On the History of the Slavic Nasal Vowels

I.

How many Common Slavic nasal vowels do we have to reconstruct? The establishment of **eN* and **oN* is no longer questioned by modern investigators, e. g. OCS. *peNtь*, *poNtь*, Skt. *páñca*, *pánthāḥ*[1]. Since the publication of N. Trubetzkoy's Old Church Slavic grammar[2] it must be recognized that there was no phoneme /j/ in the language of Cyrillus and Methodius and that, consequently, we have to assume a third nasal vowel **öN*, which developed into **joN* in 11th century Bulgarian.

The South Slavic reflex of **eN* is a mid vowel, whereas the reflex of **oN* is high (Serbo-Croat) or mid (other languages). The North Slavic reflex of **oN* is also mid (Polish) or high (other languages), but the reflex of **eN* is twofold here: it is a high mid vowel, identical with the reflex of **ě*, in the acc. pl. ending of the *jo*-stems and the gen. sg. and nom. acc. pl. endings of the *jā*-stems, and a low vowel elsewhere. Since the difference cannot be explained as a secondary development, a strict application of the comparative method leads to the postulation of two unrounded nasal front vowels which merged in the South Slavic dialectal area[3]. I shall write **äN* (rather than **eN*) for

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[1] In this article I shall write the Slavic nasal vowels as the corresponding oral vowels followed by *N* in order not to overburden the text with diacritical marks. It should be clear that *N* designates a feature of the preceding vowel and does not represent a separate segment.

[2] Altkirchenslavische Grammatik (Wien 1954), especially p. 62.

[3] This conclusion was first drawn by N. van Wijk, Archiv für slavische Philologie 36 (1916) 461. I shall not discuss the numerous attempts to explain the correlating endings *-y* and *-eN*/*-ě* along separate lines because all of them fail in the same respect: an explanation involving analogic change requires not only the indication of a model, but also the presence of a plausible motivation. As Meillet put it in Rocznik Slawistyczny 7 (1914) 8: "Il est étrange que, pour éviter d'admettre

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the low front vowel, and **ęN* (rather than **ěN*) for the high mid vowel which yielded South Slavic *-eN* and North Slavic *-ě*.

The back counterpart of **äN* is found in the nom. sg. ending of the present participle, e. g. Czech and Old Russian *nesa*, Old Polish *rzeka* (written *reca* in the Kazania Świętokrzyskie), Old Slovene *imy* (written *imugi* in the Freising Fragments), OCS. *nesy*. The North Slavic forms cannot have taken the ending from the soft flexion because the stem-final consonant is not palatalized. The nasal character of the vowel is preserved in the Old Bulgarian manuscripts, where the ending is written 48x as a nasal vowel. It is written with a special sign in the Zographensis, with the sign for *eN* in the Clozianus and the Savvina Kniga, with the sign for *oN* in the Psalterium Sinaiticum, while all of these denotations are used in the Marianus. The absence of a separate letter for this sound in the original Glagolitic alphabet must be viewed in connection with the absence of a letter *y*, for which a digraph was used. I assume that the phonetically complex unrounded back vowels **y* and **yN* had developed into a diphthong **ɤi* in the South Macedonian dialect for which Cyrillus created the alphabet. When the alphabet came to be used for Bulgarian dialects which had retained the complex nasal vowel, the latter could be denoted either by a newly created sign, or by one of the existing signs for nasal vowels. Thus, both comparative and philological considerations lead to the postulation of an unrounded nasal back vowel, which I shall write **aN* and which yielded South Slavic *-y* and North Slavic *-a*[4].

Structural and chronological considerations lead to the postulation of a sixth Common Slavic nasal vowel for those case endings of the *o-* and *ā*-stems where the *jo-* and *jā*-stems have

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des traitements phonétiques qui ne contredisent aucun traitement connu des mêmes phonèmes placés dans les mêmes conditions, on ait recouru à des hypothèses analogiques qui sont ou arbitraires ou invraisemblables, comme si les difficultés morphologiques étaient, par nature, chose moins grave que les difficultés phonétiques."

[4] This conclusion was first drawn by N. van Wijk, ZslPh. 1 (1925) 283. The literature on the subject is shortly reviewed by J. Ferrell in Studia Palaeoslovenica (Praha 1971), 86–89.

South Slavic *-eN* and North Slavic *-ě*. The preservation of nasality in the South Slavic soft inflexion shows that the nasal feature must have been present in the hard inflexion at the time of the Umlaut. I therefore posit a high unrounded back vowel **yN* which yielded *-y* in the entire Slavic area when it lost its nasality in prehistoric times. Thus, we arrive at the following reconstruction:

	front		back	
	unrounded	rounded	unrounded	rounded
high	*ęN*		*yN*	
mid		*öN*		*oN*
low	*äN*		*aN*	

The occurrence of the high vowels was limited to the gen. sg. and nom. acc. pl. case endings. They lost their nasality at an early stage in the North Slavic dialectal area. In South Slavic, the vowel height opposition was lost. The unrounded back vowels were particularly liable to denasalization because of their complex articulation. The denasalization of **aN* was apparently early in clause-final position and late before a clitic. In the Kazania Świętokrzyskie, the form **rekaN* 'saying' is written *reca* when it immediately precedes the quotation, but *rekø* before the pronominal object *ta*. In the Old Bulgarian texts, the preservation of the nasal feature in this ending is found almost exclusively before the enclitic article, as Meillet has observed[5]. The chronological status of the above system of nasal vowels can only be specified in relation to other historical developments. I therefore turn to the periodization of the history of Slavic.

II.

In this section I shall give a short chronological outline of Slavic historical phonology in order to indicate the general framework of the reconstructions. It goes without saying that a discussion of the separate developments would go far beyond the scope of this article. In the next section I shall give a more

[5] Rocznik Slawistyczny 6 (1913) 136.

detailed chronology of those periods which are of specific interest for the rise and development of the nasal vowels[6].

I. Proto-Indo-European. To this period belong the neutralization of the opposition between the velar series after **u*[7] and after initial **s*[8] and the neutralization of the opposition between the laryngeals before and after **o*[9].

II. Dialectal Indo-European. To this period belong the loss of the aspirated stops[10], the rise of **ṡ* from **s* after **i*, **u*, **r*, **k*[11], and the depalatalization of the palatovelars before resonants under certain conditions[12].

III. Early Balto-Slavic. This is the stage of common innovations up to the loss of final **t/d*. It corresponds with SA 1–4. To this period belong the narrowing of final **-om* to **-um*[13] and the replacement of the nom. acc. sg. ending of oxytone neuter *o*-stems with the corresponding pronominal ending[14].

IV. Late Balto-Slavic. This is the stage of common innovations after the loss of final **t/d*. It corresponds with SA 5–6. To this period belong the merger of the barytone neuter *o*-stems with the masculines, the loss of the syllabic resonants,

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[6] The most important earlier publications on the chronology of the Slavic developments are the following: N. Troubetzkoy, Essai sur la chronologie de certains faits phonétiques du slave commun, Revue des études slaves 2 (1922) 217–234; N. van Wijk, K istorii fonologičeskoj sistemy v obščeslavjanskom jazyke pozdnego perioda, Slavia 19 (1950) 293–313; C. L. Ebeling, Questions of relative chronology in Common Slavic and Russian phonology, Dutch Contributions to the 5th International Congress of Slavicists (The Hague 1963), 27–42. The stages of the latter article will be referred to as E I–XVI, while SA 1–22 will refer to my Slavic Accentuation (Lisse 1975), p. xii.

[7] Cf. F. de Saussure, MSL. 6 (1889) 161–162.

[8] Cf. L. Steensland, Die Distribution der urindogermanischen sogenannten Gutturale (Uppsala 1973), 30–35.

[9] Cf. my article in Ling. Posn. 23 (1980) 127–130.

[10] Cf. IF. 83 (1978) 107–118.

[11] Cf. H. Pedersen, IF. 5 (1895) 33–87.

[12] Cf. Recent Developments in Historical Phonology (The Hague 1978), 237–243.

[13] Cf. Lingua 45 (1978) 287.

[14] Cf. Slavic Accentuation 45.

the elimination of zero grade before oblique case endings in the formative suffix of consonant stems, and Winter's law[15].

V. Early Slavic. During this period, Slavic developed along the same lines as the West and East Baltic sister languages. It corresponds with E IV–VI, SA 7–8, and the stages 1–5 of the chronology given below. To this period belong the rise of nasal vowels, the merger of **a*, **ā* with **o*, **ō*, and the rise of **x*.

VI. Early Middle Slavic. The developments of this period form part of the trend toward rising sonority and synharmonism within the syllable. It corresponds with E VII–IX, SA 9–10, and the stages 6–10 of the chronology given below. To this period belong the palatalizations, the rise of distinctive tone, and the loss of final **s*.

VII. Late Middle Slavic. During this period, in which the trend toward simplification of the syllable structure reached its culmination, the earliest dialectal divergences developed[16]. It corresponds with E X–XI, SA 11–14, and the stages 11–15 of the chronology given below. To this period belong the metathesis of liquids, the rise of the new timbre distinctions, and the loss of /j/ as a phoneme.

VIII. Young Proto-Slavic. At this stage, 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. To this period, which corresponds with SA 15–18, belong the early contractions, the retraction of the stress from final jers, and Dybo's law[17].

IX. Late Proto-Slavic. This is the last stage of common innovations. To this period, which corresponds with SA 19–22, belong the loss of the acute intonation, the shortening of long falling vowels, and Stang's law[18].

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[15] Cf. Baltistica 13 (1977) 321-322.

[16] The only dialectal difference which is older originates from Illič-Svityč's law, which belongs to the Early Middle Slavic period, cf. Slavic Accentuation 28.

[17] Cf. Slavic Accentuation 14–16.

[18] Cf. Slavic Accentuation 33.

X. Disintegrating Slavic. This is the stage of parallel but not identical developments in the separate languages. To this period, which corresponds with E XIII–XV, belong the rise of the palatalization correlation, the loss or merger of the nasal vowels, and the loss of the jers.

III.

As is clear from the preceding section, I date the narrowing of final **-om* to **-um* and the elimination of the syllabic resonants to the Balto-Slavic period. The loss of final **t/d* reintroduced the vowel **o* before a word-final nasal, e. g. in the 3rd pl. thematic aorist ending **-on(t)*, OCS *-oN*. The syllabic resonants received an epenthetic vowel, which was **u* after a preceding labiovelar consonant and **i* elsewhere. The original distribution has been obscured by a number of secondary developments, in particular by the rise of new apophonic alternations[19]. Consequently, the acc. sg. ending was **-ām* in the *ā*-stems, **-um* in the masc. *o*- and *u*-stems, **-o* in the neuter *o*-stems, and **-im* in the masc. and fem. *i*-stems and consonant stems at the beginning of the Early Slavic period. The subsequent changes were the following.

1. Raising of **ē* and **ō* before a final resonant, e. g. OCS. *mati*, *kamy*, cf. Lith. *mótė*, *akmuõ*, Gr. *μήτηρ*, *ἄκμων*. The final resonant was lost after the raising. I assume that the acc. sg. ending **-ām* was shortened to **-am* at approximately the same stage[20]. As a result of these developments, word-final sequences of long vowel plus resonant were eliminated.

2. Labialization of **a*, **ā* and merger with **o*, **ō*. This development was posterior to stage 1 because the acc. sg. ending **-ām*, OCS. *-oN*, did not merge with **-ōn* in **akmōn*, OCS. *kamy*.

3. Rise of nasal vowels: **iN*, **eN*, **oN*, **uN*. This development cannot strictly be ordered because the nasal vowels are not opposed phonemically to sequences of vowel plus nasal con-

[19] Thus, I agree with A. Vaillant, Grammaire comparée des langues slaves 1 (Lyon 1950), 171–172. On the apophonic relations see R. Trautmann, Slavia 2 (1923) 1–4.

[20] The hypothesis that **-ām* yielded a Balto-Slavic nasal vowel, which I suggested in Slavic Accentuation, p. 6, cannot be maintained. On the 1st sg. present ending see now Lingua 49 (1979) 57.

sonant up to the loss of the jers. The chronological placement advocated here is based upon the consideration that final **n* and **r* behaved alike at stage 1 and that the presence or absence of a following nasal played no role at stage 2. I assume that the nasal feature was lost in the accusative endings **-im*, **-um*, **-ins*, **-uns*, which yielded **-i*, **-u*, **-īs*, **-ūs*.

4. Raising before final **s*. The raising affected **-ois*, **-ōis*, and **-oNs*, cf. OCS. 2nd sg. imp. (opt.) *nesi*, inst. pl. *raby*, acc. pl. *raby*, *ženy*, for which I assume an intermediate stage **-uis*, **-ū(i)s*, **-uNs*. It did not affect **-os*, which yielded *-o* in the neuter *s*-stems and has been preserved in the suffix *-ošь*, e. g. Czech *hnědoš* 'bay horse', *dlouhoš* 'tall man'[21]. There is no reason to assume that it affected **-ōs*. The raising was posterior to stage 2 because it affected the acc. pl. ending of the *ā*-stems. It was posterior to stage 3 because the acc. pl. ending of the *jo*-stems did not merge with the ending of the *i*-stems after the Umlaut, cf. OCS. *konjeN* vs. *poNti*.

5. Delabialization of **o*, **ō*. The delabialization and simultaneous lowering affected **o* to a lesser extent than **ō* because the opposition between them was rephonemicized as **o* vs. **a* at stage 14 below. It did not affect **oN* at all. I shall therefore write **a* and **ā*, but **oN*. The dat. sg. ending of the *o*-stems **-ōi* had become **-ōu* or **-ou* at this stage[22].

6. Umlaut. The back vowels **a*, **ā*, **oN*, **u*, **ū*, **uN* had fronted variants **ä*, **ā̈*, **öN*, **ü*, **ṻ*, **üN* after a preceding **j*. At this stage, **e* and **ē* merged with **ä* and **ā̈*, respectively. The archiphonemes can be written /ä, ā̈/. The merger was posterior to stage 5 because it presupposes the delabialization of **o* and **ō*. The nasal vowels **eN* and **öN* remained distinct, cf. OCS. *znajoN* 'I know', with preservation of the rounding. The other rounded front vowels also remained phonetically conditioned variants of the corresponding back vowels, e. g. **jüga* /juga/ 'yoke'.

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[21] Cf. T. Torbiörnsson, ZslPh. 1 (1925) 278.

[22] Cf. H. Pedersen, KZ. 38 (1905) 324, and C. L. Ebeling, Dutch Contributions 1963, p. 31.

7. First palatalization. The velar obstruents had fronted variants before front vowels. When /e, ē/ merged with /a, ā/ after /j/ into the archiphonemes /ä, ǟ/, the sequences /ke, kē, ge, gē, xe, xē/ were rephonemicized as /čä, čǟ, ǯä, ǯǟ, šä, šǟ/. The rephonemicization was posterior to stage 6 because it presupposes the existence of the archiphonemes.

8. Monophthongization of diphthongs: **ai*, **ei*, **ui*, **au*, **eu* changed into **ē*, **ẹ̄*, **ǖ*, **ō*, **jȫ* /jō/. The occurrence of the diphthong **ui* was limited to the position before final **s*, where it had arisen at stage 4. After /j, č, ǯ, š/, the diphthongs **äi*, **üi*, **äu* changed into **ẹ̄*, **ǖ*, **ȫ*, where **ǖ* is the archiphoneme of /ū/ and the marginal phoneme /ǖ/, and **ȫ* is the phonetically conditioned variant of /ō/ after a palatal consonant. The Slavic vowel system now looks as follows:

ī		*ǖ*	*ū*	*iN*			*uN*	*i*	*u*
	ẹ̄		*ō*		*eN*	*oN*		*e*	*a*
	ē	*ā*							

After /j, č, ǯ, š/:

ī		*ǖ*	*iN*		*üN*	*i*	*ü*
	ẹ̄	*ȫ*	*eN*	*öN*		*ä*	
	ǟ						

The monophthongization of diphthongs was posterior to stage 6 because **jai* yielded **jẹ̄*, not **jǟ*, e. g. in the locative endings of the *jo*-stems. It was posterior to stage 7 because **ē* from **ai* did not cause palatalization in spite of the fact that it tended to be more fronted than **ē* from earlier **ē*, as will be clear from the next development.

9. Second palatalization. The velar obstruents became fronted before the new front vowels **ē*, **ǖ* which had arisen from **ai*, **ui*, and after the high front vowels **i*, **ī*, **iN* unless the following syllable contained one of the vowels **u*, **ū*, **uN*[23]. The sequences /ika, iga, ixa/ etc. were rephonemicized as /ićä, iʒ́ä, iśä/ etc., and the long vowel /ǟ/ lost the status of an archiphoneme and came to be the fronted variant of /ā/ after

[23] Here again, I agree with Vaillant, Grammaire comparée 1, 53–55.

a palatal consonant, e. g. **stajātę̄* /stajātę̄/ 'to stand'. We thus arrive at the following vowel system after /j, č, ǯ, š, ć, ź, ś/:

ī		*ū*		*iN*			*üN*	*i*	*ü*
	ę̄		*ō*		*eN*	*öN*			*ä*
		ē	*ā̈*						

It goes without saying that the second palatalization was posterior to the monophthongization of diphthongs.

10. Loss of final **s*. This development 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. The raising at stage 4 above must perhaps be dated after the rise of this **h*[24]. I date the ultimate loss of final **s* or **h* to the end of the Early Middle Slavic period because I think that it was only slightly anterior to the rise of prothetic **j* and **v* at stage 11.

The nom. sg. ending of the present participle, PIE. **-onts*, requires some discussion. The historical reflexes of this ending show that it did not merge with **-ons*. The simplest explanation is that the rise of nasal vowels at stage 3 was inhibited by a following tautosyllabic stop and that the rise of nasal vowels in the latter environment was posterior to the delabialization at stage 5. If this hypothesis is correct, the participial ending was **-ants* at the beginning of the Middle Slavic period. When **t* was lost in this ending, the new nasal vowel **aN* did not merge with **oN*. I date the rise of the new nasal vowel to stage 8 and add **aN*, after palatals **äN*, to the above schemes. When final **s* was eventually lost, the participial ending became **-aN* in the thematic flexion, **-eN* or **-aN* in the athematic flexion, and **-iN* in the *i*-flexion, while the 3rd pl. ending of the thematic aorist was **-oN* and the acc. pl. ending of the *o*- and *ā*-stems became **-uN*. I find no evidence for **aN* in non-final syllables.

11. Prothesis. The hiatus between a word-final and a word-initial vowel was filled with a non-phonemic glide. This glide merged with **j* if either the preceding or the following vowel was a front vowel (or both), and with **v* if the preceding vowel was back and the following vowel was rounded. Consequently,

[24] Cf. the Iranian development of **-ah*, **-āh* to *-o*, *-å*.

initial /j/ lost the status of a phoneme before unrounded vowels. Initial **jä-* and **jā-* were rephonemicized as /e-/ and /ē-/, e. g. **jāxātę* /ēxātę/, earlier /jāxātę/, cf. Lith. *jóti* 'to ride', now with the same Anlaut as /ēstę/, Lith. *ėsti* 'to eat'. I assume that the rare sequence **jē-* was rephonemicized as /ę-/ in **jēskātę* 'to seek', Lith. *ieškóti*, where Arm. *ayc* and OHG. *eiscōn* point to **ai-*. The twofold glide before a rounded vowel gave rise to doublets, e. g. OCS. *utro* and *jutro* 'morning', cf. also *ajce* and *jajce* 'egg'[25]. The rise of **j* between front vowels was anterior to the monophtongization of diphthongs at stage 8 because it affected original **ē-*, which became **jā-*, but not **ai-*, which became **ē-*. The rise of **j* after front vowels before **ē-* from **ai-* must be dated to stage 9, when the opposition between /ē/ and /ā/ after /j/ became phonemically possible. The rise of **j* after back vowels before **e-* was posterior to the merger of **jē-* from **ai-* with **ję-* from **ei-* after front vowels. Thus, I assume that OCS. *iskati* represents the development of **ai-* after a front vowel, while the reflex after a back vowel is found in *jasnъ* 'clear', Lith. *áiškus*. The rise of prothetic **j* and **v* after back vowels was probably posterior to the loss of final **s*, which occasioned the frequent occurrence of hiatus at stage 10.

12. Delabialization of **u, *ū, *uN, *ü, *ṻ, *üN*. This development yielded **y, *ȳ, *yN, *i, *ī, *iN*, e. g. **vȳdrā* 'otter', **lyNka* 'bast', **jiga* /iga/ 'yoke', 2nd sg. imp. **nesī*, acc. pl. **arbyN, *kanjiN*. As a result of the delabialization, the prothetic **v* before **y, *ȳ* received the status of a phoneme. The new **iN* from **üN* did not merge with original **iN*, which had apparently merged with **eN* at this stage, e. g. **xvāleN* 'praising'. We thus arrive at the following vowel system:

ī			*ȳ*			*yN*		*i*		*y*
	ę̄			*ō*	*eN*		*oN*		*e*	*a*
		ē	*ā*			*aN*				

After palatals:

ī					*iN*		*i*	
	ę̄		*ō̤*		*eN*	*öN*		*ä*
		ē	*ā̤*			*äN*		

[25] Cf. A. Meillet, Slavia 1 (1922) 198.

The delabialization was posterior to the rise of prothetic **v* at stage 11 because the latter could hardly develop before unrounded **y*, **ȳ*.

13. Raising of **ę̄* and **ǭ*. The empty hole which the delabialization of the high rounded vowel **ū* had left was filled by raising the remaining rounded vowel **ǭ*. The corresponding front vowel **ę̄* was raised to merge with **ī*. The phonetically complex unrounded nasal back vowel **yN* lost its nasal feature and merged with **ȳ* under the acute intonation and with **y* elsewhere, e. g. **lȳka* 'bast', **syta* 'hundred'[26]. The corresponding nasal front vowel **iN* was lowered to **ęN* while **eN* merged with **ämN*. These developments yield the following vowel system:

ī		*ȳ*		*ū*	*eN*		*oN*	*i*		*y*
	ē		*ā*			*aN*			*e*	*a*

After palatals:

ī			*ṻ*	*ęN*		*öN*	*i*
	ē	*ā̈*			*äN*		*ä*

The raising of **ǭ* was posterior to the delabialization of **ū* at stage 12 because the two did not merge. The loss of **yN* was posterior to its delabialization, which gave rise to its complex articulation. The merger of **eN* with **äN* was apparently posterior to the merger of original **iN* with **eN*.

14. Rise of new timbre distinctions. The redundant timbre distinctions between the short vowels and the acute long vowels became phonemically relevant when the latter lost their phonemic length[27]. For example, earlier /a/ became distinctively rounded /o/ because it was not opposed to a rounded short vowel, while acute /ā/, which was distinctively unrounded in relation to /ū/, took the place of /a/. The rephonemicization gave rise to the following vowel system:

i		*y*		*u*		
e	*ъ*		*ъ̄*	*o*	*eN*	*oN*
	ě			*a*		*aN*

[26] On the phonetic character of the acute intonation at this stage see Slavic Accentuation, p. 29. The denasalization in **ungnis* 'fire', OCS. *ognjь*, must be dated to the Early Slavic period.

[27] On the details of this process see Slavic Accentuation 29–34.

After palatals:

i		*ü*			
e	*ъ*		*ęN*		*öN*
	ě	*ä*		*äN*	

The rise of the new timbre distinctions was posterior to the raising of **ę̄* and **ō* at stage 13 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, *ъ* and *y*, the timbre difference between which cannot be explained if we assume that **yN* was preserved up to a later stage.

15. Loss of /j/. When /j/ was eliminated from the phonemic system, the rounded front vowels **ü* and **öN* received the status of phonemes, while **ä* merged with /ě/, e. g. **stojäti* /stoěti/ 'to stand', cf. **jäsnъ* /ěsnъ/ 'clear'. After the surviving palatal consonants, **ü* and **öN* became the archiphonemes of /u, oN/ and the newly arisen /ü, öN/, and **ä* remained the fronted variant of /a/, e. g. gen. sg. **końā* /końā/. The nasal vowel **eN* merged with **äN*, so that we arrive at the following vowel system:

i	*ü*	*y*	*u*					
e	*ъ*	*ъ*	*o*	*ęN*		*öN*		*oN*
	ě		*a*		*äN*		*aN*	

When **j* was lost in consonant clusters, the following vowel was lengthened, e. g. SCr. *pîšē* 'writes' from **pīsje*, earlier **pę̄sje*[28]. Since the new /ē/ did not merge with /ě/, the loss of /j/ was posterior to the rise of the new timbre distinctions.

16. Later developments. After the end of the Middle Slavic period, new instances of /ē/ and /ō/ arose from the early contractions and from the retraction of the stress from final jers[29]. Different vowel quantities in the same ending were levelled out to a certain extent[30]. In the dialect of the Kiev Leaflets and

[28] Ibidem, p. 30

[29] Ibidem, p. 39 and p. 15.

[30] Ibidem, p. 32. I still subscribe to the explanation put forward ibidem, p. 47, for the replacement of the gen. sg. ending of the *ā*-stems with the acc. pl. ending. Cf. also Vaillant, Grammaire comparée 1, p. 211.

a part of the Macedonian dialects (Psalterium Sinaiticum), *ě and *a merged after palatal consonants. In the other Slavic dialects, postconsonantal *ě was subject to raising under various conditions. Since a detailed account of these developments goes beyond the scope of this article, I shall limit myself to a few remarks.

In Russian, postconsonantal *ě was raised to *ę and became the counterpart of *ǫ from *ō. The loss of the nasal vowels was anterior to the rise of the palatalization correlation in this language. Postvocalic *ě merged with the reflex of *äN. These developments yielded the following vowel system:

i	*ü*	*y*	*u*
ę			*ǫ*
e	*ь*	*ъ*	*o*
	ä	*a*	

The rise of the palatalization correlation and the rise of /j/ reduced this system to the following:

i		*u*
ę		*ǫ*
e	*ə*	*o*
	a	

The unrounded back vowel *y and the rounded front vowel *ü became variants of /i/ and /u/, respectively, at this stage.

In Polish, the rise of the palatalization correlation and of new /j/ was earlier than in the other Slavic dialects. Postconsonantal *ě merged with *a before hard dentals and with *e and denasalized *ęN elsewhere. These developments yielded the following vowel system:

i		*u*		
e	*ə*	*o*	*eN*	*oN*
	a			

At the next stage, *e merged with *o before hard dentals, and elsewhere with the central vowel, which became fronted. The nasal vowel *eN merged with *oN, which lost its distinctive

rounding. The merger of the nasal vowels was earlier before hard dentals than in other positions[31].

In Serbo-Croat, the loss or merger of the jers was so early that it prevented the rise of the palatalization correlation. As a result of the denasalization, *ä*N* and *ę*N* merged with *e*, while *o*N* and *ö*N* became *ǫ* and *jǫ*. Postvocalic *ě* was rephonemicized as /ja/ and postconsonantal *ě* was raised to *ę*. The loss of the distinction between front and back vowels and the elimination of the nasal vowels yielded the following system:

i		*u*
ę		*ǫ*
e	*ə*	*o*
	a	

This system was simplified along divergent lines in the separate dialects[32].

IV.

It follows from the chronological analysis presented here that the system of nasal vowels which was established in accordance with the comparative method in section I above never existed as a synchronous phonemic system because the unrounded back vowel *y*N* was lost at stage 13 while the rounded front vowel *ö*N* received the status of a phoneme at stage 15. The analysis is meant to be an illustration of the way the comparative method can be enriched with the principle of relative chronology.

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[31] Cf. M. van Wijk, Prace Filologiczne 14 (1929) 477–484, and Z. Stieber, A Historical Phonology of the Polish Language (Heidelberg 1973), 36–42.

[32] Cf. especially W. Vermeer, Proto-Slavonic *u in Kajkavian, Zbornik za filologiju i lingvistiku 21 (1978) forthcoming.