

Acute vs. Circumflex: Some Notes on PIE and Post-PIE Prosodic Phonology

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§1. This little *hommage* must begin with a disclaimer. The words “acute” and “circumflex” conjure up a host of problems to an Indo-Europeanist, some of which, especially those relating to Balto-Slavic accentology, are among the most challenging in all of historical linguistics. “Hirt’s Law,” “Saussure’s Law,” “Dybo’s Law” – the sheer profusion of named yet controversial sound changes testifies to the lack of clarity that surrounds the status of “intonations,” not only in Balto-Slavic, but also in Germanic, Greek, and Proto-Indo-European itself. Readers should be forewarned that neither these nor any other famous “laws” will be vindicated, modified or overturned here. The object of the discussion that follows will simply be to summarize, in as straightforward and theory-free a way as possible, what we know about the system of prosodic contrasts in PIE and what happened to this system in the IE daughter languages, especially the “northern” ones, Germanic and Balto-Slavic. This is not an unduly ambitious goal. Sometimes, however, a “back-to-basics” approach can reveal patterns and generalizations which would otherwise escape detection. That, I hope, will be the case here.¹

§2. From an etymological point of view, PIE had two kinds of long vowels: a) ordinary lengthened grades, of several subtypes (e.g., 3 sg. *s*-aor. **u̯égh-s-t* ‘conveyed’, *vr̥ddhi*-derivative **su̯ēk̑uró-* ‘brother-in-law’, nom. sg. **ph₂-tér* ‘father’, **k̑(u)u̯ó* ‘dog’); and b) inner-PIE contraction products (e.g., *o*-stem nom. pl. **h₁éku̯ōs* < **-o-es* ‘horses’). These were joined in the post-IE period by new long vowels that arose through the loss of laryngeals. Such laryngeally generated long vowels were themselves of two types: c) products of compensatory lengthening (e.g., 1 sg. **bhérō* < **-oh₂* ‘I carry’, 3 sg. root aor. **dhét* < **dhéh₁-t*

¹ Many of my views will be seen to be very close to those of our honorand; the reader is especially referred to his masterful essay on the prehistory of Balto-Slavic accentuation (Rasmussen 1992). One topic that will not be discussed here is the *synchronic* treatment of accent, quantity, and related prosodic features. A currently influential approach is that of Halle (1997).

‘(s)he put’); and d) products of contraction across a laryngeal hiatus (e.g., “*ā*-stem” nom. pl. **h₁ékūās* < **-ah₂-es* ‘mares’).

Types a and b, which were the only long vowels in PIE proper, could either be accented (ictus-bearing) or not. When they were accented, the evidence of Greek – limited, to be sure, to final syllables – suggests that the ictus fell on the second mora (cf. nom. sg. *-ήρ*, *-ήν*, *-ώς*, etc.). Even in a form like nom. pl. **deiyōs* ‘gods’ (< **-ó-es*; type b), where the ictus must originally have stood on the first mora of the ending, there is no evidence that it remained in this position after the contraction of **-o-e-* to **-ō-*. The familiar Greek contrast between /-x-‘x-/ (“acute”) and /-x-x-/ (“circumflex”) sequences was not a feature of PIE itself; there were no contrastive “intonations” in the parent language.²

This state of affairs was modified in different ways in the daughter languages.

§3. In Indo-Iranian, the long vowels that arose by laryngeal lengthening (type c) fell together with those of types a and b. Type d long vowels, however, remained distinct. Laryngeal hiatuses were retained in archaic Indo-Iranian, with the result that the great majority of type d vowels allow or require a disyllabic scansion in Vedic (e.g., *váata-* < **h₂uéh₁-nto-* ‘wind’, acc. sg. *somaānam* < **-o-Hon-* ‘soma-preparer’) and Avestan (cf. GAv. *vaata-* ‘wind’, *maθraā* < **-o-Hō* ‘prophet’, etc.). Such sequences were the *only* phonologically regular source of “distractable” long vowels in the early Indo-Iranian languages.³ The much-discussed disyllabic Vedic and Avestan gen. pl. in *-aam* (= Ved. *-ām*, Av. *-qm*) goes back unproblematically to **-oHom*.

The Vedic distinction between *udātta* (“acute”) and (independent) *svarita* (“circumflex”) is of inner-Indic origin. While the possibility cannot be ruled out that the post-Indo-Iranian contraction of **-V(H)V-* to **-V-* produced an ephemeral intonational difference between, e.g., the *-á-* that resulted from **-á(H)a-* and the *-á-* that resulted from **-a(H)á-*, there is no evidence for such a contrast in any texts that have come down to us.

² If Greek is to be trusted, the PIE short *i-* and *u-* diphthongs were likewise accented on their second mora (cf. nom. pl. *-οί*, nom. sg. *-εύς*, etc.). In the case of the long diphthongal endings **-ōis* (*o*-stem instr. pl.) and **-ōi* (*o*-stem dat. sg. (< **-o-ei*)), it is unclear whether the circumflex of Gk. *-οίς* and *-ῶ* is a special realization (with leftward movement of the ictus in a long diphthong) of underlying /-o-‘o-is/ and /-o-‘o-i/, or whether it simply copies the circumflex of the gen. sg. in *-ōv* (< **-ó-ho*) and the gen. pl. in *-ōν* (analyzed as **-ó-ων*). Whatever else, these endings do *not* constitute evidence for a contrast between acute and circumflex diphthongs in PIE. See also notes 14 (Lith. *-aĩs*, *-uĩ*) and 15 (Gk. *οἴκοι* : *οἴκοι*).

³ Instances of *-aas* (for *-ās*) in the nom. pl. of *a*-stems and *-aa-* (for *-ā-*) in the subjunctive of thematic verbs are analogical, modeled respectively on the nom. pl. of *ā*-stems (*sénās/sénaas* < **-ah₂-es*) and the subjunctives of athematic stems in *-ā-* (*dhāsi/dháasi* < **dhéh₁-e-si*, etc.).

§4. In Greek, as in Indo-Iranian, the new long vowels of type c fell together in every respect with those of types a and b. Like inherited long vowels, they were accented according to the second-mora rule ($\kappa\alpha\lambda\acute{\eta}$ < $*-\acute{a}h_2$, $\kappa\alpha\lambda\acute{\omega}$ (du.) < $*-\acute{o}h_1$, etc.). The accented vowels and diphthongs of type d, however, remained accented on the mora where the ictus was located prior to the loss of the intervocalic laryngeal, thus giving rise to the contrastive Greek circumflex accent (cf. gen. sg. $\kappa\alpha\lambda\acute{\eta}\varsigma$ < $*-\acute{a}h_2-es$, gen. pl. $\pi\alpha\tau\rho\acute{\omega}\nu$ < $*-\acute{o}Hom$).⁴ Other cases of circumflex accentuation were produced by contractions across lost $*-s-$, $*-z-$, and $*-y-$, and new acutes were produced by a variety of compensatory lengthening rules. Acute and circumflex probably originally contrasted in all positions in the phonological word, but the historical Greek accent system restricts the opposition to final syllables.

The clear etymological distribution of acute and circumflex in Greek was subsequently complicated by analogical and other changes that led to the extension of circumflex at the expense of acute accentuation. Thus, to name but one example, monosyllabic neuter nouns generally adopted circumflex accentuation in the nom.-acc. sg., as in $\kappa\acute{\eta}\rho$ 'heart' (nt.) vs. $\kappa\acute{\eta}\rho$ 'fate' (fem.). The "metatony" seen in $\kappa\acute{\eta}\rho$ reflects a morphologically motivated reinterpretation of root accent as recessive in mobile neuter paradigms – a reanalysis that had no effect in polysyllabic nouns, but that drew the ictus leftwards in monosyllables.

§5. Germanic and Balto-Slavic began their post-IE history together. Here, as in Indo-Iranian and Greek, long vowels of type c fell together with types a and b (see below for the one exception), while type d remained distinct. But while the distinctness of type d sequences in Indo-Iranian consisted in their partial failure to contract, and the distinctness of type d vowels in Greek was manifested only in their behavior under the accent, type d vowels in Germanic and Balto-Slavic were originally characterized, whether accented or not, by an *extra mora of length*. This phonological opposition, which was further transformed in Balto-Slavic, survived into Proto-Germanic as the contrast between bimoric (long) vs. trimoric (hyperlong) vowels in final syllables.⁵

There was one important exception to the generalization that type c long vowels in Germanic and Balto-Slavic fell together with the inherited long vow-

⁴ In principle, sequences of the type $*-V(H)V-$ should have produced long vowels with acute accent, but no actual instances of this development are quotable.

⁵ I am not at all convinced by latter-day attempts (e.g., Boutkan 1995) to dispense with this distinction in Germanic. Languages with a three-way length contrast are well documented, the best-known European example being Estonian. Further cases are given by Ladefoged and Maddieson (1996: 320 f.); an especially interesting instance is provided by the Bantu language KiKamba, with four distinctive quantities, deriving from underlying V , V , $V.V$, and $V.V$, respectively.

els of types a and b. In both branches, inherent (i.e., non-laryngeally-generated) long vowels in *absolute final position* were redundantly prolonged by an extra mora, so that they came to pattern with the reflexes of type d (< *-VHV) rather than with the reflexes of type c (< *-VH). The key example is the nom. sg. in *-ō (type a) of masculine and neuter *n*-stems: cf. Go. *namo*, OHG *namo*, *gumo* < PGmc. *-ō̃ (trimoric); Lith. *žmuō*, *akmuō*; OCS *kamy* < *-ō̃. Here too belong Lith. *sesuō*, *duktē*, with early post-IE *-ō̃, *-ē̃ for PIE *-ōr, *-ēr. The overall prosodic parallelism of Germanic and Balto-Slavic is underscored by this remarkable isogloss.⁶

§6. In Germanic, familiar examples of trimoric vowels that go back to *-VHV- sequences include the gen. pl. in *-ō̃n (phonetically *-ō̃^N), the adverbial (< ablative) ending *-ō̃, and the *ō*-stem nom. pl. in *-ō̃z̄ (Go. *gibos*, OHG *gebā*, OE *giefā*). The trimoric nom. sg. of inherited neuter *n*-stems (Go. *namo*, etc., ultimately from PIE *-ō < pre-PIE **ō̃n < **ōn-h₂) reflects the Germanic-Balto-Slavic hyperlengthening rule discussed above, as does the variant of the masculine *n*-stem ending seen in OHG *gumo*.⁷

Much confusion has been caused by the supposedly trimoric vowel of the Gothic *a*-stem nom. pl. *dagos*, which is etymologically of type b (PIE *-ōs < *-o-es). In fact, however, both bimoric *-ōz̄ and trimoric *-ō̃z̄ yielded -os in Gothic. Note the pattern of reflexes in the nom. pl. and acc. pl. of *ō*-stems:

	Go.	OE	Lith.	Ved.	PIE
nom. pl.	<i>gibos</i> (< *-ō̃z̄)	<i>giefa</i>	<i>rañkos</i> (< *-ā̃s)	<i>sénās</i>	*-ah ₂ -es
acc. pl.	<i>gibos</i> (< *-ō̃z̄)	<i>giefē</i> ⁸	<i>rankàs</i> (< *-ās)	<i>sénās</i>	*-ah ₂ s < **-ah ₂ -ms

There is thus no reason to regard the Germanic reflex of the PIE thematic nom. pl. in *-ōs as distinctively trimoric.⁹ Germanic, in fact, has *no* unambiguous

⁶ The special prolongation of long vowels in absolute final position is discussed in Jasanoff 2002 (37 f.); for the pre-Slavic change of *-ō̃ to *-ū̃ (> -y) in final syllables and the parallel change of *-ē̃ to *-ī̃ cf. Jasanoff 1983 (where, however, the account of the dat. sg. in -u and the instr. pl. in -y should be withdrawn). A broadly similar account is given by Rasmussen (1992: 195 f.) The symbols *-ō̃, *-ē̃, etc. in Germanic and pre-Balto-Slavic reconstructions stand for trimoric vowels.

⁷ Go. nom. sg. masc. *guma*, however, goes back to bimoric *-ō̃n (= *-ō̃^N). Proto-Germanic had both *-ō̃ and *-ō̃n: the former was the phonological reflex of PIE *-ō (< pre-PIE **ō̃n); the latter was analogically based on the hysterokinetic ending *-ē̃n, which retained its *-n in PIE. The Proto-Germanic distribution was probably *-ō̃n in masculine nouns but *-ō̃ in weak adjectives; cf. Jasanoff (2002: 38 ff.).

⁸ On the Early West Saxon acc. pl. in -e, contrasting with nom. pl. -a, see Campbell (1959: 234) and Brunner (1965: 206). Note that since the late PIE form of the acc. pl. ending was *-ah₂s (“*-ā̃s”) and not *-ah₂ms (“*-ā̃ns”), there is no reason to take any of the Germanic forms from *-ō̃ns.

⁹ No light is shed on the problem by OE *dagas* and OS *dagos*, which go back to pre-forms in PIE *-ōses (cf. Ved. -āsas). In theory, Go. -os could go back to *-ōses as well,

examples of trimoric vowels from PIE long vowels of type *b*; apart from the special case of PIE $*\bar{o} > *\bar{o}^{\sim}$ in absolute final position, all non-analogical trimoric vowels in Germanic go back to $*-VHV-$ sequences, and all $*-VHV-$ sequences yielded trimoric vowels.

§7. In **Balto-Slavic**, which likewise inherited the long : hyperlong distinction, new long vowels were produced by the change of tautosyllabic $*-VRH-$ to $*-VR-$ (e.g., $*gerH-ti- > *g\bar{e}r-ti-$, $*pilH-no- > *p\bar{i}l-no-$, $*golH-uaH > *g\bar{o}l-ua$), and long *i*- and *u*-diphthongs arose from sequences of the type $*-VHi-$ and $*-VHu-$ ($*poHi-mon- > *p\bar{o}i-mon-$). The $*\bar{a}$ -, $*\bar{e}$ -, $*\bar{i}$ -, $*\bar{o}$ -, and $*\bar{u}$ - thus generated were assigned to the “long,” as opposed to the “hyperlong,” category.¹⁰

The characteristic innovation of Balto-Slavic was a shift of markedness: the opposition *long* (unmarked) vs. *hyperlong* (marked) was reinterpreted as an opposition “checked” *long* (marked) vs. *long* (unmarked). By “checked,” which will be indicated here by underlining, may be understood a glottalic feature comparable to the Danish *stød* or, perhaps more to the point, the Latvian “broken tone.”¹¹ Some typical effects of the restructuring were as follows (the place of the ictus is not indicated):

before: $*u\bar{i}lkos$ $*g\bar{e}rti$ $*p\bar{i}lnos$ $*g\bar{o}lu\bar{a}$ $*p\bar{o}im\bar{o}$ (nom.sg.) $*ronk\bar{a}s$ (nom.pl.) $*ronk\bar{a}s$ (acc.pl.)
 after: $*u\bar{i}lkos$ $*g\bar{e}rti$ $*p\bar{i}lnos$ $*g\bar{o}lu\bar{a}$ $*p\bar{o}im\bar{o}$ (nom.sg.) $*ronk\bar{a}s$ (nom.pl.) $*ronk\bar{a}s$ (acc.pl.)

Balto-Slavic now underwent Osthoff’s Law, which took sequences of the type $*-VRT-$ to $*-V\check{R}T-$. The merger of $*-VRT-$ and $*-V\check{R}T-$ had the effect of making the “checked” feature contrastive in a large number of new environments:

post-OL: $*u\bar{i}lkos$ $*g\bar{e}rti$ $*p\bar{i}lnos$ $*g\bar{o}lu\bar{a}$ $*p\bar{o}im\bar{o}$ (nom.sg.) $*ronk\bar{a}s$ (nom.pl.) $*ronk\bar{a}s$ (acc.pl.)

but the prevalence of the shorter variant $*\bar{o}z$ (< PIE $*\bar{o}s$) outside Ingvaeonic (cf. ON *-ar*, OHG *-a*) makes this the less likely possibility.

¹⁰ In view of the closeness of the Balto-Slavic : Germanic relationship, it is worth noting that both of the characteristic Balto-Slavic lengthenings – $*-VRH- > *-VR-$ and $*-VHi/u- > *-Vi/u-$ – could in principle also have taken place in pre-Germanic. If so, the “Proto-Balto-Slavic-Germanic” ancestor of BS $*p\bar{i}lno-$ ‘full’ and pre-Gmc. $*pulno-$ ‘id.’ would presumably have been a post-Osthoff’s Law $*palno-$ (< $*p\bar{a}lno-$ < $*palHno-$ < PIE $*p\bar{h}_1no-$).

¹¹ The identification of acuteness with glottalization or some other non-intonational property of vowels is not, of course, new; cf. Stang (1966: 137): “Die theoretische Schwierigkeit, die mit der Annahme eines Gegensatzes *steigend* : *fallend* in unbetonter Silbe verbunden ist, gebe ich gerne zu. Man könnte sich aber auch prosodische Unterschiede anderer Art vorstellen, die dem Gegensatz Akut : Zirkumflex der betonten Silben äquivalieren könnten. Solche Unterschiede wären z. B. Glottisverschluss : nicht-Glottisverschluss, relative Quantitätsunterschiede, Nebendruck : nicht-Nebendruck.” An early defender of the glottalic interpretation of acuteness – though for the wrong reasons, in my opinion – was Vaillant (1936: 114 f.).

Checked vowels and diphthongs (in the extended Balto-Slavic sense of “diphthong”) are often called “acute.” The term is misleading, inasmuch as it suggests an underlying pitch accent. In fact, “acuteness” was completely independent of the accent (ictus); a long nucleus could be checked or non-checked regardless of whether or not it was accented, and a word might have as many “acutes” as it had long nuclei. The intonational contour associated with an accented checked vowel or diphthong may have differed non-contrastively from the contour associated with an accented unchecked vowel; eventually, accented checked vowels came to have a rising, and accented unchecked vowels a falling contour. In phonological terms, however, the underlying contrast in Balto-Slavic was not one of contour but of voice quality or phonation type.

As in Greek, there were many secondary changes in Balto-Slavic at the level of individual words and morphemes. Acute vowels were liable to lose their checked articulation under the influence of related forms, as, e.g., in Lith. pret. *ėjo* (for expected **ėjo*; influence of pres. *eiti* ?), or in the former Narten present *srēbti* (for expected **srēbti*; influence of the weak stem **srēbh-*). The major Balto-Slavic retraction rules (Hirt’s Law, Saussure-Pedersen’s Law,¹² etc.), though important for an understanding of the position of the accent in Baltic and Slavic and the origin of accentual mobility in nominal and verbal paradigms, had no effect on the phonological nature of the acute : circumflex contrast.

§8. Proto-(East) Baltic retained the Balto-Slavic system intact. In Lithuanian acuteness subsequently lost its glottalic or *stød* character, being reduced in the modern standard language to an abstract feature marking the first, as opposed to the second, mora of certain long nuclei as the “landing site” of the ictus.¹³ Latvian, which retracted the ictus to the first syllable, retains a phonetic echo of the original value of acuteness in the “broken tone” of formerly mobile words of the type *galva*.

The attested intonation of a final syllable in Lithuanian is not always a reliable indicator of whether it was acute or circumflex in Proto-Baltic. Acute final syllables (i.e., accented long final syllables with falling intonation) are disallowed in Lithuanian. Historically, such syllables were eliminated in two ways: 1) through shortening, via Leskien’s Law, of formerly acute long monophthongs, including East Baltic **ō* (< **ō̄*) and **ē* (< **ei* and accented(?) **oi*/**ai*); and 2)

¹² For want of a better name, I use this term to refer to the retraction posited by de Saussure (1922 [1896]: 533) in words of the type **dūķterin* < **dukterin* (: Gk. *θυγατέρα*). I do not find Pedersen’s “morphological” explanation of the phenomenon (1933: 25) convincing.

¹³ The location of the ictus on the first mora is an innovation; Lithuanian has converted the formerly rising intonation (acute) to a falling one, and the formerly falling intonation (circumflex) to a rising one.

through simple loss of acuteness in final nuclei that could not be shortened to a single mora, such as the *u*-diphthongs and the *i*-diphthongs that escaped monophthongization to $*\bar{e}$. Endings such as the *o*-stem dat. sg. in *-ui* and the instr. pl. in *-ais* (*-aĩs* under the accent) are thus only *secondarily* circumflex; the Proto-BS reflexes of PIE $*\bar{o}i$ and $*\bar{o}is$ were checked (acute) $*\bar{o}i$ and $*\bar{o}is$, respectively.¹⁴

An interesting special case in this context is the PIE pronominal nom. pl. in $*\bar{o}i$. For reasons that are still not entirely clear, the nom. pl. in $*\bar{o}i$ gave checked $*\bar{o}i$ rather than $*\bar{o}i$ in Balto-Slavic, whence checked/acute $*\bar{a}i$ in pre-East Baltic.¹⁵ The accented variant of the ending, which was generalized in pronouns and adjectives, developed first to acute $*\bar{e}$, which was then shortened to *-i* by Leskien's Law (cf. Lith. *gerĩ*, definite form *gerie-jĩ*). Nouns, on the other hand, generalized the unaccented allomorph, which resisted monophthongization and shortening and eventually surfaced as circumflex *-ai* (*vilkaĩ*, etc.).

¹⁴ Note that this means that the agreement between the circumflex in Lith. *-ui*, $*\bar{u}i$ and *-ais*, *-aĩs* and the circumflex in Gk. $-\hat{\omega}$ and $-\hat{o}is$ (cf. note 2) is a mirage. The failure of the Lithuanian endings to attract the accent by Saussure's Law (*vilkuĩ*, *vilkais*, not $*\bar{u}i$, $*\bar{a}is$) is not inconsistent with their having originally been acute, since it is not clear (despite Stang 1966: 127 and passim) that the unmonophthongized acute diphthongs $*\bar{a}i$, $*\bar{u}i$, etc. were ever part of the conditioning environment for Saussure's Law. An analogical explanation for the non-movement of the accent is also possible.

¹⁵ Perhaps the simplest explanation for the acute is that the checked feature was taken over from the acute non-pronominal ending $*\bar{e}is$, which was later analogically eliminated. (For a typological parallel, compare the Baltic 1 sg. athematic ending $-mi$ < $*\bar{m}e$ < $*\bar{m}ai$, with analogical acuteness borrowed from the thematic 1 sg. in $-\hat{u}$ < $*\bar{u}$.) Note that the checked/acute voice quality of the Balto-Slavic nom. pl. in $*\bar{a}i$ has nothing to do with the acute *accent* of the Greek nom. pl. in $-\hat{o}i$ (unaccented $-oi$). The acuteness of the Balto-Slavic ending is unexpected, while the "acuteness" of Gk. $-\hat{o}i$ is perfectly regular and reflects nothing more than the inherited placement of the ictus according to the second-mora rule. The real problem in Greek is the treatment of the *o*-stem loc. sg. in $*\bar{o}i$. This ending appears as unchecked/non-acute $*\bar{o}i$ in Balto-Slavic (cf. Lith. *namie*), but as Greek $-oi$, $-\hat{o}i$ ($\hat{o}i$ κοι, Ἰσθμοῖ), with the ictus, when present, on the first mora of the diphthong. The reason for the unexpected circumflex in Greek was discovered by J. Schindler (cf. Mayrhofer 1986: 161), who showed that the PIE locative particle $*i$ was always syllabic in the parent language. The ending of the *o*-stem loc. sg. was thus disyllabic $*\bar{o}i$ or (under the accent) $*\hat{o}i$, which merged with ordinary $*\bar{o}i$, $*\hat{o}i$ in most IE languages. In Greek, however, the coalescence of $*\bar{o}i$ and $*\hat{o}i$ into a single syllable was late enough for the ictus to retain its original position, and the diphthong as a whole resisted the word-final sandhi effects that caused the $-oi$ of the nom. pl. to pattern as "short" for purposes of accent assignment. Thus arose the familiar pair $\hat{o}i$ κοι (nom. pl.) : $\hat{o}i$ κοι (loc. sg.), the former with original PIE $*\bar{o}i$, $*\hat{o}i$, and the latter with secondary $*\bar{o}i$, $*\hat{o}i$ < $*\bar{o}i$, $*\hat{o}i$.

§9. The post-Balto-Slavic history of Slavic was characterized by a number of late accent movement rules, the most important of which was Dybo's Law, which advanced the ictus rightward from non-acute syllables in non-mobile paradigms (**žēna, *žēno > *žená, *ženò*). The most significant prosodic innovation of Slavic vis-à-vis Baltic, however, was the loss of the glottalic component of "acuteness." This had two immediate effects: 1) accented acute vowels came to differ from accented non-acute vowels only in their pitch contour, and 2) unaccented acute vowels ceased to be phonetically distinguishable from non-acute vowels at all (nom. sg. **golvá > *golvá*, falling together with historically non-acute **zimā*). Phonetic acuteness was also lost – independently – in unaccented syllables in Lithuanian. But unlike Lithuanian, where the underlying acute continued to surface under the accent (cf. nom. sg. *galvà*, acc. *gálvą*), Slavic analogically eliminated acuteness *everywhere* in mobile paradigms of the **golvá* type, even in forms that historically bore the accent (acc. sg. **gòlvə > *gòlvə* (Russ. *gólovu*), analogical to historically non-acute **zimə*). This is why all mobile paradigms in Slavic are "circumflex" – the generalization known as "Meillet's Law" – and why acuteness has become a true intonation, with no existence apart from the accent and no phonetic manifestation other than a distinctive pitch contour.

§10. It is time to take stock of what we have learned. Four divisions of the IE family – Indo-Iranian, Greek, Germanic, and Balto-Slavic – distinguish between ordinary long vowels and long vowels that are in some way "special." Nowhere is this an inherited feature. Every early IE language with a contrast between two kinds of long vowels owes this distinction to one fact – the failure of sequences of the type **-VHV-* to merge with simple long vowels and sequences of the type **-VH-*.

In Indo-Iranian **-VHV-* first gave *-VV-*, whence later *-V̄-*; long vowels of this type remained optionally disyllabic in Vedic and Avestan. In Greek the change of **-VHV-* to a monosyllabic long vowel was complete by the time of our earliest records, but the original position of the ictus was retained: pre-Gk. **-V̄HV-* gave a long with circumflex accent, while **-V̄-* and (tautosyllabic) **-V̄H-* gave longs with acute. In Germanic and Balto-Slavic, **-VHV-* sequences, joined by inherited (= type a) long vowels in absolute final position (**-V̄#*), yielded long vowels with an additional mora of length. The resulting hyperlong : long contrast was preserved in Germanic, where it is still palpable in the distinction between trimoric ("circumflex") and bimoric ("acute") final syllables. In Balto-Slavic, on the other hand, hyperlong vowels were reinterpreted as simple longs, while original simple longs were furnished with a glottalic or "checked" articulation that rendered them phonologically marked vis-à-vis their unchecked counterparts. In this restructured guise, the acute

(checked) : circumflex (unchecked) contrast was inherited into the separate Baltic and Slavic traditions. In Baltic the opposition was partly “intonationalized” – reinterpreted in terms of pitch contour – but acute vowels retained their phonological (and for a time phonetic) identity even when unaccented. In Slavic the process was taken further: accented, formerly checked nuclei in non-mobile paradigms were realized with a newly phonologized rising pitch contour, but the accent-independent distinction between two kinds of long vowels and diphthongs was lost.

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