Wiener Slawistischer Almanach 35 (1995), 281 -296

Alan Timberlake

MECHANISMS AND RELATIVE CHRONOLOGY OF POLABIAN SOUND CHANGES

The basic patterns of phonological development from Late Common Slavic to Polabian have been known since the end of the 'twenties.[1] In the time since then, various refinements have been added. The absolute chronology of changes in vocalism has been established with precision on the basis of Slavic propria in Low German records, a remarkable achievement in view of the indirect and imperfect nature of the evidence.[2] Some recalcitrant questions, such as the dialectal differentiation of diphthongs of high vowels, have been clarified.[3] With the publication of the original sources and a thesaurus,[4] it might seem that little remains to be done in the history of the Polabian sound system.

It is true, nevertheless, that the development of Polabian has often been presented in the form of direct, linear correspondences between Common Slavic antecedents and the Polabian reflexes.[5] As a consequence, the mechanisms of changes and their relative chronology merit further attention. In elaborating the relative chronology below, which will largely be consistent with the absolute chronology of Kaiser 1968, it is useful to make the simplifying (if ultimately false) assumption that changes are punctual; if all changes were punctual, then all changes could be ordered with respect to each other in a strictly linear fashion. The assumption holds true often enough to be useful, and the instances where it fails are revealing. It will be sufficient to cite Polabian forms (normalizations in italics, actual citations in quotations) from Olesch's *Thesaurus,* using Olesch's system of citing sources; in particular, it will largely be sufficient to cite Hennig's *Vocabularium Venedicum* ("H 842," in Olesch's codification of the sources).[6]

The change that is pivotal in the history of Polabian is the differentiation of inherited mid vowels **e* and **o* each into two vowels. For each of the mid vowels, one of the reflexes will eventually be high, one non-high, but these high reflexes are the end points of a series of changes. It is reasonable to assume that this change, like many changes, began as a relatively minor differentiation of two allophonic variants. Ignoring some details (notably the fact that both vowels have a different pattern of reflexes when the preceding consonant is the homorganic glide), we can hypothesize that closed variants [e] and [o] developed in the position before palatalized consonants, while open variants [ɛ] and [ɔ] were found be-

fore some or all non-palatalized consonants. After the differences between closed and open variants were fixed, further changes occurred; the closed variant of **e* ([e] as opposed to [ɛ]) was raised to [i], and [o] and [ɔ] were fronted and raised to [ü] and [ö], respectively.

Reflexes of **e* are distributed according to the palatalization of the following consonant in a transparent fashion. The lower reflex (hypothetically first [ɛ], eventually [e]) occurs before any non-palatalized consonant, the higher reflex (first [e], then [i]) in other contexts. Examples are given in (1); here and below the acute is used to mark a palatalized consonant or a front vowel, the kroužek to mark a non-palatalized consonant or back vowel.

(1) Reflexes of **Ce* in Polabian

/__C´	*desętь	>	disạt	'zehn'	[H 842] «disangt»
	*devętь	>	divạt	'neune'	[H 842] «diwangt»
/__#	*pole	>	püli	'Feld'	[H 842] «püelí»
/__{P°, K°}	*teplo	>	teplü	'warm'	[H 842] «teplí»
	*nexati	>	nexăt	'laßen'	[H 842] «nechat»
/__T°	*ledъ	>	led	'Eiß'	[H 842] «lêd»

When, however, the preceding consonant was the glide [j], the reflexes are sensitive to differences within the class of non-palatalized consonants: following labials and velars conditioned [e], dentals a low reflex [a] (see (2)).

(2) Reflexes of **je* in Polabian

/__C´	*jesenь	>	jisin	'September'	[H 842] «gißîn[mond]»
	*jedinъjь	>	jidạinĕ	'einziger'	[H 842] «gidddeine»
/__#	*jaje	>	joji	'Ey'	[H 842] «gogí»
/__{P°, K°}	*(v)ujevьka	>	vạujefkă	'maternal aunt'	[H 842] «waugêfka»
/__T°	*jedla	>	jadlă	'Tanne'	[H 842] «gadela»

For **o* after ordinary consonants, the distribution of environments is not the transparent distinction of palatalized vs. non-palatalized, but one which splits hard consonants. The lower reflex (first [ɔ], eventually [ö]) occurs only before hard dentals, while the high reflex (initially [o], eventually [ü]) occurs before hard and labial velars as well as before all palatalized consonants. Standard examples are given in (3).

(3) Reflexes of **Co* in Polabian

/__C´	*gnojь	>	gnüi̯	'Mist'	[H 842] «gni»
	*kotьlь	>	t´üt´al	'grosser Keßel'	[H 842] «tgüttgâl
	*konikъ	>	t´ünĕk	'Pferdchen'	[H 842] «tyünik»
	*ne možetь	>	ni müzĕ	'er kann nicht'	[SJ] «ni müse»
/__#	*dělo	>	d´olü	'Arbeit'	[H 842] «tgolí»
	*čьso	>	cü	'was?'	[H 842] «zü»
/__{P°, K°}	*bogъ	>	büg	'Gott'	[H 842] «büg»
	*kobyla	>	t´übol´ă	'Mutterpferd'	[H 842] «tjûbolja»
	*rokyta	>	rüt´ai̯tnă	'Warffen'	[SJ] «rühtjeitna»
/__T°	*prostota	>	pröstötă	'Wunderkopff'	[SHilf] «pröstöta»
	*mostъ	>	möst	'Dammstraße'	[SJ] «möst»
	*gora	>	d´öră	'Berg'	[H 842] «tgöra»
	*bosьjь	>	bösĕ	'baarfüßig	[H 842] «bößе»

When, however, the preceding consonant is the glide [v] (original or prothetic), the distribution of environments follows the more transparent pattern. The high reflex occurs before palatalized consonants. (Whether the ultimate reflex was [ü] or, by a further change of delabialization, [i], is not significant here.) A low reflex develops before all non-palatalized consonants. Beyond the fact that the latter reflex must have been a low vowel, its phonetic character is less than certain. Hennig often spells the whole sequence «woaC», which could indicate that the vowel was diphthongal [o̯a] or, just as probably, monophthongal [å].[7] Examples are given in (4).

(4) Reflexes of **vo* in Polabian

/__C´	*(v)obědъ	>	vib´od	'Morgen-Brodt'	[H 842] «wibbegôd»
	*(v)og(ъ)njь	>	vid´in	'Feuer'	[H 842] «widgiń»
	*(v)oči	>	vicai̯	'Auge'	[H 842] «witsay»
	*(v)oni	>	vinai̯	'sie'	[H 842] «winnay»
/__#	*pivo	>	paivü	'Bier'	[H 842] «peiwí»
/__{P°, K°}	*vo(je)voda	>	vavådă	'Fürst'	[H 842] «wawóada»
	*(v)oko	>	vât´ü	'Auge'	[H 842] «watgí»
	*(v)okъno	>	vâknü	'Fenster'	[H 842] «wakní»
/__T°	*volъ	>	vål	'Ochse'	[H 842] «woal»
	*voda	>	vådă	'Waßer'	[H 842] «woada»

The reflexes of mid vowels in different contexts are summarized in (5).

(5) Summary of Mid Vowel Reflexes

context	*o	*vo	*e	*je
/__C´	ü	ü>i	i	i
/__#	ü	ü>i	i	i
/__{P°, K°}	ü	å	e	e
/__T°	ö	å	e	a

Presenting all the familiar facts together makes clearer that there is a bit of a puzzle in the mechanisms responsible for the splitting of vowels, a question which we may now address. It is of course not unusual for North Slavic languages to adjust the phonetic character (and not infrequently the phonemic identity) of vowels to the character of the following consonant, palatalized or not, but it is more surprising to have reflexes depend on the basic place of articulation—labial or velar as opposed to dental.[8] The sensitivity to the basic place of articulation may have developed in the following way.

Polabian evidently set about maximizing the difference between palatalized and non-palatalized consonants by exaggerating the transitions in the preceding vowels. Before palatalized consonants, vowels were fronted and raised; in acoustic terms, soft consonants cause raising of F_2 and, derivatively, of F_1, which is equivalent to articulatory narrowing and raising. By complementarity, hard consonants, which may well have been velarized, cause backing and lowering of vowels; in acoustic terms, hard consonants induce lowering of F_2 and secondary raising of F_1, which is equivalent to greater aperture. A comparable assimilation can be documented in Russian, where soft consonants front and to some extent raise adjacent stressed vowels.

As the presentation of material above demonstrated, Polabian sometimes divides mid vowels according to the transparent partition of palatalized vs. non-palatalized, and sometimes it splits the hard consonants, in which case hard labials and velars give a higher reflex than hard dentals.[9] Now dentals have an acoustic and articulatory effect on vowels quite similar to palatalization; if you will, palatalization is an extreme version of dentalization. As a consequence, when a language such as Polabian attempts to differentiate palatalized consonants from non-palatalized, and in particular palatalized dentals from non-palatalized dentals, it may exaggerate the velarized transition of the vowel to the hard dental (acoustically, by depressing F_2 and raising F_1). Dentals may do this even more than labials and velars, which have an intrinsically depressed transition. We could write these transitions as follows. Transition to any soft consonant is simply an anticipatory [i]-like transition, which may become longer over time and eventually raise the preceding vowel: [C´ɛ$_1$C] > [C´e$_1$C]. Transition to a following hard labial or velar involves an anticipatory transition of the type [C´ɛ$_2$K°] for labials and velars. Because the immediate transitions to hard labials and velars already involve backing and/or lowering, little extra is needed to

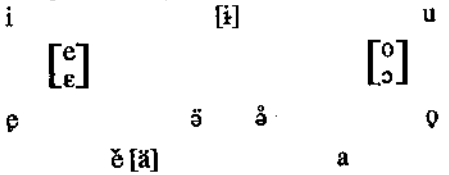
differentiate these transitions from transitions to palatalized consonants, and the center of the syllable remains more or less unchanged: **(v)ujevъka* > *vaŭjefkă*. Dentals by their nature have a transition of the sort [C´ɛɛT°]. In order to complementarily mark velarization, the vowel before the transition is velarized, yielding [C´ɐɛT°]. An initial [j] may even absorb the [e]-part of the diphthong, leaving a low vowel as the syllable nucleus: [jɐɛT°] > [jɛɐɛT°] > [jäɛT°], as in **jedla* > *jadlă*.[10] A comparable reconstruction can be proposed for **o* and **vo*. In this way, the mechanism whereby Polabian split mid vowels is partly dissimilative, partly assimilative. It will emerge below that other changes involve a complex interaction of dissimilative and assimilative tendencies.

The differentiation of mid vowels according to the following consonant, a distinctly Polabian event, can now be used as a benchmark to reference other changes. This change must have been fixed by the time the reflex of **ě*, which earlier had the phonetic value [ä] that is characteristic of Lechitic, was moved up from its position as a low front vowel into the mid range. In the position before palatalized consonants, the reflex of **ě* does not further raise to [i], as in **jьměti* > *met* [H 842] «mêt», **semę* > *semą* 'Lein' [HB 1] «szemáng», **světja* > *swećă* [H 842] «swecia». Since the reflex of **ě* does not behave as a typical **e*, the split of **e* into two variants must have already been fixed before the reflex of **ě* moved upwards into the mid vowel region. We might note that it is somewhat surprising, from the point of view of Lechitic, to have such a late merger of **ě* with **e;* elsewhere in Lechitic **ě* stops being distinct from **e* not long after the change of this vowel to **a* before hard dentals has occurred.

In Polabian soft labials and dentals lost palatalization before front vowels. When this happened, the distribution of mid vowels **e* and **o* must have been fixed, to judge by the contrast of **(v)osmьjь* > *vâsmĕ* [HB 1] «wâsme», in which the [s] had always been hard, with **(v)osmero* > *vismărü* [HB 1] «wissmerj», in which the dental fricative must have been soft ([ś]) by assimilation to the following soft consonant ([mí]). If **m* was still soft [mí] here, depalatalization of consonants *(C´V´ > CV´)* occurred only after the split in mid vowels. Depalatalization can possibly even be held responsible for the fact that the previously allophonic variants were fixed as distinct phonemes which would subsequently have distinct histories. In a way the two changes are structurally related. As mid vowels split into two allophonic variants, they assimilated a phonetic property from C_2 in C_1VC_2. When consonants hardened before front vowels, palatalization was absorbed from C_1 by the vowel in C_1VC_2. It is interesting to note that, although one of these changes is assimilative, the other dissimilative, the changes are similar in that both represent a way of concentrating more of the phonetic signal in the vowel as opposed to the consonant.

We can postulate the system of (6) at the time when the mid vowels split.

(6) Early Vowel System



(6) includes two central mid vowels for the reflexes of jers, unrounded [ə] and rounded [å], discussed below. Subsequently, the vowels in (6) will rotate and Umlaut and diphthongize in a fashion that seems to obey a Martinet-ian principle of economy.[11] As vowels move up the outside of the vowel triangle, other vowels above them move out of their way. For example, as [ä] < *ě becomes a mid vowel, it merges with the lower variant [ɛ] from *e, but the higher variant of *e moves up to [i]. But this latter vowel does not merge with original *i, which, along with *y and *u, diphthongizes by developing an initial centralized component. These centralized vocoids and the centralized reflexes of jers move down, but by this time original *ě [ä] and *a had become mid vowels [e] and [o]. Although any description must state what happens to individual vowels, the general path of development can be sketched as a pair of vectors with tails in the region of low vowels which go up and around the perimeter of the vowel space and point down through the middle of the vowel space.

In his explicit discussion of relative chronology, Olesch points out that velars are palatalized before the [ü] and [ö] which derive from *o, as in: *gora > d'öră [H 842] «tgöra» 'Berg', *konikъ > t'ünĕk [H 842] «tyünik» 'Pferdchen'. On the assumption that velars would not palatalize before a back vowel like [o] (and indeed velars do not palatalize before *a > [o]), it seems reasonable to agree with Olesch that the raising and Umlauting of [o] and [ɔ] occurred before the palatalization of velars: [o] > [o/ɔ] > [ü/ö] preceded KV' > K'V'.

Thus we can tentatively order the palatalization of velars after the complex set of changes restructuring the vowel system, including the raising and fronting of *o. But now consider the following. In *rozga > rözgă [H 842] «réseka», [HB 1] «röseka» 'Strauch', *o is reflected as [ö] (rather than [ü]) because the immediately following consonant is a hard dental. The dental is hard because the following velar is hard; note also *kostъka > t'ös(t)kă [H 842] «työska» 'Knöchel'. Now in müzd'ĕ < *mozgy [HB 1] «misdya» 'Marck, in den Knochen', the dental fricative immediately following the vowel must have been palatalized, since the reflex of *o is [ü]. In order for that dental fricative to have been palatalized, the following velar must have been palatalized, as the spelling indicates. But that means that the palatalization of velars must have occurred before the splitting of mid vowels. Other, distinct facts indicate the same chronol-

ogy. As noted above, reflexes of **Ce* are distributed according to the general partition of consonants into the classes of palatalized vs. non-palatalized consonants. The reflex is a high vowel in **perky* > *prit´aį* [H 842] «prîtgáy» 'drüber', indicating that the following velar must already have been palatalized at the time when mid vowels were split.

At first blush this result seems inconsistent with the chronology developed above. According to Olesch's observation that velars could not have palatalized until **o* fronted to [ü/ö], it appeared that velar palatalization followed the split of mid vowels, but now «misdya» *müzd´ĕ* and «prîtgáy» *prit´aį* suggest that velar palatalization preceded the split. We have an ordering paradox: palatalization of velars occurred both before and after the splitting of **e* and **o*. The paradox, however, can be defused if one assumes there were two phases of velar palatalization or, more probably, that palatalization remained productive for an extended period of time. As new environments arose, palatalization applied to velars in those contexts. During the earlier phase, velars palatalized before certain vowels, notably before **y*, in a fashion analogous to palatalization of velars in other North Slavic languages that maintained distinctive palatalization.[12] Velars palatalized again before [ö/ü] after (as Olesch argues) the reflexes of **o* had been Umlauted.

We can use these observations to develop a history of the reflexes of jers.[13] Velars palatalized before the reflex of **ъ* when the following consonant was palatalized; the reflex of the back jer after the palatalized velar was some manner of front vowel, which Lehr-Spławiński (1929) transcribed as *ė*, on the grounds that it is spelled both as «i» and as «e». Olesch systematically examined instances of vowels for which the older tradition had posited *ė* and showed that, in general, there is little motivation for *ė* as a distinct unit, including in position after velars.[14] In most instances with velars, the vowel was posttonic and was spelled «i» (for example, **nogъtь* > *nüd´it* [H 842] «nîtgid»). In initial position, «i» is found in **xъmelь* > *ximil* [H 842] «ghimil» 'Hopffen'[15] and **kъde* > *t´id* [H 842] «tyitt»; «e» is the reflex in **kъsenь* > *t´esin* [H 842] «tgeßîn» 'Magen'. Although the reason for this difference is not clear, it is not sufficient reason to hypothesize a distinct vowel. It is simpler to suppose that the reflex of **ъ* palatalized the velar and was then identified with [e] < **e*, whose reflex before soft consonants would eventually be the closed [i]. We may hypothesize a change: *KъC´* > *KəC´*, which differs from the development before hard consonants *(KъC°* > *Kə C°)*, and then palatalization of velars in the position before [ə] *(Kə́* > *K´e)*. This environment for the palatalization of velars fits with that of *Ky* > *K´i* as part of the early phase of velar palatalization.

These changes involving jers and velars must have occurred *before* the change responsible for splitting **e* and **o*, to judge by *vid´in* < **(v)og(ъ)nь* [H 842] «widgiń». To evaluate this example, recall that when **o* followed **v* (including

prothetic **v)*, the split in vocalism was sensitive to the general environment of palatalized vs. non-palatalized consonant. Since the reflex of **o* here is a high vowel, the velar must already have been palatalized before the reflex of the (anaptyctic) back jer by the time **o* was split.

If **Kъ* could have different reflexes depending on the following consonant, then there were presumably two (phonetic) reflexes of back jers after other consonants, a front schwa [ə̈] in the environment */C__C´* and a back labialized [ə̊] schwa in the environment */C__C°*.[16] Whether these reflexes remained forever distinct is doubtful; they seem to have a single ultimate reflex [a]: **dъzdjь > dazd* [H 842] «dâst» and **sъsъ > sas* [H 842] «ssâs». Front schwas also originally varied depending on the following consonant. In the context *C´__C´*, preceding consonants lost palatalization: **dьnь > dan* [H 842] «dân», **vьsь > vas* [H 842] «wâs», [SJ] «wahss». The fact that consonants depalatalized suggests that the immediate reflex of front jer in this context was a front vowel, or [ə̈]. In the context *C´__C°*, palatalization is preserved: **pьsъ > pás* [H 842] «piâs», [SJ] «pijahss». From the fact that palatalization is preserved in this environment it follows that the immediate reflex must have been less front, or [ə̊]. With front jers as with back jers, then, there is again evidence that the reflexes must have been initially distinguished in the two environments (before hard consonant and before soft). And again, it is less than certain that the ultimate reflexes in the low region were distinct. Conceivably, the reflexes of the jers all converged on [a], as the dominant spellings for these vowels in all contexts in Hennig, plain «a» or long «â», would seem to indicate.[17] In any event, the initial differentiation of two reflexes of jers according to the following consonant was one of the earliest Polabian changes. This bifurcation must have occurred before the first phase of velar palatalization, since the velar counts as hard in: **lьgъkoje > l´at´ă* [H 842] «lgåtga». Note, further, that depalatalization must have occurred at a specific point in the history of the Polabian sound system, when [ə̈] < **C´ъC´* and [ə̊] < **C´ъC°* were still distinct and had not yet lowered to their single ultimate reflex of [a].

Perhaps the most intriguing instance of phonetic mechanism and chronology is the diphthongization of high vowels, discussed by Olesch in his article devoted to relative chronology.[18] The process is complex in and of itself; its interaction with other changes is not obvious; and there are interesting dialect differences between Hennig's Klennow–Wustrow dialect and Schultze's Süthen dialect.[19] In both dialects **i* was diphthongized to [aį]: **listъ > laįst* [H 842] «leist», [SJ] «leist». Dentals and labials depalatalized before this vowel, but it is not immediately obvious when depalatalization occurred, and what the vowel was when depalatalization occurred; in principle depalatalization could have happened either while the vowel was still [i] or after it had become a diphthong, provided the diphthong were something like [ə̈į] or [ä̈į]. Hennig generally diphthongized **y* to [aį], as in

**dymъ* > *daịm* [H 842] «dáym» and Schultze diphthongized **y* to [oị], as in **slyšišь* > *sloịsěs* [SJ] «schläusses». Velars are palatalized before **y*, which has the same reflex ([aị] in strong position) in both dialects: cf. for strong position **nogy* > *nüd´aị* [H 842] «nidyáy», **orkyta* > *rüt´aiịtnă* [SJ] «rühtjeitna» 'Warffen', and for weak position **vel(i)kъjь* > *wilt´ě* [H 842] «wiltge», [SJ] «wiltje». Since the reflex of **Ky* is uniform for both scribes/dialects but **y* otherwise gives different reflexes in the two dialects, the vowel in question must have been **i* rather than **y* at the time of diphthongization. Thus velars were palatalized in this environment (in the early phase of palatalization) *before* diphthongization.

The reflexes of **u* lead to a further complication. Hennig generally has [aụ], while Schultze has [oị]. Originally soft consonants preserve their palatalization in both dialects: **ljubo* > *l´aịbü* [H 842] «lgeibí», [SJ] «läubu», **ljudi* > *l´aụdi* [H 842] «lgaudí» ~ *l´oịdaị* [SJ] «läudey». But velars are palatalized before the reflex of **u*, by both Hennig and Schultze, even though the vocalic reflex is different: **kupi(tъ)* > *t´aịpě* [H 842] «tyeipe», **kupilъ* > *t´oịpal* [SJ] «tjäupal». These two facts together seem somewhat paradoxical, as Olesch recognized.[20] The fact that original soft consonants did not lose palatalization seems to imply that the vowel was never front, and yet preceding velars *do* undergo palatalization, a change which would normally presuppose a front vowel. Olesch responded to this paradox by suggesting that velar palatalization occurred before all high vowels including **u* (that is, **u* in its etymological value of high, rounded, and back before it diphthongized), but this seems unmotivated.

It may be useful to consider more carefully what is involved in diphthongization. The reflexes of **i* and **u* have the same initial vocoid in Hennig's dialect. If originally soft consonants do not show up as palatalized before the reflex of **i*, but do so before **u*, then depalatalization was a chronologically localized event which occurred *before* the diphthongization of high vowels. Above we argued that depalatalization occurred at a specific time in the history of the reflexes of jers, after they had split into [ə̈] and [ɔ̈] but before these had lowered to [a]. More generally, then, we can associate depalatalization with the vowel system of (6) just before the rotational changes (including diphthongization) began.

The three high vowels diphthongize in basically the same way. In its initial stage, diphthongization may be thought of as the development of a homorganic glide, a little more open than the syllabic portion of the vowel (thus [i] > [ɪi], **y* = [ɨ] > [ɨɨ], [u] > [ʊu]). That glide gradually lowers, centralizes, and becomes the center of the syllable,[21] while the later portion becomes a glide carrying the differentiating features of the three phones (thus [ɪi], [ɨɨ], [ʊu] > [əi̯], [əɨ̯], [əu̯]). Eventually the schwa lowers further.

With this general picture, we can consider how the differences between Hennig's and Schultze's dialects arose. Let us for the moment ignore **y*, which

is intermediate between **i* and **u*, and concentrate on the maximal contrast of **i* and **u*, writing [u] or [u̟] as [i̊] or [i̊] —that is, as [i] with backness and labialization. Hennig's reflexes can be taken as closer than Schultze's to the original path of development. Hennig evidently kept labialization of **u* localized in the glide portion of the diphthong. The initial portion of the diphthong is normalized by Olesch (and others) as [a], but it could have been anywhere in the range from a central [a] to a front [ä] (Hennig uses «ä» occasionally). In any event, this nucleus was front enough to condition palatalization of velars. That is, velar palatalization before **u* occurred *after* the vowel had diphthongized by the process [u] > [ə̯i̊] > [əi̯̊]. Hennig evidently ranked labialization of the vowel as crucial and treated **y* as more similar to **i* than to **u;* the only change is that the velarization of the glide is eliminated: [ɨ] > [ɨ̯ɨ] > [əɨ̯] > [əi̯] > [ai̯].

Schultze's treatment of **u* probably represents a further development. After the initial diphthongization ([u] > [ə̯i̊] > [əi̯̊]), Schultze's dialect moved labialization of the glide back into the nucleus of the vowel: [əi̯̊] > [ə̊i̯], where "[ə̊i̯]" becomes [åi̯] or [oi̯].[22] Schultze's dialect palatalized velars at the intermediate stage of [əi̯̊], before labialization was moved into the nucleus. Schultze's dialect treated **y* as similar to **u*, in that the backness of [ɨ̯] made the nucleus of the diphthong back and labialized as well. Olesch's concern about the interaction of palatalization and diphthongization, then, can be explicated if depalatalization occurred before diphthongization, but velar palatalization occurred after diphthongization had begun.

Certain details of the reflexes of high vowels confirm, or are at least consistent with, the interpretation above. Hennig's reflexes are influenced by an adjacent labial consonant. The fact that **y* is often reflected as [oi̯] after labials, as in **byti* > *boi̯t* [H 842] «böit» ~ *bai̯t* [H 842] «bayt», suggests that **y* was originally intermediate between **i* and **u*. As the glide portion of the diphthong developing out of **y* was neutralized to [i̯], the nucleus must have been further back (perhaps [ə̊ɨ̯]) than that of **i* (possibly [əi̯]) if it could be so easily labialized to [o]. Moreover, Hennig loses the labialization of **u* in the position before labials, as in **glupъjь* > *glai̯pě* [HB 1] «gleipe», **kupi(tъ)* > *t'ai̯pě* [H 842] «tyeipe». This suggests a process whereby the labialization of the glide portion of the diphthong [əi̯̊] was absorbed by the following labial and was thereby lost to the diphthong as a whole. That is, the labialization must originally have been confined to a particular part of the diphthong. As a consequence, we conclude that when the labialization shows up in the beginning portion of the diphthong in Schultze's [oi̯], it must have migrated there from the later glide portion of the diphthong.

Reflexes of **y* and **i* before hard **l* are also instructive. (The reflexes are unremarkable before soft **l'*.) Before hard **l*, **y* is reflected as a low vowel which lacks the distinct glide portion [i̯], as in **bylъ* > *bål* [H 842] «boal», [SJ] «bahl», or in **tylъ* > *tål* [SJ] «tahl» ~ «tohl», [H 842] «doal»; this reflex differs from the

more expected diphthongal reflex of **y* found before soft **l´* in **vъ tylě > va tajle* [H 842] «wa teilé».[23] In sources such as Lehr-Spławiński 1929, this vowel before hard **l* was normalized as [å]. The fact that the reflex of **y* lacks a final glide suggests the following mechanism. Hard **l* in other Slavic languages with palatalization (Polish and Russian) has shown a strong tendency to become velarized—in essence, to become homorganic with [ɨ]. If the glide portion of the diphthongal reflex of **y* were [ɨ], it might have been absorbed by the following velarized **l* and disappeared, by a change: [əɨl°] > [əl°].

**C´i* also participates in this change: **rodilъ sę > rüddl să* [H 842] «ridóalsa». The fact that the consonant before **i* has been depalatalized suggests that depalatalization occurred before diphthongization, so that the product of depalatalization could be velarized by the hard **l:* [C´il] > [Cɨl°] > [Cəɨl°] > [Cəl°]. These developments, then, provide confirmation of the hypothesis that the differentiating features of the original high vowels were localized in the second portion of the diphthong and, further, that the character of one portion of the diphthong could be affected by adjacent consonants.

We can recapitulate the internal chronology as follows. First come some pan-Lechitic changes, such as contraction, the "hard dental" changes of vowels (in Polabian, of **ě* to **a* and **ę* to **ǫ*, but, curiously, not **e* to **o)*, and the loss of some but not all weak jers. Polabian differentiated the reflexes of jers according to the following consonant *(*ъ/ь > ə̈C´/ə̊C°)*, then palatalized velars before any non-low, non-labialized vowel in the system at the time *(KV´ > K´V´*, where *V´* includes [ɨ] <**y* and [ə̈] <**ъ* or **oje)*. The mid vowels were split into a more closed and a more open variant depending on following consonant; palatalized consonants conditioned the closed allophone and at least hard dentals conditioned the more open allophone *(*e* > [eC´/ɛT°], **o* > [oC´/ɔT°]). These allophonic variants were fixed as autonomous units when dentals and labials depalatalized before front vowels *(C´V´ > CV´)*. High vowels diphthongized ([i/ɨ/u] > [əi/əɨ/əu]), at which point the later phase (or the continuation?) of velar palatalization occurred as velars found themselves again before vowels capable of causing palatalization *(KV´ > K´V´)*. Then the vowel system was restructured by various "rotational" changes: non-high vowels raised, high vowels diphthongized, and central vowels lowered. And [o/ɔ] were raised and fronted.

The chronology of changes in the vowel system articulated above is consistent with the absolute chronology established by Kaiser 1968. There is possibly one discrepancy in the chronology of the differentiation of mid vowels. In her synthetic discussion, Kaiser comments that Milewski's chronology is for the most part correct, but she goes on to say (p. 118): "Ein Unterschied der Auffassung besteht nur bezüglich der Frage, ob der Reflex ö sich vor harten Vorderzungenkonsonanten und vor f erst sekundär aus ü entwickelt hat (so Milewski), oder ob

das Phonem /ü/ seit seiner Herausbildung das Allophon [ö] besaß. M. E. ist die letztere Annahme vorzuziehen." Kaiser diagrams the changes as:

ursl. *o > o > ō > ū [ū ō]
ursl. *o > o > ō > ū [ū ö]

The discussion above argues at least in favor of Kaiser's earlier chronology and probably for an even earlier date yet. If the allophonic differences between [e] and [ɛ] and between [o] and [ɔ] were fixed at depalatalization, and if depalatalization occurred before diphthongization and the other migrations of vowels, then the difference should have been there long before *o was Umlauted. In fact, Kaiser's diagram could easily be amended to read (omitting length):

ursl. *o > [o ɔ] > [ȯ o] > [ü ö]

That is, a difference in aperture could have been created early and then carried along as the vowels raised and fronted.

The material Kaiser presents—toponyms and hydronyms borrowed into Low German—is not entirely unambiguous evidence about chronology. Kaiser concludes that the adjacent consonant played no role in the spelling (p. 70: "Eine Abhängigkeit der Lautung des Stammvokals von der Qualität der Nachbarkonsonanten ist nicht nachzuweisen"), arguing instead that the identity of the following suffix (whether *-ov, *-jan, *-ic, *-in, or *ьn) is the important criterion.[24] It does appear that spellings with «u» are frequent in toponyms built on the suffix *-ic (*Guliz*, 1281, etc.; *Guriz*, 1296, etc.), but of course the preceding consonant would have been palatalized before this suffix. Working through Kaiser's citations from the fourteenth through sixteenth centuries gives the following distribution (of distinct etyma):

(7) Spellings of Polabian *o in German

century	context	«o»	«o~u»	«u»
14	/__P°(K°)	1		1
	/__P′	4		0
	/__T°	7	1	0
	/__T′(Č)	5	1	4
15	/__P°(K°)	3		1
	/__P′	2		2
	/__T°	6		1
	/__T′(Č)	8		4
16	/__P°(K°)	2		1
	/__P′	2		0
	/__T°	5		0
	/__T′(Č)	6		5

This evidence suggests that «u» spellings are more frequent before palatalized consonants, but it does not provide solid evidence for differentiating hard dentals from hard labials.

The distribution is largely static, since once a toponym is borrowed, it is likely to remain the same thereafter. For that reason, any changes in spelling acquire special significance. In fact, there is one very specific fact recorded by Kaiser that may be quite revealing. One etymon with hard [m] shifted from «o» in the thirteenth century (*Gromazle*, 1296) to «u» thereafter (*Krumadze*, 1329; *Krummasell*, 1450; *Crumasell*, 1564).[25] If that fact is to be trusted (and it is one of the rare cases in which the spelling shifts), it argues that vowels became sensitive to the following consonant at a relatively early time, around 1300.

The phonetic model proposed above to describe the splitting of mid vowels into two variants, while necessarily speculative, does suggest why it would not be surprising that Polabian could develop two reflexes in mid vowels, and perhaps even why certain changes have clustered together chronologically. To speak anthropomorphically, Polabian was concerned about the transitions and interaction between consonants and vowels in a host of changes that occurred in close succession: palatalization of velars, depalatalization before front vowels, and adjustments of glides according to adjacent consonants. Some of these changes were assimilative—that is, involved extending the temporal duration of some phonetic property—and some were dissimilative—that is, involved absorbing some phonetic property into the realm of one segment.

Notes

1 Trubeckoj 1925–26, 1929; Lehr-Spławiński 1929; Milewski 1929[a,b].

2 Kaiser 1968.

3 Olesch [1975] 1989, [1986] 1989.

4 Olesch 1983–87.

5 As for example in the introductory pages of Polański and Sehnert 1967 or volume 1 of Olesch 1983–87. Lehr-Spławiński's approach (1929) was essentially one of correspondences. An exception is Olesch [1980(b)] 1989, to which we return below.

6 Olesch 1983, 1, xxxiv–xli.

7 It is also uncertain whether the reflex was uniform across dialects/scribes; Olesch ([1986] 1989) argues that, while Hennig has [å] as his reflex, Schultze has [a], and Pfeffinger [o].

[8] Olesch handles the environments with circumspection. Speaking of **e*, Olesch comments: "Nachfolgenden harten Konsonanten können in Dravänischen die Vokalanhebung verhindern," and then of **o:* "Ähnliches gilt für ursprünglich inlautendes *o*, das vor harten Dentalen [...] die Anhebung vermeidet." The observations are accurate, but leave open the question of how dentals hinder raising.

[9] The definition of environments, and the difference in vowels, is the same for the reflexes of **ě* in Čakavian (Jakubinskij 1925).

[10] The model elaborated here represents a slight modification of the account offered by Andersen (1978) of the backing of [ä] to [a] and [e] to [o] before hard dentals (that is, not all hard consonants!) in Polish. Andersen proposes a uniform phonetic development for all non-palatalized consonants, followed by a phonemic change in which dentals are differentiated from labials and velars. The model here takes the dissimilation to be part and parcel of the orginal phonetic change.

[11] Roughly how Kaiser interprets the various changes (1968:114ff.).

[12] Timberlake 1978.

[13] Milewski 1929[a, b].

[14] Olesch [1980(b)] 1989.

[15] Olesch 1983–87, having argued for the interpretation [x̌imil], gives both normalizations *x̌imil/x̌emil*. Only PfDr has «e».

[16] Milewski 1929[a].

[17] Olesch [1977] 1989:287–8.

[18] Olesch [1980(a)] 1989.

[19] Olesch [1975] 1989.

[20] Olesch [1980(a)] 1989.

[21] What is termed "intensity shift" in Andersen 1972.

[22] Olesch objects vigorously to the use of the sequence *ȧi* as a pan-Polabian normalization for the reflexes of diphthongs, on the grounds that it is an inaccurate and misleading compromise for the distinctly different reflexes of the two dialects. It is still possible, however, that Schultze's spelling «äu» reflects [äj] rather than [oj].

[23] Olesch 1983–87:39–40.

[24] Kaiser 1968:70, 77, 81–2, 89.

[25] Kaiser 1968:63, 72, 83, 90.

References

Andersen, Henning. 1972. "Diphthongization," *Language* 48:11–50.

—. 1978. "Perceptual Complexity and Abductive Change," Jacek Fisiak (ed.), *Recent Developments in Historical Phonology*, 1–22. The Hague: Mouton.

Jakubinskij, L. 1925. "Die Vertretung des urslav. *ě* im Čakavischen," *Zeitschrift für slavische Philologie* 1:381-395.

Kaiser, Eleonore. 1968. *Untersuchungen zur Geschichte des Stammsilbenvokalismus im Dravänopolabischen. Auf der Grundlage des toponomastischen Materials.* (Universität Regensburg, Slavistische Arbeiten.) München: Dr. Dr. Rudolf Trofenik.

Lehr-Spławiński, Tadeusz. 1929. *Gramatyka połabska.* Lwówska biblioteka slawistyczna, 8.) Lwów: K.S. Jakubowski.

Milewski, Tadeusz. 1929[a]. "Przyczynki do dziejów języka połabskiego," *Slavia Occidentalis* 8:8–49.

—. 1929[b]. "Zastępstwo ps. **o* w języku połabskim," *Slavia Occidentalis* 8:50–57.

Olesch, Reinhold. 1983–87. *Thesaurus linguae dravaenopolabicae*, 1–4 (Slavistische Forschungen, 42.1–4) Köln–Wien: Böhlau.

—. [1975] 1989. "Die mundartliche Gliederung des Dravänopolabischen," *Gesammelte Aufsätze*, Angelika Lauhus (ed.), 178–197. (Slavistische Forschungen: 59.1.) Köln: Böhlau.

—. [1976] 1989. "Zum Lautsystem des Dravänopolabischen," *Gesammelte Aufsätze*, Angelika Lauhus (ed.), 277–281. (Slavistische Forschungen: 59.1.) Köln: Böhlau.

—. [1977] 1989. "Zum phonetischen System des Spätdravänischen," *Gesammelte Aufsätze*, Angelika Lauhus (ed.), 282–298. (Slavistische Forschungen: 59.1.) Köln: Böhlau.

—. [1980(a)] 1989. "Zur relativen Chronologie dravänopolabischer Lautvorgänge," *Gesammelte Aufsätze,* Angelika Lauhus (ed.), 306–309. (Slavistische Forschungen: 59.1.) Köln: Böhlau.

—. [1980(b)] 1989. "Zum Vokalsystem des Spätdravänischen. Ljudevit Jonke zum 70. Geburtstage in Verehrung und Freundschaft," *Gesammelte Aufsätze,* Angelika Lauhus (ed.), 299–305. (Slavistische Forschungen: 59.1.) Köln: Böhlau.

—. [1986] 1989. "Zur mundartlichen Gliederung des Dravänischen," *Gesammelte Aufsätze,* Angelika Lauhus (ed.), 246–234. (Slavistische Forschungen: 59.1.) Köln: Böhlau.

Polański, Kazimierz, and James Allen Sehnert. 1967. *Polabian–English Dictionary.* (Slavistic Printings and Reprintings, 61.) The Hague–Paris: Mouton.

Timberlake, Alan. 1978. "K istorii zadnenebnyx soglasnyx," H. Birnbaum (ed.), *American Contributions to the Eighth International Congress of Slavists,* 1: *Linguistics,* 699–729. Columbus, Ohio: Slavica.

Trubeckoj, N. S. 1925–26. "Otraženija obščeslavjanskogo **o* v polabskom jazyke," *Slavia* 4:228–237.

—. 1929. *Polabische Studien.* (Akademie der Wissenschaften in Wien. Philosophisch–historische Klasse, Sitzungsberichte 211.4.) Wien–Leipzig: Hölder–Pichler–Tempsky.