion, which also determines flexions of other cases in the paradigm. Some Nom Sg flexions, as well as declension paradigms, are very productive; others are reported in sporadic examples. The most numerous flexions of nominal words (for more about noun paradigms and their productivity, see Savickienė, Kazlauskienė & Kamandulytė, 2004) in the DML are *-ė* (~9.5 thousand, including 6 thousand nouns), *-is* (~9 thousand, including 5.3 thousand nouns), *-as* (~9 thousand, including 6.5 thousand nouns) and *-a* (~5.5 thousand, including 3 thousand nouns). It is obvious that we can expect abundant usage examples of the productive paradigms.

The structural patterns of all nominal words are diverse. There are 7 patterns and these 7 patterns express 28 different sets of grammatical features (7_{cases} x $2_{numbers}$ x $2_{genders}$):

[17] Adjectives can be inflected for degree (this grammatical category is expressed with a suffix and was described in the section on suffixes); adjectives, numerals and pronouns may also have pronominal forms that are expressed with flexions and will be discussed in this section.

[18] Here we do not present all flexions of a particular case and provide only examples. The translation of nouns is provided only after the first mention.

- V(W) – Nom Sg[18]: *ranka* 'a hand', Gen Sg: *namo* 'a house', Dat Sg: *namui*, Acc Sg: *namą*, Ins Sg: *namu*, Loc Sg: *name*, Voc Sg: *name*, *sūnau* 'a son', Nom Pl/Voc: *namai*, *tie* 'those', Gen Pl: *namų*;
- V(W)C$_1$ – Nom Sg: *namas*, Gen Sg: *rankos* 'a hand', Dat Sg: *aukštam* 'tall', Nom/Voc Pl: *sūnūs* 'sons', Acc Pl: *namus*, Ins Pl: *namais*;
- VC$_1$V – Ins Sg: *sūnumi* 'a son', Loc Sg: *aukštame* 'tall', Gen Pl: *trijų* 'three', Loc Pl: *namuose*;
- VC$_2$ – Dat Pl: *namams*;
- VC$_1$VC$_1$ – Ins Pl: *rankomis*;
- VC$_1$VC$_1$V – Loc Pl: *trijuose*;
- C$_1$ – Nom Sg: *pats* 'himself', Gen Sg: *sesers* 'a sister'.

As seen, the most polysemantic pattern is V, which can signify all singular cases except dative.

A flexion almost always starts with a vowel or a diphthong (except for a very rare pattern C$_1$, e.g., *pats* 'himself', *vandens* 'water' Gen Sg, *sesers* 'a sister' Gen Sg, *akmens* 'a stone' Gen Sg). Thus, a root has to end on a consonant, because in Lithuanian there is no hiatus between a root and a flexion (neither is there between a root and a suffix). Another interpretation is also possible: since a root always ends on a consonant, flexions may start on a vowel, too.

The list of patterns shows that there are monosyllabic, disyllabic and even trisyllabic flexions. Polysyllabic flexions in spoken language (especially in informal communication) are shortened by omitting the last syllable, e.g., *rankoje* 'a hand' Loc Sg, *širdyje* 'a heart' Loc Sg, *aukštame* 'tall' Loc Sg, *sūnumis* 'sons' Ins Pl, *rankomis* 'hands' Ins Pl, *trijuose* 'three' Loc Pl → *rankoj*, *širdyj* or *širdy*, *aukštam*, *sūnums*, *rankoms*[19], *trijuos.* Hence, in real use, analogy is maintained and monosyllabic flexions are kept in all cases, because in the paradigm disyllabic flexions are considerably rarer than monosyllabic flexions.

A consonant cluster is possible only in Dat Pl. However, this flexion is secondary, deriving from longer *-amus, -ėmus* and *-iemus* (the generalised pattern VC$_1$VC$_1$, e.g., *geriemus* 'good', *žmonėmus* 'people' Dat Pl), which were recorded in the old Lithuanian writings published in the XVI c.

It is obvious that the usage frequency of a certain flexion (and the respective structural pattern) depends on the usage frequency of cases. Since the most common Lithuanian cases are Gen Sg, Nom Sg, Gen Pl and Acc Sg (Rimkutė, 2006), one might presume that the flexions of these cases prevail in the DbML, especially patterns V(W) and VC$_1$.

The structural patterns of conjugated verb flexions are not numerous; there are 3 patterns:

- V(W) – Pres[20]: *rašo* 'he writes', *rašau* 'I write', Pst: *kėlė* 'he lifted', *kėlei* 'you lifted' Sg, Pst Freq: *rinkdavo* 'he used to pick', *rinkdavau* 'I used to pick', Fut: *rinksiu* 'I will pick', Sbjv: *rinktų* 'he would pick', Imp: *rašyki* 'write' Sg 2;
- VC$_1$V(W) – Pres: *rašome* 'we write', Pst: *rinkome* 'we picked', Pst Freq: *rinkdavome* 'we used to pick', Fut: *rinksime* 'we will pick', Sbjv: *rinktume* 'we would pick', *rinktumeisi* 'you would choose' Sg, Imp: *rašykime* 'let's write';
- VC$_1$VC$_1$V – Sbjv: *rinktumėme* 'we would pick'.

These patterns are used to express 24 different sets of grammatical features of indicative (4$_{tenses}$ x 2$_{numbers}$ x 3$_{persons}$), 6 sets of subjunctive (2$_{numbers}$ x 3$_{persons}$) and 3 forms of imperative mood. The verb flexion always starts with a vowel or a diphthong. Consequently, a root morpheme needs a coda.

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[19] From the perspective of the phonemic structure, shortened Ins Sg and Pl overlap with Dat Sg and Pl; however, they differ in the syllable accent: Dat *rankóm;* Ins *rankōm.*

[20] Here we do not provide all forms and give examples only of different flexions.

Verb flexions can be monosyllabic or disyllabic. The same remark could be repeated concerning disyllabic flexions: in spoken language, they are usually shortened, e.g., *ein**ame**, ein**ate*** 'we go, you go' → *ein**am**, ein**at***. This shortening is blocked by the reflexive particle, e.g., *ren-kam**ės**, renkat**ės*** 'we gather, you gather' are not shortened; in this case, the reflexive particle itself is shortened from *-si*.

The flexions of declinable verb forms (participles, half-participles) coincide with 5 most common flexion patterns of nominal words:

- V(W) – Nom Sg: *einant**i***[21], Fem; Gen Sg: *einanči**o***; Dat Sg: *einanči**ai***, Fem; Acc Sg: *einant**į***; Ins Sg: *einanči**u***; Nom Pl: *ein**ą***; Gen Pl: *einanči**ų***;
- $V(W)C_1$ – Nom Sg: *einant**is***; Gen Sg: *einanči**os***, Fem; Dat Sg: *einanči**am***; Nom Pl: *einant**ys***; Acc Pl: *einanči**us***; Ins Pl: *einanči**ais***;
- VC_1V – Loc Sg: *einanči**ame***; Loc Pl: *einanči**uose***;
- VC_2 – Dat Pl: *einant**iems***;
- VC_1VC_1 – Ins Pl: *einanči**omis***, Fem.

These patterns are used to express 24 different sets of grammatical features (6_{cases} x $2_{numbers}$ x $2_{genders}$). As can be seen, patterns V and VC_1 dominate.

The flexions of nominal words in the DbML form 6 patterns (Table 4). We found examples of all the discussed patterns in the DbML, except VC_1VC_1V, typical of some numerals and pronouns in locative, which is not a frequent case, especially in case of numerals and pronouns (*tri**juose*** 'three' Loc, *m**umyse*** 'us' Loc). The assumption was correct: pattern V(W) prevails (even half of all nominal words); pattern $V(W)C_1$ is frequent, too (one-third of the nominal words).

Structural patterns	Nominal words	Verbs	Examples
V(W)	57.7	82.2	*darb**o*** 'work' Gen Sg Masc, *yr**a*** 'he is' Pres 3
V(W)C1	35.0	14.4	*žmog**us*** 'a human' Nom Sg Masc, *įgaliot**as*** 'authorised' Nom Sg Fem
VC1V	4.2	2.9	*pasaul**yje*** 'a world' Loc Sg Masc, *tur**ime*** 'we have' Pres 1 Pl
VC2	1.7	0.4	*vaik**ams*** 'children' Dat Pl Masc, *dirbant**iems*** 'working' Pres Ptcp Dat Pl Masc/Fem
VC1VC1	0.8	0.2	*sąlyg**omis*** 'conditions' Dat Pl Fem, *nustatyt**omis*** 'established' Pass Ptcp Ins Pl Fem
C1	0.7	-	*vanden**s*** 'water' Gen Sg Masc
VC1VC1V	-	0.01	*galėt**umėte*** 'you could' Sbjv 2 Pl

The flexions of verbs in the DbML are also of 6 patterns. There are quite a lot of monomial flexions (even three-fourths of such flexions in the DbML). Since in Lithuanian Pres and Pst 3 are the most frequent forms (Rimkutė, 2006), one might expect that the DbML will be dominated by V(W) pattern covering the 3rd person of all tenses. Pattern $V(W)C_1$ is quite frequent among some forms of participles and half-participles, and a diphthong is common to 1st and 2nd person flexions. Flexions of these patterns make up even 96% of all verbs used in the DbML.

[21] The forms of the same participle *einantis, einanti* 'the one who goes' Sg Masc, Sg Fem are given, thus, translations are not provided. If gender is not indicated, the example illustrates a masculine form.

In Lithuanian, some adjectives, numerals, pronouns and participles can have pronominal forms which are used to emphasise or to distinguish a thing regarding a certain feature, e.g., *raudona suknelė* 'a red dress, any dress of a red colour' and *raudonoji suknelė* 'the red dress, only one dress, that particular dress both interlocutors are aware of'.

From a diachronic perspective, pronominal flexions are formed from a flexion and a postpositionally adjoining pronoun *jis, ji* in a respective case (*raudona+ji*). However, synchronically these flexions are not separated (Keinys, 2009). It is obvious that all flexions of pronominal participles are disyllabic or polysyllabic and start with a vowel, except Nom Sg flexion *-sai*, which only occurs with pronouns and derives from a shortened simple form flexion: from *tokis* into *toks* ('such'):

- $VC_1V(W)$ – Nom Sg: *jisai* 'he'; Gen Sg: *gerojo* 'the one who is good'[22]; Dat Sg: *gerajai*, Fem; Acc Sg: *gerąjį*; Ins Sg: *geruoju*; Nom Pl: *gerieji*; Gen Pl: *gerųjų*;
- $V(W)C_1V(W)C_1$ – Nom Sg: *gerasis*; Gen Sg: *gerosios*; Dat Sg: *gerajam*; Nom Sg: *gerosios*; Acc Pl: *geruosius*; Ins Pl: *geraisiais*;
- VC_1VC_1V – Loc Sg: *gerajame*; Loc Pl: *geruosiuose*;
- VC_1VC_2 – Dat Pl: *geriesiems*;
- $VC_1VC_1VC_1$ – Ins Pl: *gerosiomis*, Fem;
- W – Nom Sg: *toksai* 'such'.

The structure of pronominal flexions is not complex; it is a shorter or a longer chain of a vowel (a diphthong) and a consonant (as if a doubled flexion of a nominal word, in some forms, with an eliminated second syllable of the first disyllabic flexion): VC_1V (e.g., *gerųjų* → *gerų+jų* 'good' Gen Pl Masc/Fem), VC_1VC_1 (e.g., *gerasis* → *geras+is* 'good' Nom Sg Masc), VC_1VC_1V (e.g., *gerajame* → *gera+jame* 'good' Loc Sg Masc), $VC_1VC_1VC_1$ (e.g., *gerosiomis* → *gero+siomis* 'good' Ins Pl Fem), etc. Consonant clusters occur only in dative flexions VC_1VC_2 (e.g., *geriesiems*, *gerosioms*).

The dominance of patterns $VC_1V(W)$, $V(W)C_1V(W)C_1$ and VC_1VC_1V in texts (90%), therefore, is natural, as it reflects the tendency of the Lithuanian language towards open C_1V type syllables (Table 5).

Table 5

The distribution of structural patterns of flexions of pronominal forms in the DbML (%)

Structural patterns	Nominal words	Participles	Examples
VC1V(W)	58.3	61.5	*didžiojo* 'the great one' Gen Sg Masc, *taikomųjų* 'the applied ones' Gen Pl Masc/Fem
V(W)C1V(W)C1	31.1	33.3	*naujosios* 'the new ones' Gen Sg Fem, *šnekamosios* 'the spoken one' Gen Sg Fem
VC1VC1V	5.2	2.2	*didžiojoje* 'the great one' Loc Sg Fem, *šnekamojoje* 'the spoken one' Loc Sg Fem
VCVCC	1.3	2.5	*artimiesiems* 'the near ones' Dat Pl Masc, *tiriamiesiems* 'the researched ones' Dat Pl Masc
CW	0.8	-	*toksai* 'such' Nom Sg Masc
VCVCVC	0.3	0.5	*pastarosiomis* 'the recent ones' Ins Pl Fem, *sėjamosiomis* 'the sowed ones' Ins Pl Fem

[22] Further examples contain other forms of the same words; thus, translations are not provided

In summary, we can say that a flexion does not have an onset. A coda of declinable words may contain from 1 to 2 consonants; flexions of conjugated verb forms always end only on a vowel. In usage, simple $V(W)C_{0-1}$ patterns of non-pronominal flexions and $VC_1V(W)$ patterns of pronominal flexions prevail and make up around 80% of flexions of nominal words and 90% of verb flexions.

The Reflexive Affix

The reflexive affix is used to express reflexive verbs; it is also transferred to nouns formed from these verbs, e.g., Pres 3 *prausia – prausiasi* 'washes – washes him/herself', a noun *prausimasis* 'a wash'. This affix is added to the end of verbs with prefixes: a) if a verb ends on a vowel, *-si* is used, e.g., Pres 1 Sg *prausiuosi* 'I am washing myself', and b) if a word ends on a consonant, *-s* is added, e.g., Pres 1 Pl *prausiamės* 'we are washing ourselves'. In verbs with prefixes, the affix *-si-* is inserted between a prefix and a root, e.g., Pres 1 Sg *nesiprausiu* 'I am not washing myself'. The same rules apply to nouns, e.g., Nom Sg *prausimasis* 'a wash', Gen Sg *prausimosi*, Nom Sg *nesiprausimas* 'a non-wash', etc.

The choice of a reflexive allomorph {*-si-, -is, -s*} depends on its position in a word, while the usage frequency in texts is determined by the frequency of word forms. In our data, the most frequent allomorph had the C_1V structure (96% of reflexive nominal words and 87% of reflexive verbs). The monophonemic C_1 was used (10%) only in forms of reflexive verbs, e.g., *elgtis* 'to behave', *renkamės* 'we are gathering', *laikykis* 'hold on', etc. VC_1 allomorph is considerably less frequent (4% of reflexive nominal words and 3% of reflexive verbs).

The productivity and frequency analysis of structural patterns of affixes in inflective words allows drawing the following generalisations.

Conclusion

1   26 prefixes can be grouped into 8 structural patterns and the ratio of the different prefixes and the patterns is 3[23]. Prefixes in Lithuanian can have $C_{0-2}VC_{0-2}$ structure. The most productive and frequent pattern is C_1V (9 out of 29 prefixes, on the average 60% of all DbML words with prefixes).

2   446 suffixes of nominal words can be classified into 10 patterns (the ratio is 45). 80 derivational suffixes of verbs can be classified into 16 patterns and 18 inflectional suffixes of verbs can be classified into 5 patterns (the ratio is respectively 5 and 4). The relative structural diversity of suffixes of verbs is higher than that of nominal words nearly ninefold and it is almost similar to the diversity of prefixes. Suffixes have structures C_{1-2}, $C_{0-2}V(W)C_{0-3}$, $C_{0-1}VC_{1-2}VC_{0-2}$. The most productive suffixes are VC_1 in nominal words (47% of different suffixes), derivational VC_{0-1} in verbs (32% of different suffixes) and inflectional suffixes C_1, VC_1 (40% of different suffixes). In usage, VC_1 suffixes of nominal words (on the average 64%) and V, C_1 as well as VC_1 verb patterns (57%) dominate.

3   87 flexions of nominal words can be classified into 10 patterns (the ratio is 12), 65 of the conjugated forms of verbs can be classified into 3 patterns (the ratio is 22) and 32 of the declinable forms of verbs can be classified into 5 patterns (the ratio is 6). The relative diversity of flexions of the declinable forms of verbs is higher than the relative diversity of flexions of nominal words and the conjugated forms of verbs. Flexions usually begin with a vowel. The generalised patterns for flexion structure are as follows: C_1, VC_{0-2}, VC_1VC_{0-1} and $VC_1VC_1VC_{0-1}$. The most productive patterns are simple VC_{0-1}, which also dominate the usage (93% of usage instances of nominal words and 97% of verbs).

4   The reflexive affix can have C_1, C_1V or VC_1 structure. The most frequent pattern is C_1V (96%).

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[23] Here and further in the text, the ratio is calculated in the following way: the number of different morpheme examples is divided by the number of patterns, i.e., 26/8=3. This means that one pattern covers 8 different roots of prefixes.

In conclusion, it should be said that the structural variety of affixes is quite rich. According to the number of different patterns, they are in the following descending order: derivational suffixes of verbs – suffixes of nominal words – prefixes – flexions of nominal words – inflexional suffixes of verbs – flexions of the declinable forms of verbs – flexions of the conjugated forms of verbs. However, according to the relative diversity (i.e., how many different examples are covered by one pattern), affixes can be arranged in the descending order: prefixes – inflexional suffixes of verbs – derivational suffixes of verbs – flexions of the declinable forms of verbs – flexions of nominal words – flexions of the conjugated forms of verbs – suffixes of nominal words.

Affixes with a simple structure are productive and frequent in usage. The analysis revealed an obvious and crucial influence of the root on the structure of other morphemes. The most typical $C_{1-2}VC_{1-2}$ structure root entails a C_1V structure prefix on the one side, while a suffix or a flexion with VC_{0-1} structure on the other. The result of such a combination is quite a consistent chain *a consonant + a vowel + a consonant (+ a consonant) + a vowel + a consonant (+ a consonant) + a vowel + (a consonant)*: $C_1V + C_{1-2}VC_{1-2} + VC_{0-1}$.

In this article, we discussed only a part of the results of the complex study of the Lithuanian morpheme structure as well as consonant clusters within morphemes and at junctures of morphemes. A further analysis would concentrate on regularities and limitations of consonant clusters at junctures of morphemes in more detail.

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Asta Kazlauskienė, Jurgita Cvilikaitė-Mačiulskienė. Lietuvių kalbos afiksų struktūra

Šio tyrimo tikslas – nustatyti lietuvių kalbos kaitomųjų žodžių afiksų struktūrinius modelius, jų produktyvumą ir dažnumą. Remiantis *Dabartinės lietuvių kalbos gramatika* ir *Dabartinės lietuvių kalbos žodynu*, analizuojama struktūrinė šių morfemų įvairovė, nustatomas modelių produktyvumas. Vartosenos dažnumo tyrimui naudota *Lietuvių kalbos morfemikos duomenų bazė*.

Afiksų struktūros analizė leidžia daryti tokias išvadas:

1 priesagos ir galūnės gali būti neskiemeninės ir nuo vieno iki trijų skiemenų, priešdėliai visada yra tik vienskiemeniai;

2 priebalsių samplaikos nėra dažnos šių morfemų viduje.

Priešdėliai gali būti $C_{0-2}VC_{0-2}$ struktūros. Produktyviausias ir dažniausias yra C_1V modelis. Priesagos gali būti C_{1-2}, $C_{0-2}V(W)C_{0-3}$, $C_{0-1}VC_{1-2}VC_{0-2}$. Produktyviausi yra vardažodžių VC_1, veiksmažodžių C_1 ir VC_{0-1} modeliai. Šie modeliai yra ir dažniausi. Tarp dažniausių yra veiksmažodžių V modelis. Galūnės gali būti C_1, VC_{0-2}, VC_1VC_{0-1}, $VC_1VC_1VC_{0-1}$. Produktyviausias ir dažniausias yra VC_{0-1} modelis.

Išryškėjo šaknies struktūros įtaka kitų morfemų struktūriniams modeliams. Prie tipiškiausios $C_{1-2}VC_{1-2}$ struktūros šaknies iš vienos pusės šliejasi C_1V struktūros priešdėlis, iš kitos pusės VC_{0-1} struktūros priesaga arba galūnė. Tokios kombinacijos rezultatas – gana nuosekli *priebalsis + balsis + priebalsis (+ priebalsis) + balsis + priebalsis (+ priebalsis) + balsis (+ priebalsis)* grandinė: $C_1V + C_{1-2}VC_{1-2} + VC_{0-1}$.

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