LONG VOWELS IN BALTO–SLAVIC

1. Lengthened grade

According to the traditional doctrine, there are three types of long vowels in Indo-European languages:

1. Full-grade long vowels. These have acute tone in Lithuanian, and also in Greek final syllables, e. g. ἀλγὰ 'salary', ἀλφή 'gain'.
2. Contracted long vowels. These have circumflex tone in Lithuanian, and also in Greek final syllables, e. g. gen. sg. ἀλγὸς, ἀλφῆς.
3. Lengthened grade vowels. These have acute tone in Greek final syllables, e. g. ποιμῆν 'shepherd'. It is usually assumed that the circumflex tone of the Lithuanian cognate piemuoš is the result of a secondary development. This point of view is not supported by the material. In the following I intend to show that circumflex tone is regular on lengthened grade vowels in Balto-Slavic.

The origin of the lengthened grade has largely been clarified by J. Wackernagel in his Old Indic Grammar [1896, 66—68]. He distinguishes three categories with seven subdivisions:

(a) Secondary nominal derivatives. Wackernagel accepts Streitberg's suggestion [1894, 380] that lengthened grade in this category arose from analogical extension of lengthened grade in monosyllabic word forms.
(b) Roots in monosyllabic nouns, before primary suffixes, in the singular of athematic presents, and in the active s-aorist, e. g. -härd-, härđi 'heart', márštį 'wipes', ājaišam 'conquered'. The long root vowel of these words originated from phonetic lengthening in monosyllabic word forms, e. g. *härd, *jaiš.
(c) Final syllables of nom. sg. and loc. sg. forms of nominal stems in a resonant, e. g. sākhas 'friend', agnā 'in fire', both with loss of the formative *-i. Here I assume phonetic lengthening before a word-final resonant and subsequent loss of the resonant.

If we want to establish the tonal reflex of lengthened grade in Balto-Slavic, we have to examine what has remained of these categories in Lithuanian, Latvian, and Serbo-Croatian. I think that the following evidence is relevant.

1.1. The nom. sg. form of stems in a resonant ends in a circumflex long vowel in Lithuanian, e. g. akmuoš 'stone', duktē 'daughter'. The only Slavic word which
offers an indication for this category is SCr. Žrův 'crane', Czech žeráv, which reflects an original nom. sg. form *gerōu, cf. Latin grūs. The long vowel of Serbo-Croatian and Czech is in agreement with the Lithuanian circumflex. The short vowel of Slovene žerjav was obviously taken from the homonym meaning 'burning', which has the expected short vowel in both Cz. žeravý and SCr. žerava 'live coal'.

1.2. The sigmatic aorist has disappeared in Baltic, so our information on this category is limited to the Slavic data. There is a single verb which has preserved an unambiguous reflex of the lengthened grade in Serbo-Croatian: 1st sg. dônjeh next to doněsoh 'brought'. The long reflex of the jat corresponds with the Lith. circumflex. A second indication is provided by the isolated infinitive rÏjet (Dubrovnik) next to røći 'say' [Vaillant, 1966, 60].

If lengthened grade had yielded the acute tone in Balto-Slavic, we would expect to find the reflex of the acute throughout the aorist in Serbo-Croatian. This is not what we find. Outside the 2nd and 3rd sg. forms, the aorist has the same accent as the infinitive. Since influence of the latter category upon the former is hardly probable, I think that the original accentuation of the sigmatic aorist has been preserved in e. g. 1st sg. mrįjeh, ūmrįjeh 'died', klēh, zàkleh 'swore', Posavian zàkleh, with neo-acute corresponding to the Lith. circumflex.

It has been objected against this point of view that the absence of -s- in the OCS. 2nd and 3rd sg. forms mṛēts and kļēts may point to an original root aorist [e. g. Stang 1942, 65; Vaillant 1966, 191]. I do not think that the objection holds because the most obvious examples of PIE. root aorist are represented by sigmatic forms in bysto 'was' and dasto 'gave', for which an analogical origin cannot be made plausible. Moreover, OCS. sēts 'inquit' can hardly be separated from Alb. thom 'say', which must be derived from *kēnsmi. I conclude that the ending -tō was added after the loss of final *-s in all instances except bysto, dasto, and jasto 'ate', where it prevented the loss of *-s. As Dybo has shown for stems in an obstruent [1961, 37], sigmatic aorist forms were end-stressed and asigmatic aorist forms were stem-stressed at a certain stage in the development of Slavic. I think that the same distribution obtained with stems in a resonant.

One may wonder what has become of the sigmatic aorist in Baltic. In my view, the lengthened grade of the root in this category is reflected in the long vowel preterit. The argument rests upon three pieces of evidence.

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1 This chronology forces me to withdraw my agreement [expressed 1979a, 62] with Fortunatov's view that -tō represents the demonstrative pronoun because the latter was probably still *so at the stage when final *-s was lost [cf. Kortlandt, 1982a, 5]. This does not alter my opinion that -tō must be derived from a clitic.
Firstly, the endings of the long vowel preterit are the same as those of original imperfects and differ from those of original asigmatic aorists, which received the characteristic *-ā in East Baltic, e. g. Lith. *lipo ‘stuck’, stójo ‘stood’, OCS. -lāpe, sta. Sigmatic aorists of stems in an obstructuent were replaced with original imperfects, as they partly were in Slavic, e. g. Lith. vēdē ‘led’, OCS. vede. Since the long vowel preterit has the same endings, I assume that it has replaced the sigmatic aorist of stems in a resonant. The clearest example is the isolated paradigm of Lith. iūšti ‘take’, ima ‘takes’, ēmē ‘took’, which can now be identified with OCS. āeti, -ume-, āeta. The preservation of the distinction between thematic aorists and imperfects shows that the sigmatic aorist had not been lost at the time when *-ā spread as a preterit ending. Most probably, the form in *-ā was created in order to supply an imperfect to undervived aorist stems in Balto-Slavic, and the long vowel preterit was subsequently created as an imperfect to sigmatic aorist stems in East Baltic. Finally, the aorist was lost and the imperfect became a general preterit. The Lith. difference between the short vowel of vēdē and the long vowel of ēmē is in this conception parallel to the Slavic difference between thematic vede and athematic āeta.

Secondly, the long vowel preterit has the same tone as the infinitive, e. g. Lith. ĝērē ‘drank’, bērē ‘strewed’, lēkē ‘flew’, inf. ĝerī, beštī, lēktī. This is reminiscent of the Slavic aorist. I cannot accept the usual view that the tonal difference in the preterit was introduced on the analogy of the infinitive [e. g. Stang, 1966, 390]. The preservation of the tonal difference on the long vowel shows that the stem was originally followed by a nonsyllabic consonant in the preterit. I therefore assume that we have to start from forms of the type *bērs, *gērēs, and that the substitution of a vocalic ending for *-s was posterior to the rise of distinctive tone, which can be dated to the East Baltic period [cf. Kortlandt, 1977, 324]. It follows that the circumflex tone is the phonetic reflex of lengthened grade.

Thirdly, the preterit in *-ē has mobile accentuation in Lithuanian, even if the corresponding present has fixed stress, apart from the operation of Saussure’s law, e. g. āpveštē ‘mourns’, āpverkē ‘mourned’. Conversely, the preterit in *-ā has fixed stress, even if the corresponding present has mobile accentuation, e. g. nupērē ‘buys’, nupiršē ‘bought’. This is in agreement with the Slavic distribution of end-stressed sigmatic and stem-stressed asigmatic aorist forms, so that we can identify e. g. gērē ‘drank’ with OCS. źrēta ‘devoured’.

1.3. If Wackernagel’s hypothesis that the lengthened grade originated in monosyllabic forms is correct, it must have spread from the 2nd and 3rd sg. forms of the sigmatic aorist to the rest of the paradigm. This view is supported by the absence of lengthened grade from the 1st sg. form of the Vedic injunctive, e. g. stōśam ‘praise’, jeśam ‘conquer’. It is also supported by the tonal alternation within the aorist
paradigm of root verbs with mobile accentuation in Serbo-Croatian, e. g. 1st sg. dăh 'gave', lih 'poured', 3rd sg. dâ, lî. These forms represent *doHs-, *leHis-, monosyllabic *dös, *lēis, cf. Lith. auoti. lieti. Note that OCS. litŭ corresponds to léje- < *leHie-, lijati < *lHi- in the same way as Lith. piēšė 'drew', pērė 'thrashed', srēbė 'sipped' correspond to piēšia, pēria, srēbia, OCS. piše-, pūsati 'write', pere-, pūrati 'tread', Slovene srēblje- < *serb-, srēbatii 'sip', also Lith. spjóvė 'spat' to spiāuja, OCS. pljuje-, pljvati 'spit'. In my view, the vocalism of Lith. srēbė can be identified with the one of Vedic āsrāk 'emitted', both forms showing metathesis of *seRCst to *sRe- Cst in order to avoid the final consonant cluster. It follows that the lengthened grade yielded the circumsed tone in Baltic and Slavic and that *dös and *lēis originated from loss of the laryngeal after the lengthened grade vowel. The acute tone of Lith. spjóvė is due to the fact that the laryngeal did not immediately follow the long vowel in *spieuHs, cf. gērē 'drank' < *gērHs.

1.4 The meiatony in SCr dă, lî is strongly reminiscent of the one in Lith. duōs 'will give', liēs 'will pour'. We must therefore examine if these forms can be identified with each other. There are two pieces of evidence that this is indeed the case.

In the Lith. 3rd person future form, monosyllabic acute stems are subject to shortening if the root vowel is ŭ or â and to metatony in other cases, e. g. lis 'will rain', bûs 'will be', duōs 'will give', diēbs 'will work'. Exceptions to this rule are of analogical origin, e. g. vūs 'will chase', stūs 'will sew', which are thus distinguished from vis 'will propagate', siūs 'will rage' [cf. Zinkevicius, 1981, 120]. Polysyllabic stems are subject to metatony, not to the expected shortening in accordance with Leskien's law, e. g. rašys 'will write', kalbēs 'will speak'. I find it extremely difficult to assume that the generalisation of metatony came about under the influence of a few unprefixed verbs like dēti 'put', especially because Leskien's law was relatively recent [cf. Kortlandt, 1977, 328]. More probably, the verbs in -ēti, -ōti and -ūoti were already subject to metatony before the operation of Leskien's law [cf. already Kortlandt, 1975, 86]. Thus, I think that the oldest distribution is preserved in those dialects which have rašis 'will write', daris 'will do', sakis 'will say' next to žinōs 'will know', stovēs 'will stand', kalbēs 'will speak' [cf. Zinkevicius, 1966, 361]. It follows that the metatony of dēs 'will put', jōs 'will ride', duōs 'will give' and liēs 'will pour', which served as a model for the latter categories, is much older than the one in tie 'those': I date it to the Balto-Slavic period.

Elsewhere I have argued that the East Baltic future tense developed from a Balto-Slavic subjunctive mood with secondary endings [1982a, 8]. This subjunctive can be identified with the Vedic aorist injunctive. It can also be identified with the Old Irish s-subjunctive, which has an athematic ending in the 3rd sg. form, e. g. téis, -tēi, -tē, -t 'goes', which is therefore identical with Lith. steīgs 'will found', OLith. 'will
hurry'. Elsewhere I have argued that the original secondary endings of the Irish s-subjunctive are partly reflected in the flexion of the a-subjunctive and the s-future [1979b, 48–50]. In his classical study on the sigmatic forms of the Latin verb H. Pedersen derives the imperfect subjunctive of this language from the hypothetical preterit of a lost sigmatic future [1921, 14]. This point of view involves several difficulties. First, it remains unclear why the sigmatic future was replaced with a less distinctive formation, especially because the expected endings are attested in the future perfect. Second, the development of the alleged future preterit through a conditional into the imperfect subjunctive took place "sans qu'on puisse indiquer les étapes par lesquelles la formation a acquis sa valeur historiquement attestée" (ibidem). Third, it must have been a very early development because the subsequent morphological transformations depend on the value of a subjunctive (ibidem). Consequently, the derivation of these forms from a sigmatic future requires a very long chain of hypothetical developments in Celtic [cf. Pedersen, 1921, 30]. More probably, we have to start from an Italo-Celtic s-subjunctive with secondary endings which can be identified with the Vedic aorist injunctive and with the East Baltic future tense. This formation is also reflected in the Tocharian s-present, which adopted thematic endings, e.g. B pakšän, pakštär 'ripen, boils', tsaksän, tsakštär 'burns', which correspond with Lith. képs 'will bake', dègs 'will burn'. The original athematic-

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2 Here I have to withdraw my earlier view that the flexion of the s-subjunctive was reshaped on the pattern of the s-preterit [1979b, 48] because the motivation for such an analogical development is rather weak. More probably, the athematic forms are original, so that we can identify the s-subjunctive with the Vedic injunctive and the East Baltic future. Both views are already mentioned by Thurneysen [1946, 391]. Consequently, the 3rd sg. conjunct form *berā replaced *berah rather than *berae. The thematic forms may have originated from the reanalysis of the 3rd sg. absolute form *beras-es as *berase-s. The expected lengthened grade was eliminated in the same way as it was in the Greek aorist, viz. as a result of Osthoff's law. It follows from the position taken here that Latin faxō 'will do' and quaeso 'beg', which are often considered to represent the aorist subjunctive [e.g. Pedersen, 1921, 12], must probably be regarded as original athematic formations to be identified with the Irish and Baltic categories discussed here, cf. Venetic fagsto 'made'. They may have adopted the thematic flexion of erō 'will be', which is generally derived from a thematic subjunctive. The latter view must be questioned, however, because the thematic subjunctive is otherwise limited to Indo-Iranian and Greek, and the latter language presents an athematic middle future 3rd sg. ἐστει 'will be'. One therefore wonders if the future of 'to be' represents the original present injunctive in Greek and Latin. In that case, the Osco-Umbrian future paradigm may have developed from the same formation by the substitution of primary for secondary endings. The predesinential vowel of O. pertemest 'will interrupt', U. ferest 'will carry' was evidently taken from the present stem, cf. O. didest 'will give', U. heriest 'will want'.

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ic flexion of this class is probably reflected in the corresponding transitive root subjunctive, where the *-s- was lost between two obstruents. The vocalism of the Latin imperfect subjunctive is the same as that of the Irish a-subjunctive, which represents the s-subjunctive of stems in a syllabic laryngeal [cf. Kortlandt, 1 c.]. The Latin future perfect ēmerō 'will have bought' is apparently based on erō 'will be' in the same way as Oscan jefacust 'will have done' is based on just 'will be'.

1.5. Apart from the sigmatic aorist and polysyllabic stems in a resonant, lengthened grade vocalism is expected in monosyllabic root nouns. An example is Vedic vāk 'speech', Latin vōx, which was apparently replaced with Slavic rēčь and Prussian acc. sg. tārin. The circumflex tone of the Slavic word is evident from SCr. rījēč. The establishment of this category is particularly difficult in Baltic and hardly easier in Slavic because root nouns appear as o-, ā-, and ĭ-stems and cannot therefore be distinguished from primary derivatives. A probable example of an original root noun is Lith. gēlā 'pain', Slavic žābь, Slovene žāla, Slovak žial', OHG. quāla. The circumflex tone of the lengthened grade vowel in this word contrasts with the acute of laryngeal origin in the cognate verb Lith. gēlti 'ache', SCr. žāliti, Czech želti. The same relationship holds between Lith. žolē 'grass' and želti 'grow', cf. OPr. acc. sg. sālin 'herb', SCr. zēlen 'green'. Another example of lengthened grade from a root noun is Lith. mėsà 'meat', Latv. miesa, OPr. mensā, SCr. mēso, Skt. māmsām, mās, Gothic mimb. A similar formation is SCr. jāje 'egg', also jāje (Novi, Vrgada, Dubrovnik), Gr. ὥπον, Latin ēvum, which is a derivative of avis 'bird', or rather of its precursor *ōus, *u-. The absence of acute tone in these examples is in agreement with what we have found thus far.

3 Thus, I replace Kuiper's triad, consisting of a present *tresti 'flees', a preterit *ētērst, and a subjunctive *tērse- [1934, 212] with a pair of independent formations, viz. a present *tresti, *tresenti and a subjunctive *tērst, *tersht. In a sense, the original system is best preserved in Tocharian. The Old Irish reduplicated future represents a PIE. formation *tírte- sti, which is related to the sigmatic aorist in the same way as Gr. τῆθαμ 'put' is related to the root aorist. The Irish future originally shared the secondary endings of the subjunctive. Incidentally, the 2nd sg. absolute form līle 'will follow', which is usually considered incorrect [e.g. Thurneysen, 1946, 405], is the regular phonetic reflex of *lēlises-es, cf. subj. berea from *berases-es, whereas 3rd sg. līlith shows the same replacement as bereaid [cf. Kortlandt, 1979b, 48]. The Indo-Iranian desiderative present must be derived from *tirte- sti, which relates to the reduplicated future in the same way as the aorist subjunctive *terse- relates to the PIE. subjunctive (aorist injunctive): the thematic forms represent the PIE. objective flexion [cf. Kortlandt, 1982b]. Similarly, the reduplicated aorist derives from *tirte- sti, which has the same relation to the reduplicated present *titerti as the thematic aorist has to the root present. The original alternation of the root vowel is preserved in Old Irish fo-loing 'supports' < *-lunge, subj. fo-lō < *-lēngst, fut. fo-līl < *-līlugst, preterit in-lolaig < *-lulugom, verbal noun fulacli < *-lugom.
The following Slavic words can in my view be derived from root nouns (cf. Vaillant, 1974, 1. c.): OCS. *vodotčćć* (30), *měľb*, *měľb* (31), Lith. *smēlis*, OCS. *rěčć* (40), Russ. *nočľęc* (42), Czech *-běř* (45), -děř, -děra (46), -pěř, -pěra (48), -stěra, -věř, -věra (49), -těř, -těra (50), SCr. *ūgār* (m.), gār (f.), žār (m.), žāra (f.), pōžār (69), Polish *sap*, *sapa* (77), OCS. *slēps* (92), běłb (99), Latv. *bāls* (next to *bāls* because of *balts*), SCr. *vāl*, *ōbala* (168), Lith. *vōlas*, *volē*, SCr. *vār*, *ōbara* (169), Lith. *vōras* [Būga, 1959, 646], Ukr. *čarā*, SCr. *čār* (f.), Cz. *ćar* (m.), *ćařa* (f.), Avestan *čārā*, SCr. *ūdār* (178), *krās*, Cz. *krása* (179), SCr. *ūžās* (180), OCS. *žalb* (194), SCr. *kār*, Cz. *kára* (196), SCr. *nēmār*, Cz. *svār* (197), zāř, zǎře, dávno, sām. I do not claim that all of these words existed in Balto-Slavic times already, but I think that most of them did and that they provided the starting-point for the spread of lengthened grade vocalism through the language. The long vowel is never acute in these words.

1.6. Above I argued that the metatony in the 3rd sg. form of the SCr. aorist *dā* and the Lith. future *duōs* is best explained by the assumption that a laryngeal was lost after a PIE. long vowel in Balto-Slavic. The same hypothesis accounts for the circumflex tone of Latvian *sāls* 'salt' and *gūovs* 'cow'.

Under the assumption that the Greek circumflex on final syllables points to a disyllabic origin and that the last component of a "long diphthong" was assimilated to the preceding vowel before a final resonant, a straightforward comparative reconstruction yields the proto-forms which are adduced under the label "Late PIE." below. The forms which are labelled "Early PIE." represent my internal reconstruction of the original paradigms.

<table>
<thead>
<tr>
<th>Vedic</th>
<th>Greek</th>
<th>Late PIE.</th>
<th>Early PIE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>dyáus 'sky'</td>
<td><em>Zευς</em></td>
<td><em>dиеus</em></td>
</tr>
<tr>
<td>acc.</td>
<td>dyám</td>
<td><em>Ζηγ</em></td>
<td><em>dиеum</em></td>
</tr>
<tr>
<td>gen.</td>
<td>divás</td>
<td>Δός</td>
<td><em>dίος</em></td>
</tr>
<tr>
<td>nom.</td>
<td>náus 'ship'</td>
<td><em>ναύς</em></td>
<td><em>nēH₂μ</em></td>
</tr>
<tr>
<td>acc.</td>
<td>nāvam</td>
<td><em>vάυ</em></td>
<td><em>nēH₃μ</em></td>
</tr>
<tr>
<td>gen.</td>
<td>nāvás</td>
<td>νάός</td>
<td><em>nēH₂uν</em></td>
</tr>
<tr>
<td>nom.</td>
<td>gáus 'cow'</td>
<td><em>βούς</em></td>
<td><em>g웨H₂μ</em></td>
</tr>
<tr>
<td>acc.</td>
<td>gám</td>
<td><em>βόν</em></td>
<td><em>g웨H₃μ</em></td>
</tr>
<tr>
<td>gen.</td>
<td>gós</td>
<td><em>βόνς</em></td>
<td><em>g웨H₂ους</em></td>
</tr>
</tbody>
</table>

The lengthened grade spread apparently from *dиеus* to *nēH₂μ* and from there to *g웨H₂μ*. The fact that the latter form is monosyllabic in Vedic and Avestan suggests that Indo-Iranian shared the Balto-Slavic loss of a laryngeal after a long vowel, unlike Greek, where the circumflex points to its preservation. Thus, the Indo-Iranian form can be identified with Latv. *gūovs*. The acc. sg. form *gám* is disyllabic.
in Vedic, but not in Avestan, which points to a late analogic development. The vocalism of the oblique cases is preserved in Slavic *govdo, SCR. *gòvedo 'head of cattle'.

The original flexion type of Vedic náus is reflected in the words for 'salt' and 'goose':

<table>
<thead>
<tr>
<th>Balto-Slavic</th>
<th>Greek</th>
<th>Latin</th>
<th>PIE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>Latv.  są́ls</td>
<td>ṃλς</td>
<td>sál</td>
</tr>
<tr>
<td>acc.</td>
<td>OCS.  solb</td>
<td>ṃl</td>
<td>salem</td>
</tr>
<tr>
<td>gen.</td>
<td>Slavic g-</td>
<td></td>
<td>salis</td>
</tr>
<tr>
<td>nom.</td>
<td>Latv.  zūoss</td>
<td></td>
<td>ánser</td>
</tr>
<tr>
<td>acc.</td>
<td>,  zūosi</td>
<td></td>
<td>*ghH₂ensm</td>
</tr>
<tr>
<td>gen.</td>
<td>Slavic g-</td>
<td></td>
<td>*ghH₂nsos</td>
</tr>
</tbody>
</table>

The circumflex tone of Latv. sāls reflects the lengthened grade which was apparently generalized in the nom. sg. form of this category. The acute reflex of the laryngeal is probably preserved in Lith. sólymas 'brine' [cf. Būga, 1959, 584]. The Greek acute shows that the loss of the laryngeal was anterior to the development of the syllabic resonants, cf. Ionic μείς 'month' < *meH₁ns, Latin mēnsis. The converse chronology holds for Indo-Iranian, where Avestan māh 'moon' is disyllabic [Beekes, 1982, 55]. The initial palatovelar obstruent was depalatalized before a syllabic resonant in Slavic *gosb (cf. Kortlandt, 1978a, 241, where my reluctance is unwarranted). Other instances of this flexion class are Lith. dienà 'day', OPr. acc.sg. deinan, OCS. ḏyb, Lith. žiema 'winter', OCS. zima, Avestan zyāh, gen. zimō, Hittite tēkan 'earth', Lith. žēmè, Vedic ksās, gen. jmās.

The original flexion type of Vedic gāus is reflected in the word for 'nose':

<table>
<thead>
<tr>
<th>Balto-Slavic</th>
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<th>Latin</th>
<th>PIE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom.</td>
<td>Latv.  nāss</td>
<td>du. nāsā</td>
<td>nāris</td>
</tr>
<tr>
<td>acc.</td>
<td>Latv.  nāsi</td>
<td>(OP. nāham) nārem</td>
<td>*neH₂sm</td>
</tr>
<tr>
<td>gen.</td>
<td>OCS.  nos-</td>
<td>du. nasōs</td>
<td>nāris</td>
</tr>
</tbody>
</table>

Prussian has preserved the long vowel in nozy 'nose' and the short vowel in ponasse 'upper lip', both in the Elbing vocabulary, cf. also Lith. nasrait 'jaws'. The East Baltic acute tone must probably be derived from the dual.

1.7. The flexion of the Lith. ė-stems differs from that of the ā-stems in the nom. sg. ending -ė versus -ā only. The origin of the metatony in the ė-stems has not satisfactorily been explained thus far. The usual assumption that -ė represents the regular development of *-iā is phonetically improbable, does not explain the restriction of the metatony to the nom. sg. form, and requires a considerable number of additional hypotheses [cf. Stang, 1966, 202]. There is no reason to assume that the
metatony originated in the flexion of the original polysyllabic ē-stems, of which there are three clear examples: žvākē ‘candle’, meñtē ‘paddle’, girē ‘forest’, which can be compared with Latin facēs ‘torch’, Vedic mānthaṣ ‘churning-stick’, girīs ‘mountain’, OCS. gora [cf. Pedersen, 1926, 60–67]. In my view, the metatony originated from the loss of the laryngeal after a lengthened grade vowel in the nom. sg. form of the root noun which is represented in Lith. arklidē ‘stable’, avidē ‘sheepfold’, alūdē ‘pub’, pelūdē ‘chaff store’, also žvaigzdē ‘star’, OCS. zvēzda, OPr. umnode ‘bakehouse’, Vedic -dhā [o. c., 72], Latin -dēs [o. c., 75, 77], cf. Gr. χρῆ ‘must’. The compositional structure of Lith. žvaigzdē is the same as that of Avestan mazdāh ‘God’ and can be compared with the formation of the Greek passive aorist and the Germanic weak preterit. Thus, the circumflex tone of Lith. -dē has the same origin as the one of Latv. sāls, gūvs.

Other ē-stems resulted from analogic developments. In the case of Lith. šlovē ‘glory’, OCS. slava, which cannot be separated from Latin cluere ‘be mentioned’, I think that we have to start from a form *kleuH₁, with analogical lengthened grade as in Gothic qēns ‘wife’, PIE. *gwenH₂, or Gr. ἥπαρ ‘liver’, PIE. *iekʷr. In the case of Lith. gērvē ‘crane’, OPr. gerwe, the original flexion is evident from SCr. žērāv, Latin grās: I reconstruct PIE. *gerH₂ōu, gen. *grH₂uos. The nominative in -ē was created on the basis of the oblique case forms, cf. Latin -ēs, gen. -is. In Lith. žēmē ‘earth’ we have the vocalism of the original accusative, which is preserved in ORuss. zems. Here too, the nominative in -ē is apparently based on the oblique case forms, cf. Vedic gen. jmās. The zero grade of the root in the oblique cases is preserved in Lith. gilē ‘acorn’, Latin glāns, SCr. žēlūd, which point to PIE. *gwenH₂ ‘oak’, gen. *gwenH₂os, cf. *bherH₁ās ‘birch’, gen. *bhrH₁ōs, Lith. bēržas, OPr. berse, zero grade in Latin frāxinus ‘ash tree’, also farnus with the vocalism of acc. *bhrH₁ēgm. A final example is Lith. įpē ‘river’, OPr. ape ‘brook’, Vedic āpas ‘water’, PIE. *H₂ep-, which shows that the vocalic alternation in the root was productive in East Baltic. The list can easily be extended, cf. Lith. sāulē ‘sun’, múšē ‘fly’, pelē ‘mouse’ [Skardžius, 1955, 175], etc.

2. Winter’s law

and Slavic languages, the Proto-Indo-European sequence of short vowel plus voiced stop was reflected by lengthened vowel plus voiced stop, while short vowel plus aspirate developed into short vowel plus voiced stop. This Balto-Slavic "lengthened vowel" has acute tone, unlike the lengthened grade vowels of PIE. origin.

We may wonder if there is a fifth type of long vowel in Balto-Slavic, viz. in secondary derivatives with substitution of acute for circumflex vocalism. This type can hardly be established in Baltic, where metatony became productive in morphological processes when the stress was retracted from a prevocalic *i [cf. Kortlandt, 1977, 324]. I will therefore limit myself to the Slavic instances which have been adduced by Z. Golajb [1967]. If we eliminate the words which either have an acute tone of laryngeal origin or do not have a Proto-Slavic acute at all, his list is reduced to four items:

1. SCr. küća 'house' is related to Russ. kütat 'wrap', OPr. pokünst 'guard'. The connection with SCr. küt 'angle', which Golajb endorses, is unsatisfactory from a semantic point of view. Cognates in other Indo-European languages seem to be lacking.

2. SCr. līpa 'linden', Lith. liepa has no cognates outside Balto-Slavic. The connection with līpti 'stick' has a taste of popular etymology.

3. OCS. sažda 'soot', Lith. sūodžiai is now explained by Winter's rule.

4. SCr. vrāna 'crow', Lith. vārna is the only positive evidence for Balto-Slavic "mëtatonie rude", cf. SCr. vrān 'raven', Lith. vañnas. This pair is strongly reminiscent of Gr. κόραξ 'raven', κορώνη 'crow', Latin corvus, cornix, of which it probably is an alteration through the substitution of *wor-* 'burn' for *kor-; Lith. kārštas 'hot'. For the suffix cf. šīrvas 'grey', nuľvas 'reddish' next to Russ. sērna 'roe deer', Latv. meĩns 'black', OPr. sirwis, Gr. μέλας. We apparently have to start from a Balto-Slavic pair *worwos 'black', *worHnaH 'crow'. Thus, I conclude that the only source of apophonic long vowels with a Balto-Slavic acute tone is Winter's law.

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4 The acute long vowel of Lith. grébi 'rake', palágti 'lie down', jšěkti 'engrave' is evidently analogical, cf. OCS. greti 'row', lešti 'lie down', sekyra 'axe'. On the exceptions to Winter's rule [cf. Kortlandt, 1979c, 60-61] Gercenberg's criticism [1981, 129-140] is not convincing. The apophonic relationship between Lith. obelis, Latv. ābuōls 'apple', and Russ. jabloko shows that the word is of PIE. origin: I reconstruct *Hēbol, acc. *Hēbelm, gen. *Hēblos. Initial *b- became *p- in PIE. times already, cf. Vedic pibati 'drinks', Olr. ībid, with restored reduplication in Latin bibit. Note that Latv. ābuōls shows the expected reflex of lengthened grade in the second syllable, cf. darīt 'do', 1st pl. darām. Since Gercenberg misrepresents my views [o. c., 138], I have no reason to go into his objections. Suffice it to say that the acute tone of Lith. ėras 'lamb', ūolektis 'cell', ūosis 'ash tree' is of laryngeal origin and that dúodu 'give' relates to dúoti as dedū 'put' to dēti.
3. Chronology

Having established the correspondences of the different types of long vowel, we are now in a position to examine their order of appearance. It has become generally accepted that the PIE lengthened grade vowels constitute the oldest layer. The Greek circumflex tone originated from the loss of the intervocalic laryngeals. It developed from simple hiatus into a tonal feature when it arose in other positions as a result of the Greek accent laws. Since the accent laws are evidently posterior to the rise of long vowels from sequences of short vowel plus laryngeal, I conclude that these sequences had merged with the original lengthened grade vowels before the rise of the circumflex tone. The converse chronology holds for Balto-Slavic, where long vowels from contractions cannot be distinguished from the original lengthened grade vowels. In this branch of Indo-European, the laryngeals were still segmental at the time of Hirt's law [cf. Kortlandt, 1977, 321]. The long vowels which arose from Winter's law merged with the long vowels of laryngeal origin at a stage which was posterior to Hirt's law, as is clear from the broken tone of Latvian pēds 'footstep', nuôgs 'naked' (ibidem). Elsewhere I have argued that the Proto-Slavic acute was a broken tone, which developed from a glottal stop [e.g. 1975, passim; 1978b, 277]. I have also argued that the rising and falling tone movements which we find in East Baltic and South Slavic are independent developments of Lithuanian [1977, 325], Latvian [1977, 328], and Slavic [1975, 28, 31, 33]. These developments can be compared with the Greek accent laws. The hypothesis that Winter's law is simple lengthening of short vowels before voiced obstruents does not explain why the resulting long vowels merged with the reflexes of short vowels plus glottal stop, not with the earlier long vowels. This is why I have adduced Winter's law as the main piece of evidence for the hypothesis that the reconstructed PIE voiced stops were in fact glottalic [1978c]. As I have pointed out elsewhere, the latter hypothesis is supported by immediate comparative evidence from Sindhi [1981] and by indirect evidence from every single branch of Indo-European [1978c, 1983]. The alternative view, according to which the glottalization is secondary, requires a detailed chronological analysis, which has not been attempted by its adherents. In particular, it requires the specification of a Balto-Slavic feature X with the following properties:

(a) X is the reflex of the PIE laryngeals, but not of PIE length.
(b) X developed automatically before the PIE voiced stops, but not before the voiced aspirates.
(c) In pretonic syllables X yielded glottalization in Latvian and length in Slavic.
(d) In newly stressed, originally pretonic syllables X yielded a rising tone in Lithuanian and a falling tone in Latvian [Kortlandt, 1977, 324–328].
(e) In originally stressed syllables X yielded a falling tone in Lithuanian, a rising tone in Latvian, and a variety of reflexes in Slavic: length in barytone forms of paradigms with mobile stress, shortening in paradigms with fixed stress, lengthening of initial vowels before a tautosyllabic resonant, lengthening in disyllabic words in early Czech (e. g. \textit{psāti} 'write'), lengthening in metathesized groups in Upper Sorabian (e. g. \textit{kruwa} 'cow', cf. Polish \textit{krowa} [Dybo, 1963]), rising tone on pleophonic groups in East Slavic, and a short vowel in the second syllable of pleophonic groups in Ukrainian (e. g. \textit{morāz} 'frost', cf. gen. pl. \textit{holi}v 'head').

(f) X blocked the progressive accent shift in Slavic [Kortlandt, 1975, 33].

(g) In the first posttonic syllable X attracted the stress from a preceding syllable without X in Lithuanian [Saussure] and yielded shortening in Slavic.

(h) In the second posttonic syllable X yielded length in Slavic, which is reflected in the Slovene neo-circumflex [Kortlandt, 1975, 11].

(i) In final syllables X yielded shortening in Lithuanian [Leskien].

(j) X was not glottalization.

Such an analysis does not seem to be forthcoming.

REFERENCES


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