

Stems in Lithuanian verbal inflection (with remarks on derivation)

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Abstract

This paper deals with the three stems traditionally postulated in the description of Lithuanian verbal inflection, viz. the Present stem, the Past stem and the Infinitive stem. These stems play a major role in the subgrouping of verbs into inflectional classes. The status of each of the stems as ‘morphomic’ or ‘inflectional’ is assessed in the light of data from both inflectional and derivational morphology. It is argued on the basis of intricate prosodic and morphophonological data that the Infinitive stem is indeed necessary for an adequate description of the Lithuanian verbal system, and also that a separate Past Passive Participle stem relevant for deverbal derivation can be postulated.

I Introduction

The Lithuanian verbal system has not figured prominently in the discourse of contemporary morphological theory, despite the fact that its complexity can offer a rich variety of material against which particular models and explanatory hypotheses can be tested. In this paper I will consider the applicability of the notion of ‘stem’ as developed in current morphological theory (see e.g. Aronoff 1994, Blevins 2003) to the Lithuanian verbal inflection and its implications for a rigorous description of the intricacies of this system.¹

In this paper, the STEM will be understood, following Aronoff (1994: 39), as a phonological entity serving as the ‘domain of a realization rule: that sound form to which a given affix is attached or upon which a given non-affixal realization rule operates’. This formulation implies that it may be necessary to postulate a potentially large number of stems in order to describe the inflection of a given lexeme or of a whole morphological system, and that different stems may enter into hierarchical relations with each other (i.e. stem₂ may serve as an output of a realization rule applied to stem₁). However, in my discussion I will limit myself to those stems of Lithuanian

verbs which are ‘basic’ in the sense of not being formed by general and exceptionless realization rules applied to some other stems.

According to traditional views reflected in such grammars as, *inter alia*, Mathiassen (1996: 93), Ambrazas (ed.) (1997: 284–296), the Lithuanian verbal system is organized around three basic stems from which all other verb forms can be predicted by general rules, viz. the Present stem, the Past stem and the Infinitive stem. An obvious repercussion of this view is the fact that all dictionaries of Lithuanian list the Infinitive, the 3rd person Present and the 3rd person Past as the ‘principal parts’ of verbs, a practice which seems to be fairly easily interpretable in terms of the recent theoretical analyses of ‘principal parts’ systems (cf. Finkel & Stump 2007, 2009; Ackerman *et al.* 2009).

The traditional wisdom of three ‘principal parts’ was challenged by the early proponents of the generative phonological approach to morphology (see e.g. Heeschen 1968, Regier 1977, Bulygina 1977), who tried to postulate abstract representations from which all Lithuanian verbal forms could be constructed without recourse to the three stems; however, none of these proposals proved to be intuitively appealing or superior to the traditional approach in terms of descriptive adequacy. In this paper, I assume that the conception of three stems is basically correct, and will take it as a point of departure for a theoretical investigation of the Lithuanian verbal stems. My main question will be to what extent each of the Lithuanian stems falls under Aronoff’s definition of ‘morphomic stems’ (Aronoff 1994: Ch. 2), viz. morphological entities which ‘can be defined in neither phonological nor semantic nor syntactic terms, but only in terms of forms which are built on’ them, or, in other words, do not correspond to a coherent set of morphosyntactic properties building up a morphological paradigm. I will show that different stems in Lithuanian are morphomic to varying degrees; in particular, the Present stem is closest to what Matthews (1991: 176) and Blevins (2003: 743) call ‘inflectional stems’, i.e. stems which are associated with (or realize) a particular morphosyntactic feature, in this case, ‘present tense’, while the Infinitive stem is maximally close to the prototype of ‘morphome’.

In addition to this more general issue I will discuss problems raised by the special behaviour of the Past Passive Participle, which seems to be based on the Infinitive stem, but whose properties deviate in important respects from those of other forms based on this stem. I will show, moreover, that this problem arises only in a subset of Lithuanian verbal inflectional classes, thus pointing towards a diverging analysis of the paradigmatic structures of different types of verbs.

The paper is structured as follows. In Section 2 I will give an informal outline of the basic structure of the Lithuanian verbal system and the three traditional stems. In Section 3 the inflectional classes of Lithuanian verbs and their relation to stem formation will be presented in more detail. In Section 4 I will discuss the three stems and their morphomic status, passing the boundaries of the strictly inflectional system and showing how stems are employed in derivation. Section 5 will specifically address the Infinitive stem and will present evidence for its relevance in Lithuanian grammar. Section 6 will be devoted to the problem of the Past Passive Participle and its relation with the Infinitive stem. Section 6 presents the conclusions of the discussion.

2 A first look at the Lithuanian verbal system

The inflectional verbal system of Lithuanian is fairly complex, and can be informally divided into the ‘core’ and the ‘periphery’. The latter includes, on the one hand, certain non-productive and rarely used non-finite formations such as the ‘expressive converb’ with the suffix *-te* or the special ‘participle of simultaneous action’ with the suffix *-in(as)* (on the latter, see Gliwa 2003) and, on the other hand, forms employing the ‘non-lexical’ prefixes (i.e. prefixes which do not derive new lexemes, do not carry Aktionsart meanings, and appear to the left of the ‘lexical’ Aktionsart prefixes), such as the Negative *ne-*, the Permissive and the Restrictive (both with *te-*, see Arkadiev 2010), and the Continuative/modal *be-* (see Arkadiev 2011). Since the ‘external’ prefixes are simply concatenated to the already existing forms and do not in any way affect their morphological composition, we can safely exclude them from the discussion. Among the peripheral suffixal formations, the ‘participle’ in *-in(as)* will be touched upon in Section 4, where I will treat it on a par with derivational formations, while the remaining non-productive and sometimes nearly obsolete forms will not be discussed at all. Various periphrastic formations, as well as verbs with the reflexive marker *-si* or with ‘lexical’ (derivational, or Aktionsart) prefixes will also be ignored, being irrelevant for the main problem of this paper.

The ‘core’ part of the Lithuanian verbal system includes four tenses (Present, Simple Past, Past Habitual, Future), three moods (Indicative, Imperative, Subjunctive), two numbers (Singular and Plural;² the number distinction is neutralized in the 3rd person) and three persons. In addition to this, there is a heterogeneous set of non-finite forms including the Infinitive, the Converb, the Gerundive (the ‘participle of necessity’), and a host of Participles distinguishing tense (the four mentioned above) and voice (Active vs. Passive) as well as such adjectival categories as case, number and gender (for an overview of the Lithuanian participles, see Klimas 1987, Wiemer 2000). For the following discussion only the verbal categories of the participles, viz. tense and voice, will be relevant. An exemplary paradigm of the Lithuanian verb *KIRSTI* ‘chop’ is given in table 1.³

From Table 1 it can be seen that the inflectional person-number desinences are largely uniform across the tense-mood paradigms, which is particularly obvious for the 1st and 2nd plural forms (*-me* and *-te*, respectively). Also it can be seen that Habitual Past and Imperative have their dedicated suffixes (*-dav-* and *-k-*, respectively); the same is true for the Future, whose suffix *-s(i)* (phonologically /sʲ/, depalatalized in word-final position) simply fuses with the stem-final consonant in this particular verb (this process is phonologically absolutely regular). These suffixes are uniform across all Lithuanian verbs, and always require the same person-number desinences to follow them. The same is true of the Subjunctive, whose formation is more complex, but again completely uniform for all verbs. It can also be observed, on an informal level, that some forms, viz. Habitual Past, Future, Imperative, Subjunctive, Converb and Gerundive, as well as the Past Passive Participle, all contain the same string *kirs-* (leaving aside such purely automatic phonological readjustments as consonant assimilation according to palatalization or voicing), attested also in the Infinitive,

Table 1. The paradigm of the verb *kirsti* ‘chop’.

		1	2	3	Active Participle ¹	Passive Participle
Present	Sg	<i>kertu</i> /k'ærtu/	<i>kerti</i> /k'er't'i/	<i>kerta</i> /k'ærta/	<i>kertanti</i> /k'ærtan't'i/	<i>kertama</i> /k'ærtama/
	Pl	<i>kertame</i> /k'ærtam'æ/	<i>kertate</i> /k'ærtat'æ/			
Simple Past	Sg	<i>kirtau</i> /k'irtau/	<i>kirtai</i> /k'irtai/	<i>kirto</i> /k'irto:/	<i>kirtusi</i> /k'irtus'i/	<i>kirsta</i> /k'irsta/
	Pl	<i>kirtame</i> /k'irtam'æ/	<i>kirtate</i> /k'irtat'æ/			
Habitual Past	Sg	<i>kirdavau</i> /k'irzdavau/	<i>kirdavai</i> /k'irzdavai/	<i>kirdavo</i> /k'irzdavo:/	<i>kirdavusi</i> /k'irzdavus'i/	—
	Pl	<i>kirdavome</i> /k'irzdavo:m'æ/	<i>kirdavote</i> /k'irzdavo:t'æ/			
Future	Sg	<i>kirsiu</i> /k'ir's'u/	<i>kirsi</i> /k'ir's'i/	<i>kirs</i> /k'irs/	<i>kirsianti</i> /k'ir's'an't'i/	<i>kirsima</i> /k'ir's'ima/
	Pl	<i>kirsime</i> /k'ir's'im'æ/	<i>kirsite</i> /k'ir's'it'æ/			
Imperative	Sg	—	<i>kirsk</i> /k'irsk/	—		
	Pl	<i>kirskime</i> /k'ir's'k'im'æ/	<i>kirskite</i> /k'ir's'k'it'æ/			
Subjunctive	Sg	<i>kirsčiau</i> /k'ir's'č'au/ ²	<i>kirstum</i> /k'irstum/	<i>kirstų</i> /k'irstu:/		
	Pl	<i>kirstumėme</i> /k'irstum'e:m'æ/	<i>kirstumėte</i> /k'irstum'e:t'æ/			

Infinitive	<i>kirsti</i> /k'ir's't'i/	Converb	<i>kirdama</i> /k'irzdama/	Gerundive	<i>kirstina</i> /k'ir's't'ina/
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1 For the Active Participles, the Nominative Singular Feminine form is given, since the Masculine forms are morphologically opaque (though this opacity is of a general nature and is not related to the problem of stems). For the sake of uniformity, the same form is given for the Passive Participles, the Converb, which inflects for number and gender, and the Gerundive, too, though here the Masculine form would fare equally well.

2 Before the affricate /č'/ sibilant /s/ automatically changes into /š'/.

whereas the Present and Simple Past forms do not share this string, and in addition differ from each other in the root vowel. Taking all other Lithuanian verbs (or rather a representative sample thereof) one can easily find that such or similar patterns recur throughout the entire system: the majority of the forms are straightforwardly related to the Infinitive, while the formation of the Present and Simple Past is to a large extent unpredictable from the Infinitive (to give here a single example, the verb *kirsti* /k'ir's't'i/ ‘be angry’, despite being almost homophonous with *kirsti* ‘chop’, forms its Present stem in a different way, cf. 3rd person *kirsta* /k'iršta/). These empirical generalizations have led the traditional Lithuanian grammarians (as reflected e.g. in Ambrazas (ed.) 1997) to describe the verbal system of the language in terms of the three ‘principal parts’: the Infinitive, the 3rd person Present, and the 3rd person (Simple) Past, from which the respective stems can be easily abstracted. These forms, which are provided for all verbs in the dictionaries of Lithuanian, together with the general inflectional rules allow the language user to construct the complete paradigm of

Table 2. Major inflectional classes of Lithuanian verbs.¹

		Infinitive	Present	Past	Gloss
I conjugation	primary	<i>kirs-ti</i> /k'irs't'i/	<i>kert-a</i> /k'ærta/	<i>kirt-o</i> /k'irto:/	'chop'
	mixed	<i>kalb-ė-ti</i> /kal'b'e:t'i/	<i>kalb-a</i> /kalba/	<i>kalb-ė-jo</i> ² /kal'b'e:jo:/	'speak'
	suffixal	<i>dain-uo-ti</i> /dainuot'i/	<i>dain-uo-ja</i> /dainuoja/	<i>dain-av-o</i> /daina:vo:/	'sing'
II conjugation	mixed	<i>myl-ė-ti</i> /m'i:l'e:t'i/	<i>myl-i</i> /m'i:l'i/	<i>myl-ė-jo</i> /m'i:l'e:jo:/	'love'
III conjugation	mixed	<i>rod-y-ti</i> /ro:d'i:t'i/	<i>rod-o</i> /ro:do:/	<i>rod-ė</i> /ro:d'e:/	'show'

1 Syllabic suffixes in 'mixed' and suffixal verbs are boldface; hyphens indicate morpheme boundaries. Note that in the Past tense of *rodyti* 'show' the final *-ė* is the 'thematic vowel' associated with the Past tense, not a syllabic suffix proper, in contrast to the Past tense of *kalbėti* 'speak'.

2 Tense suffixes start with *j* when following a vowel.

each Lithuanian verb (with the exception of the suppletive verb *BŪTI* 'to be', on which see below).

In the next section I will review the traditional classification of Lithuanian verbs, which is also based on the aforementioned three stems.

3 Inflectional classes of Lithuanian verbs

Traditionally, Lithuanian verbs are classified according to two dimensions, which are partly independent of each other and partly interrelated.⁴ The first is the choice of the so-called 'thematic vowel' in the Present tense. Thus three 'conjugations' are distinguished: Conjugation I (*a*-Presents, like *KIRSTI* 'chop' above, cf. 3rd pers. Present *kerta*), Conjugation II (*i*-Presents, cf. *MYLĖTI* /m'i:l'e:t'i/ 'love', 3rd pers. Present *myli* /m'i:l'i/), and Conjugation III (*o*-Presents, cf. *RODYTI* /ro:d'i:t'i/ 'show', 3rd pers. Present *rodo* /ro:do:/), see Table 2 above.

The other dimension is more intricate and has to do with the presence of syllabic suffixes in the different stems. While in order to determine the 'conjugation' of the verb according to the first dimension just the Present subsystem can be considered, the second criterion evaluates the relations between all three stems.⁵ The following three major classes are distinguished according to the second dimension: (i) the so-called PRIMARY verbs, i.e. those where neither of the three stems contains a syllabic suffix; (ii) the SUFFIXAL verbs, which are derived from verbs or words of other parts of speech by syllabic suffixes; and (iii) the so-called MIXED verbs, which have syllabic suffixes (*-o-*, *-ė-*, or *-y-*) in their Infinitive stem and lack it in one or both of the remaining stems^{6,7}. Verbs of the 'mixed' type can be easily distinguished from the other two classes, because their stems have different numbers of syllables. By contrast, 'primary' and suffixal verbs always have equal numbers of syllables in all three stems.

The two major classificatory features of Lithuanian verbs are not entirely independent of one another. As is shown in Table 2, where examples of all types are given, 'primary' and suffixal verbs are attested only in Conjugation I (*a*-Presents), whereas the other two conjugations contain only 'mixed' verbs.

The most important distinction is that between the primary verbs, on the one hand, and all remaining verbs, on the other. This distinction has ramifications in two different domains: that of morphology and that of accent. First, primary verbs are subject to much more complex rules of accent placement than 'mixed' and suffixal verbs taken together; in particular, this can be seen in the participles (see e.g. the discussion of the Past Passive Participle in Section 6). Second, primary verbs show a great variety of inflectional subclasses and even irregularities not found elsewhere, while the conjugation of the mixed and suffixal verbs is largely uniform and predictable. In the following I will review the most important subclasses of the primary verbs.

Primary verbs differ in the ways they form their Present and Past stems. A set of 'elementary' morphological processes employed in stem formation can be singled out; these processes can be combined in the formation of a single stem, and the choice of a particular process for one of the stems may but need not determine the range of choices available for the other stem. The most important of such processes (excluding some purely phonological rules concomitant to those listed below) are the palatalization of the final consonant (in the Past stem it affects the choice of the 'thematic vowel', viz. *-ė* instead of *-o*) attested in both the Present and the Past stems, *n*-infixation⁸, *n*-suffixation, *st*-suffixation, vowel shortening and vowel lowering (attested in the Present stem only), vowel lengthening (attested in the Past stem only), and the alternation between the diphthongs *au* or *uo* in the Present stem and the sequence *av* in the Past stem (this morphophonological process is more general and is attested in the suffixal verbs, too, cf. *DAINUOTI* in Table 2). With the exception of the latter process, which can be described as phonologically conditioned, all other processes listed above are purely morphological; whether a given verb undergoes a particular process in one of its stems has to be listed in its lexical entry. Only a subset of the theoretically possible combinations of these morphological means is actually attested, but this yields about a dozen classes of different size, shown in Table 3.

Of the classes shown in table 3, those with palatalization in both stems (3, 4 and 5) and those showing a nasal infix or *st*-suffix (11, 12 and 13) are to a certain extent productive, containing hundreds of members each and arguably being able to accommodate new members. Other classes are non-productive and much less numerous, the number of their members ranging from a handful (8 and 9) to about a score (2 and 7) or at most half a hundred (1 and 6). Somewhat paradoxically, the type which is the least complex in terms of stem formation, viz. class 1 with all the stems being identical (automatic phonological processes disregarded), is by no means the most frequent.

By contrast to the Present and Past stems, whose composition often involves various lexically determined morphological processes, that of the Infinitive stem is in most cases straightforward, being complicated only by various phonological processes

Table 3. Major subclasses of primary verbs.

Subtype	Infinitive	Present	Simple Past	Gloss
1 (no change)	<i>augti</i> /auk't'i/	<i>auga</i> /auga/	<i>augo</i> /augo:/	'grow'
2 (no palatalization, vowel lowering)	<i>kirsti</i> /k'ir's't'i/	<i>kerta</i> /k'ærtə/	<i>kirto</i> /k'irto:/	'chop'
3 (palatalization in both stems) ¹	<i>daužti</i> /dauš't'i/	<i>daužia</i> /dauž'a/	<i>daužė</i> /dauž'e:/	'break'
4 (palatalization in both stems + vowel lengthening)	<i>karti</i> /kar't'i/	<i>karia</i> /ka:r'a/ ²	<i>korė</i> /ko:r'e:/	'hang'
5 (palatalization in both stems + vowel shortening)	<i>vogti</i> /vo:k't'i/	<i>vagia</i> /va:g'a/	<i>vogė</i> /vo:g'e:/	'steal'
6 (palatalization in the Past stem only)	<i>gulti</i> /gul't'i/	<i>gula</i> /gula/	<i>gulė</i> /gul'e:/	'lie down'
7 (palatalization and vowel lengthening in the Past stem)	<i>ginti</i> /g'i'n't'i/	<i>gina</i> /g'ina/	<i>gynė</i> /g'i:n'e:/	'protect'
8 (<i>n</i> -suffixation in the Present stem)	<i>gauti</i> /gaut'i/	<i>gauna</i> /gauna/	<i>gavo</i> /ga:vo:/	'get, obtain'
9 (<i>n</i> -suffixation in the Present stem + palatalization in the Past stem)	<i>auti</i> /aut'i/	<i>auna</i> /auna/	<i>avė</i> /a:v'e:/	'put on shoes'
10 (<i>n</i> -suffixation in the Present stem + palatalization and vowel lengthening in the Past stem)	<i>šauti</i> /šaut'i/	<i>šauna</i> /šauna/	<i>šovė</i> /šov'e:/	'shoot'
11 (<i>n</i> -infixation)	<i>akti</i> /ak't'i/	<i>anka</i> /anka/	<i>ako</i> /a:ko:/	'become blind'
12 (<i>st</i> -suffixation)	<i>alpti</i> /al'p't'i/	<i>alpsta</i> /alpsta/	<i>alpo</i> /alpo:/	'faint'
13 (<i>n</i> -infixation + <i>st</i> -suffixation)	<i>mažti</i> /maš't'i/	<i>mažta</i> /ma:šta/ ³	<i>mažo</i> /ma:žo:/	'diminish'

1 Note that in contrast to the automatic phonological palatalization before the Infinitive suffix /-t'i/, palatalization in the Present and/or Past stems is a morphologically determined process.

2 The long /a:/ in *karia*, *vagia*, *mažo* etc. is a result of a semi-automatic process discussed in detail in section 5.

3 Derived by regular phonological processes from **ma-n-ž-st-a*.

applying when the Infinitive suffix *-ti* attaches to the consonant-final base.^{9,10} The most important of these processes (leaving aside the aforementioned palatalization and devoicing) are:

- (i) spirantization of dental stops: Past *leido* /l'eido:/ vs. Infinitive *leisti* /l'eis't'i/ 'let'; Past *kirto* /k'irto:/ vs. Infinitive *kirsti* /k'ir's't'i/ 'chop'; this process feeds the next two;
- (ii) deletion of *n* before spirants with compensatory lengthening: Past *brendo* /b'r'əndo:/ vs. Infinitive *bręsti* /b'r'æ:s't'i/ 'ripen';

Table 4. Irregular verbs.

	‘give’	‘put’	‘take’	‘be’
1Sg Present	<i>duodu</i> /duodu/	<i>dedu</i> /d’ædu/	<i>imu</i> /imu/	<i>esu</i> /æsu/
3 Present	<i>duoda</i> /duoda/	<i>deda</i> /d’æ:da/	<i>ima</i> /ima/	<i>yra</i> /i:ra/
Present Passive Participle	<i>duodama</i> /duodama/	<i>dedama</i> /d’ædama/	<i>imama</i> /imama/	<i>esama</i> /æsama/
3 Past	<i>davė</i> /da:v’e:/	<i>dėjo</i> /d’e:jo:/	<i>ėmė</i> /e:m’e:/	<i>buvo</i> /buvo:/
Past Active Participle	<i>davusi</i> /da:vus’i/	<i>dėjusi</i> /d’e:jus’i/	<i>ėmusi</i> /e:mus’i/	<i>buvusi</i> /buvus’i/
Infinitive	<i>duoti</i> /duot’i/	<i>dėti</i> /d’e:t’i/	<i>imti</i> /im’t’i/	<i>būti</i> /bu:t’i/
2Sg Imperative	<i>duok</i> /duok/	<i>dėk</i> /d’e:k/	<i>imk</i> /imk/	<i>būk</i> /bu:k/
1Sg Future	<i>duosiu</i> /duos’u/	<i>dėsiu</i> /d’e:s’u/	<i>imsiu</i> /im’s’u/	<i>būsiu</i> /bu:s’u/
Past Passive Participle	<i>duota</i> /duota/	<i>dėta</i> /d’ɛ:ta/	<i>imta</i> /imta/	<i>būta</i> /bu:ta/

- (iii) deletion of *s* created by rule (i) after spirants: Past *gruzdo* /gruzdo:/ vs. Infinitive *gruzti* /grus’t’i/ ‘smoulder’;
 (iv) metathesis of the ‘spirant + velar’ clusters: Past *bloškė* /blo:š’k’e:/ vs. Infinitive *blokšti* /blo:k’s’t’i/ ‘throw’; Past *mezgė* /m’æ:z’g’e:/ vs. Infinitive *megzti* /m’æk’s’t’i/ ‘tie up’.

In addition to verbs forming their stems via application of rules of considerable generality, there are a few genuinely irregular verbs employing unique or idiosyncratic morphological processes for stem formation. These verbs constitute an important piece of evidence for the relevance of the three stems, since their irregularities clearly follow the division of the paradigm based on the three stems (cf. similar observations about Romance languages in Maiden 2004). The verbs *DUOTI* ‘give’, *DĖTI* ‘put’, *IMTI* ‘take’ and *BŪTI* ‘be’ are particularly irregular. The latter is actually the only genuinely suppletive verb in Lithuanian; its Infinitive stem (*bū-*) and Past stem (*buv-*) show fully regular mutual relationship (in particular, the /u:/ ~ /uv/ alternation depends on the consonantal vs. vocalic first segment of the following morpheme and is automatic with verbs having /u:/), in contrast to the Present stem *es-* and a separate portmanteau form for the 3rd person Present. Cf. Table 4 showing a representative sample of forms of these verbs; forms based on irregular stems are shaded.

Having laid out the most important aspects of the Lithuanian verb morphology relevant for the topic of the paper, in the next section I turn to the evaluation of the role stems play in it.

4 Lithuanian verb stems in inflection and derivation

Let us now consider in more detail the distribution of the three stems found in Lithuanian conjugation across the paradigmatic cells (or, using the term introduced by Bonami & Boyé 2002, their *STEM SPACES*), thus evaluating their relation with respect to the distinction between ‘inflectional’ and ‘morphomic’ stems (Blevins 2003). The

Table 5. The stem spaces of the three Lithuanian verbal stems.

	Present	Simple Past	Past Habitual	Future
Finite forms	<i>Present stem</i>	<i>Past stem</i>	<i>Infinitive stem</i>	<i>Infinitive stem</i>
Active participle	<i>Present stem</i>	<i>Past stem</i>	<i>Infinitive stem</i>	<i>Infinitive stem</i>
Passive participle	<i>Present stem</i>	<i>Infinitive stem</i>	—	<i>Infinitive stem</i>

Imperative	<i>Infinitive stem</i>	Infinitive	<i>Infinitive stem</i>
Subjunctive	<i>Infinitive stem</i>	Converb	<i>Infinitive stem</i>
		Gerundive	<i>Infinitive stem</i>

‘division of paradigmatic labour’ between the three stems is schematically shown in Table 5. The validity of the association of particular cells with particular stems can be checked against Table 1 above, where an exemplary paradigm of a verb clearly formally distinguishing between all the three stems was given (cf. also Table 4 with irregular verbs).

It is evident from Table 5 that the three stems differ in the degree of morphosyntactic coherence of their ‘spaces’. The Present stem appears in all and only those cells which are characterized by the morphosyntactic value <Tense: Present>, thus serving as a good example of an ‘inflectional’ stem, i.e. a stem realizing (or associated with) a certain grammatical meaning. The Past stem, too, appears only in the cells with the value <Tense: Past>, but does not cover ALL such cells, being absent from the Past Passive Participle, which is instead based on the Infinitive stem, in sharp contrast to the situation with the Present and Future Passive Participles, which are always based on the same stem as the respective Active Participles. The situation with the Past Passive Participle is in fact even more complicated, and will be specially dealt with in Section 6. Thus, the Past stem could also be regarded as an ‘inflectional’ stem associated with the value <Tense: Past>, with a special rule precluding its showing up in the Past Passive Participle.

However, if we allow ourselves to pass the boundaries of the core inflectional system as defined in Section 2, we will see that both the Present and the Past stems are employed in derivation. (Cf. Aronoff (1994: 37) on the relevance of the notion ‘stem’ for derivation – in his terms, lexeme formation.)

The Present stem appears, for instance, in deverbal nouns with the suffix *-es(ys)*, which are particularly productive with verbs denoting sound emission, cf. SKAMBESYS ‘sound’ from SKAMBĖTI ‘resound’, Pres. *skamba*, GENESYS ‘pasture’ from GINTI ‘drive’, Pres. *gena*; one of the marginal non-finite forms mentioned above, i.e. the unproductive participle in *-inas*, is also based on the Present stem, cf. *velkinas* ‘dragging’ from VILKTI ‘drag’, Pres. *velka*. The Past stem appears in several types of deverbal formations, the most important of which is the action nominal in *-imas*, which is the most common and productive of the Lithuanian action nominals. Cf. KŪRIMAS ‘creation’ from KURTI ‘create’, Pst. *kūrė*, PARDAVIMAS ‘sale’ from PARDUOTI ‘sell’, Pst. *pardavė*.¹¹ Since there is no meaningful semantic relation between these deverbal formations and the relevant verbal morphosyntactic features (Present resp. Past), we have to consider them as

'parasitic formations' (cf. Aronoff 1994: 31–32) taking the stem as a mere piece of form not associated with any meaning besides the lexical meaning of the verb.¹²

Finally, the Infinitive stem looks like an elsewhere option which appears in those cells of the paradigm which do not require either the Present or the Past stem. Since this set of paradigmatic cells cannot be defined in terms of any particular morphosyntactic feature or a coherent set thereof, the Infinitive stem can be regarded as clearly 'morphomic'.¹³ However, in order to postulate a morphomic stem it is not sufficient just to show that it appears in a randomly defined set of paradigmatic cells, it must also be shown that reference to this stem is necessary for an adequate characterization of the inflectional system. Does the Infinitive stem really play a role in the Lithuanian verbal system, or rather it is possible to dispense with it as an epiphenomenon of particular rules of formation of particular verbal forms? In the following section I will give evidence in favour of postulating the Infinitive stem as a valid morphological entity existing in the Lithuanian verbal system on a par with the other two stems.

5 The status of the Infinitive stem

The most robust evidence for the Infinitive stem comes from the domain of stress and stress-related vowel alternations. Lithuanian is a pitch-accent language with mobile accent (see, *inter alia*, Young 1991, Blevins 1993, Dogil 1999). Long syllables (including those formed by diphthongs and combinations of vowels with sonorants, such as /ir/, /an/ etc.) can bear two types of accent: ACUTE (with the first component of the long syllable nucleus being more prominent than the second, marked as *ó*, *ár*) and CIRCUMFLEX (with the second component of the nucleus being more prominent, marked as *ô*, *âr*).¹⁴ In short syllables the pitch distinction is neutralized and stress is marked by the grave sign, as in *ì*. The distinction between the types of accent is relevant, *inter alia*, for the stress placement in the 1Sg and 2Sg of Present and Simple Past: in these forms, the stress shifts to the desinence if in the other forms of the same subparadigm it falls on the stem-final syllable AND if that syllable is either short or bears circumflex accent (the so-called de Saussure's Law, see Blevins (1993: 249–250)). This is shown in Table 6, where the Present tense of the verb GINTI 'protect' has a short syllable and thus shows stress shift while the Past tense of the same verb has a long syllable with the acute accent and shows no stress shift, and by the verb JAUSTI 'feel', where both Present and Past have circumflexed long syllables and, consequently, mobile stress.

This rule of stress shift from short and circumflexed long syllables is a very general prosodic law in Lithuanian, operative also in the domain of nominal inflection and derivation, see Blevins (1993: 249–250). In the Present and Past tenses, the application of this rule is sensitive only to the prosodic quality of the stem-final syllable, and disregards such otherwise important features as inflection class and even morphological constituency. For instance, stress shifts to the desinence 'across' the suffix *-st* in the relevant subclass of the primary verbs, cf. the following Present forms of the verb ALPTI 'faint': 3rd pers. *aĩp-st-a* vs. 1Sg *alp-st-ù*, 2Sg *alp-st-ì*. Neither is stress shift restricted

Table 6. Stress mobility in the Present and Past tenses.

	GINTI 'protect'		JAUSTI 'feel'	
	Present	Simple Past	Present	Simple Past
1Sg	<i>ginù/g'inù/</i>	<i>gýniau /gí:n'au/</i>	<i>jaučù /jauč'ù/</i>	<i>jaučiaù /jauč'aù/</i>
2Sg	<i>ginì/g'inì/</i>	<i>gýnei/g'i:n'ei/</i>	<i>jautì/jaut'i/</i>	<i>jautėĩ/jaut'ėĩ/</i>
3	<i>gina/g'ina/</i>	<i>gýnė/g'i:n'e:/</i>	<i>jaučia/jauč'a/</i>	<i>jautė/jaut'e:/</i>

Table 7. Lack of stress mobility in the Future and the Subjunctive.

	TIKTI 'be suitable'		JAUSTI 'feel'	
	Future	Subjunctive	Future	Subjunctive
1Sg	<i>tiksiu (*tiksiù)</i>	<i>tikciau (*tikciaù)</i>	<i>jaũsiu (*jausiu)</i>	<i>jaũšciau (*jaušciaũ)</i>
2Sg	<i>tiksi (*tiksi)</i>	<i>tiktum (*tiktuĩ)</i>	<i>jaũsi (*jausi)</i>	<i>jaũstum (*jaustuĩ)</i>
3	<i>tiks</i>	<i>tiktų</i>	<i>jaũs</i>	<i>jaũstų</i>

to the primary verbs: stress may move from an appropriate suffix to the desinence in suffixal verbs, cf. the Present tense of GYVĖNTI 'live' (3rd pers. *gyv-ẽn-a* vs. 1Sg *gyv-en-ù*, 2Sg *gyv-en-ì*) and the Past tense of DAINÚOTI 'sing' (3rd pers. *dain-ãv-o* vs. 1Sg *dain-av-aũ*, 2Sg *dain-av-aĩ*).

Surprisingly, however, no comparable stress mobility is observed in the Future and Subjunctive subparadigms, which are based on the Infinitive stem. In these forms, the stress never shifts to the desinence in the 1Sg and 2Sg even when the necessary prosodic conditions are met, cf. Table 7 with the verbs TIKTI 'be suitable, agree' (short syllable) and JAUSTI 'feel' (circumflexed long syllable).

What we see from the data in Tables 6 and 7 is that the finite forms based on the Infinitive stem retain (or inherit) the position and quality¹⁵ of the stress of the Infinitive form itself.¹⁶ This is true also for the other forms, such as the Imperative, the Habitual Past, the Converb and the Gerundive, though their evidence is less relevant since in those forms the prosodic conditions for the stress shift attested in the Present and Simple Past subparadigms do not normally arise.

Another piece of evidence for the morphological autonomy of the Infinitive stem comes from stress-conditioned vocalic alternations. In Lithuanian the short low vowels *a* /a/ and *e* /æ/ are usually lengthened in stressed non-final syllables. (The stress on such derived long syllables can be, somewhat simplifying, identified with the circumflex; see Blevins (1993: 246)). This is observable, *inter alia*, again in the Present and Simple Past subparadigms, cf. Table 8 showing verbs KASTI 'dig' and MESTI 'throw'.

This sort of stress-conditioned vowel lengthening is, however, not purely phonological, since there are certain morphologically defined environments where the low vowel is never lengthened despite being in a stressed non-final syllable (cf. Kenstowicz 1972). Among the forms where short /a/ and /æ/ are not lengthened is the Infinitive, cf. *kà/a/sti*, *mè/æ/sti* (instead of ill-formed **kã/a/sti*, **mẽ/æ/sti*¹⁷). What is most important for the current discussion, ALL the forms based on the

Table 8. Vowel lengthening in stressed vowels.

	KĀSTI 'dig'		MĒSTI 'throw'	
	Present	Simple Past	Present	Simple Past
1Sg	<i>ka/a/sù</i>	<i>ka/a/siaũ</i>	<i>me/æ/tù</i>	<i>me/æ/čiaũ</i>
2Sg	<i>ka/a/sì</i>	<i>ka/a/seĩ</i>	<i>me/æ/tì</i>	<i>me/æ/teĩ</i>
3	<i>kã/a:/sa</i>	<i>kã/a:/sẽ</i>	<i>mẽ/æ:/ta</i>	<i>mẽ/æ:/tẽ</i>

Table 9. Lack of low vowel lengthening in the forms based on the Infinitive.

		KĀSTI 'dig'	MĒSTI 'throw'
Future	1Sg	<i>kàsiu /kàs'u/</i>	<i>mèsiu /mæs'u/</i>
	2Pl	<i>kàsite</i>	<i>mèsite</i>
Subjunctive	1Sg	<i>kàsčiau</i>	<i>mèsčiau</i>
	3	<i>kàstų</i>	<i>mèstų</i>
Past Habitual	3	<i>kàsdao</i>	<i>mèsdao</i>
Imperative	2Sg	<i>kàsk</i>	<i>mèsk</i>
Converb		<i>kàsdamas</i>	<i>mèsdamas</i>
Gerundive		<i>kàstinas</i>	<i>mèstinas</i>

Infinitive (except for the Past Passive Participle, see Section 6) share this lack of vowel lengthening under stress: though according to the generalization made above, stress invariably falls on the stem vowel (in our case /a/ and /æ/) in the forms based on the Infinitive, the stem vowel nevertheless remains short. Table 9 gives the relevant forms of the two verbs from Table 8.

Thus both 'stress immobilization' and the absence of vowel lengthening in the forms of Lithuanian verbs not based on the Present or the Past stems speak in favour of the treatment of these forms as based on the Infinitive. The formulation 'based on the Infinitive' can be made precise in the following way: the suffixes of the Past Habitual (-*dav-*), Future (-*s-*), Subjunctive (-*č-*, -*tu*, -*tum(ė)-*), Imperative (-*k-*), Converb (-*dam-*) and Gerundive (-*tin-*) replace the suffix of the Infinitive (-*ti*), the prosodic features of the Infinitive (position of the stress and vowel length) remaining intact. Some phonological 'readjustment rules' may apply to the resulting string if it happens to violate any phonotactic well-formedness conditions, e.g. in the Future the -*s-* suffix coalesces with the stem-final spirant (cf. the forms in Table 9 and NEŠTI 'carry': 1Sg Future *nešiu* /n'æš'u/), in the Imperative the -*k-* suffix coalesces with the stem final velar (cf. BĖGTI 'run': Imperative *bėk* /b'e:k/). An alternative account dismissing the Infinitive stem and treating all these forms as simply created by some very general realization rules applying directly to some kind of underlying lexical representation of the verb (e.g. to the 'root'), would run into serious difficulties trying to account for the two groups of facts discussed above.

To conclude this section, the Infinitive stem can be regarded as a legitimate entity in the morphological system of Lithuanian on a par with the Present and Past stems, because it allows one to make an important generalization about a large set of

morphosyntactically and semantically heterogeneous forms sharing non-trivial prosodic and morphophonological characteristics.

6 The status of the Past Passive Participle

As has been already mentioned, the Lithuanian Past Passive Participle is exceptional among the ‘core’ participles in that it is based on the Infinitive stem instead of the Past stem. This is particularly evident with the III conjugation verbs like RAŠYTI ‘write’ whose Past stem is one syllable shorter than the Infinitive stem, cf. Simple Past *rašė* ‘wrote’ vs. Past Passive Participle *rašytas* ‘written’. For all verbs but the primary verbs all that is necessary to know about the formation of the Past Passive Participle is that it is formed by the suffix *-t*+regular adjectival endings, which replace the Infinitive suffix *-ti*. In other words, with non-primary verbs the formation rule of the Past Passive Participle does not differ from the formation rules of the other forms based on the Infinitive stem. Notably, the Past Passive Participles of the ‘mixed’ and suffixal verbs always share the stress placement with the Infinitive, cf. RAŠYTI ‘write’ ~ *rašytas* ‘written’ vs. IRÓDYTI ‘prove’ ~ *iródytas* ‘proven’. However, the situation in the class of primary verbs is substantially different.

Superficially, Past Passive Participles of primary verbs do not differ from their counterparts formed from other morphological types of verbs, cf. UŽDIRBTI ‘earn’ ~ *uždirbtas* ‘earned’ or APGAUTI ‘deceive’ ~ *apgautas* ‘deceived’. However, Past Passive Participles of primary verbs do not share the prosodic characteristics exhibited by the other forms based on the Infinitive stem, which were discussed in Section 5. Past Passive Participles based on verbs with stem vowels /æ/ *e* and /a/ *a* show lengthening of these vowels under stress, in sharp contrast to the Infinitive and all other Infinitive-based forms, cf. *kà/a/sti* ‘dig’ vs. *kâ/a:/stas* ‘dug’, *mè/æ/sti* ‘throw’ vs. *mê/æ:/stas* ‘thrown’.¹⁸ Besides that, Past Passive Participles of primary verbs show accentual mobility which is characteristic neither of the majority of the Infinitive-based forms¹⁹ nor of the Past Passive Participles of other kinds of verbs, cf. Nominative Singular Masculine *kâstas* vs. Feminine *kastà* (the accentuation of the Past Passive Participle of primary verbs actually follows the regular model of adjectives). Moreover, in the prefixed verbs, if the stem syllable is short or bears circumflex accent (cf. the conditions for the stress shift to the desinence in the Present and Past forms), the accent is retracted from the stem to the prefix, which never happens in other Infinitive-based forms, cf. Infinitive *atmèsti* ‘throw away’, Subjunctive 1Sg *atmèsčiau* vs. Past Passive Participle *àtmestas* ‘thrown away’, Infinitive *nukir̃pti* ‘cut off’, Imperative *nukir̃pk* vs. Past Passive Participle *nùkirptas* ‘cut off’.

This suggests that, despite appearances, the Past Passive Participle of the primary verbs does not belong to the set of the forms based on the Infinitive, since it is an exception to both generalizations about these forms made in the previous section.

How can both the similarities and differences between the Infinitive and the Past Passive Participle observed in the domain of primary verbs be accounted for? On the one hand, as an anonymous reviewer rightly points out, both the vowel lengthening and the stress mobility of the Past Passive Participle of primary verbs can be explained

under the assumption that these forms, being based on the infinitive stem, are in fact recategorized as adjectives and demonstrate normal morphological and morphophonological properties of this word class. This analysis, however, does not account for the fact that with the non-primary verbs the Past Passive Participle arguably shows no visible morphophonological traces of recategorization into an adjective, as well as for the fact that this form may serve as a basis for clearly deverbal lexeme-formation.

Indeed, in addition to the inflectional Past Passive Participle productively formed from every single Lithuanian verb,²⁰ there exists a number of derivational formations involving suffixes with the initial *t* and showing phonological and prosodic features suggesting that they are not based on the Infinitive stem. Consider for instance deverbal nouns with the suffix *-tuv-*, e.g. *DEGTŪVAS* ‘burner’ from *DĖGTI* ‘burn’, *VYTŪVAI* ‘reel’ from *VÝTI* ‘drive, twist’. The *t* of this suffix can be compared both to that of the Infinitive and of the Past Passive Participle; however, the accentuation facts suggest that it is the latter rather than the former which can be eligible as the base of this deverbal noun. Similar observations are valid with respect to such deverbal nouns as *MIRTIS* ‘death’ from *MIRTI* ‘die’, *ATEITIS* ‘future’ from *ATEITI* ‘come’, which all show accentual mobility characteristic of the Past Passive Participle and not of the Infinitive. None of these word-formation processes can apply to genuine Lithuanian adjectives. Therefore, I conclude that the putative adjectival properties of the Past Passive Participle cannot alone account for its morphophonological behaviour.

It seems to me that the most natural solution would be to treat the Past Passive Participle of primary verbs not as based on the Infinitive stem but rather as constituting its own stem on a par with the other three stems.²¹ The similarities between the Past Passive Participle and the Infinitive are easily reducible to the phonological near identity of their exponents (*-t-* and *-ti*, respectively), which means that they always trigger the same phonological ‘readjustment’ rules. That in the ‘mixed’ and suffixal verbs the two forms actually do not show any non-trivial differences is also not a problem, since nothing precludes postulating for independently established inflectional classes either stem syncretism or a different rule of formation of the Past Passive Participle (note that, as has been mentioned before, primary verbs differ from the other two morphological types of verbs in a number of respects, such as rules of stress assignment, types of formation of the Present tense, etc.; thus there would be nothing surprising in that they differ also in the rule of formation of the Past Passive Participle).

Thus, though the Past Passive Participle does not, at least synchronically, serve as a base of a non-singleton set of inflectional verbal forms, its stem is employed in deverbal derivation, like the other stems argued for in this paper. In fact, the evidence that the Infinitive stem also serves as a basis of productive word formation is scarce. It could be argued that the agent nouns with the suffix *-toj-* formed mainly from the non-primary verbs, cf. *MÓKYTI* ‘teach’ ~ *MÓKYTOJAS* ‘teacher’, are based on the Infinitive, but since with these verbs the stems of the Infinitive and of the Past Passive Participle coincide, we cannot tell on which of the two forms the agent nouns are actually based.²²

Table 10. The stem spaces in Lithuanian conjugation (revised).

Present	Past	Infinitive	Past Passive Participle
Present finite forms	Past finite forms	Infinitive	Past Passive Participle
Present Active Participle	Past Active Participle	Past Habitual Future Subjunctive Imperative	
Present Passive Participle		Converb Gerundive	
Participle of simultaneity in <i>-in(as)</i> Deverbal nouns in <i>-es(y)s</i>	Action nominal in <i>-im(as)</i>		Deverbal nouns in <i>-tuv-</i> Deverbal nouns in <i>-t(is)</i>
		Agent nouns in <i>-toj(as)</i>	

7 Discussion and conclusions

Having established the system of verbal stems in Lithuanian in a more rigorous fashion, it is possible to revise the traditional conception presented in sections 3 and 4, as well as the ‘stem spaces’ shown in Table 5. The revised picture, including certain facts from derivational morphology, is given in Table 10. In the table, the derivational forms are given below the double line; in the merged cells are given deverbal nouns derived from non-primary verbs only, which show syncretism of the Infinitive and the Past Passive Participle stems.

If we now ask the question about the ‘morphomic’ status of each of the four stems, we clearly see that this strongly depends on whether one takes derivational morphology into consideration or not. When we limit ourselves to the core inflectional system, we see that the Present, Past, and Past Passive Participle stems realize the respective morphosyntactic features or bundles thereof, whereas the Infinitive stem is morphomic for the simple reason that it shows up in all the rest of the paradigm. However, if various derivational formations are taken into account, it turns out that all stems are more or less equally morphomic, since the choice of a particular stem as a basis for a certain deverbal nominal is not, at least synchronically, motivated by the morphosyntactic feature associated with this stem in the verbal paradigm.

Another notable feature of the system of verbal stems found in Lithuanian is its relation to the system of inflectional classes. The major distinction with many repercussions in inflection and derivation, i.e. that between ‘primary’, ‘mixed’ and ‘suffixal’ verbs is actually defined in terms of stems and the relations between them. Note that special prosodic and phonological effects allowing to distinguish between the Infinitive stem and the Past Passive Participle stem are found in the primary verbs only, the other verbs showing syncretism of these two stems. Actually, stem syncretism

can be observed in other subclasses of verbs, too, for instance, certain primary and suffixal verbs have identical Present and Past stems. However, it seems that only the syncretism between the Infinitive and the Past Passive Participle stems in the non-primary verbs is really significant for the description of the Lithuanian verbal system, because this syncretism should be stipulated by a special rule, not falling out as a mere consequence of application or non-application of particular rules of stem-formation.

Finally, the discussion of the Infinitive stem in Section 5 has implications for a 'derivational' account of Lithuanian verb inflection. Though in the present paper I have assumed a mostly surface-based output-output model of phonology, its findings can be actually translated into a stratal model where different operations such as stem formation, stress assignment etc. apply at different levels of representation (cf. e.g. Kiparsky 1982). It has been shown that all the forms based on the Infinitive are exceptions to some fairly general phonological and prosodic rules of Lithuanian (stress shift from short and circumflexed syllables and low vowel lengthening under stress) which normally apply 'across the board' paying attention only to the phonological makeup of the word but not to its morphosyntactic features nor its possible internal constituency; notably, these rules operate on the forms based on the other verbal stems. This suggests that in a stratal account of Lithuanian verbal morphology the rules of stress shift and low vowel lengthening have to be ordered AFTER the rules which form the Present, Past and Past Passive Participle stems, but BEFORE the rules forming the Infinitive stem. Such an analysis of Lithuanian verbal inflection together with its possible implications is, however, a task for further research.

To conclude, in this paper I have reviewed the traditional conception postulating three stems in the Lithuanian verbal system, viz. the Present stem, the (Simple) Past stem, and the Infinitive stem. It has been shown that though the three stems are indeed sufficient for an adequate characterization of two large inflectional types, viz. the 'mixed' and the 'suffixal' verbs, a rigorous description of the most complex inflectional type, the 'primary' verbs, requires making a distinction between the Infinitive stem and the Past Passive Participle stem. Evidence from prosody and morphophonology was presented proving that these two stems are not reducible either to each other or to any of the other two stems. The role of each of the stems in derivational morphology was also assessed. It suggests that all Lithuanian verbal stems are 'morphomic' in terms of Aronoff (1994), despite the fact that only the Infinitive stem is not associated with a coherent set of morphosyntactic features in the inflectional system. More generally, I hope that the Lithuanian data presented and analysed in this paper constitutes a valuable and non-trivial addendum to the database of contemporary morphological theory.

Notes

- 1 This research has been funded by the Department of History and Philology of the Russian Academy of Sciences. I am grateful to Farrell Ackermann, Mark Aronoff, Jim Blevins, Olivier Bonami, Gilles Boyé, and Jurgis Pakerys for the discussion of my talk at the workshop 'Stems in inflection and derivation', Budapest, May 2010, on which this paper is

- based, and to Aleksey Andronov, Olivier Bonami, Anna Daugaviete and two anonymous reviewers for their critical comments and useful suggestions. All faults and shortcomings are mine.
- 2 The Dual number still survives in certain dialects and can be used in archaic speech. Its inclusion would not have in any way altered the basic tenets of my analysis.
 - 3 I refrain from segmenting the forms given in the table, because even for clearly affixal exponents morphological boundaries are not entirely clear, and especially since the paradigm of this particular verb involves a number of non-affixal morphological means such as vocalic and consonantal alternations. In addition to the traditional orthography, phonological transcription (disregarding stress, on which see below) is provided. Some notes on the orthography are in order here: *ai*, *au*, *ei*, *ie* and *uo* are diphthongs and thus contain just one syllable; *y* is a long /i:/, *ė* is a long /e:/; *į*, *u*, *a*, *ę* /æ:/ are long counterparts of *i*, *u*, *a*, *e* /æ/, respectively. When written between a consonant and a back vowel, *i* indicates palatalization of the consonant, thus *kia* is /k'a/. Before front vowels consonants and consonant clusters are always palatalized. Dental palatalized /t'/, /d'/ change into affricates /č'/, /dž'/ before back vowels.
 - 4 For an attempt of a non-traditional approach to Lithuanian verbal system, see Dressler *et al.* (2006); their classification, unfortunately, is not entirely adequate, in particular because it does not pay due attention to the distinction between more automatic (phonological) segmental and prosodic processes and the unpredictable (purely morphological) realization rules.
 - 5 Note that in this discussion neither the 'thematic vowels' found in the Present and Simple Past forms nor the Infinitive suffix *-ti* will be treated as belonging to the respective stems themselves; though this decision can be considered arbitrary, it somewhat facilitates the description of the relations between different stems.
 - 6 To be more precise, 'mixed' verbs never have vocalic suffixes in the Present stem; suffixes *-ė-* and *-o-* are always present also in the Past stem, while the suffix *-y-* never appears in the Past stem.
 - 7 It is necessary to note, however, that the presence or absence of such suffixes is not equivalent to the verb being simplex or derived; a large number of 'primary' verbs are in fact denominal or deverbal formations, while many verbs with suffixes in all or some stems are at least synchronically underived. I thank Olivier Bonami for raising this issue.
 - 8 It must be conjectured that what historically was *n*-infixation is synchronically realized by vowel lengthening before all non-stops (cf. BALTI /bal't'i/ 'become white' ~ Present *bala* /ba:la/), but this kind of vowel lengthening is partly different from that attested in the Past stem. In particular, in the Past stem low vowels *e* /æ/ and *a* are lengthened to *ė* /e:/ and *o* /o:/, respectively (cf. Present 1Sg *geriu* /g'ær'u/ 'I drink' ~ Past 1Sg *gėriau* /g'e:r'au/ 'I drank'; *kariu* /kar'u/ 'I am hanging (it)' ~ *koriau* /ko:r'au/ 'I hung (it)'), while in the Present stem they are lengthened to *ę* /æ:/ and *a* /a:/, respectively. There are also other important considerations in favour of grouping together verbs showing infixation and vowel lengthening in the Present stem, i.e. those pertaining to their lexical semantics, see Stang (1942: 132–133). Anyway, for the purposes of this article the exact treatment of these verbs is irrelevant.
 - 9 In this paper, I try to avoid using the term 'root' and making any claims about the precise nature of the entities to which morphological processes of stem formation apply. The latter are treated not as inherently directional, taking some 'deep' abstract entity as their basis and deriving a 'surface' entity, but rather as a means of describing the observable differences

- between stems without necessarily claiming that these differences can or should be reduced to some uniform underlying representation.
- 10 Since in most cases the Infinitive stem is formally similar to the Past stem *modulo* the phonological changes caused by the attachment of the Infinitive suffix *-ti*, it is safe to take the Past stem (and not the Present stem) as the starting point in the description of the Infinitive. Note, however, that this move should be regarded as a purely descriptive device with no important theoretical consequences; see also fn. 21.
 - 11 The action nominals with the suffix *-imas* are formed from verbs of all conjugations except for those of the III conjugation (*o*-Present) with the Infinitive in *-yti*, which employ the suffix *-ymas*, cf. *rašymas* ‘writing’ from *rašyti* ‘write’, instead of **rašimas*. It would be tempting to treat the action nominals from the III conjugation verbs as based on the Infinitive stem, but the fact that they inherit the stress of the Past forms and not of the Infinitive, suggests otherwise.
 - 12 It could be argued that the unproductive participle in *-imas*, which usually denotes events simultaneous to those expressed by the main verb, inherits the Present tense feature ([+simultaneity]) from its stem. If this is true, then the fact that the Converb in *-damas*, which also expresses simultaneity, is based on the Infinitive stem rather than on the Present stem, must be handled by an exceptional rule similar to that postulated for the Past Passive Participle, also based on the ‘wrong’ stem.
 - 13 An anonymous reviewer suggests that the Infinitive stem, which appears in those cells of the paradigm that do not belong to the ‘spaces’ of other stems, could be regarded as ‘the default case, and thus is not really morphomic’. This argument, in my view, has little validity, since the notion of ‘morphome’ as defined by Aronoff (1994) does not presuppose that the relevant morphological entity is necessarily positively specified in some way (in fact, such a specification could invalidate the status of the stem as morphomic). Indeed, the Latin ‘third stem’, which Aronoff (1994: Ch. 2) adduces as a paradigm case of a morphome, could be equally well treated as an ‘elsewhere option’.
 - 14 The actual prosodic characterization and status of different accents in varieties of contemporary spoken Lithuanian are not unproblematic, and in particular are not amenable to a description in terms of the distribution of high vs. low tone, *contra* Blevins (1993), cf. Daugaviete 2011. In particular, the realization of the two accents is not uniform with diphthongs and long monophthongs (cf. e.g. Girdenis 2003: 268–277, 332–334). However, these details are largely irrelevant for my discussion. It is even possible to regard the acute and circumflex as mere diacritics devoid of coherent phonetic value but necessary for a uniform characterization of the rules of stress placement in inflection and derivation.
 - 15 The only exception to this is the 3rd person Future form (see Kenstowicz 1970), where the acute accent of the final syllable always changes to the circumflex irrespective of the inflectional class, cf. *ĀUGTI* ‘grow’ vs. *ai̯gs* ‘(it) will grow’ (a primary verb), *KALBĒTI* ‘speak’ vs. *kalbēs* ‘(he/she) will speak’ (a mixed verb), and *DAINUOTI* ‘sing’ vs. *dainuōs* ‘(he/she) will sing’ (a suffixal verb). In addition to that, in a subclass of primary verbs the long vowels *y* /i:/ and *ū* /u:/ of the Infinitive are shortened in the 3rd person Future, cf. *BŪTI* ‘be’, *būsiu* /bú:s’u/ ‘I will be’ vs. *būs* /būs/ ‘he/she/it/they will be’.
 - 16 It should be noted that ‘stress immobilization’ is in fact an innovation obviously driven by analogy; both in Old Lithuanian texts and in some dialects stress shift in 1st and 2nd person singular of Future and Subjunctive forms is attested (Zinkevičius 1980: 99).
 - 17 Such forms with low vowel lengthening in the Infinitive are attested in some dialects (Zinkevičius 1980: 99), but not in the standard language.

- 18 According to Ambrasas (ed.) (1997: 343), in colloquial speech the lengthening is often not observed, which means that there the Past Passive Participle of the primary verbs is assimilated to the other forms based on the Infinitive stem.
- 19 Among the Infinitive-based forms, accentual mobility is exhibited by the Converb, cf. Masculine Singular *nėšdamas* ‘carrying’ vs. Feminine Singular *nešdamà* from *NĖŠTI* ‘carry’. However, in the Converb stress never shifts to the prefix, in contrast to the Past Passive Participle (see below), cf. the relevant forms of the verb *ATNĖŠTI* ‘bring’: Converb *atnėšdamas* ‘bringing’ vs. Past Passive Participle *àtnėštas* ‘brought’.
- 20 Passive Participles in Lithuanian are not restricted to transitive verbs; Passive Participles of all kinds based on intransitive verbs are productively used in several types of ‘impersonal passive’ constructions, see Timberlake 1982.
- 21 One might wonder why one should not simply assume that the Past Passive Participle of primary verbs is in fact based on the Past stem, all the differences between this form and the other Simple Past forms being due to the phonological ‘readjustment rules’ triggered by the consonant-initial suffix. This solution would be feasible but for one reason: it cannot account for the short vowels in the Past Passive Participles of verbs with the vowel lengthening in the Simple Past, such as *KARTI* /kar’t’i/ ‘hang’ (Simple Past *korė* /ko:r’e:/, Past Passive Participle *kartas* /kartas/) or *GERTI* /g’ær’t’i/ ‘drink’ (Simple Past *gėrė* /g’e:r’e:/, Past Passive Participle *gertas* /g’ærtas/), as well as for the irregular verb *IMTI* /im’t’i/ ‘take’ (Simple Past *ėmė* /e:m’e:/, Past Passive Participle *imtas* /imtas/). The problem lies in the fact that the ban on extra-heavy syllables of the CV:R kind is no more a synchronic phonological rule in Lithuanian; the language perfectly tolerates such Infinitives and corresponding Past Passive Participles as *tolti* /to:l’t’i/, *toltas* /to:ltas/ ‘move away’ or *stėrti* /s’t’e:r’t’i/, *stėrtas* /s’t’e:rtas/ ‘grow numb’. This means that from the synchronic point of view such Simple Past forms as *korė*, *gėrė* etc. indeed show vowel lengthening with respect to the other stems, which in turn implies that an account of the Past Passive Participle as based on the Past stem leaves unexplained the shortening of the root vowel (and in the case of *IMTI* also the change in vowel quality; if the Past Passive Participle were based on the Past stem and even if we allowed for a readjustment rule of vowel shortening applying to a subset of verbs before the suffix *-t*, the relevant form of this verb would have looked like **emtas* /æmtas/). Thus, the analysis whereby the Past Passive Participle constitutes a separate stem fares better for this class of verbs, since it requires no stipulations concerning the quality and length of the root vowel at all – it is the Simple Past stem which needs a separate rule of vowel lengthening, whereas the short vowel of the other stems is simply the default option.
- 22 However, the stress in the only attested lexeme with this suffix based on a primary verb, viz. *ARTÓJAS* ‘ploughman’ (~ *ÁRTI* ‘plough’), may point to the Past Passive Participle as the base of this derivational process.

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