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TOWARD A RELATIVE CHRONOLOGY OF THE EARLIEST BALTIC AND SLAVIC SOUND CHANGES

I. Introduction

The fact that there are several shared exclusive Baltic and Slavic sound changes does not prove, by itself, the existence of a Balto-Slavic protolanguage. Some such changes might be shared accidentally, while some might be the result of language contact occurring after the separation of the two branches¹. However, if (1) there is a consistent relative chronology of the exclusively shared changes in both Slavic and Baltic, and (2) there is no demonstrably older set of sound changes that is characteristic of only one branch of Balto-Slavic, then this means that:

-there was a period, probably immediately after the breakup of PIE, when certain sound changes spread over the territory inhabited by speakers of the language from which both Baltic and Slavic originated;

-this period lasted long enough for all of those changes to occur in the particular order that must be posited for them.

Therefore, if we can establish the existence of such a relative chronology of the earliest Baltic and Slavic sound changes, this would amount to a proof of the existence of a language, that existed for a certain period of time (the time needed for those changes to occur) and in a certain territory (the territory through which those sound changes spread, establishing neat bundles of isoglosses at its boundary). For all practical purposes, this language, if it existed, would have to be called the Balto-Slavic protolanguage².

¹ An example of such a development can be observed in the history of Insular Celtic languages. Both branches of Insular Celtic share a number of sound changes that are demonstrably later than any reconstructed Celtic, or Insular Celtic protolanguage, e. g. lenition of stops, syncope, apocope, *i*-affection, etc. All of these changes must have occurred in British and Goidelic long after the Proto-Celtic period, and even after some of the sound changes that affected only one of these language groups. We know that, for example, the different development of the voiceless labiovelar (**kʷ*) in British and Goidelic is earlier than any of the common changes adduced above (see M a t a s o v i ć 2005a).

² On the importance of relative chronology for genetic subclassification, see M a t a s o v i ć 1994 and 2001. For a recent overview of the Balto-Slavic problem, see P o l j a k o v 1995, and for a critical assessment of the problem of relative chronology of the earliest Baltic sound changes see K a z l a u s - k a s 1972.

In what follows, I propose to take a fresh look at the earliest sound changes that can be independently posited for both Baltic and Slavic and try to establish a relative chronology of those changes. Only the unproblematic sound changes will be considered, i. e. only those changes that are accepted by the majority of linguists.

II. Relative chronology

I propose the following relative chronology:

1. Depalatalizations; I believe there were at least two depalatalizations of PIE palatals in Baltic and Slavic, some of which might have parallels in other IE languages (especially Indo-Iranian and Albanian): I. **k'* was depalatalized after **s*, cp. OCS *laskrědb* 'desire' from the root *las-* (Russ. *lásyj* 'lustful'³) and PIE **k'rd-* 'heart' (OCS *srědbce* etc.). II. palatalized velars were depalatalized before {r, l, m} followed by back vowels (Lith. *akmuõ* 'stone' < PIE **h₂ek'mōn* (OInd. *ásmā*), but *āšmenys* 'edge' < **h₂ek'men-*).

The non-operation of the rule (II) before **w* and **n* is confirmed by the following examples⁴: PIE **(p)k'wōn* 'dog' (OInd. *śvā*) > Lith. *šuõ*, Croat. *pas*; PIE **g'neh₃-* 'know' (L *co-gnōsco*, OInd. *jñānam* 'knowledge') > OCS *znati*.

In Croat. *sínuti* 'flash', which is related to Goth. *skeinan* 'shine', we do not have a reflex of PIE **sk'eHy-* (as suggested by LIV, s. v.), but rather of **k'eHy-*, without the *s*-mobile. OCS *prostiti* 'ask' and Lith. *prašýti* are not straightforward reflexes of PIE **prk'-sk'-o-* (L *posco* etc.), but causatives built from the stem **prok'-eye-*; similarly OCS *pasti* 'herd' is not directly superimposable on L *pāscō*; it is rather built from a stem in **peh₂-s-*, where **-s-* is a suffix. Present formations with **-s-* are often parallel to formations with *-sk'-*, cp. L *gnōscit* 'recognizes' vs. Hitt. *kanešzi* 'knows', or Lith. *maišyti*, OCS *měsiti* 'mix' vs. L *misceo*.

2. Satemization (and delabialization of labiovelars?).

PIE palatals became affricates (**ć*, **đ*, **đ^h*), and, subsequently, fricatives (**ś*, **ź*, **ž^h*).

Depalatalization of **k'* after **s-* must be earlier than satemization. Otherwise, we would have had **h₂eys-sk'-o-* > **ays-sćo-* > Lith. **iešoti*, OCS *isati* instead of the attested *ieškóti*, *iskati*. The fricative *š* rather than *s* in Lithuanian is best explained by assuming that the RUKI-rule is later than satemization. Otherwise, we would have had Lith. **ieskoti*.

³ These forms show, as Smoczyński has demonstrated (2001, 378), that we should reconstruct the root **las-*, rather than **lask-* for Proto-Slavic. The parallelism with L *lascīvus* is accidental.

⁴ Kortlandt (1978) proposed that the depalatalization was general before all resonants (followed by back vowels), but I find this difficult to accept. The depalatalization of **k'* after **s* is accepted as a common Balto-Slavic innovation by Andersen (1970). For a more detailed discussion of the depalatalization rules in BSl. see Matasović 2005.

Delabialization of labiovelars is impossible to date precisely, since they left no traces in Balto-Slavic (*pace* Kortlandt), but it may have been contemporary with the changes affecting the PIE palatals.

3. RUKI: PIE *s > *š/{i, u, r, k}_.

I believe that RUKI is later than satemization, because PIE *h₂ek'si 'axis' (L *axis*, OInd. *ákšī-*) > OCS *osb*, Lith. *ašìs*; in a similar manner, PIE *dek'sino- 'right' (OInd. *dákšina-*, L *dexter* < *dek'sitero-) > OCS *desъnъ* (a by-form of the more common *desnъ*). Otherwise, we would presumably have had PIE *h₂ek'si- developing as *Hak'si-, eventually yielding OCS *ašb rather than *osb*. Similarly, OCS *věsъ* 'I drove' can most easily be derived from *wēg^h-s-om if one assumes that *g^h developed to *ž (> *ś) before *s became *š after velars.

The question of the regular reflex of *s after *i and *u in Baltic is a very complex one; the best account of the problem can be found in Karaliūnas 1966, where it is argued that *s had first changed to *š after *i and *u in Baltic, but subsequently *š was changed to *s in root nouns (on the analogy of other Nom. sg. endings), in many suffixes and in younger, post-Balto-Slavic formations; for example, Lith. *ausis* 'ear' was a root-noun in Proto-Baltic, so we may reconstruct *awš-s > *aws; subsequently, this word became an *i*-stem, which is regular for old root-nouns in Baltic and Slavic⁵. In some nouns one has to assume subsequent changes, e. g. Lith. *saišsas* 'dry' < PIE *sh₂ewsos (OCS *suxъ*, OE *sēar*, etc.) was probably assimilated from *saušas.

In Balto-Slavic, the development of clusters involving the palatals and *s is the same as the development of palatals before vowels, without any evidence that *s had changed to *š before satemization. On the other hand, in Indo-Iranian, clusters involving palatals and *s are still distinguished from those involving plain velars (and labiovelars) and *s, cp. Av. *vaxšyā* 'I shall say' < *wek^w-syo-, but *dašina-* 'right' < *dek'sino-. OInd. has *kš* in both *vakšyāmi* and *dákšina-*, but this is the result of a later merger of *ś and *š before dentals (cp. Burrow 1973, 91). Thus the stop *k* seen in OInd. *a-vāk-š-at* 'he drove' (from the verb *vah-* < PIE *weg^h-) and *a-dik-š-at* 'he showed' (from *diš-* < PIE *deyk'-) is secondary; apparently, it developed from the cerebral *t < *š. From the Iranian reflexes it appears that the palatalized velars behaved just like plain velars when *s changed to *š, and that the satemization was subsequent to this change. Otherwise, we would presumably have had PIE *dek'sino- developing to *daśsina- > *dassina- > Av. *dasina- rather than the attested form, *dašina-*.

⁵ Hamp 1966 and Andersen 1968, 1970 basically agree with Karaliūnas. Andersen (1970, 15) claims that RUKI is older than satemization because of Lith. 3sg. future forms *veš*, *neš* (from *veš-s-, *neš-s- respectively). This is, however, a very weak argument, since one must count with the possibility of a late assimilation of *šs > š word-finally, in order to preserve the form of the root throughout the paradigm.

K o r t l a n d t seems to think (2005, 4) that RUKI is older than satemization and the depalatalizations in Balto-Slavic, but he does not state his reasons. It is perfectly possible that RUKI is older than these changes in Indo-Iranian, but later in Balto-Slavic; it would be an instance of areal spread of a sound change (or a series of changes) diffusing from different directions.

4. Hirt's law: retraction of the stress to the pretonic vowel (or syllabic resonant) if it was followed by a laryngeal.

Hirt's law must be older than the loss of the laryngeals in prevocalic position, because the stress was not retracted in **tenh₂wós* 'thin' (G *tanaós*) > Latv. *tiēvs*. It also must be earlier than the development of syllabic resonants, because the law operated on Lith. *pīlnas* < PIE **plh₁nós* (OInd. *pūrṇás*).

5. Developments of syllabic resonants; in a paper recently published in *Indogermanische Forschungen* I tried to show that the development of syllabic resonants in Balto-Slavic was subject to precise rules⁶: the regular reflexes of syllabic **m*, **n*, **l*, and **r* are **im*, **in*, **il* and **ir*, respectively, in non-initial syllables, while in the initial syllables, syllabic liquids changed to **um*, **un*, **ul*, and **ur* after velars, while syllabic nasals received a prothetic **u-* in all environments (but analogically often changed to **im*, **in*, **il*, and **ir* in roots with productive ablaut). Thus, the development of syllabic resonants must actually be represented as a series of changes:

- I $\text{R} > \partial\text{R}$ (where R stands for any resonant)
- II $\partial > i / _X\#$ (i. e. in the last syllable)
- III $\partial > u / _NC$ (where N stands for any nasal)
- IV $\partial > u / K_CC$ (where K stands for any velar)

According to these rules, we have the regular reflexes of syllabic resonants in Lith. *dėšimt* 'ten' < PIE **dek'mt*, Lith. *gurklỹs* 'throat' < PIE **g^wrtlo-*, and Lith. *ugnīs* 'fire' < **ungnis* < PIE **ngni-*. These rather complex developments must have occurred after Hirt's law, but before Lidén's law, which allows us to date them rather precisely.

It follows from this chronology that the developments of PIE syllabic resonants were posterior to the depalatalizations, as in K o r t l a n d t's chronology (2005); however, contrary to K o r t l a n d t (1978), I do not find any evidence that depalatalization rules applied before syllabic resonants as well.

6. Lidén's law: PIE **w > 0 /#\{r, l\}*

Lidén's law is probably posterior to the development of syllabic resonants, because of the reflexes of PIE **wlHneh₂* > **wilHnaH* > Lith. *vilna* and **wrb^ho-* > Lith. *viřbas*

⁶ See Matasović 2004 for a detailed discussion of the development of syllabic resonants in Balto-Slavic.

‘withe’, Russ. *vérba* ‘willow’, Pol. *wierzba*. This change produced doublets of the same root, e. g. Lith. *lāpė* ‘fox’ < **h₂wlōp-* (G *alópēks*), but *vilpišỹs* ‘wild cat’ < **wlp-* (L *vulpēs*)⁷. It is, of course, possible that the change occurred only before non-syllabic resonants, but not before syllabic resonants, but this is improbable on phonetic grounds. In Latin, where we also have the change **wl > *l-*, it occurred after the specifically Latin change of **wlH-* > **lā*, as is clear from **wlh₂neh₂* > L *lāna* ‘wool’.

7. Loss of word-final **-d*

**-d* must have been lost before Winter’s law, because of **tod* > OCS *to*. It is, however, also possible that word-final **t* and **d* merged earlier (as they did in most languages), in which case their fall cannot be dated precisely.

8. Winter’s law: vowels were lengthened before PIE voiced consonants in closed syllables, and the lengthened syllables received the Balto-Slavic acute.

Laryngeals were still segmental phonemes in the prevocalic position when Winter’s law operated, because the initial vowel of OCS *azъ* < (H)*og’Hom* ‘I’ was lengthened regularly; similarly, we can derive OCS *vada* ‘strife’ regularly from a PIE collective **h₂wodh₂ōr* (cp. G *audé* ‘voice’, Hitt. *uddar* ‘word’; the derivation is parallel to the one in *voda* ‘water’ from PIE **wodōr*) only if the first syllable was closed by the laryngeal when Winter’s law operated.

9. **o > *a*

The change **o > *a* must be placed after Winter’s law, because original **o* is lengthened as Lith. *uo*, and original **a* (from **h₂e*) is lengthened as Lith. *o*, cp. PIE **h₂eph₃lo-* > **ablo-* (OE *aeppel*) > Lith. *obuolỹs*, but **h₃ed-yo-* ‘smell’ > **odyo-* (G *ózō*) > Lith. *úodžiu*. This development has therefore nothing to do with the similar changes in Germanic, Albanian, and Indo-Iranian. Kortlandt (1985) thinks that the change of **o* to **a* and of **ō* to **ā* are parallel processes occurring in Proto-Slavic, which would mean that the identical change of **o* to **a* in Baltic is an independent development. However, it is more economical to assume that the merger of short **a* and **o* was a common Balto-Slavic innovation.

10. Deaspiration of the aspirated stops.

Aspirated stops merged with the voiced stops in Balto-Slavic. This is obviously later than Winter’s law. The changes **b^h > b*, **d^h > d*, etc., in Balto-Slavic are therefore independent of the similar processes in Celtic, Germanic, and Albanian.

11. Loss of laryngeals

Loss of the laryngeals before vowels must be later than the developments of resonants, because of PIE **tnh₂u-* ‘thin’ (lat. *tenuis*, G *tanaós*) > PSl. **t̃ñk̃-* (Russ. *tónkyj*)⁸.

⁷ In light of the evidence, it seems most appropriate to reconstruct two nouns in PIE: a root-noun **h₂wlōps* / **h₂wlp-os* m. and a derived noun **h₂wlopeh₁(k)-s* f.

⁸ The sequence **in* in OCS. *t̃ñk̃* and Latv. *tievs* is analogical, cp. Matasović 2004.

Similarly, Lith. *gìlė* ‘acorn’ (< **g^welh₂* / **g^wlh₂-os*, cp. G *bálanos*, L *glāns*) shows that the laryngeal was still there when syllabic **l* changed to *il*.

Laryngeals may have been lost in other positions at an early stage as well, e. g. before **y*, cp. Lith. *ariù* ‘I plow’ (implying a form without the laryngeal), but infinitive *árti* (with the laryngeal preserved), cp. S m o c z y ń s k i 1999.

Laryngeals must still have been segments when **h₂ek'mōn* (regularly depalatalized to **h₂ekmōn*) > **keh₂mōn*, from which we have OCS *kamy* ‘stone’. Although this metathesized form is found only in Slavic, we should not rush to conclude that the metathesis had to occur in Proto-Slavic, rather than in Balto-Slavic (or even earlier?). It could be that the reflexes of **keh₂mōn* were accidentally lost in Baltic, just as the reflexes of the stem **h₂ek'men-* (with **k'* intact) were lost in Slavic, but preserved as Lith. *āšmenys* ‘edge, blade’.

When laryngeals were lost after resonants, there was the compensatory lengthening of the preceding syllable, which received the Balto-Slavic acute: PIE **h₂erh₃tlo-* ‘plough’ (G *árotron*, L *aratrum*, W *aradr*) > **ar:tlo-* > Lith. *árklas*, PIE **dlHg^ho-* ‘long’ (OInd. *dīrghá-*) > *(*d*)*ilHgo-* > *(*d*)*il:go-* > Lith. *ilgas*. The lengthening occurred even when the laryngeal was followed by a vowel, cp. **g^wlh₂-* ‘acorn’ > **gilHV-* > Lith. *gìlė*. Acute could have been just a feature of vowels at this stage, presumably glottalization. In any case, it was not a segment. It is possible that instances of Balto-Slavic vrddhi that also have the acute originated analogically at this stage (e. g. Lith. *vilkė* ‘she-wolf’, *várna* ‘crow’). Old PIE vrddhi formations do not have the acute in Balto-Slavic, e. g. PIE **h₂ōwyom* ‘egg’ (L *ōvum*) > Croat. *jáje*.

The loss of laryngeals could have been general – in one big sweep – or gradual (they may have been lost in some environments before the others). They were certainly lost after the changes discussed under 1-10, but it is at present impossible to ascertain when and how. It is quite possible, as Kortlandt thinks, that (at least in some positions) they remained until after the breakup of the Balto-Slavic protolanguage.

III. Some remaining problems.

The sound changes discussed so far do not exhaust all of the common phonological developments shared by Baltic and Slavic. There are, indeed, other exclusive Balto-Slavic sound changes, but their position in the relative chronology is difficult to establish. The following changes may be mentioned:

1. The creation of the Balto-Slavic mobile accentual paradigm.

That the Balto-Slavic nouns with mobile accent are derived from PIE end-stressed nouns is known since I l l i č - S v i t y č’s ground-breaking monograph (1963). However, exactly how oxytona became nouns with mobile stress is still disputed. The solution

advocated by Kortlandt (1975, 1994, etc.) involves several rather complicated steps. This problem cannot be pursued here for reasons of space.

2. **mn > mm > m* in medial participles:

PIE **h₁nek'-o-mh₁no-s* 'being carried' > **nešomnos* > **nešomos* > Lith. *nėšamas*, OCS *nesomъ*. This change must come after the loss of laryngeals between consonants and also after an earlier assimilation of the inherited **mn > n*, as in **spoHimneh₂* 'foam' (L *spūma*, OInd. *phená-*) > Lith. *spáinė*, OCS *pěna*, and in PIE **tm-n-* 'I cut' (G *témnō*, OIr. *tamnaid*) > **tum-n-oH* > (analogically) **timnoH* > **tinoH* > ORuss. *тъну*, Czech *tnu* 'hit', Lith. *tinù*, *tinti* 'sharpen'. The last example shows that, if this assimilation occurred, it was also posterior to the development of syllabic resonants.

2. **ew > *ow/_V*

This change affected only a few words, such as PIE **newos* 'new' (G *néos*) > **nowos* > OCS *novъ*, Lith. *naũjas*. The development of PIE **ew > BSl. *ow/_V* must come after the depalatalization, because of **k'lews* 'fame' (G *kléos*) > **k'lowos* > OCS *slovo* 'word'. It is possible, however, that the change **ew > ow/_V* is exclusively Slavic, if Lith. *naũjas* is dissimilated from **nyawyas* (Smoczyński 2001). If, on the other hand, the change is Balto-Slavic, then it must precede the following one:

3. **ew > *yow (> *yaw)*

There are many examples that attest this change, e. g. PIE **lewd^hi-* 'people' (OHG *liut(i)*) > OCS *ljudъje*, Lith. *liáudis*.

4. **r > 0 /ō_#*

Lith. *iř* 'and' and *dabař* 'now' show us that word-final **r* was preserved after short vowels, and the word-final *i* in OCS *dъšti* 'daughter' shows that word-final **r* was still there to cause the raising of the preceding **ē* in Proto-Slavic. However, the correspondence of Lith. *vanduõ* and OCS *voda* 'water' shows that the loss of word-final **r* after **ō* might go back to the common BSl. period (although the possibility of independent development in both branches of Balto-Slavic cannot be excluded).

IV. Conclusions

1. Eleven different sound changes that had to occur in the approximate⁹ order sketched above represent, in my opinion, a strong argument in favor of genetic subclassification of Baltic and Slavic in one branch of Indo-European. This is so especially because we

⁹ Note that the relative position of several changes in the chronology sketched above cannot be established. For example, we know that the change no. 6 (Lidén's law) is later than the development of syllabic resonants (no. 5), but it could also be later than the changes no. 7, 8, 9, and 10. Similarly, we cannot tell whether the change of **o* to **a* (no. 9) is earlier or later than the deaspiration of aspirated stops (no. 10). Their relative position suggested here should, therefore, be taken as provisory.

do not find, either in Baltic or in Slavic, any sound changes that (1) are not shared by the other branch, and (2) are demonstrably earlier than the changes discussed above¹⁰.

However, a *caveat* is in order at this point. It has been claimed¹¹ that the metathesis **ks* > **sk-* is an exclusively Baltic sound change, which does not occur in Slavic, where **ks* > *x* (cp., e. g., Lith. *skaudùs* ‘painful’ vs. OCS *xudъ* ‘small, poor’, OInd. *kšudrá-* ‘small, insignificant’). Since the metathesized **sk* did not become **š* by RUKI, this seems to imply that the metathesis predated at least one common Balto-Slavic sound change. This would then represent evidence for an early dialectal difference between Baltic and Slavic preceding their shared developments. It has also been claimed that the reverse metathesis of **skC* > **ksC* occurred before RUKI (A n d e r s e n 1970, 17), because we have *š* rather than *s* in infinitives such as *blōkšti* ‘throw’ (< **blos-k-ti*) and *trókšti* ‘be thirsty’, which show this metathesis. The fricative *š* in *blōškia* ‘throws’ and *tróško* ‘was thirsty’ can be explained as analogical, spreading from the metathesized forms. Since this metathesis is unattested in Slavic, it could represent an early isogloss separating it from Baltic. On the other hand, one must count with the possibility that word initial **šk-* (resulting from metathesized **ks-*) merged with original **sk-* in Baltic, and one also has to keep in mind that words showing the metathesis of **sk* to **kš* before a consonant in Baltic appear to be late formations, with unclear PIE etymologies. In any case, Lith. *kš* instead of the expected *ks* is never quite reliable as an indicator of relative chronology, because it occurs in some very late borrowings, e. g. in Lith. *krikštas* ‘baptism’ from OCS *krъstъ*. A new, thorough examination of the Balto-Slavic material with the clusters **ks* and **sk* would certainly be desirable¹².

2. Winter’s law has a focal position in the relative chronology of sound changes discussed above. If it were removed from the list, we would be unable to place the changes 7, 9, and 10 in the relative chronology, except in the broadest of terms. However, the law still remains controversial. I stick to my own formulation (M a t a s o v i ć 1995) because there are just too many counter-examples to the original one. That is, there are just too many words with unlengthened vowels in open syllables before PIE voiced stops in both Baltic and Slavic, and they cannot be dismissed as being based on false

¹⁰ It is in principle also possible that some morphological changes peculiar only to Slavic (or Baltic) are earlier than the common Balto-Slavic sound changes, but there is no evidence for such an assumption.

¹¹ Cp. S t a n g 1966, 95.

¹² A particular problem is posed by the equation of Lith. *vāškas* ‘wax’ with OCS *voskъ* and OHG *wahs*. If we start from **wokso-*, then it seems that the RUKI-rule applied in Baltic before the metathesis of **ks* > **sk*, but not in Slavic. On the other hand, the metathesis could be later than RUKI in both branches, and confirm that, at some period during the history of Baltic, **sk-* was generalized word-initially, but **-šk-* word-internally. Words showing word-internal **-sk-*, such as Lith. *druskà* ‘salt’, would then have to be considered as younger formations, coined after that period.

etymologies. I have in mind examples such as the following: Lith. *dubùs* ‘deep’ (Goth. *diups*), Lith. *gegužė* ‘cuckoo’ (OHG *guoh*), Lith. *kadà* ‘when’ (OInd. *kadā*), Lith. *ligà* ‘disease’ (G *loigós*), Lith. *pādas* ‘sole’ (G *pédon*), Lith. *segù* ‘bind’ (OInd. *sajati*), Lith. *smagùs* ‘heavy’ (G *mógos* ‘toil’), OCS *kobь* ‘destiny’ (cp. ON *happ* ‘happiness’), etc¹³. On the other hand, there are no genuine counter-examples to my own formulation (i. e. the absence of lengthening in a closed syllable before PIE voiced stops). The fact that we occasionally find long vowels in open syllables as well, e. g. in Lith. *núogas* ‘naked’ is *not* an argument against my formulation, because length in those words could have other causes apart from Winter’s law¹⁴.

3. The relative chronology arrived at in the preceding paragraphs agrees in the general outline with the conclusions of Frederik Kortlandt, who has published several articles on the subject (cp., e. g., K o r t l a n d t 1994; 2005). Our independent investigation proves that Kortlandt is basically right, although we disagree on certain points (e. g. the formulation of Winter’s law). His relative chronology may not have won general acceptance, which it would deserve, because Kortlandt included in it several sound changes that other linguists find difficult to believe in (e. g. the general early Balto-Slavic change of **o* to **u* before word final **m*), and because he insists on relating phenomena such as Winter’s law, and the Balto-Slavic acute, to the glottalic theory, which is today rejected by the majority of Indo-Europeanists. It needs to be stressed, however, that Kortlandt’s approach to Balto-Slavic relative chronology, and most of his conclusions about it, are valid even if one does not accept all of his theoretical presuppositions. The relative chronology of at least the generally accepted Balto-Slavic sound changes now appears established, and should be included into reference works on Baltic historical linguistics¹⁵.

¹³ See M a t a s o v i ć 1995 for more examples of words with short vowels in open syllables before voiced stops in BSl. K o r t l a n d t 1988 deals with some, but not all of them. I find objectionable his use of forms with a nasal infix, which, in his opinion, blocked the operation of Winter’s law, to account for the lack of lengthening in forms where no infix is attested. E. g., Kortlandt dismisses the problem presented by the short vowel of Lith. *sègti* ‘fasten’ by claiming that this verb had a nasal present in BSl. (cp. Pol. *segać*). Is it really justified to assume, as K o r t l a n d t does (1988, 389) that “the Baltic root *seg-* was evidently extracted from a Balto-Slavic nasal present with a cluster **-ngn-**”? Besides that, I fail to understand how a form like OCS *xodь* ‘walk’ can be built on the analogy with the reduplicated present **si-sd-o-*, for which there is no evidence in BSl. Similar objections hold for Derksen’s attempt to defend the original formulation of the law (D e r k s e n 2002).

¹⁴ The differences of word-formation in the reflexes of PIE **nog^w-* (L *nūdus* < **nog^wed^ho-*, G *gymnós* < **nog^wmo-*, OInd. *nagná-* < **nog^wno-*, Hitt. *nekumant-* < **neg^w-wont-*) point to the existence of a root-noun **nōg^w-s / *nog^w-os* ‘naked body’. Balto-Slavic languages have preserved the long grade from the nominative, while other languages have generalized the full grade of the oblique cases.

¹⁵ S t a n g (1966) and Z i n k e v i č i u s (1980) do not discuss this issue at all, while D i n i (2000, 91f.) stresses the importance of relative chronology for Baltic historical linguistics, but does not attempt to construct one.

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