

Chapter 5

Balto-Slavic denominatives from an Indo-European perspective: An update

Miguel Villanueva Svensson

Vilnius University

This paper presents an updated and critical overview of the Balto-Slavic denominative formations from an Indo-European perspective. Some important points: 1) denominatives in **-ō-je/o-* and **-ā-je/o-* were still directly linked to *o-* and *ā-* stem nouns, respectively; 2) Balto-Slavic has no “*ā*-factitives”; 3) we have a far better understanding of the development of PIE **-eje/o-* denominatives (viz. causative-iteratives) in Balto-Slavic than just a few years ago; 4) we have new accounts of some suffixes; 5) Balto-Slavic deadjectives included not only essives and fientives, but also specialized factitives (most likely continuing PIE *nu*-factitives); 6) after the breakup of Balto-Slavic, Baltic and Slavic evolved in different directions, in part due to different areal stimuli; 7) issues of directionality in the interplay between denominatives and deverbatives are also discussed.

1 Introduction

The purpose of this article is to present an overview of Balto-Slavic denominatives from an Indo-European perspective, stressing recent findings and pending issues. It should be noted from the outset that the focus is on the Balto-Slavic system, not on PIE reconstruction or on the historical Baltic and Slavic languages (though these are, needless to say, treated as well). The article is divided into two parts: survey of Balto-Slavic denominative formations (Section 2); discussion of their relevance for Indo-European studies (Section 3).

Before proceeding further, a note on terminology. *Deverbative* designates a verb derived from a verb, not a *primary verb*. *Denominative* is used as a cover term



for both *desubstantive* and *deadjective*. The latter is regularly so specified; the former only occasionally. I distinguish between *stative*, *inchoative* and *causative* for deverbatives and *essive*, *fientive*¹ and *factitive* for denominatives. *Iterative* is sometimes used as a cover term for several semantically differentiated deverbative subtypes. As for language labels, most of them require no comment. I use *Core Indo-European* for the parent language after the separation of Anatolian, *North-Western Indo-European* for the area of Indo-European from which Italo-Celtic, Germanic and Balto-Slavic derive, and *Northern Indo-European* for the common ancestor of Germanic and Balto-Slavic. None of these entities is uncontroversial, but a detailed treatment would be out of place here. *Balto-Slavic* unity is simply taken for granted.

The term “update” in the title should be understood in very vague terms. Denominatives are not a popular research topic and are often absent from short surveys.² Handbooks like Birnbaum & Schaeken (1997: 86–93) or Schmalstieg (2000: *passim*) are more informative, but are rarely up to date from an Indo-European perspective. Thus, there is no real *terminus a quo* for the update, though as a rule I do not quote comparative literature published before the classical grammars of Stang (1966) and Vaillant (1966). Finally, any “update” of this sort is per force going to be personal and mine is no exception. I have nevertheless made a conscious effort not to miss alternative views.

2 Balto-Slavic denominative formations

2.1 Introduction

I first present desubstantives (2.2-2.5), then deadjectives (2.6-2.8). Needless to say, a sharp distinction between the two is impossible. Ideally, each entry includes the following information:

1. Balto-Slavic suffix;
2. Baltic and Slavic evidence;³

¹The terms “essive” and “fientive” as used here should not be confused with their use for the alleged suffixes “*-éh₁-/-h₁-”, “*-h₁-je/o-” in part of the Indo-European literature (e.g., LIV² 25).

²Hardly anything could be grasped from Hock (2005) or the relevant chapters of Kapović (2017) or Klein et al. (2018).

³I regularly give the infinitive, present and aorist/preterit. Lithuanian inflected forms are given in the 3rd person, Latvian and OCS forms in the 1st singular (or, in the case of OCS, sometimes just the stem). Quotation of Old Prussian forms naturally depends on what is actually attested.

3. comments on the Balto-Slavic prototype;
4. PIE background;
5. Balto-Slavic contribution.

For considerations of space, quotation of evidence is reduced to a minimum. The same holds true for references to the literature. In particular, I usually omit references to the standard grammars and other reference works.⁴ Note that while all three Baltic languages are represented, Slavic is usually limited to Old Church Slavonic as an informal representation of Late Common Slavic. Common Slavic reconstructions are only provided when Old Church Slavonic is uninformative (most saliently, for accentology).⁵ The modern Slavic languages stand outside the scope of this paper. Finally, note that for Balto-Slavic I distinguish between (e.g.) “*ī*-presents” and “*ī*-verbs”. This is unnecessary for Indo-European, where suffixes like **-eje/o-* were limited to the present stem.

2.2 Bl.-Sl. **-ā-īe/a-* (inf. **-ā-tī*, aor. **-ā-s-* [*vel sim.*])

This suffix is well represented in the three Baltic languages: Lith. *núom-oti*, *-oja*, *-ojo* ‘rent’ (← *núoma* ‘rent’); Latv. *nuôm-ât*, *-āju*, *-āju* ‘id.’ (← *nuôma* ‘id.’); OPr. *dwigub-ūt*, *dwigubb-ū* ‘doubt’ (← fem. gen. sg. *dwigubbus* ‘twofold’). It regularly builds verbs from nouns, only occasionally from adjectives. The derivational dependency from *ā*-stems is still well preserved in Lithuanian (71,53% of the denominatives in *-oti* are derived from *ā*-stem nouns, according to Pakerys 2011: 281). I do not have exact numbers for Latvian, but the forms given in the grammars point in the same direction. This suffix is also productive for deverbative iteratives: Lith. *šaukti*, *-ia* ‘shout’ → *šauk-oti*, *-oja* ‘id. (iter.)’, Latv. *sāukt* → *saūkât*.

⁴Descriptive surveys of the East Baltic languages are not hard to find. The best ones for the present topic probably remain the academic grammars produced in the mid-20th century (MLLVG 330–343; LKG 247–268). My own presentation of the facts is mostly based on these sources (and, for Lithuanian, on Jakaitienė 1973). I regret to say that I have found more recent grammars far less informative. On the other hand, older sources like Skardzius 1943 and, especially, Endzelin (1923: 618–651) remain invaluable. For Old Prussian, I mostly rely on Endzelin (1943: 107–114). See also Smoczynski 2005 for the data. Stang (1966: 360–374) remains unsurpassed as a *global* comparative treatment. The case of Slavic is different. For comparative work, only the very securely reconstructed Common Slavic matters, which can often be informally represented with attested Old Church Slavonic. Vaillant (1966) not only remains unsurpassed; all later general treatments I have consulted are less informative. As a result, my presentation of the Slavic facts closely follows that of Vaillant.

⁵Acuteness is marked as **Ē*, with underline, and non-acute as simple **Ē*. Accentology is otherwise not treated in this survey.

According to Jakaitienė (1973: 34), in Lithuanian, deverbatives are twice as common as the denominatives, though usually in extended forms like *-čioti*, *-soti*, *-n(i)oti*, *-l(i)oti* or, above all, *-ioti* (*bėgti*, *-a* ‘run’ → *bėgioti*, *-ioja* ‘id. (iter.)’; see 2.5, 3.5).

Slavic essentially concords with Baltic, with the important difference that *-ati*, *-ajō* is immensely productive for derived imperfectives (OCS *čisti*, *čbtō* ‘read’ → *po-čitati*, *-čitajō* ‘id. (impf.)’). As a result, denominatives are very well represented, but are not productive anymore in most Slavic languages: OCS *igra* ‘play’ → *igr-ati*, *-ajō* ‘play’, *dělo* ‘work’ → *děl-ati*, *-ajō* ‘do’. I do not have numbers indicating whether the connection with *ā*-nouns is as clear as in Baltic. Deadjectives occur, but are very rare.

For Balto-Slavic we can safely reconstruct a denominative suffix **-ā-tī*, **-ā-īe/a-* that was still derivationally attached to *ā*-stem nouns. It is impossible to say how productive derivation from other stems was. It was probably not used for deadjectives, but deverbative iteratives were very productive.

The origin of this type is perfectly clear: It goes back to PIE *īe/o*-denominatives from *ah₂*-stem nouns. Whether **-ah₂-īe/o*-denominatives expanded beyond their original core within PIE is a matter I will leave open.⁶ In any case, it is interesting to note that the original connection with the *ā*-stems is still apparent in Lithuanian. Another observation to make is that, although iteratives in **-ah₂-īe/o-* are found in several languages and may even go back to the parent language, they are nowhere as productive as in Germanic and Balto-Slavic.

Before moving on, a note on the *ā*-presents. As is well known, Baltic is one of the few languages that has an **-ā*-present distinct from **-ā-īe/o-* (Lith. *laiko* ‘holds’ vs. *galvōja* ‘thinks’). The other branches in which this class is attested are Anatolian (Hitt. *šuppiyah^{hhi}* ‘purify’; cf. Jasanoff 2003: 140–141) and Greek (cf. Rau 2009b). This type has recently been put in a new light by Sasseville’s (2015) demonstration that in Luvian **-ah₂*-verbs built denominatives from **-ah₂*-nouns through conversion. It follows that the now standard assumption of a class of “*ah₂*-factitives of the type *renouāre* derived from *o*-stems” (*vel sim.*) is in need of revision. Here I will limit myself to stress that, against what is often assumed, *ā*-presents are exclusively deverbative in Balto-Slavic; cf. Villanueva Svensson (2020: 392–395).

2.3 Bl.-Sl. **-ā-īe/a-* (inf. **-ā-tī*, aor. **-ā-s-* [*vel sim.*])

This suffix is only unambiguously attested in East Baltic, where it is very productive: Lith. *mel-úoti*, *-úoja*, *-āvo* ‘lie’ (← *mēlas* ‘lie’), Latv. *mel-uôt*, *-uōju*, *-uōju*

⁶See Sasseville (2021: 126–127) with references for recent discussion.

‘id.’ (← *męli* [pl.t.]). In Lithuanian, verbs in *-úoti*, *-úoja* are normally made from *o*-stem nouns (70,95% of the denominatives, according to Pakerys 2011: 286). I do not have numbers for Latvian, but the impression one gets from the grammars is that the connection with *o*-stem nouns is not as clear as in Lithuanian. Deadjectives are rarer, but not exceptional: Lith. *báltas* ‘white’ → *balt-úoti*, *-úoja* ‘show white’, Latv. *skaidrs* ‘clear’ → *skaidr-uôt*, *-uõju* ‘make clear’, refl. ‘become clear’. Their meaning is broadly the same as that of the deadjectives in **-ēti* (fientive or essive, occasionally also factitive). Deverbatives are limited to Lithuanian and clearly secondary (*ālpti*, *-sta* ‘faint’ → *alp-úoti*, *-úoja* ‘id. (iter.)’).

Due to the merger of Bl.-Sl. **ō* and **ā* in West Baltic and Slavic, it is impossible to know whether these branches had verbs in **-ō-tī*, **-ō-īe/a-* beside the familiar **-ā-tī*, **-ā-īe/a-*. If **-ō-tī*, **-ō-īe/a-* is projected into Balto-Slavic, it certainly built denominatives from *o*-stem nouns. It is impossible to know whether it also built desubstantives from other stems and deadjectives.

The only potential *comparandum* of Bl.-Sl. **-ō-tī*, **-ō-īe/a-* is the Greek type *δουλόω* ‘enslave’ (← *δοῦλος* ‘slave’).⁷ There is, however, no *communis opinio* concerning the connection between the two formations (if any). During the last decades several scholars have proposed reconstructing for PIE a denominative suffix **-oh₁-īe/o-* (Peters 1999; Malzahn 2010: 401–402) or **-o-īe/o-* (Oettinger 1979: 357–358; Kloekhorst 2008: 132–133). The evidence supporting such a view, however, is either inherently problematic (e.g., Gaulish *marcosior* ‘I will ride/I will be ridden’) or is better explained in a different way (the Hittite *ḫatrā(i)*-type, for instance, is usually derived from **-ah₂-īe/o-*; see Sasseville 2021: 116–123, with references). The dominant position has always been that Lith. *-úoti*, *-úoja* and Gk. *-όω* are parallel, but independent innovations; see especially Tucker (1981: 15–22) for the latter. Within this approach Lith. *-úoti*, *-úoja* is usually derived from possessive adjectives in “**-ō-to-*” of the type Gk. *χολωτός* ‘angry’, Lith. *ragúotas* ‘horned’ (e.g., Endzelin 1923: 627–628; Stang 1966: 364) and this remains the best option today.

I add a few observations on Balto-Slavic:

- it is impossible to know the chronology of the innovation and whether **-ō-tī*, **-ō-īe/a-* is really Balto-Slavic in date;
- the now generally accepted derivation of Gk. *χολωτός*, Lat. *aegr-ōtus* etc. from ‘deinstrumental’ **-oh₁-to-* is open to criticism, cf. Fortson (2020: 82–90). For Balto-Slavic, (post-)PIE **-ō-to-* would work as well;

⁷This statement obviously implies that the short stem vowel of Gk. *δουλ-ό-ω* (and of *τιμάω* ‘honor’ or *ἀνθέω* ‘be in bloom’) is an inner-Greek development (contrast aor. *ἐδούλωσα*, *ἐτίμησα*, *ἤνθησα*), as is the *communis opinio*. The issue cannot be discussed at length here.

- while some Baltic denominatives are susceptible of a deinstrumental gloss ‘be with X’ (e.g., *dūmúoti* ‘smoke; get covered with smoke’), this would be forced for most of them;
- an alternative view considers Lith. *-úoti*, *-úoja* an East Baltic offshoot of the Balto-Slavic denominative type Lith. *-áuti*, *-áuja* (2.4), e.g., Vaillant (1966: 352–353), Kortlandt (1995). See Villanueva Svensson (2014, 2015) for criticism of different aspects of this approach.

2.4 Bl.-Sl. **-au-je/a-* (inf. **-au-tī*, aor. **-au-ā-* [!])

This suffix is productive in Lithuanian and Old Prussian: Lith. *draug-áuti*, *-áuja*, *-āvo* ‘be friends’ (← *draūgas* ‘friend’), OPr. *dīnk-aut*, pres. 1pl. *dīnk-au(i)mai*, pret. *dīnk-auts* (*dīnk-owats* I) ‘thank’ (← Pol. *dziękować*). In Lithuanian it derives verbs from nouns of all stems with a basic meaning ‘be X’ (whence ‘work as X’, ‘be-have as X’, ‘be engaged in X’, ‘show up as X’, etc.). Deadjectives are rarer, but not exceptional (*šykštūs* ‘stingy’ → *šykštauti*, *-auja* ‘be stingy’). Deverbative iteratives also occur, but are generally regarded as secondary (*šaūkti*, *-ia* ‘shout’ → *šúkauti*, *-auja* ‘whoop’). This type has been lost in Latvian, merging with the verbs in *-uôt*, *-uōju* (2.3). The types **-au-tī*, **-au-je/a-* and **-ō-tī*, **-ō-je/a-* often overlap in Lithuanian as well.

In Slavic, this type is very productive for both denominatives and deadjectives: OCS *dar-ovati*, *-ujō*, *-ovaxō* ‘make a present’ (← *darō* ‘present’), *mil-ovati*, *-ujō* ‘have mercy’ (← *milō* ‘pitiful; loved’). In addition, it is abundantly used for borrowings (OCS *kup-ovati*, *-ujō* ‘buy’, cf. German *kaufen*). Its use for derived imperfectives can be tracked in the recorded history of Old Church Slavonic, cf. Schuyt (1990: 29–33).

For Balto-Slavic we can confidently reconstruct a denominative suffix **-au-tī*, **-au-je/a-*. It is uncertain whether it was also widely used for deadjectives. From a morphological point of view, it is the only denominative suffix with an *ā*-aorist **-au-ā-*, as borne out by the second stem in *-a-* of Slavic *-ov-a-tī*, *-ov-a-xō*. This is potentially important from a historical perspective, as the Balto-Slavic *ā*-aorist was otherwise limited to primary verbs, cf. Villanueva Svensson (2020: 382–389). To judge by Slavic (the Baltic *ā*-preterit is fully ambiguous) all other denominative suffixes had a sigmatic aorist in Balto-Slavic (**-ā-s-*, **-ē-s-* etc.).

The origin of Bl.-Sl. **-au-tī*, **-au-je/a-* is a traditional *locus desperatus* of Balto-Slavic historical grammar, the only certain thing being that it must be an innovation of this branch. I refer to Villanueva Svensson (2014) for a full treatment, including criticism of the widespread idea that it originated in denominatives

from *u*-stem nouns. In this article, I have proposed deriving this suffix from original compounds with the root **h₂eu_h₁-* ‘help’ (Ved. *ávati* ‘id.’ etc.). Parallels for such a reanalysis include Lat. *-īgāre*, *-cināre* and, especially, OIr. *-(a)igithir*.

2.5 Bl.-Sl. **-ī-* (inf. **-ī-tī*, aor. **-ī-s-* [*vel sim.*])

As a result of some recent insights this suffix is now better understood than just a decade ago. I will therefore treat it in more detail and, more importantly, in a different way than the other denominative formations.

The origin of Slavic *i*-verbs like OCS *prosi*ti, *prosi-* ‘ask for’ is perfectly clear: they continue PIE *o*-grade causatives and iteratives in **-ēje/o-* (PIE **mon-ēje/o-* ‘remind’ > Ved. *mānáyati*, Lat. *moneō*, *-ēre*) and denominatives of *o*-stem nominals in **-e-je/o-* (Ved. *devá-* ‘god’ → *devayáti* ‘worship the gods’). The PIE functions are preserved nearly intact in Slavic, where *i*-verbs build iteratives (OCS *nesti*, *nesq* ‘carry’ → *nositi*, *nošq* ‘id. (iter.)’), causatives (OCS *tešti*, *tekq* ‘run, flow’ → *točiti*, *točq* ‘let run, let flow’), and denominatives from both nouns and adjectives: OCS *měri-iti*, *-jq* ‘measure’ (← *měra* ‘measure’), *běl-iti*, *-jq* ‘whiten’ (← *bělъ* ‘white’). *i*-denominatives are immensely productive. Deadjectives often (but not exclusively) display factitive value. From an accentological point of view, this is the only Slavic denominative suffix with an old contrast of tone between present (with non-acute **-ī-*, CSL. 2pl. **nòsite* < **nosîte* < Bl.-Sl. **násîte*) and aorist-infinitive (with acute **-ī-*, CSL. inf. **nosīti* < Bl.-Sl. **násīti*).

From a historical perspective, the Slavic *i*-verbs pose two major problems:

1. Can Sl. *-i-* regularly derive from PIE **-eje/o-*? If not, how is Sl. *-i-* to be explained?
2. Is the acute **-ī-* of the aorist-infinitive stem the same as the non-acute **-ī-* of the present stem? If not, how is Sl. **-ī-* to be explained? Note that Baltic shows aor.-inf. **-ī-* to be old with certainty (Lith. inf. *prašýti* = Sl. **prosīti*).

The second question is rarely posited in this way and, accordingly, has received relatively little attention in the literature.⁸ As for the first one, it is probably safe to say that the matter has always been seen with a certain degree of perplexity. Accounts not operating with a regular development PIE **-eje-* > Sl. *-i-* have usually taken one of the following four options:

⁸See Klingenschmitt (1978: 3), Jasanoff (2017: 207–208) for scenarios not deriving Bl.-Sl. aor.-inf. **-ī-* from PIE **-eje-*.

1. to start from a PIE semithematic or athematic “*i*-present”;⁹
2. to assume that the *-i-* of *prosi-*, *prosi-* was taken from that of the stative type *m̥n̥eti*, *m̥ni-* and/or from *i*-stem denominatives (PIE “**-i̯e/o-*”);¹⁰
3. to postulate complex analogical scenarios;¹¹
4. to operate with irregular phonological changes.¹²

Viewed against this background, the assumption of a regular development PIE **-eje-* > Sl. *-i-* becomes, in my view, even more attractive (*all* alternatives are unsatisfactory). The idea is far from new,¹³ but has certainly gained momentum in recent years; see especially Hock (1995), Hill (2016: 214–222), Villanueva Svensson (2023b: 74–76, 191, 194–199). A detailed treatment is impossible here, but I would like to stress two insights gained from these works:

1. The amount of positive evidence supporting a *regular* development PIE **-eje-* > Bl.-Sl. **-ī-* > Sl. *-i-* has increased (e.g., Sl. inf. *-ti*, Lith. *-ti* < PIE **-tejei*);
2. The development PIE **-eje-* > Bl.-Sl. **-ī-* was Balto-Slavic in date, as most probably the analogical replacement of **-eio-* > **-iia-* with **-ī-*.¹⁴ In the aorist-infinitive stem **-ī-* was secondarily acuted to **-ī̯-* on the model of all verbs with a dissyllabic second stem (**-ā̯-*, **-ē̯-* etc. < **-ah₂-*, **-eh₁-*).

Table 1 gives the development of the PIE **-eje/o-*presents in Balto-Slavic.¹⁵

⁹“Semithematic *i*-presents” were popular in older says of our discipline, see especially Stang (1942: 23–29). See Schrijver (2003) for a modern defense of the PIE “athematic *i*-presents” and Weiss (2012: 152–155) for a different explanation of the Italic and Celtic facts adduced by Schrijver.

¹⁰Both statements are frequent in Slavic handbooks, e.g., Vaillant (1966: 439–440), Birnbaum & Schaeken (1997: 91). As often noted (e.g., Jasanoff 1978: 102–103), if one type imposed its morphology on the other(s), it is likely that this was the immensely productive type *prosi-*, *prosi-*.

¹¹E.g., Kurylowicz 1973, Klingenschmitt (1978: 3–5).

¹²E.g., Matasovic 2008, Andersen (2014: 60–69: Late Common Slavic contraction across *jod*).

¹³Cf. Specht (1934: 61–62; 78–79), with references to J. Schmidt, Bezenberger, Sommer and Pedersen.

¹⁴Against a relatively widespread assumption, the regular reflex of PIE **-eje/o-* in Baltic was not (Lith.) *-ia* or *-ija* (pace Kortlandt 1989: 107, Ostrowski 2006: 28, or Jasanoff 2017: 207, among others). See below in the text.

¹⁵Adapted from Villanueva Svensson (2023b: 198). Arrows indicate analogical forms. The endings, which are sometimes insecure, cannot be discussed here. Column ‘Bl. (1)’ is deliberately left unaccented as a way to indicate that no direct connection is postulated between PIE stress position (**prok̑-éje-ti*) and that of late Balto-Slavic (**prášit(i)*).

Table 1: PIE **-eje/o*-presents in Balto-Slavic

	PIE	Bl.-Sl. (1)	Bl.-Sl. (2)	Sl.	Bl. (1)	Bl. (2)
1sg.	*prokéjoh ₂	*prašijō	→ *prašjō	*prošǫ	*prašjō	*prašjō
2sg.	*prokéjesi	*prašisi	*prašis(i)	*prosīši	?	?
3sg.	*prokéjeti	*prašiti	*prašit(i)	*prosītъ	*praši	*praši
1pl.	*prokéjomos	*prašijamas	→ *prašimas	*prosīmъ	*prašime	→ *prašime
2pl.	*prokéjete	*prašite	*prašite	*prosīte	*prašite	→ *prašite
3pl.	*prokéjonti	*prašijanti	→ *prašint(i)	*prosētъ		
Inf.		*prašiti	→ *prašiti	*prosīti	*prašiti	*prašiti
Aor.		*praši-s-	→ *prašī-š-	*prosīxъ	→ *prašijā	*prašē

The early Baltic development is the product of a series of important developments:

- generalization of the apocopated PIE 3sg. **-ti* > Bl.-Sl. **-t* > **-Ø* in non-athematic paradigms, yielding **praš-ī(-t)*;
- shortening of unstressed non-acute word-final **-ī(C)*, yielding **praš-i* under ‘Bl. (1)’ in Table 1 (Hill 2016: 214–222, Villanueva Svensson 2023b: 74–76);
- loss of number distinctions in the 3rd person, with concomitant restructuring of verbal paradigms as an endingless 3rd person to which 1st and 2nd singular, plural and dual endings are attached (e.g., Lith. pres. 3sg. *vėda* : 1pl. *vėda-me*, 2pl. *vėda-te*). This allows us to expect the analogical reshuffling given under ‘Bl. (2)’ in Table 1.

The most surprising feature of the development of the *ī*-verbs in Baltic, however, is that the expected paradigm does not exist. Instead, we find up to five (!) analogical or mixed types:

1. Iterative and causative type Lith. *laik-ýti*, *laik-o*, *laik-ė*, Latv. *laïc-ît*, *laik-u*, *laïc-îju*; OPr. *laik-ūt*,¹⁶ *laik-u* ‘hold’, with *ā*-present (2.2).
2. Type OLith. *tar-ýti*, *tār-ia*, *tār-ė* ‘say’, attested in relics in Old and dialectal Lithuanian (Stang 1966: 327–328).

¹⁶Old Prussian has secondarily generalized **-ā-* to the infinitive stem.

3. Iteratives with ‘extra -i-’ like Lith. *lándž-ioti*, *-ioja*, *-iojo* ‘creep, crawl about’, Latv. *luðžât*, *-âju* ‘id.’, analyzable as *-i- (pres. **praš-i*) + *-āti, *-āja.
4. Causative and factitive type Lith. *dĕg-inti*, *-ina*, *-ino*, Latv. *dedz-inât*, *-ina*, *-ināja* ‘burn (tr.)’, OPr. *mukint*, pres. *mukinna* ‘teach’, analyzable as *-i- (pres. **praš-i*) + *-na- (see below 2.8).¹⁷
5. Denominative type Lith. *dal-ýti*, *-ija*, *-ijo* ‘divide’, Latv. *medît*, *-îju* ‘hunt’, OPr. *madlît*, *madli*, 1pl. *madlimai* ‘pray’.¹⁸

To disentangle the extraordinarily complex development of the Balto-Slavic *ī*-verbs in Baltic is a major task for the future. It is no less important to stress that the Balto-Slavic *ī*-verbs are better understood today than just a decade ago, to a large degree thanks to recent advances in historical phonology. As for their position in the Balto-Slavic denominative system, probably the main question is whether they were productively used to build deadjectival factitives in addition to plain (transitive) denominatives; see below (2.8).

2.6 Bl.-Sl. *-ē-je/a- (inf. *-ē-tī, aor. *-ē-s- [vel sim.])

This suffix is productive in all three Baltic languages, e.g., Lith. *stor-ėti*, *-ėja*, *-ėjo* ‘grow fat’ (← *stóras* ‘fat’); Latv. *mēln-ēt*, *-ēju*, *-ēju* ‘become black’ (← *mēl̃ns* ‘black’); OPr. *druw-īt*, *druw-ē*, 1pl. *druw-ēmai* ‘believe’ (← *druwis* ‘faith’). It builds fientives from adjectives and, less often, nouns. Essives occur, but only as relics: Lith. *garsėti*, *-ėja* ‘be famed’ (← *garsūs* ‘famous’), Latv. *klusēt*, *-ēju* ‘be silent’ (← *klus̃s* ‘silent’); cf. Pakerys (2006), Ostrowski (2006: 109–115). The decay of the essive value is probably related to the decay of nasal fientives (2.7) and the expansion of essives in *-áuti* (2.4) and *-úoti* (2.3). Fientive value may have begun with preverbs, as in Slavic.¹⁹ From a morphological point of view, it is well known that Baltic is one of the few branches distinguishing between *ē*-denominatives (with *-ėja*-presents) and *ē*-deverbatives (with presents in *-ti*, *-i*, *-a* and, rarely, *-ia*). There is, however, a certain degree of contamination between the different

¹⁷Cf. Villanueva Svensson (2025). See Gorbachov (2007: 175–176) for an alternative account that, however, also derives Bl. *-in- from the Balto-Slavic *ī*-verbs. The idea is not new, cf. Otrebski1965, Vaillant (1966: 227–228), Schmalstieg (2000: 173). See Kortlandt (1989), Hajnal (1996) for different views.

¹⁸Cf. Villanueva Svensson (2023a), with arguments against the widespread derivation from *i*-stem denominatives (e.g., Stang 1966: 367, Ostrowski 2006: 128, Pakerys 2011: 279–280, among others).

¹⁹Similarly Ostrowski (2006: 115).

present types. In particular, original denominatives with stative value tend to acquire deverbative morphology (e.g., Lith. *mylėti*, *mýli*, Latv. *mīlēt*, *-u* ‘love’, cf. Lith. dial. *mýlas*, Sl. **mīlō* ‘loved’).

Slavic essentially agrees with Baltic. The suffix **-ěti*, *-ějō* is productive and derives fientives and, more rarely, essives from adjectives and, less often, nouns: *cěl-ěti*, *-ějō* ‘recover’ (← *cělō* ‘healthy’), *um-ěti*, *-ějō* ‘be able’ (← *umō* ‘mind’).²⁰ According to Vaillant (1966: 369) the fientive value started in preverbed perfectives: OCS *bogatěti* ‘be rich’ : *raz-bogatěti* ‘become rich’ (← *bogatō* ‘rich’; cf. factitive *bogatiti* ‘make rich’). It clearly predominates already in Old Church Slavonic.

For Balto-Slavic, we can safely reconstruct a deadjective suffix **-ē-tī*, **-ē-je/a-*. It is hard to say whether it also built desubstantives. I assume that it regularly built essives, even though this is mostly based on internal reconstruction. Fientive value is far better attested in historical Baltic and Slavic, but is easily explained as parallel innovations.

An important topic that can only be tangentially mentioned here is the role of the second stem **-ē-* in deverbatives. This is of course not exclusive of Balto-Slavic, but this branch, especially Baltic, stands out by the richness of deverbative formations:

1. With stative *i*-presents: Lith. *budėti*, *būdi*, OCS *bŭděti*, *bŭdi-* ‘be awake’. This is the best-known type.²¹
2. With athematic present: OLith. *gėlbėti*, *-mi* ‘save’, OCS *věděti*, *vědě/věmь* ‘know’. This type is only well represented in Old Lithuanian.
3. With thematic present: Lith. *tekėti*, *tėka* ‘run, flow’. Only in Baltic, but with potential relics in Slavic.²²
4. With *ā*-present: OCS *iměti*, *imamь* ‘have’ (only certain example).²³
5. Several derived verbal classes in East Baltic:
 - a) duratives with acute metatony (*stėipėti*, *-ėja* ‘lie dying’ ← *stīpti* ‘die (of animals)’);

²⁰Vaillant (1966: 366–373).

²¹See Jasanoff (2004) and, more recently, Yakubovich (2014), Grestenberger (2019) on the origin of the Balto-Slavic *i*-presents. See Kortlandt (1989: 109–110), Harðarson (1998), Hill (2016: 216–219) for alternative views.

²²Cf. Koelln 1977, Villanueva Svensson (2017: 470–473). The Lithuanian evidence is collected in Jakulis (2004).

²³Old Prussian verbs like *billitwei*, *billē* ~ *billā* ‘speak’, with chaotic variation between present *-ā* and *-ē*, could belong here as well (cf. Kaukienė 2004: 187–204).

- b) ‘intensives’, also with acute metatony (*svérdēti*, -i ‘stagger’ ← *svirti* ‘bend down’);
- c) diminutives with non-acute lengthened grade (*pa-ējēti*, -ēji/-ējēja ‘go a little’ ← *eīti* ‘go’);
- d) causatives (only in Latvian, *aūdzēt*, -ēju ‘cultivate, grow (tr.)’ ← *aūgt* ‘grow (intr.)’);
- e) several subtypes with ‘extended’ suffix like -*alēti*, -*elēti*, -*erēti*; -*tel(ē)ti*, -*ter(ē)ti*; -*inēti*; -*sēti*.²⁴

The precise prehistory of some of these formations is still unclear, just as their interplay with the *ē*-denominatives. As for the latter, Balto-Slavic deadjectives in **-ēje/a-* are generally regarded as an archaism (PIE **-eh₁-je/o-*). It is important to note that reflexes of **-eh₁(-je/o)-* are exclusively denominative in Anatolian and Indo-Iranian (cf. Yakubovich 2014). This strongly suggests that the presence of **-eh₁(-je/o)-* among deverbatives is post-Indo-European. With all due caution, I suggest viewing the traditional deverbative *ē*-statives as an innovation of the North-Western language area (the path taken by the Greek η-aorist was completely different). The idea, needless to say, requires more work.

2.7 Bl.-Sl. type **gru-n-b-e/a-* (inf. **grub-tī*, aor. **grub-e/a-*)

As is well known, nasal presents with anticausative and inchoative value constitute one of the defining features of Balto-Slavic and Germanic, e.g., Lith. *lipti*, *liṃpa*, *lipo* ‘stick to’, OCS *pri-lb(p)nōti*, -*lb(p)nō*, -*lbpō* ‘id.’, Go. *af-lifnan*, -*lifniþ*, -*lifnoda* ‘be left over’. See Gorbachov (2007) for the reconstruction of the Northern Indo-European prototype **b^{hu}-n-d^h-é-ti* ‘awakes’ (aor. **b^{hu}d^h-é-t*) and Villanueva Svensson (2011) for my views on their origin. The same formation is productive for deadjectival fientives in all three branches, more rarely for desubstantives: Go. *fulls* ‘full’ → (*ga-*)*fullnan* ‘become filled’, Lith. *šlūbas* ‘lame’ → *šlūbti*, *šluṃba* ‘become lame’, OCS *slěpō* ‘blind’ → *o-slbpnōti* ‘go blind’.

Fientives are very well represented in East Baltic: Lith. *ślàpti*, *ślāmpa*, *ślāpo* ‘become wet’ (← *ślāpias* ‘wet’), Latv. *slapt*, *slūopu*, *slapu* ‘id.’ (← *slapjš*).²⁵ The type, however, is not productive anymore, its place being taken by -*ēti*, -*ēja* (2.6). The absence of denominatives in Old Prussian is surely due to chance.

²⁴See Ostrowski (2006: 11–32), Serzant2014, Rothstein-Dowden (2022: 100–114) for different issues related to this material.

²⁵The evidence is collected in Pakalniskienė2000.

Slavic essentially agrees with Baltic: OCS *slěpъ* ‘blind’ → *o-slъpnŋti* ‘go blind’. Denominatives are less well represented than in Baltic, no doubt because the inchoative type *bъ(d)ŋti* itself ceased to be productive and because verbs in *-ěti*, *-ějō* became productive for fientives. An obvious archaism is that zero grade is dominant in the older period: OCS *gluxъ* ‘deaf’ → *o-glъxnŋti* ‘become deaf’, *xromъ* ‘lame’ → *o-xrōmnŋti* ‘grow lame’ (cf. Vaillant 1966: 241–242). This feature recurs in Germanic (Gmc. **starka-* ‘strong’ → Go. *ga-staurknan* ‘become rigid’, ON *storkna* ‘coagulate’) and can be safely projected back into Northern Indo-European. Baltic has some relics as well: Lith. *bjūrti*, *bjūra/bjūrsta* ‘become ugly’ (← *bjaurius* ‘ugly’).²⁶

For Balto-Slavic, we can confidently reconstruct a class of deadjectival fientives with zero grade of the root. The type was identical with the inchoative *n*-presents and must have involved, among other features, a thematic aorist. From a historical point of view, it is clear that the Northern Indo-European fientives are an offshoot of the deverbative anticausative-inchoatives, obviously via secondary association of some deverbatives to adjectives from the same root.

2.8 Bl.-Sl. **plit-ne-ti* (inf. **plit-neŋ-tī*, aor. **plit-neŋ-s-* [vel sim.])

The last denominative formation is a recent addition that is likely to remain controversial, at least for some years. I refer to Villanueva Svensson (2025) for full argumentation of the ideas presented here.

Balto-Slavic clearly had an elaborated system of deadjectives including morphologically differentiated essives (2.6) and fientives (2.7). As for the factitives, probably most scholars would project into Balto-Slavic the Slavic *i*-factitive type OCS *cělъ* ‘healthy’ → *cěliti* ‘heal’ (2.5). This is clearly an extension of transitive desubstantives, no doubt supported by the causative value of PIE **-eje/o-*. The process may go back to Balto-Slavic, but may equally well be exclusively Slavic.²⁷ From a functional point of view, the Slavic *i*-verbs have a clear pendant in the Baltic verbs in **-inti*, **-ina*, which are productive for factitives (Lith. *saldūs* ‘sweet’ → *sáldinti* ‘sweeten’) and causatives (Lith. *miřti* ‘die’ → *marinti* ‘kill’). As noted above (2.5), the **-i-* of the present **-ina* can now be identified with the 3sg. **-i* of the Balto-Slavic **-ī*-verbs in Baltic. The obvious analysis **-i+na* that this leads to leaves us with a **-na* that has no obvious source within Baltic (the subsequent reanalysis of **-i-na* as **-in-a* is essentially unproblematic).

²⁶Cf. Villanueva Svensson (2016).

²⁷The same development took place in Germanic (Go. *hails* ‘healthy’ → *hailjan* ‘heal’) and Sanskrit (*taruṇa-* ‘young’ → *taruṇaya-* ‘make young’).

Let us now turn to PIE. In the 1970s, Koch (1973), Nussbaum (*apud* Tucker 1981: 26) and Tucker (1981) argued that PIE possessed a class of *nu*-factitives derived from *u*-stem adjectives. The type is faithfully continued in the Hittite factitives and causatives in *-nu^{mi}* (Hitt. *daššu-* ‘strong’ → *dašš(a)nu^{mi}* ‘strengthen’), in the Greek denominatives in *-ύνω* (βαθύς ‘deep’ → βαθύύνω ‘deepen’) and, probably, *-αίνω* (κῦδρός ‘glorious’ → κῦδαίνω ‘glorify’),²⁸ and, finally, in scattered relics elsewhere in the family (e.g., Ved. *dabhnóti* ‘deceive’, cf. Hitt. *tepnu^{mi}* ‘diminish; despise’ ← *tēpu-* ‘small’). The idea has clearly gained momentum in recent years.²⁹ In addition, recent research has refined some of the initial assumptions:

- PIE *nu*-factitives were part of the Caland system (Rau 2009a: 112–120, Oettinger 2018);
- new evidence from Luvian suggests that the *nu*-factitives followed the *h₂e*-conjugation, whereas deverbatives followed the *mi*-conjugation (Sasseville 2021: 485–486). I explicitly highlight that Greek factitives in *-ύνω* and *-αίνω* continue PIE *nu*-factitives, as this implies that this type was preserved as a distinct class in Core Indo-European.

In Balto-Slavic (as in other branches), a *h₂e*-conjugation suffix is expected to be thematized at an early date, yielding **-n̥e/o-* or **-ne̯e/o-*. *Qua* secondary verb formation *nu*-factitives lacked an aorist. In Balto-Slavic, this slot is expected to be filled with the present stem minus **(i)e/o-*, yielding aor.-inf. **-nu-* or **-ne̯u-*. The major claim of Villanueva Svensson (2025) is that the Slavic type pres. *ri-ne-*, inf. *ri-n̥q-ti*, aor. *ri-n̥q-x̥v*, past pass. ptcp. *ri-nov-en̥v* ‘cast, push’ goes back entirely to the Balto-Slavic descendant of the PIE *nu*-factitives. The aorist-infinitive stem extended full-grade **-ne̯u-*. In the present, zero-grade **-n̥e/o-* was simplified to **-ne/o-* by regular sound change. *nu*-factitives were lost in the prehistory of Slavic, being replaced by the *i*-verbs (2.5). When the Slavic aspect system arose, remaining *nu*-factitives were pressed into new service as secondary perfectives. In Baltic, on the other hand, *nu*-factitives were contaminated with *i*-verbs (**-i+na*), finally leading to the productive factitive and causative type **-inti*, **-ina*.

If this is correct, it implies that Balto-Slavic had a distinct formation for deadjectival factitives that directly continues the PIE *nu*-factitives.

²⁸The connection of Gk. *-ύνω* and Hitt. *-nu^{mi}* was an important aspect of Koch’s (1973) argument and has been upheld several times. See Villanueva Svensson (2024), building on Tucker (1981: 22–29), for the idea that Gk. *-αίνω* continues PIE *nu*-factitives as well.

²⁹Cf. Steer (2014: 206–210), Oettinger (2018), Sasseville (2021: 484–486 and this volume), Villanueva Svensson (2024, 2025).

3 Balto-Slavic denominatives: some general issues

3.1 Introduction

The dossier of Balto-Slavic denominatives included the suffixes **-ā-īe/a-*, **-ō-īe/a-*, **-au-īe/a-*, **-ī-* (< PIE **-eje/o-*) and a clearly delimited deadjectival system involving essives (**graub-ē-tī*, **graub-ē-īe/a-* ‘be coarse’), fientives (**grub-tī*, **gru-m-be/a-* ‘become coarse’) and, probably, factitives (**graub-nau-tī*, **graub-ne/a-* ‘make coarse’). The factitive is the only (potentially) controversial slot (other authors would reconstruct **graub-ī-tī*, **graub-ī-*). Needless to say, the boundaries between deadjectives and denominatives are unlikely to have been very strict.

This survey does not answer all questions related to the reconstruction of the Balto-Slavic denominative system. Thus, the distribution of the different denominative suffixes is not fully clear (apart from the connection of **-ā-īe/a-* and **-ō-īe/a-* to *ā-* and *o-* stems, respectively), and the same holds true for their semantics. Problems of this sort are part and parcel of the reconstruction of denominatives, but further research could bring in some clarity (one must note, at this point, that study of Baltic and Slavic denominatives is almost never carried out within a proper Balto-Slavic perspective). Other issues constitute global problems of the Balto-Slavic verb. Thus, although the formation of the Balto-Slavic second stem is generally clear, the way it came into being is not well understood. The caveat with which I accompany aorists like **-ā-s-* (‘*vel sim.*’), for instance, indicates that our reconstruction of the Balto-Slavic aorist relies almost exclusively on Slavic and is, accordingly, less certain than other forms. Again, future research may bring in some clarity on this and related issues. In what follows I address some general issues of particular interest for Indo-European studies.

3.2 PIE background 1: The contribution of Balto-Slavic

From a historical perspective, the Balto-Slavic denominative suffix inventory is, as expected, a mix of preservation, loss, and innovation. Clearly innovated are the fientive nasal presents and the denominative suffixes **-au-īe/a-* and, probably, **-ō-īe/a-*. These innovations took place at different stages and are not without interest from a broader perspective. If my account of **-au-īe/a-* is correct (2.4), it shows that the creation of denominative suffixes out of second compound members is more widespread than one would otherwise expect. From a PIE perspective **-ō-īe/a-* is the most interesting item. Following the *communis opinio*, in Section 2.3 I have assumed that it is a Balto-Slavic innovation. The

issue, however, certainly deserves more work. In a more pessimistic vein, the contrast with Gk. -όω illustrates a recurrent problem with the Balto-Slavic evidence. Careful attention to the inflectional, derivational and semantic profile of the -όω-denominatives in oldest Greek allowed Tucker (1981: 15–22) to clearly distinguish two different subtypes with, perhaps, two different prehistories. This type of philological work is rarely possible for Balto-Slavic.

As for preservation, the suffixes **-ā-je/a-*, **-ē-je/a-*, and **-ī-* (PIE **-ah₂-je/o-*, **-eh₁-je/o-*, **-eje/o-*) are well-known and little needs to be added here. Far more interesting are the *nu*-presents (2.8) and the *ā*-presents (2.2), if correctly interpreted. The matter can be briefly formulated as follows. The Vedic denominative system is extraordinarily simple (nominal stem + *-ya-*).³⁰ The Hittite system is more complex and includes no less than four more suffixes in addition to *-iya-* (and *-āi-* < **-ah₂-je/o-*): *-aḥḥ-*, *-e-*, *-ešš-*, and *-nu-* (Hoffner & Melchert 2008: 175–179). The minor Anatolian languages essentially confirm this picture, with some added complications (cf. Sasseville 2021: 547–552). Most Core Indo-European branches offer little or no unambiguous evidence supporting the antiquity of these formations (except for Hitt. *-e-* < PIE **-eh₁-je/o-*, as generally acknowledged since Watkins 1971). The major exceptions appear to be Greek and, precisely, Balto-Slavic. Put otherwise, the interest of this branch for the reconstruction of PIE denominatives can hardly be overstated.

Finally, a note on dialectology. Little needs to be said about inherited formations (**-ā-je/a-*, **-ē-je/a-*, **-ī-*, ‘*nu*-verbs’). Deverbatives in **-eh₁(-je/o)-*, as noted above (2.6), display a highly specific profile in the North-Western area. It remains to be seen whether the concept of ‘North-Western Indo-European’, traditionally limited to studies of vocabulary, may be extended to morphology as well. A clear Northern Indo-European innovation is the anticausative-inchoative type **b^hu-n-d^h-é-ti*, including its extension to deadjectival fientives. In this area deverbative iteratives in **-ah₂-je/o-* display a productivity unmatched elsewhere in the family. The issue clearly deserves more work. Probable or certain Balto-Slavic innovations include the suffixes **-au(je/a)-* and **-ō(je/a)-* and the specialization of the *ā*-presents (< post-PIE **-ah₂-e/o-*) as deverbatives.

3.3 PIE background 2: Formations lost in Balto-Slavic

In my view, no more (or less) denominative formations than those surveyed in 2 need to be reconstructed for Balto-Slavic. Slavic and, especially, Baltic have a

³⁰This is of course an oversimplification. See Yakubovich (2014), with references, for a more nuanced discussion of the Vedic facts.

wealth of extended suffixes like Lith. *-dėti*, *-dýti*, Sl. *-kati* etc.; see below in Section 3.5. They usually look secondary and, as far as I can see, there is no compelling reason to project them back into Balto-Slavic.

At least one verb appears to entail conversion: Sl. **pělvā* ‘chaff’ → Sl. **pělti* (< **pělv-ti*; Koch 1990: 647–648), **pělvq* ‘weed’ (OCS *plěti*, *plěvq*). A conversion analysis is, in my view, a distinct (and hitherto unexplored) possibility for other etymologically isolated primary verbs, e.g., OCS *prěti*, *perq* ‘fly’ (cf. Sl. **peró* ‘feather’), *zobati*, *zobljq* ‘peck’ (cf. Sl. **zōbъ*, *-b* ‘crop’). At any rate, conversion was purely sporadic in Balto-Slavic.

From a PIE perspective, the most interesting absence is that of some *īe/o*-subtypes. The suffix **-īe/o-* is of course ubiquitous in Balto-Slavic denominatives, but always as part of longer suffixes (**-ah₂-īe/o-* etc.). What is absent are *īe/o*-denominatives from consonant, **-i-*, and **-u-*stems (types Ved. *āpas-* ‘work’ → *apas-yāti* ‘works’, *jāni-* ‘woman, wife’ → *janī-yāti* ‘desires a wife’, *śatru-* ‘enemy’ → *śatrū-yāti* ‘is hostile’). This is not by itself noteworthy (denominative suffixes may easily be lost), but each “missing type” calls for some comments.

Let us begin with consonant stems. Baltic does have denominative *ia*-presents, e.g., *juōkas* ‘laughter, joke’ → *juōktis*, *-ias* ‘laugh’, *švėntas* ‘holy’ → *švėsti*, *švėnčia* ‘celebrate’. These, however, almost certainly are regularizations of the obsolete type *tarýti*, *-ia* and continue, accordingly, PIE **-eīe/o-* (2.5). Note, incidentally, that this implies that Baltic has no denominatives of the type Gk. ἄγγελος ‘messenger’ → ἄγγέλλω ‘bear a message’ (< **el-īe/o-*), with deletion of the thematic vowel. Slavic has a large class of “expressive” primary verbs such as OCS *glagolati*, *glagolje-* ‘speak’. Some of them could be interpreted as denominatives (cf. *glagolъ* ‘speech’), but most certainly not, cf. Vaillant (1966: 328–346). Note, finally, that Balto-Slavic has no historically complex suffixes like Gk. *-ιζω* (< **-id-īe/o-*) or Toch. **-ññä/æ-* (< **-n-īe/o-*).

The lack of a special suffix for *i*-stem denominatives is fully expected. The development PIE **-eīe/o-* > Bl.-Sl. **-ī-* must have started with an early raising **-eīe/o-* > *-iīe/o-*, which entailed merger with *i*-stem denominatives in **-i-īe/o-* (see above Table 1). This is confirmed by Slavic, where *i*-verbs build denominatives from *-o-* and *-i-*stems alike. The Baltic type *dalýti*, *-ija* does not go back to *i*-stem denominatives (cf. Villanueva Svensson 2023a).

The *u*-stems are more interesting. We do not only lack reflexes of **-u-īe/o-*; the stem vowel *-u-* is absent in denominatives: Lith. *saldūs* ‘sweet’ (OCS *sladъkъ*) → *sald-ėti* ‘be, become sweet’, *sáld-inti* ‘sweeten’. In recent years the matter has received two different interpretations. Ostrowski (2006: 117–118) suggests that we are dealing with Caland system relics; see also Majer (2021: 261–262, and *passim*) for discussion. Hill (2012: 6–13), on the other hand, has argued for a Northern

Indo-European rule of *u*-deletion before *jod*. At this point it should be noted that **-u-* is also absent from the feminine of *u*-stem adjectives: Lith. *saldì*, *-džios* (contrast Ved. *ur-ú-h* : *ur-v-î*, Gk. γλυκύς : γλυκεῖα < *-eu-ja*). As a third option I would suggest analogy with *o*-stem adjectives, where the thematic vowel is (synchronically) deleted: Lith. *plónas* ‘thin’ → *plon-ėti* ‘become thin’, *plón-inti* ‘make thin’. The issue clearly deserves more work.

3.4 Balto-Slavic denominatives from a typological perspective

In this section I will briefly survey what Balto-Slavic tells us about the way denominatives arise and develop. The inference of what we have seen seems to be that (almost) anything goes. Denominatives may be inherited (e.g., **-eje/o-*, **-eh₁-je/a-*), created anew (**-au₂-je/a-*), or transformed in different ways (e.g., Lith. *-inti*, *-ina* and *-ýti*, *-ija*). The Balto-Slavic picture is perhaps more interesting from the viewpoint of semantics and, especially, the interplay of denominatives and deverbatives.

I am not aware of detailed studies on denominative semantics from a historical perspective. PIE **-eje/o-* (Bl.-Sl. **-ī-*) was often (though not exclusively) transitive, but the semantics of **-ā₂-je/a-*, **-ō₂-je/a-*, and **-au₂-je/a-* would definitely benefit from more work. Deadjectives in **-ē₂-je/a-* developed from essives to fientives in both Baltic and Slavic, but the interplay between both values is well known. As for the interplay between denominatives and deverbatives, it has been rampant. This may be a consequence, in part, of the architecture of the Balto-Slavic verb, which can be seen as a network of interrelated verbs, each of them filling the slot of a given Aktionsart. See Table 2.

It is also important to note that Balto-Slavic, unlike other branches, has preserved the autonomy of the root up to very recently (in Baltic to some degree up to this day). At any rate, it is evident that such a system provided abundant grounds for mutual contamination between denominatives and deverbatives. Interestingly, not all theoretical configurations took place with the same intensity:

1. “Denominative → secondary verbal formation (iterative, causative, etc.)” is the most common development. It happened in the case of PIE **-ah₂-je/o-*, **-eh₁-je/o-*, Bl.-Sl. **-ō₂-je/a-*, **-au₂-je/a-*, and Bl. **-inti*, **-ina*, if at very different dates. If my account is correct, in the case of the Balto-Slavic *ā*-presents and the Slavic type *rinōti*, *rine-* an original denominative type survives as deverbative alone. Another generalization is that once deverbatives are established in the system, they easily evolve towards more complicated morphology, whereas denominatives tend to keep simpler morphology.

Table 2: Lithuanian verb system

	I Unmarked (transitive)	II Stative- durative	III Inchoative- anticausative	IV Causative	V Iterative (etc.)
	<i>a-</i> , <i>ia-</i> presents	2 nd stem *- <i>ē-</i> , *- <i>ā-</i>	- <i>n-</i> , <i>sta-</i> presents	- <i>ýti</i> , - <i>inti</i>	- <i>ýti</i> , - <i>óti</i> , <i>inėti</i> , etc.
strew (* <i>b^her-</i>)	<i>bérti</i> , - <i>ia</i>	<i>byrėti</i> , <i>bỹra</i>	<i>birti</i> , <i>bỹra</i> (< * <i>biñra</i>)	<i>bìrinti</i>	<i>barstýti</i> , <i>birénti</i> , <i>bìrsnóti</i>
lift (* <i>kelh₃-</i>)	<i>kélti</i> , <i>kēlia</i>	<i>pa-kylėti</i>	<i>kilti</i> , <i>kỹla</i> (< * <i>kiñla</i>)	<i>kéldinti</i> , <i>kildyti</i> , <i>kildinti</i>	<i>kilnóti</i> , <i>kilóti</i> , <i>kilsúoti</i> , <i>kilstelėti</i>
peck (* <i>les-</i>)	<i>lèsti</i> , <i>lěsa</i>			<i>lèsinti</i>	<i>lesióti</i>
sleep (* <i>meig^h-</i>)		<i>miegóti</i> , - <i>a</i>	<i>už-mìgti</i> , - <i>miñga</i>	<i>migdýti</i>	

2. “Denominative → (unmarked) primary verb” certainly occurs in isolated verbs. What seems to be genuinely rare is the creation of primary verbal classes out of denominatives. Potential cases (primary *ē*-statives, *ā*-aorist) almost certainly passed through a stage involving secondary verbal derivation.
3. “Secondary verbal formation → denominative” appears to be very rare. The only certain case is the Northern Indo-European fientive type **g^hru-m-b^h-e/o-*, which probably responded to a highly specific situation. Slavic *i*-factitives are easily explained as an extension of transitive desubstantives, with deverbal causatives playing at best a supporting role. If my account is correct causatives like Lith. *dėginti*, -*ina* are a secondary extension of factitive deadjectives.
4. Finally, “(unmarked) primary verb → denominative” is unattested. It is noteworthy that secondary deverbal formations appear to go back to denominatives much more frequently than to reanalysis of primary verb morphology.

If these observations are accurate, they are potentially interesting for work on other branches, especially in the case of formations that, in theory, could be of both denominative and deverbative origin (e.g., factitive-causatives). It is evident, however, that they should be tested against a more extensive and clearly delimited dataset before they can be regarded as general tendencies of language change.

3.5 After Balto-Slavic

The Balto-Slavic verbal system sketched above (3.4) provided abundant grounds for the creation of new complex suffixes, semantic specialization, etc. Also, of course, for contamination with denominatives. Here we are only interested in the development of the system after the breakup of Balto-Slavic, with some notes on possible areal phenomena:

1. The system was not only preserved, but actually reinforced in Baltic (note especially, but not only the development of the *ī*-verbs). In addition, Baltic is rich in semantically and formally specialized minor subtypes (“intensives”, “diminutives”, etc.). It is interesting to note that on this score Baltic contrasts with the major Indo-European branches of Europe. From an areal perspective, it is tempting to attribute the divergent development of Baltic, in part, to Uralic influence (as suggested by Pakerys 2018 for the causative).
2. The system was eliminated in Slavic. Types like the *no*-inchoatives, the *ě*-statives, or the *i*-causatives are still abundantly represented, but are not productive anymore. The *a*-iteratives, of course, became immensely productive, but as part of a new system of grammatical aspect. From a typological point of view late Slavic came to be aligned with the modern Germanic and Romance languages in disfavoring secondary verbal derivation altogether. The Slavic development may indeed have been scattered by contacts with these languages.

If these observations are correct, the recent development of Baltic and Slavic awaits further work. The matter, in addition, has an obvious interest for the areal dimension of language change. Be it as it may, the divergent tendencies towards complication in Baltic and simplification in Slavic are clearly seen in the denominative system as well.

To conclude, I hope to have shown that Baltic and Slavic denominatives are not only interesting for their own sake; they have a genuine contribution to make to the reconstruction of the PIE system.

Acknowledgements

The final version of this paper has benefited from the comments of Marek Majer, Jurgis Pakerys, Viktoria Reiter and an anonymous reviewer of an earlier version of it. My thanks must be extended to the participants in the Workshop and to the organizers. Needless to say, I alone am responsible for the views presented here.

Abbreviations

Aor.	Aorist	OIr.	Old Irish
Bl.	Baltic	OLith.	Old Lithuanian
Bl.-Sl.	Balto-Slavic	ON	Old Norse
CSl.	Common Slavic	OPr.	Old Prussian
Fem.	Feminine	Pass.	Passive
Gen.	Genitive	PIE	Proto-Indo-European
Gk.	Greek	Pl.	Plural
Gmc.	Germanic	Pl.t.	Pluralia tantum
Go.	Gothic	Pol.	Polish
Hitt.	Hittite	Pret.	Preterite
Impf.	Imperfective	Ptcp.	Participle
Inf.	Infinitive	Refl.	Reflexive
Intr.	Intransitive	Sg.	Singular
Iter.	Iterative	Sl.	Slavic
Lat.	Latin	Toch.	Tocharian
Latv.	Latvian	Tr.	Transitive
Lith.	Lithuanian	Ved.	Vedic
OCS	Old Church Slavonic		

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