

# GARDEN PATHS IN INTERNAL RECONSTRUCTION

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There are no magic bullets in historical linguistics. Language change can take many forms, and no simple set of discovery procedures can be counted on to work, cookbook-like, in every situation where there was a historical development we would like to understand. Internal reconstruction provides a case in point. As students we are taught to look for an explanatory sound law in cases like Lat. *genus*, gen. *generis* or Gk. γένος, gen. γένεος; when we have learned our lesson properly, we posit an intervocalic \*-s- (*generis* < \**genesis*; γένεος < \*γένεσος) and are rewarded by the discovery of an *s*-stem noun, still on display in Skt. *janah*, *janasah*. But there are less well-advertised instances where the historical picture we arrive at by this type of backward projection is either misleading or altogether wrong. Interesting cases of internal reconstruction leading to an incorrect result have crossed my path over the nearly sixty years since our honorand and I were fellow linguistics concentrators in the Harvard class of 1963. I share a few of them below.

## **The Latin Perfect Tenses**

Latin, as is well known, has six tenses: the present (e.g., *uideō* ‘I see’), future (*uidēbō* ‘I will see’), and imperfect (*uidebam* ‘I saw, used to see’), constituting the so-called present system, or *infectum*; and the three corresponding “completed” tenses—the perfect (*uīdī* ‘I saw, have seen’), future perfect (*uīderō* ‘I will have seen’), and pluperfect (*uīderam* ‘I had seen’), constituting the perfect system, or *perfectum*. With the exception of the perfect itself, an amalgam of the old perfect and aorist, the perfect tenses are an

innovation vis-à-vis PIE, though a similar system is found in the closely related Sabellic languages (Oscan, Umbrian, South Picene, and their dialects).<sup>1</sup> The source of the extended perfect system—the future perfect and pluperfect, along with the corresponding modal and non-finite forms—is the problem that will concern us here.

The formal devices Latin uses to mark tense and mood in the *present* system are mostly well-understood. Futurity is indicated in one of three ways:

- 1.1. with the thematic vowel *\*-e/o-*, representing the mood sign of the PIE subjunctive (cf. *erō*, *-is*, *-it*, etc. ‘will be’ (< *\*h<sub>1</sub>és-e/o-*); *dūcēs*, *-et*, etc. ‘will lead’ (< *\*-e-e-si*, *\*-e-e-ti*));
- 1.2. with the periphrastic element *-bō*, *-bis*, *-bit*, etc., representing the historical subjunctive in *\*-e/o-* of the root aorist *\*b<sup>h</sup>uH-* ‘become’ (cf. *uidēbō*, etc.);
- 1.3. in Old Latin, with the suffix *\*-se/o-*, representing the historical subjunctive in *\*-e/o-* of a desiderative *s*-present akin to the *s*-futures of other IE languages (cf. OLat. *faxō*, *-is*, *-it* ‘will do’).<sup>2</sup>

Past time can be indicated in two ways:

- 2.1. with the tense sign *\*-ā-* (< *\*-eh<sub>2</sub>-*), identical with the mood sign *\*-ā-* (see below), showing the typologically common use of a historical optative as an imperfect (cf. impf. *eram*, *-ās*, *-at*, etc. ‘was, were’);
- 2.2. with the productive periphrastic element *-bam*, *-bās*, *-bat*, etc., representing the historical imperfect in *\*-ā-* of the root *\*b<sup>h</sup>uH-* (cf. *uidēbam*, etc.).

The present subjunctive is indicated in no fewer than four ways:

- 3.1. with the mood sign *\*-ā-*, the Italo-Celtic stand-in for the PIE optative in *\*-o-ih<sub>1</sub>-* (cf. *dūcam*, *-ās*, *-at*, etc. ‘may, would lead’);
- 3.2. with the mood sign *\*-ē-*, historically the form taken by the PIE optative suffix *\*-iēh<sub>1</sub>- / \*-ih<sub>1</sub>-* after athematic stems in *\*-ā-* (< *\*-eh<sub>2</sub>-*) (cf. *renouem*, *-ēs*, *-et*, etc. ‘may, would restore’ (< *\*-ā-iē-*));<sup>3</sup>
- 3.3. with the mood sign *\*-ī-*, the form taken by the PIE optative in *\*-iēh<sub>1</sub>- / \*-ih<sub>1</sub>-* when added to other athematic stems (cf. *uelim*, *-īs*, *-it*, etc. ‘may, would want’);
- 3.4. in Old Latin, with the mood sign *\*-sī-*, representing the historical optative in *\*-ī-* (< *\*-ih<sub>1</sub>-*) of a desiderative *s*-present (cf. OLat. *faxim*, *-īs*, *-it*, etc. ‘may, would do’).

Two further items complete the picture: (1) the past subjunctive marker *\*-sē-*, a portmanteau morph of obscure origin that serves as the marker of the imperfect (i.e., past) subjunctive (cf. *essem*, *-sēs*, *-set*, etc. ‘might be’, *dūcerem*, *-rēs*, *-ret* ‘might lead’);<sup>4</sup> and (2) the infinitive suffix *-se*, *-re* (< *\*-si*), historically the locative singular of an *s*-stem verbal noun (cf. *esse* ‘to be’, *dūcere* ‘to lead’).

In the perfect system we have five formations to account for:

future perfect	<i>uīderō, -is, -it, etc.</i>
pluperfect	<i>uīderam, -ās, -at, etc.</i>
perfect subjunctive	<i>uīderim, -īs, -it, etc.</i> <sup>5</sup>
pluperfect subjunctive	<i>uīdissem, -issēs, -isset, etc.</i>
perfect infinitive	<i>uīdisse</i>

As can be seen from these forms, the perfect stem—in this case *\*wīd-* < *\*wiwid*<sup>6</sup>—is everywhere followed by an element *-er-* or *-is-*. Since *-er-* is found only before vowels and *-is-* only before consonants, we can restore *\*wīd-is-* in all cases—an elementary exercise in peeling away the effects of sound change. But what this tells us about the history of these forms is far from obvious. Generations of scholars have been tempted to conclude that the inherited perfect stem, extended by a further formative *\*-is-*, was the input to a series of historical derivations that equipped it with a set of new temporal and modal forms. The extended perfect stem *\*wīd-is-*, according to this idea, was provided with

- a) a future of its own, made by adding the future sign *\*-e/o-* (1.1. above): *\*wīdis-e/o-* > future perfect *uīderō, -is, -it*;
- b) a preterite, made by adding the preterite sign *\*-ā-* (2.1 above): *\*wīdis-ā-* > pluperfect *uīderam, -ās, -at*;
- c) a subjunctive, made by adding the mood sign *\*-ī-* (3.3 above): *\*wīdis-ī-* > perfect subjunctive *uīderim, -īs, -it*;
- d) a past subjunctive, made by adding the combined tense-mood sign *\*-sē-*: *\*wīdis-sē-* > pluperfect subjunctive *uīdissem, -issēs, -isset*; and
- e) an infinitive, made by adding the infinitive marker *\*-si-*: *\*wīdis-si-* > perfect infinitive *uīdisse*.

Variants of this approach are very widespread; cf., e.g., Buck 1933:297, Leumann 1977:609, Sihler 1995:590. Additional evidence for the stem extension *\*-is-* is often cited from the 2 sg. in *-istī* (*uīdistī*) and 2 pl. in *-istis* (*uīdistis*) of the perfect proper, which many scholars segment *\*-is-tai*, *\*-is-tes*.

This is not the place for a full exploration of the complexities of the Latin verbal system. Suffice it to say that despite its superficial appeal, the “extended stem” theory cannot be correct historically. The all-important *\*-is-* element had no existence prior to the creation of the forms it supposedly explains.<sup>7</sup> The actual starting point for the innovated tenses and moods of the perfect system, as I have tried to show elsewhere (Jasanoff 1987), was the creation of an *s*-future to the perfect stem, giving rise to forms of the type 1 sg. *\*wiwid-s-mi* ‘I will have seen,’ 3 sg. *\*wiwid-s-ti* ‘(s)he will have seen,’ etc. Two developments combined to obscure the transparency of this new future perfect. First, just as simple *s*-futures were superseded by their subjunctives in Latin (*\*fak-s-mi*, *\*fak-s-ti* → *faxō, faxit* (type 1.3 above)), the future perfects *\*wiwid-s-mi*, *\*wiwid-s-ti* were replaced by their subjunctives, viz., *\*wiwid-s-ō*, *\*wiwid-s-e-ti*. Second, the union vowel *\*-i-*, already employed before consonantal endings in the perfect proper (cf. 2 sg. / pl. *-istī, -istis* < *\*-i-stai, \*-i-stes* (the correct segmentation),<sup>8</sup> 1 pl. *-imus* < *\*-i-mos*, 3 pl. *-erunt* (non-classical beside *-ēre, -ērunt*) < *\*-i-ront*), was extended to the morpheme boundary before the *\*-s-*. Forms of the type *\*wiwid-s-ō*, *\*wiwid-s-e-ti* thus became *\*wiwid-i-s-ō*, *\*wiwid-i-s-e-ti*,

whence *\*wīd-i-s-ō*, *\*wīd-i-s-e-ti* > *uīderō*, *uīderit*. The first step in this projected history—the addition of the future-marking *\*-s-* to the perfect stem—was shared with Sabellic. In Sabellic, however, the athematic inflection *\*-s-mi*, *\*-s-ti*, etc. was never replaced by the historical subjunctive in *\*-se/o-* (cf., e.g., simple future Osc. *deiuast* ‘will swear’), and the union vowel that was introduced in the future perfect was *-u-*, not *-i-*.<sup>9</sup> The 3 sg. future perfect of the perfect stem *\*dedik-* (: *\*deik-* ‘say’) thus appears in Umbrian as *dersicust* < *\*dedicust*; the equivalent Latin form, if *dīcō* ‘say’ had had a reduplicated perfect in Latin, would have been *\*dedicerit*.

The rest of the story is simply told. Just as the *s*-future *faxō*, *-is*, *-it* came paired with a present subjunctive (< optative) *faxim*, *-īs*, *-it* (type 3.4 above), the *s*-future of the perfect (*\*wiwid-i-s-ō* / *uīderō*, etc.) came paired with a perfect subjunctive *\*wiwid-i-s-ī-m*, *\*-s-ī-s*, *\*-s-ī-t*, whence *uīderim*, *-īs*, *-it*. And just as the present-system futures in *\*-e/o-* (*erō*; 1.1 above) and *\*-b<sup>h</sup>ue/o-* (*uidēbō*; 1.2 above) were associated with preterites (imperfects) in *\*-ā-* (*eram*; 2.1 above) and *\*-b<sup>h</sup>uā-* (*uidēbam*; 2.2 above), the future perfect was fitted out with a preterite (pluperfect) in *\*-i-s-ā-*, whence attested *uīderam*, *-ās*, *-at*. The pluperfect subjunctive (*uīdissem*, *-issēs*, *-isset* < *\*-i-s-sē-*) and perfect infinitive (*uīdisse* < *\*-i-s-sī-*), were formed on the model of the verb ‘to be’ in the present system (fut. *erō* (< *\*es-e/o-*) : impf. subj. *essem* (< *\*es-sē-*), infin. *esse* (< *\*es-sī-*) :: fut. perf. *uīderō* (< *\*-i-s-e/o-*) : X; X = *uīdissem* (< *\*-i-s-sē-*), *uīdisse* (< *\*-i-s-sī-*)).

The picture, then, can be summarized as follows. Under a purely mechanical undoing of synchronically transparent sound laws, the tenses and moods of the Latin perfect system can be analyzed into a) a perfect stem proper, b) an apparent stem extension *\*-is-*, and c) tense and mood signs appropriate to the individual temporal and modal categories. The descriptive validity of this analysis is not in question. From a diachronic point of view, however, the extended perfect system is simply an elaboration of the future perfect. The stem extension *\*-is-* is epiphenomenal—not part of the history of the perfect system, but an emergent effect of the creation of that system. Here, as in the cases to be discussed below, the historical analysis suggested by synchrony is falsified by the comparative evidence.

### Class III and IV Presents in Tocharian

For most of the twentieth century, Tocharian was treated as a poor relation of Hittite in the IE family, regularly cited in connection with its allegedly close links to Italic and Celtic, but otherwise generally neglected for the more accessible attractions of Anatolian. One of the seminal publications that made Tocharian “real” for many Indo-Europeanists was a short article on the phonology and morphology of the Tocharian subjunctive by Warren Cowgill (1967). Cowgill’s focus was on the two subjunctive classes in Tocharian that showed ablaut, namely, class I, traditionally described as “athematic,” and class V, traditionally called the “*ā*-subjunctive.” The two classes looked quite different on the surface. In class I the suffixless root had *o*-grade in the strong forms (e.g., Toch. B 3 sg. *prekäm* (< *\*prók-*) ‘will ask’) and zero grade in the weak forms (3 pl. *parkäm* (< *\*prk-*)); in class V there was an apparent suffix *-ā-* [-a-], and the root had *-ā-* [-a-] vocalism in the strong forms (e.g., 3 sg. *kārsaṃ* [kars-] ‘will know’) beside a zero-grade vowel in the weak forms (3 pl. *\*karsaṃ* (< *\*krs-*)).<sup>10</sup> Cowgill showed that the *a*-vocalism of the class V strong forms had been lowered from an earlier *o*-grade by a process of *a*-umlaut, and thus that the underlying ablaut patterns of classes I and V were identical. The presence

of ablaut in the root meant that the stem-final  $-\bar{a}$ - [-a-] of class V could not be a full-grade suffix like the  $*-\bar{a}$ - (<  $*-eh_2-$ ) of the Italo-Celtic  $\bar{a}$ -subjunctive (type Lat. *dūcam*, *-ās*, *-at* ‘may lead’), but must have been a vocalized laryngeal. Since the class I subjunctive of “ask” went back to an ablauting root  $*prok-$  /  $*p_rk-$ , Cowgill concluded that the class V subjunctive of “know” went back to an ablauting root  $*korsH-$  /  $*k_r sH-$ .<sup>11</sup>

Besides demolishing the supposed equation of the Tocharian and Italo-Celtic “ $\bar{a}$ -subjunctives,” Cowgill’s article demonstrated the need to distinguish between two kinds of roots in Tocharian. Roots with “ $\bar{a}$ -character” like *kärs-* ‘know’ took an  $-\bar{a}$ - [-a-] after the root-final consonant in the subjunctive and various other categories, notably including the preterite (cf. e.g., class I pret. 1 sg. *särsāwa* ‘I knew’); roots of the non- $\bar{a}$ -character type added suffixes and endings directly, without inserting a vowel (cf. class III pret. 1 sg. *prekwa* ‘I asked’). The distinction, which recalls that between *set* and *aniṭ* roots in Sanskrit, is now a staple of Tocharian grammatical description.<sup>12</sup> Cowgill himself is said to have humorously referred to  $\bar{a}$ -character roots as “*sāt*-roots.”

The  $\bar{a}$ -character versus non- $\bar{a}$ -character distinction found an early application in the discussion surrounding presents of classes III and IV. Class III presents, typified by B *wiketär*, A *wikatär* ‘disappears,’ are media tantum, typically intransitive, and characterized by an invariant stem vowel that seems at least on the surface to go back to PToch.  $*-e-$ , normally the reflex of PIE  $*-o-$ . Class III is in complementary distribution with class IV; class IV replaces class III when the root contains an *a*-vowel (i.e., B  $-\bar{a}$ - [-a-], *-ai-*, or *-au-*). The presents of class IV, like those of class III, are media tantum and intransitive; the stem vowel here, however, is *-o-*, not *-e-* in Toch. B, and an  $-\bar{a}$ - [-a-] in the root is altered to *-o-* in Toch. B and to *-a-* [-a-] in Toch. A (cf. B *osotär*, A *asatär* ‘dries out’; root *ās-*). It was not obvious in the late 1960s and early 1970s how a single suffix could have led to both the class III and class IV treatments. The default hypothesis was that the class III presents were what they seemed to be—thematic or thematized middles with non-alternating *o*-timbre of the thematic vowel (e.g., pre-Toch.  $*wikomar$ ,  $*-otar$ ,  $*-otor$ , etc.)—and that the class IV presents were of the same structure ( $*asomar$ ,  $*-otar$ ,  $*-otor$ , etc.), but with some poorly understood phonological rule(s) governing the treatment of  $*a . . . *o$  sequences.<sup>13</sup>

Cowgill was very skeptical of this approach. He did not believe that PIE had thematic presents with non-alternating  $*-o-$ , or that paradigms of this type could easily have been created in the early IE languages. He turned rather to internal reconstruction. The roots that made class III/IV presents, he noted, also made class V ( $-\bar{a}$ -) subjunctives and class I ( $-\bar{a}$ -) preterites; this made them, by definition, roots of  $\bar{a}$ -character (cf. B subj. 3 sg. mid. *wikātär*, pret. 3 pl. *asāre*). He accordingly set up roots, or root-like complexes  $*wikH-$ ,  $*(H)asH-$ , etc., and contemplated deriving the class III/IV suffix from a sequence of the form  $*-H-X-$ , with a vocalized laryngeal followed by additional morphological material. By 1980, to judge from references in the writings of his student Don Ringe (especially Ringe 1996: 56-9), he had more specifically settled on what we would now write  $*-h_1\text{-}j\bar{e}/o-$ , with  $*-h_1-$  representing the historical zero grade of the “stative” suffix  $*-eh_1-$  (“ $*-\bar{e}$ ”), secondarily fused to the root in Tocharian. It was no accident that this same complex  $*-h_1\text{-}j\bar{e}/o-$  was also Cowgill’s preferred reconstruction for the present-stem formative of other primarily intransitive formations elsewhere in the family, especially the class III weak verbs of Germanic (e.g., Go. *habaiþ* ‘has,’ according to Cowgill < “ $*-ajeti$ ”).<sup>14</sup> Cowgill’s analysis was elaborated by Ringe. The sequence  $*-h_1\text{-}j\bar{e}/o-$ , in Ringe’s 1996

formulation, first gave post-PIE  $*-\text{ǵje}/o-$ ; this, with loss of intervocalic  $*-j-$ , contracted to give a new non-palatalizing vowel “ $*-\bar{o}-$ .” In most environments, according to Ringe, pre-Toch.  $*-\bar{o}-$  fell together with the reflex of (post-laryngeal loss) PIE  $*-\bar{e}-$  and  $*-o-$  to give PToch.  $*-\bar{a}-$ , whence the normal class III treatment (B *-etär*, A *-atär* <  $*-\text{ǵetǵr}$ ). When the preceding syllable contained an  $*-a-$ , however, the resulting  $*a \dots *-\bar{o}$  sequences, Ringe said, underwent assimilatory changes that produced what we would now write  $*\bar{a} \dots *-\bar{a}$ , giving the treatment seen in class IV (B *osotär*, A *asatär* < PToch.  $*\bar{a}s\bar{a}t\bar{a}r$  <  $*as\bar{o}-$ ).

The Cowgill-Ringe theory of class III/IV presents was influential for a time, contributing importantly to the non-standard theory of “essives” and “fientives” enshrined in *LIV*. But the supposed development of  $*-\text{ǵje}/o-$  to  $*-\bar{o}-$  has not held up well. Ringe’s  $*-\bar{o}-$  was a completely ad hoc construct; its only purpose was to serve as a rounding agent in the purported sound change of  $*a \dots *-\bar{o}$  to  $*\bar{a} \dots *-\bar{a}$  in class IV—and then only because Ringe rejected the possibility that the same rounding-cum-assimilation effect could have been induced by  $*-o-$ , the unmarked choice for the theme vowel in class III.<sup>15</sup> Additionally, there is now considerable evidence that PIE intervocalic  $*-j-$ , the loss of which was taken for granted by Cowgill and Ringe, was in fact retained in Tocharian.<sup>16</sup> One or more of these considerations may have played a role in Ringe’s striking retreat from his published views a few years later: “Functionally they [the class III/IV presents – JJ] appear to be connected with the statives in  $*-\text{ǵh}_1-$  (Jasanoff 1978:28), but the formal equation remains very difficult; I am no longer convinced that Ringe 1996:56–9 is even approximately the correct solution to this puzzle” (Ringe 2000:137, note 39).

If, as has become increasingly clear, the class III/IV theme vowel was simply  $*-o-$ , the line of reasoning that led Cowgill and Ringe to look for a suffix of the form  $*-\text{H}_1\text{X}-$ , or more specifically  $*-\text{h}_1\text{-ǵje}/o-$ , must have been incorrect. The source of the error is easily identified. The synchronic observation that Tocharian roots were either of  $\bar{a}$ -character or non- $\bar{a}$ -character was sound; so was the etymological observation that the source of the distinction was the presence of a root-final laryngeal in some roots and not others. The flaw in Cowgill’s and Ringe’s logic was the assumption that if a root of a given morphological profile had  $\bar{a}$ -character in synchronic Tocharian, it had to go back, in at least the bulk of roots of that profile, to a sequence in which a laryngeal was actually present. Cowgill posited a synchronic root  $*\text{wikH}-$  for the class III present B *wiketär*, A *wikatär* because *wik-* and other class III presents had class V (“ $\bar{a}$ -”) subjunctives of the type  $*\text{w}(a)\text{ika}-$ ; he set up  $*(\text{H})\text{asH}-$  for the class IV present B *osotär*, A *asatär*, because class IV presents had class V subjunctives of the type  $*\text{asa}-$ . But in imputing historical reality to the synchronic constructs  $*\text{wikH}-$  and  $*(\text{H})\text{asH}-$ , he failed to make sufficient allowance for the productivity of  $*-a-$  as a predesinential union vowel in the prehistory of Tocharian. In point of fact, the  $*-a-$  of the  $\bar{a}$ -subjunctive (and preterite), starting from verbs (mostly *not* of the class III/IV type) where there really was a root-final laryngeal, had gradually been extended to the inherited ablauting subjunctives and preterites of (*inter alia*) “stative-intransitive” roots like *wik-* and *ās-*.<sup>17</sup> These, at the time of the creation of their class III/IV presents, were not of  $\bar{a}$ -character at all. Their present stems ended not in  $*-\text{h}_1\text{-ǵje}/o-$ , but in  $*-o-$ .

## The Slavic Mobile Accent

In the cases just discussed, the discovery of a just-below-the-surface synchronic reality (the extended perfect stem in *\*-is-* in Latin, the  $\bar{a}$ -character of the roots that made class III/IV presents in Tocharian) pointed the way to a historical analysis that proved to be incorrect. The Latin perfect tenses were *not* made by adding morphological material to the extended stem in *-is-*; the Tocharian class III/IV present suffix was *not* the contraction product of a sequence *\*-h<sub>1</sub>-je/o-*. In our third example, the focus will not be on a class of grammatical forms, but on a pattern of accentual behavior.

Two major prosodic innovations set Balto-Slavic apart from the rest of Indo-European:

- 1) the creation of an accent-independent contrast between “acute” and non-acute long vowels and diphthongs; and
- 2) the introduction of a new type of accentual mobility in nominal and verbal stems, unrelated to the mobility patterns familiar from athematic stems in PIE.

Only the latter development will concern us here. All Proto-Balto-Slavic paradigms were “mobile” or “immobile.” In immobile paradigms the reflex of the PIE accent, a high or rising prominence, sat stably on an initial or internal, but not on a final syllable. This was the “lexical” accent, marked with a vertical stroke [ | ]. Typical PBSl. forms were nom. sg. *\*blūsā̄*<sup>18</sup> ‘flea,’ acc. *\*blūsān*, instr. pl. *\*blūsāmīs*; 1 sg. pres. *\*pēisījō̄* ‘I draw,’ 3 sg. *\*pēisījeti*. In mobile paradigms, by contrast, the accent moved between the first syllable and the last.<sup>19</sup> When the accent was final it was phonologically identical with the lexical accent and can be marked in the same way. On the first syllable of a mobile form, however, the accent was low or falling, contrasting with the lexical accent. We will call this second type of accent the “left-marginal” accent. It will be marked here with a grave-macron [ ¨ ]:<sup>20</sup> thus, acc. sg. *\*žēimān* ‘winter’ versus acc. sg. *\*žeimā̄*, instr. pl. *\*žeimāmīs*; 1 sg. pres. *\*uēdō̄* ‘I lead’ versus 3 sg. *\*uedeti*. Since the left-marginal accent was confined to the initial syllable of word-forms that did not bear any other accent, it was phonologically predictable. Forms bearing a left-marginal accent were underlyingly accentless. In the synchronic grammar of PBSl. their initial falling prominence was assigned by rule.

In Proto-Slavic, the more evolved of the two first-order daughters of PBSl. (Proto-Baltic was more conservative), word-forms bearing a left-marginal / falling accent were “enclinema,” that is, they appeared to give up their accent to a neighboring clitic. The loss of the accent in enclinema took place in a very specific way. If one or more proclitics were present and there was no enclitic, the first proclitic received a left-marginal accent. If only enclitics were present, a lexical accent was assigned to the first enclitic. If both types of clitics were present, the enclitic(s) “won,” and the accent was assigned to the first enclitic. Thus, e.g., combining the enclinema *\*zîmō* ‘winter (acc. sg.)’ (< PBSl. *\*žēimān*) and *\*vèdō* ‘I lead’ (< PBSl. *\*uēdō̄*)<sup>21</sup> with the proclitics *\*na* ‘on(to),’ *\*i* ‘and,’ and *\*ne* ‘not,’ and the enclitics *\*že* (emphatic) and *\*li* (interrogative), we obtain

*\*zîmō*: *\*nâ zimō*, *\*î na zimō*, *zimō žè*, *\*i na zimō žè*

*\*vèdō*: *\*nâvedō* (‘I will induce’), *\*nè vedō*, *\*î ne navedō*, *\*navedō li*

The synchronic rule governing the nature and placement of the accent in these cases is known as Vasil'ev-Dolobko's Law (VDL). VDL only applied when the clitic host was an enclinenomen. Replacing *\*zîmq* and *\*vèdq* in the above combinations by end-accented *\*zimá* (nom. sg.) and *\*vedetǔ* (3 sg.), which were not enclinenomena, we obtain simply

*\*zimá*: *\*i zimá*, *\*zimá že*, *\*i zimá že*  
*\*vedetǔ* : *\*navedetǔ*, *\*ne vedetǔ*, *\*i ne navedetǔ*, *\*navedetǔ li*

The PSl. rule for accenting phonological words (= strings consisting of a potential clitic host and its dependents) can thus be thought of as a three-step algorithm:

- a) if a lexical accent was present in the string, this became the accent of the phonological word;
- b) if there was no lexical accent in the string, but there was at least one enclitic, the first enclitic received a lexical accent;
- c) if neither a) nor b) applied, then the first syllable in the string received a left-marginal accent.

Synchronically, the accentual instability of word-forms headed by a left marginal / falling is a reflection of their underlying accentlessness.

Against this background we can turn to the great open question of Slavic and BSl. accentology—the historical origin of mobility. Vowel-stem nouns (including the laryngeal stems that would later become  $\bar{a}$ -stems) had columnar accent in late PIE and early post-IE, as did thematic presents in *\*-e/o-*, *\*-je/o-*, *\*-eje/o-*, etc. Some, but not all the lexical items belonging to these types unexpectedly became mobile in Slavic and BSl., with right- and left-accented forms in specific paradigmatic positions. We have one major clue as to the origin of this state of affairs: mobile *nouns* correspond etymologically to PIE oxytones (i.e., stems accented on the theme vowel), and immobile nouns mostly correspond etymologically to PIE barytones (stems accented on the root). The correlation can be seen in the contrast between, on the one hand, late PIE *\*h<sub>3</sub>mígh<sup>h</sup>leh<sub>2</sub>* ‘mist,’ whence Gk. ὀμίχλη, Lith. *miglà* (immobile)<sup>22</sup> and PSl. *\*mǔgla* (immobile); and, on the other, late PIE *\*k<sup>w</sup>oinéh<sub>2</sub>* ‘penalty, price,’ whence Gk. ποινή, Lith. (dial.) *kainà*,<sup>23</sup> acc. *káinq* (mobile) and PSl. *\*cěná*, acc. *\*cěno* (mobile). In mobile nouns, therefore, it looks as if the paradigmatic forms with a lexical accent on the stem vowel (e.g., nom. sg. *\*zimá*, *\*cěná*) retained the accent in its inherited position, while the paradigmatic forms with a left-marginal accent (e.g., acc. sg. *\*zîmq*, *\*cěno*) moved the accent leftwards. From Saussure 1896 on, investigators have searched for a retraction rule or rules which, with an assist from paradigm-to-paradigm analogy, could be made to account for the root-accented forms. The fact that the retracted accent was underlyingly a *non*-accent has not traditionally played a major role in the discussion.

In 2009, a new approach was pioneered by Thomas Olander. Like Cowgill in the Tocharian example above, Olander focused on a newly appreciated synchronic reality—in this case, the accentlessness of enclinenomena—and made it the cornerstone of a historical theory. Olander's claim was that the phonological structure of some, but not all word-final assemblages in early Balto-Slavic rendered them incapable of bearing the accent. In these instances, he said, the accent was deleted and the form in question became accentless. Thus, in an  $\bar{a}$ -stem noun, the nom. sg. in *\*-éh<sub>2</sub>* remained accented (cf. PBSl. *\*žeimǎ* > PSl. *\*zimá*), while the hiatal structure of the acc. sg. in *\*-éh<sub>2</sub>m<sup>i</sup>*<sup>24</sup> forced it to give up its accent, resulting in a default left-marginal accent being assigned to the first syllable (PBSl.



\**zēmān* > PSl. \**zīmō*). Olander formulated a “Mobility Law” to specify which endings, in his view, became unaccentable. The details, though not beyond criticism, need not concern us here. The “accent loss” approach generated accentlessness directly and had the small but real advantage of being able to explain polysyllabic enclitomena without appealing to analogy.<sup>25</sup>

Neat as it was, however, Olander’s phonological approach delivered less than it promised. Olander offered a formal hypothesis for how the left-accented forms in mobile noun paradigms had become phonologically accentless, but he had nothing to say about the origin of the most remarkable manifestation of accentlessness in Slavic—the rule we know as VDL. There was nothing automatic or predictable about VDL, which, as we have seen, caused a phonologically accentless form with an initial falling accent to either a) transfer its falling accent to a clitic on its left, or b) induce a lexical accent in a clitic that followed. This behavior could only be explained as the grammaticalized residue of a series of past sound changes. What precisely these changes were emerged from the study of mobility in the verb.

For Olander as for almost all his predecessors, the accentology of the BSl. verbal system was *terra incognita*. Mobility in the verb clearly had nothing to do with former oxytonicity; it was especially well-ensconced in the inherited thematic present class represented by PBSl. \**uēde/o-*, \**uēze/o-* ‘convey,’ \**peke/o-* ‘bake,’ etc. < PIE \**uéd<sup>h</sup>e/o-*, \**uég<sup>h</sup>e/o-*, \**pék<sup>w</sup>e/o-*, where the accent was historically on the root. In presents of this type, the disyllabic forms were enclitomena in Slavic (e.g., PSl. 1 sg. \**vědō* (< \**uē-*), \**ně vedō*), while the more numerous trisyllabic forms had final accent (3 sg. \**vedetb̄*, \**ne vedetb̄*).<sup>26</sup> Based on these facts, I argued in Jasanoff (2017:115-30) that nominal mobility, verbal mobility, and VDL had all grown out of two ordered PBSl. sound changes:

- 1) Saussure-Pedersen’s Law (SPL): a PIE lexical (rising) accent was retracted from a short open syllable, producing a falling accent ( ̃ ) on the preceding syllable. The falling accent subsequently became rising (i.e., fell together with the lexical accent) in non-initial syllables, thus restricting the falling accent to the first syllable of phonological words.
- 2) Proto-Vasil’ev-Dolobko’s Law (Proto-VDL): Phonological words of four or more syllables headed by a falling (left-marginal) accent became oxytone (#*x̃*<sub>1</sub> – *x*<sub>2</sub> – *x*<sub>3</sub> . . . *x*<sub>*n*</sub># > #*x*<sub>1</sub> – *x*<sub>2</sub> – *x*<sub>3</sub> . . . *x̃*<sub>*n*</sub>#).

SPL was the main agent of mobility in oxytone nouns; the declensional endings that Olander identified as “unaccentable” (e.g., the acc. sg. in \**éh<sub>2</sub>m̄*) mostly triggered SPL as well.<sup>27</sup> But in verbs, which Olander barely discussed, SPL was activated by the combination of a preverbal particle with a simple thematic present, giving, e.g., 1 sg. \**ně uedō* < \**ne uédō* and 3 sg. \**ně uedeti* < \**ne uédeti*. Sequences of the latter type were subsequently affected by Proto-VDL, producing the quasi-attested PSl. \**ně vedō*, \**ne vedetb̄* < \**ně uedō*, \**ne uedeti*. The addition of an enclitic to trisyllabic \**ně uedō* also satisfied the environment for Proto-VDL (\**ně uedō* + *ge* ⇒ \**ne uedō gé* > \**ne vedō žě*); this was the take-off point for the subrule of VDL that caused an accent to be assigned to *any* enclitic added to an enclitomenon.<sup>28</sup> The other half of VDL—the subrule stipulating the movement of a left-marginal accent onto a proclitic—was an analogical elaboration of SPL. The displacement of the accent from the root to a preverbal particle was phonologically regular in combinations like pre-BSl. \**ne uēde/o-* > PBSl. \**ně uede/o-*. When no prefix was present, \**uéd/o-* ought theoretically to have kept its lexical

accent and remained immobile. The influence of the prefixed forms, however, led to the introduction of mobility into the simplex as well. This was the origin of the synchronic pattern *\*ne + uēdō ⇒ \*nē uedō*, which subsequently spread to other particle + enclitomenon combinations.<sup>29</sup>

Thus, although phonological accentlessness was a central synchronic fact of Proto-Slavic and Proto-Balto-Slavic, it was historically a secondary phenomenon, an emergent effect of SPL and Proto-VDL. Olander's decision to explain mobility on the basis of "accent loss" was a wrong turn: accentlessness in Balto-Slavic was not an autonomous driver of change, but, like the extended perfect stem in *-is-* in Latin and the *ā*-character of stative-intransitive roots in Tocharian, a symptom masquerading as a cause.

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## Notes

1. To be sure, there probably was a pluperfect in PIE (cf. Jasanoff 1997, esp. 125ff.). The Latin tense of this name, however, was an unrelated formation. There is no certain evidence for a pluperfect in Sabellic.
2. The alternative position, untenable in my view, holds that these forms are historically *s*-aorist subjunctives. See Weiss 2009:410–11.
3. The uncontracted sequence is preserved in Osc. 3 sg. subj. *sakraitír*, *sak<r>ahiter* ‘let it be sacrificed.’ The “ $\bar{e}$ -subjunctive,” originally proper to athematic factitives of the type *renouā-* (= Hitt. *newahh-* ‘id.’), spread from here to the rest of the first conjugation, where the present-stem-forming suffix usually went back to thematic *\*-eh<sub>2</sub>je/o-*.
4. For a theory of the origin of this morpheme see Jasanoff (1991).
5. The forms shown here are ideal; in practice the *-erī-* of the perfect subjunctive and the *-erī-* of the future perfect are not consistently distinguished.
6. Lat. *uīd-* is more usually taken from a root aorist *\*weid-* (so, e.g., *LIV* s.v.). But since the root *\*ueid-* had a thematic aorist in PIE (*\*uīde/ó-*), an innovated reduplicated perfect *\*wiwid-* is far likelier.
7. The old idea that pre-Lat. *\*-is-* was somehow the same as the *-iṣ-* of the Vedic *-iṣ-*aorist, where the *-i-* was a laryngeal reflex, has long been discarded.
8. For a possible source of the *\*-i-* see Jasanoff (1991:86, note 5). The nucleus of the 2 sg. in *-istī* < *\*-istai* was *\*-sta* < *\*-sth<sub>2e</sub>*, a sigmatic variant (cf. Toch. B *-sta*) of the normal perfect / *h<sub>2e</sub>*-conjugation ending *\*-th<sub>2e</sub>*. The *-s-* of 2 pl. *-istis* is an apparent transfer from the 2 sg.
9. Despite Zair 2014, esp. 371–7, I still consider it likely that the Sabellic union vowel *-u-* was extracted from the future perfect of the verb “to be,” where the original 3 sg. would probably have been *\*fefust*.
10. It may be helpful to note some Tocharian spelling conventions. There is no contrastive vowel length in Tocharian; the vowels written < $\bar{a}$ >, <a>, and < $\bar{ä}$ > represent [a], [ʌ], and [ī], respectively. In Proto-Tocharian reconstructions, PToch. *\*a* stands for [a], ancestral to the vowel written < $\bar{a}$ > in the historical languages, and PToch. *\*ə* stands for [ə] or [ī], ancestral to the vowel written < $\bar{ä}$ >. A

synchronic rule in the main dialect of Toch. B raises unaccented [a] < $\bar{a}$ > to [Λ] and lowers accented [i] < $\bar{ä}$ > to [Λ] <a>.

11. “Root,” for Cowgill, did not exclude the possibility of a historical morpheme boundary; see below.

12 See, e.g., Malzahn 2010:24.

13. Such a rule was the process dubbed “mutual rounding” by Adams (1978:448).

14. For background on the wider issues at play here, see Jasanoff (2002-03 [2004]), reacting to Harðarson 1998.

15. Ringe was misled by the fact that the rounding effect did not occur when the  $*-o-$  was in a final syllable (cf. B *swāre* (not  $*s(w)oro$ ) ‘sweet’ <  $*swadros$ ). The reason was probably that the general Tocharian unrounding of  $*o$  to PToch.  $*e$  was further advanced in this position.

16. Note in particular the obl. sg. in B *-ai* <  $*-ay\bar{o}(n)$  <  $*-ōi-\bar{m}$  (Jasanoff 2018:75–6).

17. The spread of root-final  $*-a-$  is traced in detail in Jasanoff (2013). The real locus of this element was in inherited laryngeal-final roots like *stām-* ‘stand’ (B pret. (cl. I) 3 sg. *ś(c)ama* <  $*stemb^hH-t$  (= Ved. *ástambhūt*, pres. *stabhnāmi*) and *kāry-* ‘buy’ (B subj. (cl. VI) *kāmā-* ( $\cong$  Ved. *krīṇā-*), pret. (cl. I) 3 sg. mid. *kāryāte* <  $*k^wrih_2-to$  (= Gk. Πρίατο)), where there was typically an  $e$ : zero ablauting root aorist and / or a nasal present in  $*-neH-$  /  $*-nH-$ .

18. I use underlining to denote acuteness, an irrelevant feature for our present purposes. A later rule (Dybo’s Law) shifted the accent one syllable to the right in Slavic (cf. Russ. *bloxá*).

19. Secondary perturbations of this system, such as Hirt’s Law, which drew the final accent one syllable to the left under stateable circumstances, are omitted from the account here.

20. Continuing a convention introduced in Jasanoff (2017).

21. For reasons related to the later history of Slavic, it is conventional to use separate diacritics to mark the realizations of the left-marginal accent on long and short nuclei. The resulting “long falling” and “short falling” accents are illustrated in the forms PSl.  $*z\hat{i}m\bar{o}$  and  $*v\grave{e}d\bar{o}$ , respectively.

22. With accent on the ending by Saussure’s Law, a later, purely Lithuanian rule.

23. With accent on the ending predating Saussure’s Law.

24. The actual PIE ending was most likely  $*-eh_2m$ , with non-syllabic  $*-m$  (cf. Ved. *-ām*); Olander assumes syllabicity to have been restored to the  $*-m$  on the model of the consonant stems.

25. Long enclitomena of this type arose in the declension of polysyllabic mobile stems, for example, acc. sg.  $*z\grave{e}mj\bar{o}sk\bar{o}$  (left-marginal accent), corresponding to nom. sg.  $*zemj\bar{o}sk\acute{a}$  ‘terrestrial (f.),’ where a pure retraction rule, as opposed to a loss rule, would have put the accent on the  $-b-$  of the second syllable ( $*-b\bar{sk}\bar{o}$  <  $*-isk\acute{e}h_2m$ ).

26. The other important disyllabic form was the 2, 3 sg. aor.  $*v\grave{e}de$ , historically representing PIE 2, 3 sg. impf.  $*y\acute{e}d^hes$ ,  $*y\acute{e}d^het$ .

27. The overlap was not complete; see Jasanoff (2017, ch. 5) for a detailed comparison of the predictions of SPL and Olander’s Mobility Law in the nominal sphere.

28. Hence the name “Proto-VDL” for the sound law underlying the morphologized rule.

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29. Though probably only in Slavic. It is notable that one of the most striking manifestations of “accentlessness” in Slavic, the movement of the accent from an enclitic onto a preceding preposition (cf., e.g., Russ. *zá gorodom* ‘in the country’ < *za + górodom*, *pód goru* ‘downhill’ < *pod + góru*), has no counterpart in Baltic.