

# Some Notes on the 3rd Person Future Forms in Lithuanian

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*The Lengthened Grade in Indo-European*, Leiden University July 30th, 2013

## 1 Introduction

### 1.1 Monosyllabic Circumflexion

- A phenomenon in which long vowels in monosyllabic words exhibit a circumflex tone instead of the expected acute (in the Balto-Slavic languages ~ Lithuanian; Hanssen (1885: 616), Zinkevičius (1980–81: II, 161ff.), Rasmussen (1999: 481ff.));
  - pronominal forms (*tiẽ* [*< \*toi* pl.nom. ~ *gerieji* ‘the good (pl.nom)’], *túos* [*< \*tons* pl.acc. ~ *gerúosius* ‘id. (pl.acc.)’; Zinkevičius 1980–81: II, 162])
  - former root nouns (Latv. *gùovs* ‘cow’ [*< \*g<sup>w</sup> ó<sup>u</sup>s* ← acc.sg. *\*g<sup>w</sup> ó<sup>m</sup>* (Svensson 2011: 20)]; *šuõ* ‘dog’ [*< \*k<sup>u</sup>ó*] Hanssen 1885)
  - prepositions/adverbs (*nuõ* ‘from’ ~ *núotaka* ‘bride’ [Zinkevičius: id.]; *vėl* ‘again’ ~ Latv. *vėl* ‘still, yet’ [*< PB \*vėli*; Būga 1924: 95]; *võs* ‘hardly’ ~ OCS *jedъva*, SCr *jèdva*, Čak. *jedvã*; PBS *\*edvãs*, [my identification])
  - **3rd person future forms of monosyllabic stems**

### 1.2 MC in the 3rd Person Future Forms

- the infinitive stem + -s- + personal ending (-Ø)
- many monosyllabic acute stems show the Monosyllabic Circumflexion:  
*šõks* – *šókti* ‘to jump;’ *vỹs* – *výti* ‘to drive,’ etc.

### 1.3 Irregularity among the 3rd p. Future Forms of Monosyllabic Stems

Whereas the majority of the 3rd p. future forms of monosyllabic stems follow the metatony rule (*vỹs* ‘will drive,’ *lỹs* ‘will become meager;’ *šõks* ‘will jump,’ *vẽs* ‘will get cool’), quite a few exhibit the shortening by Leskien’s Law (*bùs* ‘will

be,’ *lis* ‘will rain,’ *rìs* ‘will swallow,’ *pùs* ‘will rot,’ etc.).<sup>1</sup>

For such exceptions:

- Zinkevičius (1980–81: II, 161ff.): they can be the result of the analogy from their polysyllabic variants, e.g. *bùs* from *nebùs* ‘won’t be’ (< \**nebùs*). However, every monosyllabic verb has polysyllabic variants at least in the negative forms.
- Kazlauskas (1968: 104<sup>1</sup>): the shortening is regular for monosyllabic 3rd p. future forms; some of them remain long due to the expected homonymic clash (*vỹs* ‘will droop,’ *siũs* ‘will sew’ vs. *vìs* – *vìsti* ‘to fall apart,’ *siùs* – *siùsti* ‘to rage’). However, why do *gnỹbs* – *gnýbti* ‘to pinch,’ *žnỹbs* – *žnýbti* ‘to tweak,’ etc. remain long (~~*gnipti*~~ or ~~*žnipti*~~); why is *lis* – *lýti* alone shortened and not *lỹs* – *lýsti* ‘to become thin’?

In this paper, I will try to seek for a more convincing solution by examining the data provided by Senn (1966) and Petit (2002).

## 2 Senn’s (1966: 231) List

Senn (1966: 231) provides a list of the verbs of monosyllabic acute stems which exhibit Leskien’s shortening. In his view, Leskien’s shortening is regular with *ý* and *ú* in the final syllable (including monosyllables) of the 3rd person future forms, but otherwise metatony is regular. Therefore, he regards the metatony of *ý* and *ú* in the final syllable of some 3rd person future forms as “counterexamples.”

(1) Leskien’s shortening instead of metatony (regular for Senn)

- a. *dýgti* – *dìgs* ‘to spring, shoot’ (note: Petit (2002) gives *dỹgs*)
- b. *gýti* – *gìs* ‘get better’
- c. *lýti* – *lìs* ‘to rain’
- d. *su-lýti* – *su-lìs* ‘to get wet in the rain’
- e. *plýšti* – *plìš* ‘to tear, rip’ (note: Petit (2002) gives *plỹš*)
- f. *rýti* – *rìs* ‘to swallow’
- g. *búti* – *bùs* ‘to be’
- h. *džiúti* – *džiùs* ‘to dry, wither’
- i. *griúti* – *griùs* ‘to fall down, to lie down’

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<sup>1</sup>Moreover, some forms are listed with long or short vowels by different researchers. Those disagreements on the primary data may reflect the dialectal difference, but the dialect-related problem will be set aside in this current survey.

- j. *lǔžti* – *lùš* ‘to break’ (note: Petit (2002) gives *lǔš*)
- k. *pǔti* – *pùs* ‘to rot’
- l. *rǔgti* – *rùgs* ‘to grow/turn sour’
- m. *slǔgti* – *slùgs* ‘to subside’
- n. *žǔti* – *žùs* ‘to perish, die’

(2) metatony (irregular for Senn)

- a. *výti* – *vỹs* ‘to drive, wind’
- b. *výsti* – *vỹs* ‘to fade, droop’
- c. *lýsti* – *lỹs* ‘to get/become thin’
- d. *su-lýsti* – *su-lỹs* ‘to loose weight’
- e. *(at)lýžti* – *lỹš* ‘to slacken’
- f. *siǔti* – *siũs* ‘to sew’

However, Senn fails to explain why shortening is regular for those verbal roots with *ý* and *ǔ* as well as why the verbs in (2) exhibit metatony.

### 3 Petit’s (2002: 247ff.) List

Petit (2002) also discusses the unexpected distribution of metatony and shortening in 3rd person future forms with monosyllabic acute roots. He lists the data in accordance to the root vocalism.

#### 3.1 Data

I. shortening instead of metatony (violation of the rule)

- (3) *ǔ* → *ù*
  - a. *bǔti* – *bùs* ‘to be’
  - b. *pǔti* – *pùs* ‘to rot’
  - c. *srǔti* – *srùs* ‘to stream’
  - d. *žǔti* – *žùs* ‘to perish, die’
  - e. *džiǔti* – *džiùs* ‘to dry, wither’
  - f. *bliǔti* – *bliùs* ‘to bleat’
  - g. *kliǔti* – *kliùs* ‘to touch’
  - h. *griǔti* – *griùs* ‘to fall down’
- (4) *ý* → *ì*
  - a. *gýti* – *gìs* ‘to get better’
  - b. *rýti* – *rìs* ‘to swallow’
  - c. *sýti* – *sìs* ‘to link to’

- d. *šlýti* – *šlīs* ‘to lean, tilt’
- e. *lýti* – *lis* ‘to rain’

## II. metatony (regular)

(5)  $\acute{u} \rightarrow \tilde{u}$

- a. *siúti* – *siūs* ‘to sew’
- b. *trúkti* – *trūks* ‘to lack’
- c. *grústi* – *grūs* ‘to crush’
- d. *lúžti* – *lūš* (note: Senn (1966) gives *lùš*)

(6)  $\acute{y} \rightarrow \tilde{y}$

- a. *gnýbti* – *gnỹbs* ‘to pinch, bite’
- b. *žnýbti* – *žnỹbs* ‘to pinch, to tweak’
- c. *dýgti* – *dỹgs* ‘to spring, shoot’ (note: Senn (1966) gives *gìs*)
- d. *klýsti* – *klỹs* ‘to be mistaken’
- e. *slýsti* – *slỹs* ‘to slide’
- f. *výsti* – *vỹs* ‘to fade, droop’
- g. *plýšti* – *plỹš* ‘to tear, rip’ (note: Senn (1966) gives *pliš*)

### 3.2 Three Relevant Points from Petit’s Proposals

- syllable structure is one of the conditions of metatony/shortening.
  - $C\acute{V}C \rightarrow C\tilde{V}C$  [ $V = i$  or  $u$ ]  
e.g., *dýgti* – *dỹgs*; *trúkti* – *trūks*
  - $C\acute{V} \rightarrow C\tilde{V}$   
e.g., *gýti* – *gìs*, *búti* – *bùs*, *púti* – *pùs*
  - Counterexamples:  
*lúžti* – *lùž* ‘to break,’ *rúgti* – *rùgs* ‘to turn sour,’ *slúgti* – *slùgs* ‘to subside;’ *výti* – *vỹs* ‘to drive,’ *siúti* – *siūs* ‘to sew.’
- Petit (2002: 272) also points out the correlation between the short vowels in the 3rd p. future forms and preterit forms, e.g., *búti* – *bùvo* – *bùs*, *gýti* – *gìjo* – *gìs*, etc.
  - Counterexamples:  
*džiúti* – *džiúvo* – *džiùs*, *rúgti* – *rúgo* – *rùgs*, *slúgti* – *slúgo* – *slùgs*, *siúti* – *siùvo* – *siūs*
- Petit (2002) explains why the shortening in 3rd p. future forms is limited to the roots with  $\acute{i}$  and  $\acute{u}$  by presuming that *íe* and *úo* were already diphthongs,

and therefore Leskien's Law did not affect them (e.g., *dúoti* – *duõs* 'to give,' *líesti* – *liẽs* 'to touch'). Also, the failure of the shortening of the roots with *ó* and *é* can be attributed to the phonetic asymmetry of them and their corresponding short vowels *a* and *e*; therefore we find *jóti* – *jõs* 'to go by horseback,' *déti* – *dẽs* 'to put,' instead of expected *Xjàs* or *Xdès*.

➤ this will be discussed later

#### 4 Examining the Verbs in the Lists Again

A close examination of Senn's and Petit's lists reveals a fairly clear tendency of their present paradigms to be involved in the nasal-infix formation. Below are the verbs which have nasal-infix presents in the lists. The forms are listed in the order of *infinitive*, *3p.pres.*, *3p.pret.*, – *3p.fut.*

Sources: Fraenkel (1962 1965), Kurschat (1968–1973), LKŽ.

- (7)
- a. *búti*, *yra/bũna/bũva/ěsti*, *bùvo* – *bùs* 'to be'
  - b. *púti*, *pũva/pũna/pũsta/pũsta*, *pùvo* – *pùs* 'to rot'
  - c. *srúti*, *srũva/srũna/srũsta*, *srùvo* – *srùs* 'to stream'
  - d. *žúti*, *žũva/žũna/žũsta*, *žùvo* – *žùs* 'to perish, die'
  - e. *džiúti*, *džiũva/džiũva/džiũna/džiũsta*, *džiúvo* – *džiùs* 'to dry, wither'
  - f. *bliúti*, *bliũva/bliũna*, *briùvo* – *bliùs* 'to bleat'
  - g. *kliúti*, *kliũna/kliũva/kliũsta*, *kliùvo* – *kliùs* 'to touch'
  - h. *griúti*, *griũva/griũna*, *griùvo* – *griùs* 'to fall down'
  - i. *slúgti*, *slúgsta/slunga*, *slúgo* – *slùgs* 'to subside'
  - j. *gýti*, *gỹja/gỹja/gỹna*, *gìjo* – *gìs* 'to get better'
  - k. *lýti*, *lỹja/lỹna*, *lìjo* – *lìs* 'to rain'
  - l. *rýti*, *rỹja/rỹna*, *rìjo* – *rìs* 'to swallow'
  - m. *rúgti*, *rúgsta/ruňga*, *rúgo* – *rùgs* 'to turn sour'
  - n. *sýti*, *sỹja*, *sìjo* – *sìs* 'to link to'
  - o. *šlýti*, *šlỹja/šlỹja/šlěja/šlěna/šliňta/šlỹsta/šlỹva*, *slìjo* – *šlìs* 'to lean, tilt'

However,

- ⊙ *výsti*, *výsta/viňsa/viňta*, *výto* – *vỹs* 'to fade, droop'
- ⊙ *trúkti*, *trúksta/truňka*, *trúko* – *trůks* 'to lack'
- ⊙ *siúti*, *siùva/siũna/siũna/siũva*, *siùvo* – *siũs* 'to sew'

On the other hand, the majority of the verbs whose 3rd person future forms are not shortened do not have nasal-infix presents.

- (8)
- a. *výti*, *věja/vįja/vỹna*, *vìjo* – *vỹs* 'to drive, wind'

- b. *grústi, grúda, grúdo – grūs* ‘to crush’
- c. *gnýbti, gnýba, gnýbo – gnỹbs* ‘to pinch, bite’
- d. *žnýbti, žnýbia, žnýbé – žnỹbs* ‘to pinch, to tweak’
- e. *dýgti, dýgsta, dýgo – dỹgs* ‘to spring, shoot’
- f. *klýsti, klýsta, klýdo – klỹs* ‘to be mistaken’
- g. *slýsti, slýsta, slýdo/slido – slỹs* ‘to slide’
- h. *lýsti, lýsta, lýso – lýs* ‘to become thin’
- i. *lýžti, lýžta, lýžo – lýž* ‘to slacken’

Although there are 3 verbs whose 3rd person future forms are not shortened despite their nasal infix presents, they all show the metatony which the majority of the 3rd p. future forms exhibit.

How could we explain any possible correlation between shortening in 3rd person future forms and their nasal presents?

## 5 Historical Backgrounds of Baltic Nasal Presents

Stang (1942: 132ff.) followed by Gorbachov (2007: 152ff.):

- originally an intransitive and inchoative category, but later became productive;
  - *būva* [3p.pres.] (< *būva*; *būti* ‘to be’)
  - *līja* [3p.pres.] (< *līja*; *līti* ‘to rain’)
- the root vocalism of the nasal-infix presents (as well as *sta*-presents, another inchoative category) is regularly *zero-grade*.
- loss of the nasal segment:

$$(9) Vn > \tilde{V} > \bar{V} / \underline{\quad} \left\{ \begin{array}{l} r, \quad l, \quad m, \quad n, \\ j, \quad v, \\ s, \quad š, \quad ž \end{array} \right\}.$$

e.g., *gỹja* [3p.pres.] < *gỹja* (*gỹti* ‘to heal, get better’)

- often, when an inchoative verb loses the nasal segment phonologically, its inchoative function gets reinforced by attaching the other productive inchoative intransitive suffix *-sta-*.
  - *žūti* ‘to perish:’ *žūv-a* > *žūva* → *žūsta* → *žústa* [3p.pres.]
  - *pūti* ‘to rot:’ *pūv-a* > *pūva* → *pūsta* → *pústa* [3p.pres.]

- The expected original nasal formations of *pūva*, *gỹja*, *lỹja* are: \**pu-n-H-e/o-* ‘to rot, decay,’ \**g<sup>v</sup>i-n-h<sub>3</sub>-e/o* ‘to become alive,’ \**li-n-H-e/o-* ‘to start raining,’ which would have given rise to Proto Baltic \**puna(t)*, \**gina(t)*, \**lina(t)*. The length on the root syllable in *pūva*, *gỹja*, *lỹja* was acquired analogically (Gorbachov 2007: 167ff.);

	<b>infinitive</b>	<b>present (3p.)</b>	<b>preterit (3p.)</b>	
(PB)	* <i>mig-tei</i> ‘to fall asleep’	* <i>mi-n-g-o(t)</i>	* <i>mig-ā</i>	[PIE root: * <i>meig<sup>(w)</sup>h-</i> ]
	> <i>mìgti</i>	> <i>mĩnga</i>	> * <i>mìgā</i>	
			> <i>mìgo</i>	

- (10) **Proportion of Analogy:**  
*mĩnga* : \**mìgā* = X : \**lijā*,  
 X = \**liñja* > *lỹja* > *lỹja*

## 6 Interpretation of the Data

In this section, I would like to discuss what the data listed in (7) could imply.

### 6.1 Zero-Grade Vocalism

As we can see, all the verbs listed in (7) have the root vocalism either in *y* or *ū*. Those vowels in Baltic, if inherited from the proto language, are often reflections of the PIE \**-iH-* or \**-uH-*. Suppose that PIE root structure with a root-final laryngeal can be \**CVRH-* or \**CRVH-*, \**-iH-* and \**-uH-* can be a part of the zero grade forms of PIE verbal roots.

- (11) full-grade: \**Ce<sub>v</sub>H-*/\**C<sub>v</sub>eH-* or \**Ce<sub>i</sub>H-*/\**C<sub>i</sub>eH-*  
 ~ zero-grade: \**CuH-* or \**CiH-*

Actually, this is the case with some of the data in (7).

- (12) a. *būti*, *yra/būna/būva/ēsti*, *būvo* – *būs* ‘to be’  
 cf. PIE \**b<sup>h</sup>ueh<sub>2</sub>-*/\**b<sup>h</sup>eu<sub>h</sub>2-* ‘to become’ (Skt. *bhāvati*) (LIV 98ff.)
- b. *pūti*, *pūva/pūna/pūsta/pūsta*, *pūvo* – *pūs* ‘to rot’  
 cf. PIE \**peuH-* ‘to be rotten’ (LIV 480)
- c. *džiūti*, *džiūva/džiūva/džiūna/džiūsta*, *džiūvo* – *džiūs* ‘to dry, wither’  
 cf. PIE \**deu<sub>h</sub>2-* ‘to catch fire’ (LIV 104)
- d. *bliūti*, *bliūva/bliūna*, *briūvo* – *bliūs* ‘to bleat’  
 cf. PIE \**b<sup>h</sup>leuH-* ‘to overflow’ (LIV 90)

- e. *kliúti, kliūna/kliūva/kliústa, kliùvo – kliùs* ‘to touch, brush’  
cf. PIE \*kleH<sub>u</sub>- (~ \*kleuH-?? ‘to end up somewhere’); LIV 365
- f. *gýti, gǵja/gǵja/gǵna, gìjo – gìs* ‘to get better’  
cf. PIE \*g<sup>w</sup>ieh<sub>3</sub>- ‘to live’ → \*g<sup>w</sup>inh<sub>3</sub>-e/o- ‘to become alive’ (LIV 215)
- g. *griúti, griūva/griūna, griùvo – griùs* ‘to fall down’  
cf. PIE \*g<sup>h</sup>reh<sub>1</sub>u- ‘to (start to) drop, fall’ (LIV 202)
- h. *lýti, lýja/lýna, lijo – lis* ‘to rain’  
cf. PIE \*lejH- ‘to pour’ (LIV 405)
- i. *rýti, rýna/rýja, rìjo, – rìs* ‘to swallow’  
cf. PIE \*h<sub>3</sub>rejH- ‘to float’ (~ \*h<sub>3</sub>er- ‘to set in motion’), Skt. *riṇāti* ‘lets flow’ (LIV 305; Mayrhofer 1986–96: II, 437)
- j. *sýti, sýja, sijo – sis* ‘to link to’ cf. PIE \*sih<sub>2</sub>- (← \*seh<sub>2</sub>(i)- ‘to bind’ )  
(Mayrhofer 1986–96: II, 720ff.)

The following items are not traced back to *set*-roots, and the long vowels in their roots may be considered to be secondary. They could have been taken from their *sta*-presents.

- (13) a. *srúti, srūva/srūna/srústa, srùvo – srùs* ‘to stream’  
cf. PIE \*sreu- ‘to flow’ (Mayrhofer 1986–96: II, 784)
- b. *žúti, žǵva/žǵna/žústa, žùvo – žùs* ‘to perish, die’  
cf. PIE \*g<sup>h</sup>eu- ‘to disappear, vanish’ (IEW 448)
- c. *slúgti, slúgsta/slunga, slúgo – slùgs* ‘to subside’  
cf. PIE \*(s)leu- ‘to be limp’ (IEW 962)
- d. *rúgti, rúgsta/ruṅga, rúgo – rùgs* ‘to turn sour’  
cf. PIE \*reu-g- (IEW 871)
- e. *šlýti, šlija/šlēja/šlýna/šliṅta/ šlýsta/šlýva, šlijo – šlis* ‘to lean, tilt’  
cf. PIE \*klej- ‘to lay oneself back’ (LIV 332)

## 6.2 The Future Forms in the Verbal System

In order to identify what may have happened to the 3rd person future forms in (7), let us look into the stage slightly after the above-mentioned analogical process (10) took place, taking up a few more verbs, *lìsti* ‘to fall apart’ and *slúgti* ‘to subside.’<sup>2</sup> Note that at this stage, the process described in (9) had not taken place yet.

<sup>2</sup>The asterisk mark is not given to the forms identical to the attested form.



	<b>present</b> (as if < *nasal-infix present)	<b>preterit</b> (as if < *thematic aorist)	<b>future</b> (< *s-future?)
	<i>mìgti</i> ‘to sleep’		
1sg.	<i>mingù</i>	<i>migaũ</i>	* <i>migsiù</i>
2sg.	<i>mingì</i>	<i>migaĩ</i>	* <i>migsì</i>
3p.	<i>miñga</i>	* <i>mìgā</i>	<i>mìgs</i>
	<i>slūgti</i> ‘to subside’		
1sg.	<i>slungù</i>	<i>slúgau</i>	<i>slúgsiu</i>
2sg.	<i>slungì</i>	<i>slúgai</i>	<i>slúgsi</i>
3p.	<i>sluñga</i>	* <i>slúgā</i>	* <i>slūgs</i>
	<i>lýti</i> ‘to rain’		
1sg.	(* <i>lín̄</i> →) * <i>linjù</i>	(* <i>li(H)au</i> >) <i>lijaũ</i>	<i>lísiu</i>
2sg.	(* <i>lín̄</i> →) * <i>linjì</i>	(* <i>li(H)ai</i> >) <i>lijaĩ</i>	<i>lísi</i>
3p.	(* <i>lín̄</i> →) * <i>liñja</i>	(* <i>li(H)ā</i> >) * <i>lijā</i>	* <i>līs</i>
	<i>lìsti</i> ‘to fall apart’		
1sg.	<i>linsù</i>	<i>lisaũ</i>	* <i>lisiù</i>
2sg.	<i>linsì</i>	<i>lisaĩ</i>	* <i>lisi</i>
3p.	<i>liñsa</i>	* <i>lisā</i>	<i>lìs</i>

- nasal present paradigms are usually paired to thematic aorists as their preterit paradigm; zero-grade vocalism is morphologically regular with both nasal present and thematic aorist (Stang 1942: 138ff; for the IE perspective, LIV 17 (nasal infix present), Jasanoff (2012) (thematic aorist)).
- irrelevant to the length of the root vowel in preterits and infinitives, the majority of the nasal presents certainly had a sequence of ‘*i/u* + \**-n-*’ in its stem before the sound change in (9) took place.

(14)	3p.	<b>present</b>	<b>preterit</b>	<b>future</b>	<b>infinitive</b>
		<i>miñga</i>	* <i>mìgā</i>	<i>mìgs</i>	<i>mìgti</i>
		<i>sluñga</i>	* <i>slúgā</i>	* <i>slùgs</i>	<i>slúgti</i> (13c)
		* <i>liñja</i>	* <i>lijā</i>	* <i>līs</i>	<i>lýti</i> (12h)
		<i>liñsa</i>	* <i>lisā</i>	<i>lis</i>	<i>listi</i>

root:	$C\bar{V}C-$	$C\check{V}nC-$	$C\bar{V}C-$	$*C\bar{V}C-s-$	← secondary long roots (13c, d)
root:	$C\bar{V}-$	$*C\check{V}n-(Y)-$	$C\check{V}-(Y)-$	$*C\bar{V}-s-$	← * $CVH-$ (12); secondary long roots (13a, b, e)
				↓	
				$C\bar{V}C-s-$ $C\check{V}-s-$	shortened

(15) another proportion of analogy:

	<b>present</b>	:	<b>future</b>
3p.	<i>miñga</i>	:	<i>mìgs</i>
= 3p.	<i>sluñga</i>	:	$X_1$
= 3p.	* <i>liñja</i>	:	$X_2$
= 3p.	<i>liñsa</i>	:	<i>lis</i>

$X_1 = slùgs$ ,  $X_2 = lis$ .

Whereas Leskien's Law explains why the shortening in the monosyllabic stems is limited to the 3rd person forms (and it didn't take place to other personal forms), (15) could explain why the shortening in question is limited only to particular verbal stems.

## 7 Results So Far

The interpretation of the shortened future forms of monosyllabic acute roots in relation to the nasal-presents presented above does not necessarily contradict the observations made by Petit (2002) [see §3.2]. Moreover, this interpretation can even explain what lies behind his observations from a different perspective.

- since nasal presents and thematic aorists are built to zero-grade and their infinitives are also found in the zero-grade, it is not surprising that the shortening in the 3rd future forms is most frequently found among the roots in  $C\acute{i}(C)$  and  $C\acute{u}(C)$ , which are often the reflexes of the zero-grades; this explains why the preceding works recognized the shortening of the 3rd person future forms exclusively among the roots with  $-y-$  and  $-ú-$ .

- the effect of the root structure and the short vowels in the preterit forms on the shortened future forms:  
nasal presents and thematic aorists are often paired; and  $C\bar{V}C$ - roots tend to keep their long vowels in the preterit forms traced back to the thematic aorist ( $*C\bar{i}C\bar{-}a-$  or  $*C\bar{u}C\bar{-}a-$ ), while  $C(R)\bar{V}$ - ( $< *C(R)VH-$ ) roots phonologically got a short vowel ( $*C\bar{i}H\bar{-}a- > *C\check{i}\bar{j}\bar{-}a-$  or  $*CuH\bar{-}a- > *C\check{u}v\bar{-}a-$ ); this could explain why the  $C\bar{V}$ - verbs often have preterit forms with short vowels (*búti* – *bùvo*, *lýti* – *lįjo*, etc.); this can explain why Petit (2002) observed a tendency for a shortened future form to have a preterit form with a short root vowel.

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