

FROM PROTO-INDO-EUROPEAN TO SLAVIC

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A correct evaluation of the Slavic evidence for the reconstruction of the Indo-European proto-language requires an extensive knowledge of a considerable body of data. While the segmental features of the Slavic material are generally of corroborative value only, the prosodic evidence is crucial for the reconstruction of PIE. phonology. Due to the complicated nature of Slavic historical accentology, this has come to be realized quite recently.¹ As a result, much of the earlier literature has become obsolete to the extent that it is based upon an interpretation which does not take the multifarious accentual developments into account. I shall give one example.

In *Evidence for laryngeals* (ed. by W. Winter, 1965), which remains a milestone in Indo-European studies, two of the authors adduce the short accent of SCr. *sřce* ‘heart’ as evidence for a Proto-Slavic acute tone (117, 133). Actually, Slavic **sřdьce* has a falling tone and mobile accentuation, as is clear from the Slovene and Russian evidence. The circumflex was regularly shortened in trisyllabic word forms (see 9.4 below), e.g. *mlādōst* ‘youth’, cf. *mlād* ‘young’, and *prāse* ‘sucking-pig’, gen.sg. *prāseta*. This does not detract from the fact that we have to reconstruct an acute tone for Balto-Slavic in view of Latvian *sirđs* ‘heart’. In Slavic, the acute tone became circumflex in words with mobile stress in accordance with Meillet’s law (see 5.4 below). The tone of trisyllabic neuters can never be used for comparative purposes because they always have mobile accentuation if they belong to the older layers of the language. The Balto-Slavic acute tone in the word for ‘heart’ is no evidence for either a laryngeal or a PIE. long vowel because it arose phonetically before PIE. **d* in accordance with Winter’s law (see 4.3 below). The only evidence for an original long vowel is found in Old Prussian *seyr*, which in combination with the East Baltic and Slavic material points to a PIE. alternating paradigm **kēr(d)*, **křd-*. The full grade form of the root **kerd-* is attested in Lith. *šerdis* ‘core’, OCS. *srěda* ‘middle’. The small chapter on Balto-Slavic in *Evidence for laryngeals* is not only very short, but also quite useless.

In the following I intend to present a synopsis of the main developments from Proto-Indo-European to Slavic in their chronological order so far as that has been established at this moment. It is largely based on my earlier account of the accen-

¹ For a survey of recent research I refer to the *Zeitschrift für vergleichende Sprachforschung* 92 (1978), 269-281.

tual,² vocalic,³ and consonantal⁴ developments and their interrelations. For the sake of reference I shall indicate the stages of these earlier chronologies as A1-25, B1-15, and C1-12. In order not to overburden the text I shall refrain from extensive references to the literature, which can easily be traced through my earlier publications. I want to make a single exception here by paying tribute to A. Vaillant's monumental *Grammaire comparée des langues slaves* (1950-1977) because the author seems more often than not to have reached the best solution in all matters except accentuation, and to C.S. Stang's supreme *Slavonic accentuation* (1957), which remains the basis of modern Slavic accentology. For readability's sake I shall omit the asterisks in the sequel. Any form which is not identified as belonging to an attested language should be read with an asterisk.

1. **Proto-Indo-European.** As far as I can see, we have to start from the following reconstruction of the PIE. phonological system.

Obstruents:	fortis	glottalic	aspirated	fricative
labial	p	b	b ^h	
dental	t	d	d ^h	s
palatovelar	k̑	ǵ	ǵ ^h	
labiovelar	k ^w	ǵ ^w	ǵ ^{wh}	

Vowels and resonants: e, o, i, u, r, l, n, m, H₁, H₂, H₃

Several developments can be dated to the internal history of the Indo-European proto-language, e.g.:

1.1. Initial *b* became *p*, e.g. Vedic *píbati* 'drinks', OIr. *ibid*. The reduplication was restored in Latin *bibit*.

1.2. The opposition between the velar series was neutralized after *u*, e.g. Gr. *βουκόλος* 'cowherd', *θυγάτηρ* 'daughter'.

1.3. The opposition between the velar series was neutralized after *s*. The archiphoneme was palatovelar before *i* and plain velar elsewhere.⁵

1.4. Double *ss* was simplified to *s*, e.g. Vedic *ási* 'thou art', Gr. *εἶ*.

1.5. The opposition between the laryngeals was neutralized before and after *o*.⁶

² Slavic accentuation: A study in relative chronology (Lisse: Peter de Ridder, 1975).

³ On the history of the Slavic nasal vowels, *Indogermanische Forschungen* 84 (1979), 259-272.

⁴ Early dialectal diversity in South Slavic I, *Studies in Slavic and General Linguistics* 2: South Slavic and Balkan linguistics (Amsterdam: Rodopi, 1982), 177-192.

⁵ Cf. L. Steensland, *Die Distribution der urindogermanischen sogenannten Gutturale* (Uppsala, 1973), 30-35 and my discussion in *Zbornik za Filologiju i Lingvistiku* 22/2 (1979), 58f. [See now A. Lubotsky, *Incontri Linguistici* 24 (2001), 29.]

⁶ Cf. *Lingua Posnaniensis* 23 (1980), 127f.

1.6. The vowels *e* and *o* were lengthened in monosyllabic word forms and before word-final resonants. This is the origin of the PIE. lengthened grade.

2. **Dialectal Indo-European.** Balto-Slavic shares several developments with Germanic, Albanian, Armenian, Indo-Iranian, and probably Tocharian, e.g.:

2.1. The PIE. aspirated stops lost their aspiration and the opposition between fortis and aspirated stops was rephonemicized as an opposition of voiceless vs. voiced. This was a shared innovation of Germanic, Balto-Slavic, Albanian, Armenian, Iranian, and probably Tocharian and Celtic.⁷

2.2. PIE. *s* was retracted to *ʃ* after *i*, *u*, *r* and *k* in Balto-Slavic, Albanian, Armenian, and Indo-Iranian.

2.3. The PIE. palatovelars were depalatalized before resonants unless the latter were followed by a front vowel, e.g. OCS. *slovo* ‘word’, Gr. *κλέος*, but Lith. *klausyti* ‘to listen’. This development was common to Balto-Slavic and Albanian.⁸ Together with the above-mentioned neutralization of the velar series after *s* and the delabialization of the labiovelars before rounded vowels in the western IE. languages it is the main source of the putative series of PIE. plain velars.

These developments yielded the following phonological system:

p	^ʔ b	b		m				
t	^ʔ d	d	s	n	l	r		
k	^ʔ ǵ	ǵ						
k	^ʔ g	g						
k ^w	^ʔ g ^w	g ^w						
	H ₁	H ₂				i	e	ē
		H ₃				u	o	ō

3. **Early Balto-Slavic.** During this period, the characteristic lateral mobility of Balto-Slavic accent patterns came into existence.

3.1. (A1) Loss of PIE. accentual mobility, of which there is no trace outside the nominal flexion of the consonant stems. When the old mobility was lost, an opposition between paradigms with columnal stress established itself. The final stress of Lith. *duktė* ‘daughter’ originated at this stage, cf. Gr. *θυγάτηρ* with non-final stress, gen.sg. *θυγατρός*. Athematic verb forms received final stress, e.g. Čak. (Novi) *dá* ‘gives’, with neo-acute pointing to a late retraction of the stress from a

⁷ Cf. Indogermanische Forschungen 83 (1978), 110-117. [I now think that the aspiration in Indic, Greek and Italic is secondary, see [187](#).]

⁸ Cf. Recent developments in historical phonology (ed. by J. Fisiak, The Hague: Mouton, 1978), 240-242.

final jer (see 8.2 below), 1 pl. *dām̃ō*, Lith. *duodā̃s* ‘giving’, cf. Vedic *dādā̃ti*, *dad-mā̃h̃*, *dādāt-*.

3.2. (A2) Pedersen’s law: the stress was retracted from inner syllables in accentually mobile paradigms, e.g. acc.sg. Lith. *dū̃kterĩ* ‘daughter’, *pĩemenĩ* ‘shepherd’, Gr. *θυγατέρα*, *ποιμένα*.⁹ Since the rule was posterior to the loss of PIE. accentual mobility (3.1), its application was limited to the flexion of polysyllabic consonant stems, where columnal stress on the syllable following the root was compatible with accentual mobility between the formative suffix and the desinence, cf. Gr. *θυγατέρα*, *θυγατρός*.

3.3. (A3) Barytonesis: the retraction of the stress spread analogically to vocalic stems in the case forms where Pedersen’s law applied, e.g. acc.sg. Lith. *ā̃vi* ‘sheep’, *sū̃nu* ‘son’, *dĩēva* ‘god’, *žĩēma* ‘winter’. The stress was not retracted in the nom.pl. form of the *o*-stems, which had a very distinct phonemic shape, e.g. *dievaĩ*.

3.4. (A4) Oxytonesis: the stress shifted from an inner syllable to the end of the word in paradigms with end-stressed forms, e.g. Lith. inst.sg. *sū̃numĩ*, inst.pl. *žiemom̃ĩs*. This rule was obviously posterior to Pedersen’s law (3.2).

3.5. The nom.acc.sg. ending of oxytone neuter *o*-stems *-om* was replaced with the corresponding pronominal ending *-od*. This development was probably posterior to the barytonesis (3.3), which eliminated stressed *-om* as an acc.sg. ending of masc. *o*-stems. The replacement removed the homonymy with the gen.pl. ending *-om*, which was stressed in oxytone paradigms. The bifurcation of the neuter paradigm subsequently led to the merger of the barytone neuters with the masculines.

3.6. Final *-om* was narrowed to *-um*, e.g. in the acc.sg. ending of the masc. *o*-stems, in the gen.pl. ending, in the predicative neuter,¹⁰ in the 1 sg. form of the thematic aorist, and in the 1 sg. personal pronoun PIE. *H₁eǵHom*, Vedic *ahám*, OCS. *azь*. This development was perhaps posterior to the substitution of the pronominal ending in the oxytone neuter *o*-stems because the latter did not affect the *u*-stems. At a later stage, the stem vowel of the *o*-stems was restored in the acc.sg. ending in Baltic, e.g. Lith. *vil̃ka* ‘wolf’, OCS. *vlьkь*, cf. gen.pl. Lith. *vil̃kū̃*, OCS. *vlьkь*.

3.7. Final *t/d* was lost. This development was posterior to the narrowing of *o* to *u* before a final nasal (3.6) because the latter development did not affect the 3 pl. ending of the thematic aorist *-ont*, OCS. *-o*, which remained distinct from the 1 sg. ending *-om*, OCS. *-ь*.

⁹ Cf. H. Pedersen, *Études lituaniennes* (København: Levin & Munksgaard, 1933), 25. [Accentual mobility was also preserved in the verbs ‘to have’ and ‘to know’, see now *International Journal of Slavic Linguistics and Poetics* 31/32 (1985), 236f.]

¹⁰ Cf. *Lingua* 45 (1978), 289f.

4. **Late Balto-Slavic.** During this period the Balto-Slavic accent patterns obtained their final shape.

4.1. (A5) Hirt's law: the stress was retracted if the vowel of the pretonic syllable was immediately followed by a laryngeal, e.g. Lith. *dúona* 'bread', *výras* 'man', *dūmai* 'smoke', Vedic *dhānáḥ*, *vīráḥ*, *dhūmáḥ*, also Slovene dat.pl. *gorám* 'mountains', loc.pl. *goràh*, where the stress was retracted from the ending to the vowel before the stem-final laryngeal. These endings had received the stress as a result of the oxytonesis (3.4) and kept it in the non-laryngeal flexion classes. The same distribution is suggested by the Old Prussian material.¹¹ It was reshuffled in East Baltic, where the accentuation of the laryngeal flexion types was generalized in the dat.pl. form and the accentuation of the non-laryngeal flexion types in the loc.pl. form. This generalization has a converse parallel in Polish, where the dat.pl. ending is *-om* and the loc.pl. ending is *-ach* in all flexion classes.

The stress was not retracted if the laryngeal followed the second component of a diphthong, as in Latvian *tiēvs* 'thin' < *tenH₂uós*, or preceded the syllabic nucleus, as in Russian *pilá* '(she) drank' < *pH₃iléH₂*. The stress was not retracted to a lengthened grade vowel, as is clear from the sigmatic aorist, which has final stress in Slavic, and from vřddhi formations, e.g. SCr. *měso* 'meat' < *mēmśóm*, *jāje* 'egg' < *H₂ōuióm*. It follows that the laryngeals were still segmental phonemes at this stage. The retraction under discussion was posterior to the oxytonesis (3.4) because the preservation of accentual mobility in the type SCr. *sîn* 'son', Vedic *sūnúḥ*, presupposes that the trisyllabic case forms of the *u*-stems had received final stress before Hirt's law operated. It was also posterior to the substitution of the pronominal ending in the oxytone neuter *o*-stems (3.5) because neuters with retracted stress did not join the masculine gender, e.g. SCr. *jāto* 'flock', Vedic *yātám*.

4.2. The syllabic resonants dissolved into a syllabic and a consonantal part, the former of which merged with *u* after the labiovelar stops and with *i* elsewhere. This distribution was reshuffled under the influence of apophonic relationships. The labiovelars subsequently lost their labialization. The loss of the syllabic resonants was posterior to Hirt's law (4.1) because the stress was retracted in Latvian *ilgs* 'long', *pilns* 'full', SCr. *dŭg*, *pŭn*, Vedic *dīrgháḥ*, *pūrṇáḥ*. The ending of Lith. acc.sg. *rañka* 'hand' suggests that it was also posterior to the loss of the laryngeals before word-final nasals.

4.3. Winter's law: the PIE. glottalic stops dissolved into a laryngeal and a buccal part. The former merged with the reflex of the PIE. laryngeals and the latter with the reflex of the aspirated stops. Winter's law was apparently posterior to the loss of final *d* (3.7) in view of the Slavic neuter pronoun *to* < *tod*. It was posterior to Hirt's law (4.1) because the stress was not retracted in Latvian *pēds* 'footstep' <

¹¹ Cf. *Zeitschrift für vergleichende Sprachforschung* 88 (1974), 301.

pedóm, *nuôgs* ‘naked’ < *nog^wós*, *duômu* ‘(I) give’ < *dodH₃mí*, where the broken tone reflects final stress. It was posterior to the loss of the syllabic resonants (4.2) because it was blocked in the clusters *ngn* and *ndn*, which arose as a result of the latter development in OCS. *ognb*, Lith. *ugnìs* ‘fire’ < *ŋg^wnis*, OCS. *voda* ‘water’ < *undn-*¹²

4.4. (A6) The stress was retracted from final open syllables of disyllabic word forms unless the preceding syllable was closed by an obstruent. This retraction was posterior to the loss of final *t/d* (3.7), as is clear from Lith. gen.sg. *vilko* ‘wolf’ and SCr. aor. 3 sg. *něse* ‘carried’. The stress was regularly retracted from final vowels, as in Ru. *pilo* ‘(it) drank’, and diphthongs, as in Lith. dat.sg. *vilkuì* ‘wolf’, *gálvai* ‘head’, but not from syllables which ended in a fricative, a nasal, or a laryngeal, e.g. Lith. gen.sg. *avišs* ‘sheep’, gen.pl. *vilku̯* ‘wolf’, nom.sg. *galvà* ‘head’, Ru. *pilá* ‘(she) drank’. It follows that word-final nasals and laryngeals were still ordinary consonants at this stage.

This retraction was posterior to Hirt’s law (4.1) because the accentual mobility in Ru. *dalá*, *dálo* ‘(she, it) gave’, which must have arisen at this stage, presupposes an earlier end-stressed paradigm. If the word had contained a full grade root vowel at the time of Hirt’s law, retraction of the stress would have prevented the rise of accentual mobility. Thus, we have to assume that the full grade replaced earlier zero grade at a stage between 4.1 and 4.4. The retraction was apparently posterior to the loss of the syllabic resonants (4.2) because the stress was not retracted in the 1 sg. and 3 pl. forms of the sigmatic aorist, e.g. SCr. 3 pl. *klěše* ‘cursed’, where the rising tone points to a late (neo-Štokavian) retraction of the stress, or Posavian 1 sg. *zaklě*, with neo-acute indicating retraction of the stress from a final jer (see 8.2 below).

The retraction was probably posterior to Winter’s law (4.3) because the laryngeal feature of the PIE. glottalic stops seems to have merged with the reflex of the PIE. laryngeals at a stage between 4.1 and 4.4. This can be deduced from the retracted stress of Ru. *éla* ‘(she) ate’, *séla* ‘(she) sat down’, which must have arisen from an analogical extension of Hirt’s law, cf. *grýzla* ‘gnawed’, *strígla* ‘cut’, present 3 pl. *edját*, *gryzút*, *strigút*. The stress was not retracted in the latter forms because they were trisyllabic and had final stress at the stage under consideration. This retraction cannot have been phonetic in view of Lith. *edãš* ‘eating’, *duodãš* ‘giving’. The analogical development must have been anterior to the retraction under discussion because the stress was not retracted in Ru. *pilá* ‘drank’, *dalá* ‘gave’. In particular, it must have been anterior to the introduction of full grade in the root syllable of the latter form.

4.5. The merger of the original barytone neuter *o*-stems with the masculines in the singular must be dated to the Balto-Slavic period in view of the agreement be-

¹² Cf. Zbornik za Filologiju i Lingvistiku 22/2 (1979), 60f.

tween Slavic and Old Prussian.¹³ New barytone neuters arose as a result of the retractions at stages 4.1 and 4.4.

These developments yielded the following phonological system:

p	b		m					
t	d	s	n	l	r			
ć	ǰ							
k	g							
H				j	w			
		i	ī			u	ū	
		e	ē			o	ō	
				a	ā			

5. **Early Slavic.** During this period Slavic developed along similar lines as its West and East Baltic sister languages.

5.1. (B1) Raising of \bar{e} and \bar{o} before a final resonant, e.g. OCS. *mati* ‘mother’, *kamy* ‘stone’, Lith. *mótė*, *akmuõ*, Gr. *μήτηρ*, *ἄκμων*. The final resonant was lost after the raising. The acc.sg. ending of the \bar{a} -stems was shortened to *-am*, perhaps in Balto-Slavic times already. As a result of these developments, word-final sequences of long vowel plus resonant were eliminated.

5.2. (B2) Labialization of *a*, \bar{a} and merger with *o*, \bar{o} . This development was posterior to the shortening of the acc.sg. ending of the \bar{a} -stems to *-am*, OCS. *-o*, because the latter did not merge with the reflex of *-ōn*, OCS. *-y*.

5.3. (A7) Loss of the laryngeals in pretonic and post-posttonic syllables with compensatory lengthening of an adjacent vowel, e.g. *golwòH* < *golHwàH* ‘head’, inst.sg. *sūnumì* < *suHnumì* ‘son’, *pīlòH* < *pHilàH* ‘(she) drank’, *òpsnowò* < *òp-snowaH* ‘base’, inst.pl. *gènoHmīš* < *gènaHmiHš* ‘women’. The long vowel in the final syllable of the latter words is reflected by the neo-circumflex tone of Slovene *osnòva* < *osnòvā*, *ženāmi* < *ženāmī*, where the middle syllable received the stress as a result of Dybo’s law (see 8.7 and 10.9 below).

5.4. (A8) Meillet’s law: on the analogy of the end-stressed forms, the laryngeals were eliminated from the barytone forms of paradigms with mobile stress, e.g. SCr. acc.sg. *glāvu* ‘head’, *sīn* ‘son’, where the circumflex points to the absence of a laryngeal, cf. Lith. *gálva*, *sūnu*, where the acute tone reflects its original presence.

5.5. (B3) Rise of nasal vowels, which I shall write *iN*, *eN*, *oN*, *uN*. This development was apparently posterior to the raising at stage 5.1. It was blocked before a tautosyllabic stop, where the rise of nasal vowels can be dated to stage 6.5 (see below). The nasal feature was lost in the accusative endings *-im*, *-um*, *-ins*, *-uns*,

¹³ Cf. Journal of Indo-European Studies 11 (1983), 183.

which yielded *-i*, *-u*, *-īs*, *-ūs*, in the gen.pl. ending, and in the 1 sg. ending of the thematic aorist, OCS. *-v*. It follows that the 1 sg. present ending OCS. *-o* must have received its final nasal, which is of analogical origin, before this stage.

5.6 The loss of final *s* cannot be dated with precision. A comparison with the development of *s* in Indo-Iranian, Armenian, Greek, and Celtic suggests that final *s* may have become *h* in Early Slavic. It was lost at a later stage (see 6.8 below).

5.7. Rise of *x* from dialectal Indo-European *ʃ* (see 2.2 above). This development may have been simultaneous with 5.6.

5.8. Rise of *s*, *z* from earlier *ć*, *ǰ*, which had developed from the PIE. palatovelar stops *ǵ*, *ǵʰ*, *ǵʰ*. This development may have been simultaneous with 5.6 and 5.7.

5.9. (B4) Raising before final *s*. The raising affected *-ois*, *-ōis*, and *-oNs*, cf. OCS. 2 sg. imp. (opt.) *nesi* ‘carry’, inst.pl. *raby* ‘slaves’, acc.pl. *raby*, *ženy* ‘women’, for which I assume an intermediate stage *-uis*, *-ūis*, *-uNs*. It affected neither *-os*, which yielded *-o* in the neuter *s*-stems, nor *-ōs*.¹⁴ It was posterior to the labialization of the low back vowels (5.2) because it affected the acc.pl. ending of the *ā*-stems. It was posterior to the loss of the nasal feature in the acc.pl. ending of the *i*- and *u*-stems (5.5) because the corresponding ending of the *jo*-stems retained its nasal vowel, e.g. OCS. *konję* ‘horses’, cf. *pōti* ‘ways’. It must perhaps be dated after the rise of *-h* (5.6). It was anterior to the loss of the dental stop in *-onts*, e.g. ORu. *nesa* ‘carrying’, cf. *ženy* ‘wives’.

5.10. Lowering of *un* to *on* before a tautosyllabic stop.¹⁵ This development may have been simultaneous with 5.9. It was apparently posterior to the rise of nasal vowels (5.5).

5.11. Depalatalization and rounding of nonsyllabic *i* to *u* in dat.sg. *-ōi* and inst.pl. *-ūih*, which subsequently became *-ou* and *-ūh*. This development was posterior to the raising in the latter ending at stage 5.9 because the raising did not affect the gen.sg. ending *-ouh* of the *u*-stems.

5.12. (B5) Delabialization of *o*, *ō* to *a*, *ā*. It did not affect the nasal vowel *oN*. This development was evidently posterior to 5.9, 5.10 and 5.11.

¹⁴ Ibidem.

¹⁵ Cf. Zbornik za Filologiju i Lingvistiku 22/2 (1979), 61.

These developments yielded the following phonological system:

p	b			m					
t	d	s	z	n	r	l			
k	g	x							
H					j	w			
		i	ī	iN			u	ū	uN
		e	ē	eN					oN
					a	ā			

6. **Early Middle Slavic.** The developments of this period form part of the trend toward rising sonority and synharmonism within the syllable.

6.1. (B6) Umlaut. The back vowels $a, \bar{a}, oN, u, \bar{u}, uN$ had fronted variants $\bar{a}, \bar{\bar{a}}, \bar{o}N, \bar{u}, \bar{\bar{u}}, \bar{u}N$ after a preceding j . Now e and \bar{e} merged with \bar{a} and $\bar{\bar{a}}$, respectively. The merger was posterior to stage 5.12 because it presupposes the delabialization. The nasal vowels eN and $\bar{o}N$ remained distinct, cf. OCS. *znajō* ‘I know’, where the rounding was preserved. The other rounded front vowels also remained phonetically conditioned variants of the corresponding back vowels, e.g. *jūga* ‘yoke’.

6.2. (B7 = C1) First palatalization of velars: $k > \check{c}, g > \check{ž}, x > \check{s}$ before $e, \bar{e}, i, \bar{i}, j$. The velar obstruents had fronted variants before front vowels. When e, \bar{e} merged with the fronted variants of a, \bar{a} after j (6.1), the sequences $ke, k\bar{e}, ge, g\bar{e}, xe, x\bar{e}$ were rephonemized as $\check{c}\bar{a}, \check{c}\bar{\bar{a}}, \check{ž}\bar{a}, \check{ž}\bar{\bar{a}}, \check{s}\bar{a}, \check{s}\bar{\bar{a}}$, where $\bar{a}, \bar{\bar{a}}$ are the archiphonemes of e, \bar{e} and a, \bar{a} after palatals.

6.3. (C2) Spirantization of the voiced affricate $\check{ž} > \check{z}$. This development was determined by the absence of a voiced counterpart to \check{s} in the earlier system. It was blocked by a preceding z .

6.4. (C3) Palatalization of the dental fricatives: $s > \check{s}, z > \check{z}$ before $j, \check{c}, \check{ž}$. This development was probably posterior to 6.3 because it introduced \check{z} from another source and thereby eliminated the motivation for the spirantization of $\check{ž}$.

6.5. (B8) Monophthongization of diphthongs: $ai > \bar{e}, ei > \bar{e}, ui > \bar{u}, au > \bar{o}$. PIE. *eu* had changed into *iou* in Balto-Slavic times and into *jau* at stage 5.12. The occurrence of the diphthong *ui* was limited to the position before final *h*, where it had arisen at stage 5.9. After palatal consonants the diphthongs $\bar{a}i, \bar{u}i, \bar{a}u$ changed into $\bar{e}, \bar{u}, \bar{o}$, the latter of which is the phonetically conditioned variant of \bar{o} . The rise of nasal vowels before a tautosyllabic stop can be dated to the same stage. It yielded a new nasal vowel aN in the participial ending PIE. *-onts*, which had been subject to the delabialization at stage 5.12, e.g. ORu. *nesa* ‘carrying’, cf. *nesu* < *-oN* ‘I carry’. The surviving laryngeals had developed into glottal stops by this time: I shall write i', e', e', a', o', u' . These sequences had the timbre of the corresponding long vowels. The monophthongization of diphthongs was posterior to 6.1 because *jai* yielded $j\bar{e}$, not $j\bar{\bar{a}}$, e.g. in the locative endings of the *jo*-stems, OCS. *-i, -ixъ*. It was posterior to 6.2 because \bar{e} from *ai* did not cause palatalization in spite of the fact

that it tended to be more fronted than \bar{e} from earlier \bar{e} , as will be clear from the next paragraph.

6.6. (B9 = C4) Second palatalization of velars: $k > \acute{c}$, $g > \acute{ǰ}$, $x > \acute{s}$ before the new front vowels \bar{e} and \bar{i} which had arisen from the monophthongization of ai , ui (6.5), and after the high front vowels i , \bar{i} , iN unless followed by a consonant or by one of the high back vowels u , \bar{u} , uN . The clusters sk and zg became $\acute{s}\acute{c}$ and $\acute{z}\acute{ǰ}$ before the new front vowels. The sequences ika , iga , ixa were rephonemicized as $i\acute{c}\bar{a}$, $i\acute{ǰ}\bar{a}$, $i\acute{s}\bar{a}$, etc. The development restored the opposition between \bar{e} and \bar{a} after palatals, e.g. OCS. $\nu\bar{s}\bar{s}\bar{b}$ ‘all’, f.sg./n.pl. $\nu\bar{s}\bar{s}\bar{a}$, gen.loc.pl. $\nu\bar{s}\bar{s}\bar{e}\bar{x}\bar{b}$. Thus, the long vowel \bar{a} lost the status of an archiphoneme and came to be the fronted variant of \bar{a} after a palatal consonant. It goes without saying that the second palatalization was posterior to the monophthongization of diphthongs (6.5). It was also posterior to the palatalization of dental fricatives (6.4) because \acute{s} and \acute{s} did not merge.

6.7. (C5) Rise of geminated affricates: $tj > t\acute{c}$, $dj > d\acute{ǰ}$, also $stj > st\acute{c}$, $zdj > zd\acute{ǰ}$. This development has a modern parallel in Ukrainian, e.g. $\acute{z}yttj\acute{a}$ ‘life’. It was probably posterior to 6.6 because otherwise the gemination would hardly have been preserved. The cluster kt yielded $t\acute{c}$ before high front vowels, e.g. OCS. $no\acute{s}t\bar{b}$ ‘night’, Ru. $no\acute{c}$ ’, SCr. $n\acute{o}\acute{c}$.

6.8. (B10) Loss of final h from s . I date its ultimate loss toward the end of the Early Middle Slavic period because most probably it was only slightly anterior to the rise of prothetic glides (7.1).

6.9. (A9) Illič-Svityč’s law. Accentual mobility was generalized in the masc. o -stems which did not have an acute root vowel, e.g. SCr. $z\acute{u}\bar{b}$ ‘tooth’, cf. Gr. $\gamma\acute{o}\mu\phi\omicron\varsigma$ ‘bolt’. The original accentuation seems to have been retained in the Čakavian dialects of Susak and Istria. Illič-Svityč’s law, which apparently provides the oldest isogloss within the Slavic territory, was posterior to Meillet’s law (5.4) because it did not affect nouns with an acute root vowel.

6.10. (A10) Pedersen’s law and rise of distinctive tone. The stress was retracted from inner syllables in accentually mobile paradigms (cf. 3.2 above), e.g. Ru. $n\acute{a} vodu$ ‘onto the water’, $n\acute{e} byl$ ‘was not’, $pr\acute{o}dal$ ‘sold’, $p\acute{o}vod$ ‘rein’. The stress was also retracted within the initial syllable of barytone forms in paradigms with mobile stress, yielding a falling tone. All other stressed vowels became rising by opposition. This development was posterior to Illič-Svityč’s law (6.9) because it eliminated the identity of the two accentual paradigms in the barytone case forms on which the generalization of accentual mobility was based.

These developments yielded the following phonological system:

p	b			m					
t	d	s	z	n	l	r			
ć	ǰ	ś							
č		š	ž						
k	g	x							
ʔ					j	w			
		i	ī	iN	ū	u	ū	uN	
			ē				ō	oN	
		e	ē	eN		a	ā	aN	

and rising vs. falling tone

7. **Late Middle Slavic.** This was the time when the trend toward simplification of the syllable structure reached its culmination and the major dialect divisions established themselves.

7.1. (B11) Prothesis. The hiatus between a word-final and a word-initial vowel was filled with a glide, which was *j* if at least one of the vowels was front and *w* if the preceding vowel was back and the following vowel was rounded. As a consequence of this development, which was apparently posterior to 6.8, initial *j* lost the status of a phoneme before unrounded vowels. Initial *jā-* and *jā̄-* were rephonemized as *e-* and *ē-*, e.g. *e'xa'tē̄* < *ja'xa'tē̄* 'to ride', Lith. *jóti*, now with the same initial as *e'stē̄* 'to eat', Lith. *ésti*. The twofold glide before a rounded vowel gave rise to doublets, e.g. OCS. *utro* and *jutro* 'morning', *ajce* and *jajce* 'egg'.

7.2. (A11) Dolobko's law. Barytone forms of accentually mobile paradigms lost the stress to an enclitic particle, e.g. Slovene *lahkî* 'light', gen.sg. *lahkegà*, dat.sg. *lahkemù*. This development was probably posterior to the rise of distinctive tone (6.10).

7.3. (C6) First simplification of palatals: *ć* > *c*, *ǰ* > *ǰ*, in South and East Slavic also *ś* > *s*, *ść* > *sc*, *žǰ* > *zǰ*. The resulting dentals continued to be palatalized for some time. This development was motivated by the abundance of palatals which had been created in the Early Middle Slavic period. It was apparently posterior to 6.7 because the geminated affricates were preserved.

7.4. The clusters *k'w*, *ǰ'w*, *ś'w* which had arisen before front vowels as a result of the second palatalization (6.6) shared the development of 7.3 in South and East Slavic, but were depalatalized in West Slavic. The clusters *k'n* and *ǰ'n* preserved the palatalization in the nasal.¹⁶

¹⁶ Cf. N. Trubetzkoy, *Zeitschrift für slavische Philologie* 7 (1930), 392.

7.5. Loss of *t* and *d* before *l* in South and East Slavic. As in the case of *ść* (7.3) and *kw* (7.4), West Slavic preserved the original cluster. The three developments can therefore be dated to approximately the same stage.

7.6. (C7) Simplification of geminated affricates: *tć* > *ść*, *dź* > *źź*, also *śtć* > *ść*, *źdź* > *źź*. This development was limited to Bulgarian. It was posterior to 7.3 because the new *ść* and *źź* did not merge with the earlier *ść* and *źź*. For the other languages I assume that length shifted from the first, occlusive element of the geminate to its second, fricative element: *tć* > *ćś*, *dź* > *ź*. This development can be identified with the general assimilation of *j* to a preceding consonant: *čj* > *čš*, *šj* > *šš*, *žj* > *žž*, *nj* > *ņņ*, *lj* > *ļļ*, also *pj* > *pļ*, *bj* > *bļ*, *mj* > *mļ*. The assimilation did not change the phonemic make-up of the clusters because their second components can be regarded as the realizations of the phoneme /j/ in the respective environments.

7.7. (C8) Spirantization of the ungeminated voiced affricate *ǰ* > *z*. This development did not reach Lekhitic and a part of the Bulgarian dialects. It was probably posterior to 7.6 because we would otherwise expect the degemination of the voiced affricate *dǰ* rather than its parallelism with *tć*. It was certainly posterior to 7.3 because the final outcome of the second palatalization of *g* in Czecho-Slovak is *z*, not *ž*. The spirantization of the velar stop *g* in the central dialects of Slavic was probably not much later than this development, and perhaps even earlier.

7.8. (B12) Delabialization of *u*, *ū*, *uN*, *ü*, *ū*, *üN*. This development yielded *y*, *ȳ*, *yN*, *i*, *ī*, *iN*, e.g. *wy'dra'* 'otter', *lyN'ka* 'bast', *iga* 'yoke', 2 sg. imp. *nesī* 'carry', acc.pl. *arbyN* 'slaves', *kaņņiN* 'horses'. As a result of the delabialization, the prothetic *w* before *y*, *ȳ* received the status of a phoneme. The new *iN* from *üN* did not merge with earlier *iN*, which had apparently merged with *eN* at this stage, e.g. *xwāleN* 'praising'. The delabialization was posterior to the rise of prothetic *w* (7.1) because the latter could hardly develop before unrounded *y*, *ȳ*.

7.9. (B13) Raising of *ē* and *ō*. The empty hole which the delabialization had left was filled by raising the remaining rounded vowel *ō* to *ū*. The corresponding front vowel *ē* < PIE. *ei* was raised to merge with *ī*. The phonetically complex unrounded nasal back vowel *yN* lost its nasal feature, e.g. *ly'ka* 'bast', *syta* 'hundred'. The corresponding nasal front vowel *iN* was lowered to *ęN* while *eN* was lowered to *āN*. The raising of *ō* was posterior to the delabialization of *ū* (7.8) because the two did not merge. The loss of *yN* was posterior to the delabialization which gave rise to its complex articulation.

7.10. Retraction of initial *e*, *ū* to *a*, *ū* in East Slavic, e.g. Ru. *ózero* 'lake', *útro* 'morning', cf. SCr. *jězero*, *jútro*. This development was apparently posterior to the delabialization (7.8) because it did not affect earlier *ū*, e.g. Ru. *igo* 'yoke'.

7.11. Dissimilation of /j/ in the word for 'foreign' in South Slavic, e.g. SCr. *tūđ*, Ru. *čužój*. Though this development can hardly be dated with accuracy, it undoubtedly belongs to the Late Middle Slavic period.

7.12. (A12) Metathesis of liquids in South Slavic and Czechoslovak. The metathesis was often accompanied by lengthening. The timbre of the vowel shows that the metathesis was anterior to the rise of the new timbre distinctions (7.13) in Czechoslovak and South Slavic, but posterior to that development in Lekhitic and Sorbian. The metathesis did not reach East Slavic except in word-initial position, where it was early in the entire Slavic area, e.g. Ru. *rálo* ‘plough’, Cz. *rádlo* < *ar²dla*. It was apparently posterior to 7.5, cf. SCr. *dlijèto* ‘chisel’.

7.13. (A13 = B14) Rise of the new timbre distinctions. In posttonic syllables the glottal stop was lost without compensatory lengthening, whereas in stressed syllables it became a feature of the preceding vowel, comparable to the Latvian broken tone. As a result, the timbre distinctions between the short vowels and the acute “long” vowels became phonemically relevant, e.g. *wýdra* ‘otter’, *s²to* ‘hundred’. This development was posterior to the raising of \bar{e} and \bar{o} (7.9) because these vowels are reflected as *i* and *u* in the historical languages. It was also posterior to the loss of *yN* because the latter yielded two reflexes, \bar{v} and *y*, the timbre difference between which cannot be explained if we assume that *yN* was preserved up to a later stage. It was probably posterior to the East Slavic retraction (7.10) of initial *e* to *a*, which now became *o*. It was evidently posterior to the metathesis of liquids in South Slavic and Czechoslovak (7.12).

As a result of the rise of the new timbre distinctions, the quantitative oppositions in pretonic syllables were rephonemicized as timbre differences. All pretonic vowels of this stage are reflected as short vowels in the historical languages, e.g. Czech *ruka* ‘hand’ < *roNká*, SCr. *màlina* ‘raspberry’ < *malina*. The length in SCr. *rúka* was introduced from the barytone forms such as acc.sg. *rúku*, while the original short vowel was preserved in the oblique plural form *rúkama*. Long vowels in posttonic syllables were not shortened, e.g. *òsnowā* ‘base’, inst.pl. *žènamī* ‘women’, where the long final vowel is reflected by the neo-circumflex tone of Slovene *osnōva*, *ženāmi* (see 10.9 below). The alternation between short pretonic and long posttonic vowels in paradigms with mobile stress was removed by the generalization of the long vowel in Serbo-Croat and the short vowel in Czech and Polish, e.g. SCr. *gòlūb* ‘pigeon’, *žèlūd* ‘acorn’, *lābūd* ‘swan’, *òblāst* ‘region’, Cz. *holub*, *žalud*, *labut*, *oblast*. The long vowel was retained everywhere if it did not alternate with a short vowel, e.g. SCr. *mjěšec* ‘month’, *pěnz* ‘coin’, *jāstrěb* ‘hawk’, *pāuk* ‘spider’, Cz. *měsíc*, *peníz*, *jestřáb*, *pavouk*. These words had fixed stress on the laryngealized vowel of the first syllable. Both Czech and Serbo-Croat have a short vowel in a suffix which contained a laryngeal, e.g. SCr. *bògat* ‘rich’, *srdit* ‘angry’.

7.14. Raising of the low nasal vowels *aN*, *āN* to *yN*, *eN* in South Slavic, e.g. OCS. *nesy_(v)* ‘carrying’, *xvalę* ‘praising’, ORu. *nesa*, *xvalja*. This development was evidently posterior to the loss of earlier *yN* (7.9). It can hardly have been anterior to the rise of the new timbre distinctions (7.13).

7.15. (A14 = B15 = C9) Van Wijk's law and loss of /j/. Long consonants (see 7.6 above) were shortened with compensatory lengthening of the following vowel, e.g. SCr. *pǣē* 'writes' < *pīšše* < *pǣšjä* < *peisje*. This development was posterior to 7.7 because the spirantization did not affect the geminated voiced affricate in Slovak and Serbo-Croat. It was evidently posterior to 7.11 and 7.13, cf. *wòlā* < *wòlla* < *wàlja*' 'will'. New *ē* did not merge with earlier *ē*, which had become *ě* at stage 7.13.

After the loss of the glottal stop in posttonic syllables and the rise of new long vowels as a result of Van Wijk's law, case endings could have three different quantities. For example, the nom.sg. ending of the *a*-stems was short in *žèna* 'woman', long in *wòlā* 'will' and *òsnowā* 'base', and indifferent with respect to length in *gorá* 'mountain'. The same distribution holds for the neuter nom.acc.pl. ending. At this stage several levelings took place. Endings which did not occur under the stress were shortened in the whole Slavic territory. Length was generalized in the unstressed nom.acc.pl. ending in Slovene *lěta* 'years', but not under the stress, cf. *drvà* 'firewood'. Conversely, the distinction between a short unstressed nasal vowel and a long nasal vowel under the stress was preserved in Slovene gen.sg. *līpe* 'lime-tree', *gorě* 'mountain', and in SCr. nom.acc.pl. *glāve* 'heads', gen.sg. *glāvē*. This difference became phonemic as a result of Dybo's law (see 8.7 below), which reintroduced long unstressed nasal vowels and short nasal vowels under the stress.

These developments yielded the following phonological system:

p	b			m	w				
t	d								
c	ʒ	s	z	n	l	r			
ć	ǰ	ś		ŋ	l̥	ɾ			
č		š	ž						
k	g	x							
i	ī		ü	ū		y	ȳ	u	ū
e	ē	ęN		ь	öN	ѣ		o	oN
ä	ā	āN				a	ā	aN	

and acute vs. rising vs. falling tone

8. **Young Proto-Slavic.** The redundancies which the trend toward rising sonority had created evoked a reaction, which eventually led to the disintegration of the prosodic system and to the rise of new closed syllables.

8.1. (A15) Contractions in posttonic syllables, e.g. Čak. (Novi) *pītā* 'asks', Bulg. *pīta*, cf. Čak. *kopā* < *kopá(j)e* 'digs', Bulg. *kopáe*, Old Polish *kopaje*. This development was posterior to the rise of the new timbre distinctions (7.13) because

new \bar{e} did not merge with earlier \bar{e} , which became \check{e} , cf. Czech gen.sg. *nového* ‘new’. It was evidently posterior to the loss of intervocalic j .

8.2. (A16) Retraction of the stress from final jers, e.g. Slovene gen.pl. *gór* < *gorè* ‘mountains’. Pretonic jers in inner syllables could not receive the stress, e.g. Slovene gen.pl. *óvæ* < *owbçè* ‘sheep’, Ru. dat.pl. *détjam* < *dětmè* ‘children’ (with *-jam* for ORu. *-em*). This development gave rise to new long vowels, which subsequently spread to the gen.pl. forms of other accent types. It was evidently posterior to the rise of the new timbre distinctions (7.13).

8.3. Raising of \check{e} from \bar{a} to *ie* in Slovene, Sorbian, Czecho-Slovak, and East Slavic. This development can be dated to approximately the same stage as the retraction of the stress from final jers (8.2) because \check{e} became the counterpart of \bar{o} in these languages. It also affected Serbo-Croat, though perhaps slightly later and not to the same extent, cf. Čak. (Rab) *gnjāzdō* ‘nest’.

8.4. (C10) Merger of palatal fricatives: \acute{s} > \check{s} , also $\acute{ś}$ > $\check{ś}$, $\acute{ž}$ > $\check{ž}$. As a result of this development, the West Slavic reflexes of the first and the second palatalization of x are identical. The merger was apparently posterior to the elimination of long consonants (7.15) because $\acute{ś}$ and $\check{ś}$ did not merge.

8.5. (C11) Merger of palatal clusters: $\acute{šč}$ > $\check{šč}$, $\acute{žž}$ > $\check{žž}$. As a result of this development, the reflexes of the first palatalization of *sk* and *zg* merged with the reflexes of the second palatalization in West Slavic, with the reflexes of *tj* and *dj* in Bulgarian, and with the reflexes of *stj* and *zđj* in the whole Slavic territory. The merger was provoked by the merger of the fricatives (8.4).

8.6. (C12) Second simplification of palatals: \acute{c} > c , $\acute{č}$ > $č$ in West Slavic, and subsequently $č$ > z in Czech and Sorbian; $\acute{ć}$ > $\check{ć}$, $\acute{č}$ > $\check{č}$ > $\check{ž}$ in East Slavic. The clusters $\acute{ść}$ and $\acute{žć}$ were reduced to $\acute{št}$ and $\acute{žd}$ in Bulgarian and the eastern dialects of Serbo-Croat, and later in Czecho-Slovak. Similarly, the clusters *sc* and *zč* became *st* and *zd* in a part of the Bulgarian dialects. The reduction of palatal series was probably posterior to the merger of the clusters (8.5) because the two types of cluster were treated alike in all Slavic languages.

8.7. (A17) Dybo’s law: rising vowels lost the stress to the following syllable, if there was one, e.g. *ženà* ‘woman’, *osnòwā* ‘base’. Newly stressed long vowels received a falling tone, e.g. *wolā* ‘will’. Final jers had lost their stressability (8.2) and therefore could not receive the stress, e.g. Slovene *kònj* < *kòňb* ‘horse’. Acute (broken, glottalized) vowels did not lose the stress, e.g. *wýdra* ‘otter’, *dýmь* ‘smoke’, which kept fixed stress throughout the paradigm. Dybo’s law restored distinctive vowel length in pretonic syllables, e.g. *nāròdь* ‘people’, *òNtròbā* ‘liver’. It was obviously posterior to the rise of the new timbre distinctions (7.13), Van Wijk’s law (7.15), the contractions in posttonic syllables (8.1), and the retraction of the stress from final jers (8.2).

8.8. (A18) Lengthening of short falling vowels in monosyllables, e.g. SCr. *bōg* ‘god’, *kōst* ‘bone’, *dān* ‘day’. This development, which was apparently Common

Slavic, eliminated the pitch opposition on short vowels, which had become confined to monosyllables (not counting final jers) as a result of Dybo's law (8.7).

8.9. The inst.sg. ending *-ьmь* of the *u*-stems was generalized in the paradigm of the *o*-stems in North Slavic. It replaced *-a*, which has been preserved in OCS. *vbčera* 'yesterday' and can be identified with Lith. *-ù* < *-oH*. The development was motivated by the merger with the gen.sg. ending *-ā* in soft stems as a result of Van Wijk's law (7.15) and can therefore be dated to the Young Proto-Slavic period. The rise of the South Slavic ending *-omь* requires the continued existence of the nom.sg. ending *-os* and must therefore be dated to an earlier stage. The ending probably originated in polysyllabic nouns with initial stress, where the gen. and inst. endings had merged in Early Slavic already (5.3), and was subsequently generalized. The dialectal differentiation points to a higher frequency of prefixed nouns in the South Slavic area, which was closer to Byzantium.

These developments yielded the following phonological system:

p	b			m	w				
t	d								
c	ʒ	s	z	n	l	r			
(ć)	(ž)			ŋ	l̥	ɾ			
č		š	ž						
k	g	x							
		i		ü		y		u	
		e	eN	ь	öN	ь	(yN)	o	oN
		(ä)	(än)			a	(aN)		
and either acute									
or long vs. short and rising vs. falling tone									

9. **Late Proto-Slavic.** This is the last period of common innovations.

9.1. (A20) Pleophony in East Slavic, e.g. Ru. *ogoród* 'kitchen-garden', *pozolóta* 'gilding'. The development was evidently posterior to Dybo's law (8.7), according to which the prefix lost the stress to the root in these words.

9.2. (A19) Loss of the acute (broken, glottalic) tone, which yielded a short rising contour, e.g. *dýmь* 'smoke', *gorà* 'mountain'. This development was evidently posterior to Dybo's law (8.7). It was also posterior to the lengthening of short falling vowels in monosyllables (8.8) because it reintroduced a pitch opposition on short vowels in polysyllables and thereby eliminated the motivation for the latter development. It was posterior to the East Slavic pleophony (9.1) because the distinction between the acute and the earlier rising tone was preserved in Ukrainian, e.g. *moróz* < *-orò-* 'frost', gen.pl. *holív* < *-oló-* 'heads'.

9.3. (A22) Stang's law: the stress was retracted from long falling vowels in final syllables, e.g. *w^uòla* 'will', Ru. dial. *vòlja*, Cz. *vùle*, Slovak *vòl'a*, Slovene *vòlja*, SCr. *vòlja*. The long vowel was shortened, except in Lekhitic, where traces of length remain, e.g. Old Polish *wolà*. The newly stressed vowel received a rising tone. Pretonic jers in inner syllables could not receive the stress, and final jers did not count as syllables with respect to Stang's law. The development was evidently posterior to Dybo's law (8.7) and to the East Slavic pleophony (9.1). It was also posterior to the loss of the acute tone (9.2), as is clear from SCr. gen.pl. *jězikā* 'tongues'. The short vowel in the first syllable of Cz. *jazyk* and SCr. *jèzik* shows that this word had fixed stress on the second syllable before Dybo's law operated: *(j)eNz'ykъ*. The retraction in the gen.pl. form points to earlier *jeNz'ykъ* from *jeNz'ykъ* with analogical lengthening after the loss of the acute tone. If Stang's law had been anterior to the loss of the acute tone, the lengthening would have been impossible and the retraction of the stress would not have taken place in this form. Note that the lengthening was indeed posterior to Stang's law in Čak. (Novi) gen.pl. *susēd* 'neighbors', *kolēn* 'knees'.

9.4. (A21) Shortening of long falling vowels, e.g. Czech *mladost* 'youth', acc.sg. *ruku* 'hand', SCr. *mlādōst* 'youth', gen.sg. *prāseta* 'sucking-pig'. The shortening did not affect monosyllables in Slovene and Serbo-Croat and the first syllable of disyllabic word forms in the latter language, e.g. SCr. *bōg* 'god', *prāse* 'sucking-pig', acc.sg. *rūku* 'hand'. The dialect of the Kiev Leaflets sides with Serbo-Croat in this respect.¹⁷ The shortening was probably posterior to Stang's law (9.3).

9.5. Proto-Slavic *u* was fronted to *ü* in the northern dialects of Serbo-Croat.¹⁸

9.6. The rounded nasal vowels *oN*, *öN* were raised to *uN*, *üN* in Serbo-Croat, Sorbian, Czecho-Slovak, and East Slavic. This development was apparently posterior to the fronting of *u* (9.5).

9.7. Denasalization of the nasal vowels in East Slavic, and subsequently in Czecho-Slovak. This development was posterior to the raising of *oN* and *öN* (9.6).

9.8. Rise of the palatalization correlation in Lekhitic, and subsequently in the other North Slavic languages.

9.9. Merger of the jers in Serbo-Croat, Slovene, and Czech, and subsequently in Lekhitic.

10. **Disintegrating Slavic.** This is the period of parallel but not identical developments in the separate languages.

¹⁷ Cf. *Zeitschrift für slavische Philologie* 41 (1980), 1-3.

¹⁸ Cf. W. Vermeer, Proto-Slavonic **u* in Kajkavian, *Zbornik za Filologiju i Lingvistiku* 22/1 (1979), 171-177.

10.1. The denasalization spread to affect all Slavic languages. The nasal vowels are best preserved in modern Polish.

10.2. The rise of the palatalization correlation affected the languages differently. The correlation is especially characteristic of modern Russian.

10.3. The jers were lost or merged with other vowels under various conditions in the separate languages. They have been preserved as a separate phoneme in Slovene.

10.4. Short rising vowels were lengthened in Russian, e.g. dial. *kôn'* < *kōŋ* < *kōŋь* 'horse', cf. *bog* < *bōgь* 'god', where the vowel had been shortened (9.4). The length has been preserved in Baltic and Fennic loan words from Russian, e.g. Latvian *grāmata* 'book', Estonian *raamat* < *grāmota*.

10.5. Short vowels were lengthened in monosyllables in Ukrainian, e.g. *kin'* < *kōŋ* 'horse'. Other new long vowels originated from compensatory lengthening before a lost jer in inner syllables.

10.6. (A23) Short rising vowels in open first syllables of disyllabic words were lengthened in Czech and Upper Sorbian unless the following syllable contained a long vowel, e.g. Cz. *kráva* < *kráva* 'cow', *vůle* < *vōļa* < *w^uōļa* 'will', *psáti* < *psàti* 'to write', USo. *kruwa* < *krōwa* 'cow', Cz. gen.pl. *krav*, inst.pl. *kravami*. This development was evidently posterior to the loss of pretonic jers.

10.7. (A24) Falling vowels lost the stress to the following syllable in Slovene, e.g. *okō* 'eye', *mladōst* 'youth', acc.sg. *rokō* 'hand'. The newly stressed vowel received a long falling tone. This development was evidently posterior to Stang's law (9.3) and anterior to the loss of the nasal vowels. Indeed, the Freising Fragments can be dated between Stang's law and the progressive accent shift.¹⁹ The accent shift probably originated from the spread of the falling tone over two syllables as a result of the shortening (9.4).

10.8. (A25) Stressed short vowels were lengthened and received a falling tone before a non-final lost jer in Slovene, e.g. *bāka* 'battle'. This development was evidently posterior to the progressive accent shift (10.7).

10.9. (A25) Stressed short vowels were lengthened and received a falling tone in Slovene if the following syllable contained a long vowel, which was shortened, e.g. *lēta* 'years', *osnōva* 'base', inst.pl. *ženāmi* 'women'. The development was evidently posterior to the progressive accent shift (10.7).

10.10. The stress was retracted from a final syllable to a preceding long vowel in Lekhitic,²⁰ Slovene, and dialects of Serbo-Croat, where the retraction yielded a rising tone.

¹⁹ Cf. Slavistična Revija 23 (1975), 411. [See now Zbornik Brižinski Spomeniki (Ljubljana: SAZU, 1996), 141-151.]

²⁰ Cf. Lingua 44 (1978), 76-79.

10.11. Stressed short vowels in non-final syllables were lengthened and received a rising tone in Slovene, e.g. *lěto* 'year', *vólja* 'will'. This development, which was posterior to the rise of the neo-circumflex (10.8, 10.9) and to the retraction of the stress to a preceding long vowel (10.10),²¹ did not reach the easternmost dialects of the language.

10.12. The stress was retracted from a final short vowel in Lekhitic, the Pannonian dialect of the Kiev Leaflets, dialects of Slovene and Serbo-Croat, and Bulgarian. This retraction, which generally yielded a rising tone, was followed by others in various dialectal areas. In literary Serbo-Croat, a rising tone points to a retraction of the stress from the following syllable because the Proto-Slavic rising tones have become falling. Czech and Slovak have fixed stress on the initial syllable, and the same can be assumed for Old Polish.

11. It is clear that I have not listed all developments from Proto-Indo-European times up to the modern dialects in the preceding sketch. Thus, I have not included the voicing of *s* before voiced consonants, the rise of syllabic resonants in South Slavic and under certain conditions in West Slavic, the labialization of front vowels before a tautosyllabic *l* in East Slavic and in the northern dialects of Lekhitic, the retraction of front vowels before hard dentals in Lekhitic, and the Czech umlaut. I shall now give a survey of the main correspondences between PIE. and Proto-Slavic phonemes. The correspondences refer to the end of period 1 and the end of period 9 above. This section will deal with the obstruents, and the next one with the vowels and resonants.

11.1. The glottalic stops are reflected as voiced stops with a preceding acute tone (4.3). The aspirated stops are reflected as voiced stops without a concomitant laryngeal feature (2.1).

11.2. Dental stops were lost word-finally in Balto-Slavic (3.7) and before *l* in South and East Slavic (7.5). They were lost before other obstruents in the whole Slavic territory. The clusters *tj* and *dj* yielded *št* and *žd* in Bulgarian and an affricate with lengthening of the following vowel in the other languages (6.7, 7.6, 7.15, 8.4, 8.6).

11.3. The fricative *s* is reflected as *s* (*z*), *š* (*ž*), *x* or zero (2.2, 5.6, 5.7, 6.2, 6.4, 6.6, 6.8, 7.3, 8.4).

11.4. The palatovelars were depalatalized (1.2, 1.3, 2.3) or became fricatives, which are reflected as *s*, *z* (5.8) or *š*, *ž* (6.4).

11.5. The labiovelars lost their labialization after the dissolution of the syllabic resonants (4.2).

11.6. The velars were palatalized in the neighborhood of front vowels and yielded affricates or fricatives (6.2, 6.3, 6.6, 7.3, 7.4, 7.7, 8.4, 8.5, 8.6).

²¹ Cf. Slavonic and East European Review 54/134 (1976), 6f.

12.1. The vowel *e* is reflected as *e*, after H_2 and H_3 as *o* (5.2, 7.13), before H_1 and the glottalic stops as *ě* (6.5) unless preceded by *j* or by a velar (6.1, 6.2, 6.6), before H_2 and H_3 as *a* (5.12, 7.13), before a tautosyllabic nasal as the reflex of the corresponding nasal vowel (5.5, 7.9, 7.14). The diphthongs *ei* and *eu* are reflected as *i* and *ju* (6.5, 7.9).

12.2. The vowel *o* is reflected as *o*, after *j* as *e* (6.1), before the laryngeals and the glottalic stops as *a* (5.12, 6.5, 7.13), before a final nasal as *ɔ* (3.6, 5.5), before other tautosyllabic nasals as the reflex of the corresponding nasal vowel (5.5, 5.9, 6.1, 6.5, 7.8, 7.9, 7.14, 9.6). The diphthong *oi* is reflected as *ě* or *i* (5.9, 6.1, 6.5, 7.8, 7.9, 7.13). The diphthong *ou* is reflected as *u* (6.5, 7.9).

12.3. Vocalic *i* and *u* are reflected as *ɨ* and *ʉ*, before and after the laryngeals and before the glottalic stops as *i* and *y* (5.3, 6.1, 6.5, 7.8), before a tautosyllabic nasal as the reflex of the corresponding nasal vowel (5.5, 6.1, 7.8, 7.9, 7.14). Consonantal *j* lengthened a preceding consonant (6.7, 7.6), which subsequently lengthened the following vowel (7.15).

12.4. The syllabic resonants received an epenthetic vowel (4.2), which was subsequently lost under certain conditions in South and West Slavic. Syllable-final nasals became a feature of the preceding vowel and were often lost (5.5, 7.9, 9.7, 10.1).

12.5. The laryngeal resonants merged with the laryngeal feature of the glottalic stops (4.3), blocked the progressive accent shift (8.7), and yielded length in post-tonic syllables (5.3) and in barytone forms of paradigms with mobile stress (5.4), where the stressed vowel was mostly shortened (9.4), a shortened “long” vowel in other post-tonic and pre-tonic syllables (5.3, 7.13), and a short rising tone in other stressed syllables (9.2), where the vowel was often lengthened (10.4, 10.6, 10.8, 10.9, 10.11). There is no evidence for syllabic laryngeals in Balto-Slavic.

12.6. Original barytona had a rising tone at the end of the Proto-Slavic period, either on the stem or on the ending. Original oxytona and mobilia had a falling tone on the barytone forms of their paradigms at that stage.

Postscript. In the preceding text I have omitted the rise of *x* from PIE. $\acute{k}H_2$ because the material requires a separate treatment. Let me add here that in my view the development can indeed be established, e.g. Ru. *xápat* ‘to grab’, *séryj* ‘grey’ (Polish *szary*), *soxá* ‘wooden plough’, *pleš* ‘bald patch’. Since the Baltic reflex is *k*, the depalatalization can be identified with 2.3 and the spirantization with 5.7. It follows that the laryngeal was preserved in this position up to the Early Slavic period.