Vowel fronting in Old Church Slavonic

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Vowel fronting was a synchronic morphophonological process in Old Church Slavonic (OCS), and it resulted in the production of the "soft" endings, i.e. endings used after palatal consonants, from the corresponding "hard" endings: cf. /lět-o/ 'summer, year' (nom. & acc. sg.) vs. /pol'ě/ 'field' (nom. & acc. sg.). I shall discuss the details of this rule and some related questions, particularly the phonemic status of į and ě.

The basic theoretical framework for my study is provided by two-level morphology, as presented in Koskenniemi (1983). Those who cannot consult this primary source are advised to read my first application of the model to OCS data (Lindstedt 1984). Although vowel fronting was only superficially described in my article, it gave an overview of two-level rules needed in the description of OCS. In the present paper I shall, however, also discuss questions that are beyond the application domain of two-level morphology.

If this paper is approached with no previous knowledge of the two-level model, the lexical level may be thought of as the morphophonemic representation of the word. The surface level is to be equated with the phonemic or, as in the case of OCS, the graphemic representation of the word. I shall enclose the lexical representation between vertical strokes: |...|,
and mark the surface representation with underscoring, except for the two-level rules themselves, in which the distinction is obvious. The relation between the two levels is expressed with a two-headed arrow: \( \text{pol}^{+o} \leftrightarrow \text{pol}'e \) [1].

The vowel fronting rule is an essential part of the computer morphology of OCS I am working on, along the lines presented in Lindstedt (1984). I shall not, however, discuss any details of implementation. Two-level morphology will be employed as a purely linguistic model.

1 FRONTING AND THE OCS PHONOLOGICAL SYSTEM

The simplest case of vowel fronting is the fronting of \( \text{i} \), \( \text{u} \), and \( \text{o} \) after a palatal consonant:

\[
\begin{align*}
\text{y} & \quad \text{b} & \quad \text{o} \quad \leftrightarrow \quad \text{c'}
\end{align*}
\]

where "=" is any segment (i.e., a segment left unspecified by this rule) and \( \text{c'} \) is \( \text{š}, \text{č}, \text{ž}, \text{c}, \text{t}, \text{ť} \) (=\([dž]\)), \( \text{ł}, \text{ń}, \text{ńć} \) or \( \text{ł} \). (The context condition is here given only as the first approximation; it will be elaborated below in section 5, in which the status of \( \text{št} \) and \( \text{žd} \) will also be discussed.) According to this rule, the underlying \( \text{y}, \text{u}, \) and \( \text{o} \) are necessarily realized as \( \text{i}, \) \( \text{b}, \) and \( \text{e} \), respectively, in a position after a palatal consonant at the surface level: \( \text{mož+y} \) \( \leftrightarrow \) \( \text{moži} \) 'man' (ins. pl.), \( \text{koň+u} \) \( \leftrightarrow \) \( \text{koňb} \) 'horse' (nom. & acc. sg., gen. pl.), \( \text{pol}^{+o} \) \( \leftrightarrow \) \( \text{pol}'e \) 'field' (nom. & acc. sg.).

The two-level formulation of rule (1) seems to miss a generalization since, after all, what we have here is a change in the value of one distinctive feature only \((\text{+BACK} \rightarrow \text{-BACK})\) or something similar). But this generalization, although certainly valid, might be unnecessarily abstract for the processes of production and recognition: the set of regular correspondences between whole vowel segments is so
small that there is no need for factoring out distinctive features. Not all generalizations led to by a synchronic structural description are necessary for a process formulation; and their "psychological reality" is an even more difficult question.

As suggested by Trubetzkoy (1954), in Proto-OCS ("Urkirchen-slavisch") there were three more instances of vowel fronting [2]:

\[
\begin{align*}
\text{u} & \quad \varphi & \quad \text{a} & \leftrightarrow \quad \ddot{\text{u}} & \quad \ddot{\varphi} & \quad \ddot{\text{a}} \\
\text{C} & & & & & \quad \text{C}
\end{align*}
\]

E.g. [duš+u] \(\leftrightarrow\) dušū 'soul' (gen.&loc. du.), [glagol`+φ][3] \(\leftrightarrow\) glagol`ē 'I speak', [mož+a] \(\leftrightarrow\) možā 'man' (gen. sg., nom. & acc. du.).

The phonemic status of \(\ddot{\text{u}}\), \(\ddot{\varphi}\), and \(\ddot{\text{a}}\) is controversial. In the Cyrillic alphabet, \(\ddot{\text{u}}\) and \(\ddot{\varphi}\) are written as \(\text{U}\) and \(\text{O}\), respectively; these letters are ligatures (\(\text{ju}, \text{jo}\)), and comparative evidence shows that there indeed was a yod in a position after another vowel or word-initially. But the corresponding Glagolitic letters \(\varphi\) and \(\ddot{\varphi}\) do not contain the "u" or "φ" signs (\(\dddot{\varphi}\) and \(\dddot{\varphi}\)) as their components. The Glagolitic equivalent of \(\ddot{\text{a}}\) in (2) is \(\dddot{\text{a}}\); in Cyrillic there are two different letters, \(\text{A} = \text{ja}\) (used word-initially and after a vowel) and \(\ddot{\text{a}} = \dddot{\text{a}}\) (after a consonant). Trubetzkoy argued that \([j]\) was not phonemic in the dialect on which Constantine-Cyrill based the Glagolitic script; it was only a non-phonemic on-glide of front vowels when they were not preceded by a consonant. Consequently Trubetzkoy had to posit two rounded front vowels. There are at least three strong arguments in favor of this solution (additional arguments for this position are given in Pešikan 1959–1960: 234ff.):

(1) The Glagolitic letters for \(\ddot{\text{u}}\) and \(\ddot{\varphi}\) bear no reseblance to the \(\text{u}\) and \(\varphi\) letters (apart from the fact that both \(\varphi\) and \(\ddot{\varphi}\) contain the nasality component \(\ddot{\varphi}\)), and there is no separate sign for /j/ in the whole alphabet [4]. The lack of a letter
"j" cannot be explained simply by noting that there is no such letter in Greek (as Hamm 1974: 98 does), because Constantine devised a letter for all the other OCS sounds not found in Greek.

(ii) In Glagolitic, the etymological ā after a palatal consonant and the etymological ā were both represented as ā ( résultats); in particular, the etymological ja was written simply ā. If /a/ was fronted in this fashion, it is only consistent to assume that /u/ and /o/ were also fronted in the dialect(s) on which OCS was originally based.

(iii) The manuscripts clearly show that at least ā was originally written instead of u after all the palatal consonants (van Wijk 1931: 87ff.; Diels 1932: 142-143; Trubetzkoy 1954: 62, and 64-65, footnote). This proves that the corresponding letter is not to be interpreted as /ju/; at least in /š ž č/ there was certainly nothing that Constantine could have wanted to identify with /j/.

Rule (2) is thus valid for the reconstructed older stage of OCS. It can be relaxed by marking it as optional ("<=>" 'if and only if' is then replaced with "=>" 'only if'). This would provide for those forms of OCS in which ā was not necessarily fronted (see below), as well as for those manuscripts in which o was regularly written after palatal consonants -- in fact, all the manuscripts of the Canon, except the Euchologium Sinaiaticum and, to some extent, the Psalterium Sinaiaticum (Diels 1932: 142). Trubetzkoy (1954: 65, footnote) explains the use of o for ā with the fact that ā only appears in endings (i.e., a surface ā is always a product of synchronic vowel fronting), which makes it liable to (orthographic?) analogical influence of o endings. This may in fact have been an instance of "spelling spelling" (Anttila 1972: 42-43), that is to say a spelling influencing another spelling without any necessary connection with pronunciation.

According to Hamm (1974: 77), such doublets as uže /
juže 'already' show that was not pronounced as [ǔ], because "sasvim [je] isključeno da bi se ista riječ izgovarala i uže i jùže ..." [5]. He does not explain why it would be impossible -- and whether his argument should be understood in phonetic or phonemic terms. In my opinion, both /uže/ - /juže/ and /uže/ - /ǔže/ are conceivable doublets; and in both phonemizations, the phonetic realizations may have been [uže] and [jùže]. Hamm, actually, misrepresents Trubetzkoy's position by claiming that he interpreted □ as " 'ǔ, jù ".

But now that we have eliminated j from our surface representation, there immediately appears a problem for the context condition of vowel fronting: what triggers fronting in a form like kraľ [krajā] 'edge, end' (gen. sg., nom. & acc. du.)? Trubetzkoy (1954: 118) simply stipulated that stems ending in a vowel require that endings be fronted. But if we added ò (vowel) to the context conditions of (1) and (2) above, we also ought to add a mention of the morpheme boundary "+" [6], as well as to distinguish native words from recent loans, because the phonotactics of OCS does not prevent an a, o, or u from appearing after a vowel inside the stem, or in the ending of a recent loan word. To cite Trubetzkoy's own examples (p. 66): agrikolau 'Agricola' (dat. sg.), farisâom, 'Pharisee' (dat. pl.), plakaax, 'I was crying'.

The elimination of j also means that the anaphoric pronoun i and the relative pronoun lže contain a zero stem -- which nevertheless triggers fronting. Such forms as acc. sg. masc. i, gen. sg. masc. ego , acc. sg. fem. ŗ and acc. du. masc. ā hardly look like members of a regular paradigm. At this point the Glagolitic alphabet seems to obscure a neat structural relation.

Lunt (1952: 320-321) assumes that there was a phonemic /j/ in Constatine's dialect, but that he chose to express it only in contexts where it was distinctive, i.e. before the back vowels /u/ and /ô/. Now, this does not explain why the letter
allegedly standing for /ju/ was also used after all the palatal consonants, and why Constantine would have hit upon the idea for using syllabic signs for /ju/ and /jo/ (Trubetzkoy 1954: 62). Moreover, if /j/ was distinctive in some contexts, it was a full-fledged phoneme and was naturally also heard in those contexts in which it was not distinctive. It is improbable that Constantine would have applied such an abstract principle of economy as Lunt ascribes to him (Pešikan 1961-1962: 237).

Pešikan (1959-1960) seems to be closest to the truth in assuming that /u/ and /ø/ certainly were fronted phonetically, but that the phonemization of [ǔ] and [羰] was Constantine's own solution. (Notice that /a/ was clearly a phoneme since, at any rate, it was in opposition with /a/ after labials and non-palatalized dentals.) Assume that a linguist encounters the following distribution:

[#jǔ] [Vjǔ] [C'ǔ] [Qu]

where "#" = word boundary and Q = any non-palatal consonant. There is no obvious criterion for choosing between these two phonemizations:

(I) /#ju/ /Vju/ /C'u/ /Qu/
(II) /#ǔ/ /Vǔ/ /C'ǔ/ /Qu/

It may therefore be futile to ask if j "really" was a phoneme in Constantine's dialect or not. If two present-day linguists could make field study of the Slavic language in and near Saloniki in the 9th century, it is not certain that they would arrive at the identical phonemization. Pešikan (1959-1960, 1961-1962) assumes that there must have been at least an opposition /#e/ vs. /#je/, but this is impossible to prove precisely because there was no way of showing this distinction in Glagolitic (cf. Durnovo 1929: 60). I think, however, that the frequent substitution of eo for εε in Greek loans, e.g. ἐγένεται < γεέννα (Diels 1932: 118; Durnovo 1929: 59) shows
that \textit{ee} would necessarily have been read [eje], and that [eö]
was considered a better approximation of the original pronun-
ciation. The impossibility of pronouncing \textit{Ve} without an
intervening [j] does of course not exclude the possibility of
[#e], but at least it makes the \textit{opposition} of /#e/ vs. /#je/
less likely.

Even if /j/ was a phoneme, the difference between [u] and [û],
[ø] and [û] may well have been clearly audible even to a
native ear -- let alone a Greek ear. Compare the situation in
Modern Russian: [i] and [y] are distributionally allophones of
/i/, but the native ear certainly can distinguish between
them: there is even one minimal pair, namely the names of the
letters "и" and "у". D'urovič (1982) has shown how a foreigner
clearly perceived allophonic vowel fronting in 17th-century
Russian, long before the advent of scientific phonetics. The
OCS ū and ã may therefore have been what Korhonen (1969:
331ff.) has aptly called \textit{quasiphonemes}: distributionally they
were allophonic, yet they conveyed distinctive information to
the hearer.

Now, perhaps both of our time-traveling linguists would prefer
phonemization (I), because it better shows the tendency to a
uniform syllable structure in Slavic at that time. But it is
understandable why Constantine would have preferred the
equally feasible alternative (II). There was a [j]-sound in
Greek, to be sure, but it was merely a positional allophone of
/i/ used in casual speech (see Nyman 1978: 67-76 and the
literature quoted there). Constantine certainly wanted to
invent letters for all Slavic sounds irrespective of whether
they had a Greek counterpart or not; but perhaps he simply did
not conceive of [j] as a "new" sound. In the combinations
[jö] and [jâ], the vowel was more distinctively "foreign" to a
Greek ear than [j] was. Since a letter for /â/ was needed
anyhow, it was natural to consider [j] before (non-high?)
front vowels as automatic. Constantine could have chosen the
counterpart of the Greek iota for marking this on-glide, but
there were a great number of Biblical proper names in
which ĭV had to be interpreted bisyllabically, e.g. iorbdanv, iūda, ierusalmv, and (medially) isaia < 'Hoaicας (see SJS). Constantine might well have wanted the Slavs to imitate the Greek (prestige) pronunciation in such words.

There is, however, a reason to believe that Constantine did not conceive of ū ( STDCALL) as a mere [ū] ( = IPA [y]). In the educated Greek of that time, v and oū were still pronounced as [û] (Browning 1969: 62). But the equivalent of the Greek upsilon ( STDCALL) was only used in the digraph A Oversight > A Oversight for the sound /u/, just as the Greek /u/ was written oū; it was also used in recent Greek loans to render ū or oū. The Slavic [ū] was written õ. As Trubetzkoy (1954: 25) points out, two ū letters were needed in order to distinguish ū and oū, such as tu 'there' vs. toū 'these two' (gen. & loc. du.). In this position ū was certainly pronounced [jū]. To Constantine ū was a vowel letter, but one that differed from the Greek upsilon in having an on-glide in certain positions. It was natural to also use the same vowel sign after palatal consonants, even though no [j] was audible in that position. In Slavic words, [ū] could not appear after non-palatal consonants, whereas the equivalent for the Greek upsilon was needed just in that context (e.g. Α Oversight /A Oversight A Oversight A Oversight A Oversight /A Oversight Α Oversight /A Oversight A Oversight A Oversight A Oversight /A Oversight 'Egypt'). The distinction between ũ and õ was not strictly phonemic, but after a consonant õ marked a phonotactically deviant word, just as Ν Oversight = q marked a loan in which the distributional regularities of the velars were violated. Van Wijk (1931: 126) points out that ũ was often used for õ in Greek loans; so the original distinction between their functions was blurred owing to their identical pronunciation.

I propose the following descriptive solution. In our surface representation, we respect Constantine's phonization and write ū, ī and, naturally, ā. But at the lexical level we have a yod, which is always realized as zero:

(3)   ĭv (⇒) --
The lexical-level \( i\) should be thought of as a relatively concrete morphophoneme which triggers fronting after such roots as \( krai \) and \( j+ \). It also triggers a tensing rule whereby \( \beta \) and \( i\) both surface as \( i \), as in \( krai \) \( \rightarrow \) \textit{krai} 'edge, end' (nom. & acc. sg., gen. pl.), \( j\beta m+\phi \) \( \rightarrow \) \textit{imp} 'I take (perfective)' [7]. Because \( \beta \) is tensed and not only fronted, this lexical-level \( i\) does not quite equal the other palatal consonants as a context condition. Moreover, the proposed optionality of fronting in rule (2) cannot be valid for \( i\), unless we want to provide even for the (dialectal?) type \( tista\alpha \) (\textit{tista} 'pure' (def. nom. sg. fem. etc.) (cf. e.g. Leskien 1962: 43). And finally, since \( i\) does not appear on the surface, the context condition of both (1) and (2) has to be modified as follows (ignoring the minor rule for \( \beta \)):

\[
(4) \quad \ldots \quad \leftrightarrow \begin{bmatrix} C' & = \end{bmatrix} \begin{bmatrix} = & C' \end{bmatrix} \quad --
\]

So, the palatal consonant appears on the lexical level and/or on the surface level. In section 5 we shall see that it would not be sufficient to mention the lexical level only.

As a matter of fact, \( i\) is not the sole palatal consonant that triggers fronting from the lexical level. The consonants \( l^\prime\), \( n\), and \( f\) have to be allowed optionally to surface as mere \( l\), \( n\), \( r\), because the palatalization sign (\( ^t \)) is only used regularly in the C. Zographensis and C. Suprasliensis (Diels 1932: 49-51), and may not have been part of the original writing system of OCS.

2 BACKING

As we have seen, in Proto-OCS \( /a/ \) and \( /\ddot{a}/ \) after a palatal consonant had merged into \( /\ddot{a}/ \) [8]; synchronically, there had to be a fronting rule \( /a/ \rightarrow \ddot{a} \). But the majority of the OCS manuscripts reflect another system, which is also the customary basis of normalization in OCS Handbücher and
grammars: /a/ and /ações merge into /a/, and there is no fronting of /u/ and /o/. There is, however, a backing rule:

(5) \[ a \leftrightarrow \begin{cases} C' & | \quad | \quad | \\ = & | \quad | \\ c & \end{cases} \]

E.g. |drше+ti| \(\leftrightarrow\) дреще 'to hold' (stem alternation pattern as in видите 'to see'); |добл'+аем| \(\leftrightarrow\) добр'аем 'braver' (cf. старе 'older').

In this type of dialect, we have the oppositions /a/ vs. /ja/, /u/ vs. /ju/, /o/ vs. /jo/ word-initially, as well as /a/ vs. /ja/ and /u/ vs. /ju/ after a vowel. It is not necessary to assume, as Trubetzkoy (1954: 41) does, that the need for a a sign arose in a dialect in which the reflexes of *pj, *bi, *mi, *vi were not pl', bl' etc. but simply pj, bj etc. (Modern Bulgarian /p', b', m', v'/). The lack of fronting of /a, o, u/ after palatal consonants sufficed to establish the oppositions /a/ vs. /ja/, /o/ vs. /jo/, and /u/ vs. /ju/.

Trubetzkoy assumes that the Cyrillic letters ã and ã did not belong to the original Cyrillic alphabet. It is, however, possible that the "I" ligatures were much older than was their consistent use in codices which were, after all, copied from Glagolitic: as there were no counterparts for ã and ã in the Glagolitic originals, copyists did not introduce them consistently into manuscripts. It is interesting that we find ã, ã, and ã in the Cyrillic Mostič Inscription, written only about a century after the activity of Constantine and Methodius, being older than the oldest preserved Glagolitic manuscripts. In its text (as reproduced in Stojanov & Janakiev 1976, Appendix) we find the words ЧРЫГУБЪИЛЯ (a title), [ОЈСІ]МЊИБ 'eight' (ins.), ЄМЊИЋ 'possessions', and ЄВОЊ 'his own' (fem. acc. sg.). But in the later Tsar Samuil Inscription (from 993; see ibid.) there are no examples of iotacized vowels; we find ПОЉАГАЊ 'I erect' for ПОЉАГАЊ. The letter ã which begins the 9th line is usually explained to be ending of the word [РИПСИМИ]ї (the name of Samuil's mother,
known from other sources — see Conev 1984/1940: 152). This would thus be an instance of ď for ďA. It is conceivable that the inscription was indirectly influenced by the Glagolitic orthographic tradition to a greater extent than was the Mostič Inscription.

3 THE TWO TYPES OF PHONOLOGICAL FRONTING

The correspondences \(|y| \rightarrow ĭ\), \(|u| \rightarrow ě\), \(|o| \rightarrow ě\), \(|u| \rightarrow ě\), \(|o| \rightarrow ě\), \(|a| \rightarrow ě\) are all instances of phonological, i.e. phonotactically motivated, vowel fronting (PVF). But there is a difference between the first three (PVF-1) and the last three (PVF-2) correspondences. PVF-1 reflects Common Slavic phonological changes, whereas PVF-2 was only confined to certain Slavic dialects and, in some of these, only to certain contexts: in several OCS manuscripts ě is written after \(l', ŭ, ť\), although ě is the normal vowel after \&\&, ř, č (van Wijk 1931: 128; Diels 1932: 143). By chance, the principal areas of PVF-2 included a significant part of those Slavic lands where Glagolitic OCS was first used. This is seen in some parallel developments in Czech and in Bulgarian dialects (cf. Shevelov 1964: 602).

In Czech, ě becomes ī after a palatal consonant: klůč > klůč 'key', juh > jih 'south'. This happened as late as in the 13th or 14th century (op. cit., ibid.), but a transitional [klůč] may well have existed long before the change became phonemic. In the mid-twelfth century, ě preceded by a palatalized consonant changed into ẹ̌, if it was not followed by a non-palatalized consonant (whence the difference deset < deṣeṭ 'ten' vs. desátý 'tenth').

According to BDA, the form kľič (for the standard kľič) is found in many villages of East Bulgaria. The dialectal change C'ũ > ĉi may also explain the Bulgarian and Macedonian word пие 'sweetheart'; this is at least as plausible a hypothesis as Shevelov's (1964: 278) assumption that the
earlier change *u > *i after palatals (reflected in our l y l
<-> i ) dialectally overlapped with the later change *eu > *ju, producing *i from *eu. But the treatment of C' a in
Bulgarian is the most revealing. In the greater part of East
Bulgaria, the plurals of шапка 'hat', жаба 'frog', and чанта
'bag' are шепки, жеби, ченти. This means that a after a
palatal consonant is treated like ě, cf. мяра (ΜἴΡΑ)
'measure', pl. мери. The Bulgarian standard language has мяра
: мерi but жаба : жаби. This is, however, a compromise between
the eastern and western reflexes, the latter being мерi : мерi
and жаба : жаби. in the standard language, a does not
alternate unless it corresponds to a western e.

The eastern type has clearly arisen from žaba : žabj, māra :
māri through the split of /ā/; as a matter of fact, in some
eastern dialects these forms, with an [ ā ]-like vowel, are
still used. Since there are remnants of the жеби type in the
southwest, too (Nikolova 1983: 226), it is plausible that
Proto-OCS was based on a dialect in which /a/ was fronted
after all the palatal consonants. In Middle Bulgarian manu-
scripts, ŭ is still often written instead of an expected Ą or
ח in this context (Mirc ev 1978: 132-133).

PVF-2 arose as a natural completion of PVF-1. Of the six back
vowels, y, ṭ, and o could not appear after a palatal con-
sonant, whereas u, o, and a were permitted. This division was
quite arbitrary, a historical accident that was not based on
natural classes. Therefore u, o and a were fronted in certain
Slavic dialects; this diachronic process produced the
synchronic rule of PVF-2. But the quasiphone mes ŭ and ṭ never
established themselves as real phonemes -- they would have
been the only vowels that could be used only after palatals,
and there were no instances of ṭ inside roots. The
change a > ŭ was more resistant, as the Eastern Bulgarian жаба
: жеби shows; it did not produce a new vowel phoneme. But it
is probable that morphological leveling did cancel the rule
ла! <-> ṭ in Bulgaro-Macedonian. In the 12th-century
Evangelium Dobromiri, ṭ, ṭ, ṭ regularly appear inside

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roots, but in inflectional endings we find $\mathcal{W}+\Delta$, $\mathcal{X}+\Delta$, $\mathcal{Y}+\Delta$ (Koneski 1978). In this type of dialect, $|\text{a}| \leftrightarrow \ddag$ was no longer a synchronic rule, and there appeared an opposition of /a/ and /â/ after palatal consonants. It is interesting that in Common Slavic, the combination $C'$ had arisen in a similar fashion. Originally, $\phi$ had $\varphi$ as its "soft" counterpart, but morphological leveling introduced $\phi$ into this position and created the opposition of /C'$\varphi$/ vs. /C'$\phi$/ (Shevelov 1964: 328-329). Then PVF-2 tried to front /$\phi$/ again, but preserving its labial character.

This historical digression explained why there were two types of phonologically conditioned fronting rules in OCS. The notions of phonological system and distinctive feature were used all the way long, albeit rather implicitly. This led us far beyond two-level morphology, which does not operate with such notions. But if the two-level model is conceived of as a model of speech processing, it is understandable that it does not tell us how speakers perceive their phonological system as a whole. The processes of encoding and decoding do not require that speakers reflect upon their language system. The origins of synchronic processes are often in diachronic processes, but the converse does not directly obtain: people who are changing their language -- as we all are -- must be somehow guided by the overall system, not only by what they are saying or comprehending in each individual speech situation. They make new "off-line" generalizations, and when these influence the "on-line" rules, language changes.

4 MORPHOLOGICAL FRONTING

Phonologically conditioned vowel fronting can be contrasted with what I shall call morphological vowel fronting (MVF). It is observed in forms where the surface vowels â and v have i and e, respectively, as their "soft" counterparts after palatal consonants: compare the locative singulars gradâ 'city' and moži 'man', and the accusative plurals grady
and *možę. To account for this phenomenon, we need two morphophonemes |Ā| and |Y| which do not appear in roots, and are distinct from |ā| and |y| as regards vowel fronting (cf. ins. pl. *grady, *moži, with an underlying |y|). |Ā| is, of course, the historical linguist's "ě-2". It is not subject to the backing rule (5), and it palatalizes a preceding velar differently from |ā|: cf. *tek+āxā|  "tečāaxā / tečaaxā, 'I was running', but Člověk+Ā|  "člověcā 'man, human being' (loc. sg.). (Notice that in člověcā, the ending |+Ā| is not fronted though it stands after c on the surface; see section 5 below for an explanation.) The correspondence |Ā|  "i is phonetically an instance of "rising" rather than "fronting", to be sure, but the latter name can be justified in the framework of the whole of OCS morphophonology.

The palatalization of velars being a synchronic process (cf. Lindstedt 1984: 175-176), the morphophoneme |Ā| would be needed in any case; but for |Y| there is no such independent justification. |Y|  "e is nevertheless a necessary rule, and dispensing with |Y| would be impossible. This is seen by comparing the surface relation y / *e with the relation e / ŭ found in masculine vocatives: rabe 'slave!', but možū 'man!'. Phonotactics would allow e to appear after palatals, too, whereas y would be impossible -- it is only the choice of its front counterpart that is not structurally motivated. And what is more, the relationship e / ŭ is confined to this single nominal ending, whereas y / *e is found at several places in OCS grammar.

The ā / i relation is not necessarily phonotactically motivated, since in the original OCS ā was allowed after palatals. But it, too, is found both in declension and conjugation, in even more instances than y / *e is. The correspondences |Y|  "e and |Ā|  "i have a sufficiently large number of traits in common to be subsumed under one type, MVF. Both double inflectional endings in the same way as PVF does, although in phonotactically arbitrary fashion. This arbitrariness, i.e. lack of structural motivation, is even
clearer in the West and East Slavic languages, in which |v| after palatals is realized as ā (cf. Shevelov 1964: 334-335). The resulting surface relations v / ā and ā / i are perfect converses, if the distributional limitations of v are taken into account. But, as noted above, phonotactics does lend support to the correspondence |Y| <- Y (West and East ā) in that the default realization |Y| <- Y is blocked after a palatal. The same applies to |A| <- i in the majority of Slavic dialects, which do not permit ā in that position.

5 CONTEXT CONDITIONS

As suggested in (4) and (5) above, PVF-1 and PVF-2, as well as the alternative backing of |ā|, share the following context condition:

(6) ... => \[ \begin{bmatrix} C' \\ = \\ C' \end{bmatrix} \]

The fronting is triggered by a lexical-level C' at least if it is |j| (which is always realized as zero) or |l', n, t| (which are optionally realized as l, n, t, at least orthographically).

The rule could be considered to be governed merely by the lexical level if all surface palatals were derived from lexical-level palatals. In several surface positions palatals are products of palatalization rules (Lindstedt 1984: 175-176), but those rules do not interact with PVF since it is front vowels that trigger palatalization. The backing rule (5) does, however, interact with palatalization. In the imperfects |tek+āx| <- tēćāx, 'I was running', |mog+āx| <- moźăax, 'I could', |ā| first makes |k, g| surface as Ć, Ž, and then these surface palatals cause the backing |ā| <- a. Consequently, surface triggering has to be taken into account in backing. For fronting, the critical case is provided by the supines of this same verb type: |tek+ē| <- tēšt, |mog+t| <- mošt. The palatal combination āt is
here produced by a rule (Lindstedt 1984: 176), and it changes ľ into ľ. (Below I shall discuss the status of /st, zd/ as context conditions.)

Since PVF-1 and PVF-2 are phonotactically motivated, it is only natural that they should be surface governed. Triggering from the lexical level is rather an exception, caused by peculiarities of the writing system.

For MVF, only lexical context comes into question:

\[
\begin{align*}
A & \quad Y \quad \Rightarrow \quad C' \\
\iota & \quad \epsilon
\end{align*}
\]

This is seen from the fact that lexical-level [c, z] trigger fronting, whereas if surface ç, ç derive from underlying [k, g], there is no fronting: compare the locative singulars ožići 'father' vs. toči 'flow', and kônezi 'prince' vs. boža 'God'. (There are exceptions in the pronominal declension, to be discussed in section 6.) The locative sg. of grâšniki, 'sinner' is grâšnică, but the locative of the corresponding feminine grâšnica is grâšnici (Lunt 1974: 152).

The opposition grâšnica vs. grâšnică also shows that the /a/ vs. /ă/ distinction was not neutralized after /c/ and /z/, as it was after other palatal consonants. It can now be asked whether the phonological fronting ľa/ - ľă was ever applied in this context, where it would not have had any phonotactic motivation.

According to Vaillant (1950: 189), the genitive sg. of lice 'face' was lică in the whole of Slavic, and the latter lica was a product of analogical leveling. But this hypothesis is based on the assumption that the fronting of a was a Common Slavic diachronic process, whereas we saw in section 1 that it probably took place in certain dialects only. Vaillant (ibid.) reconstructs *česę 'cup' for Common Slavic, but čaša seems more probable (Shevelov 1964: 257ff.),
a form like ČAŠA being only typical of Glagolitic OCS with PVF-2. (Notice that no morphological leveling could have later changed ě into ā inside the root.) It is of course possible that licā was the original form in OCS, but Trubetzkoy (1954: 65, footnote) seems to be right in ascribing such forms to Moravian OCS only. In the Kiev Folia, cā is consistently used for the expected ca (with one exception), whereas in the other manuscripts — according to Trubetzkoy's calculations — cā, zā for ca, za is only found 11 times in the Psalterium Sinaiticum and once in the (Cyrillic) Hilendar Fragments. The genitive licē is attested in Old Czech (Vaillant 1950: 159). An OCS form like licā is only a Moravism, and the context condition of PVF-2 must be changed as far as |a| is concerned:

\[(8) \quad \begin{array}{c}
a \\ ā
\end{array} \quad \begin{array}{c}
\begin{array}{c}
C''
\
\quad \begin{array}{c}
= \\
= \\
\end{array}
\end{array}
\end{array} --
\]

where C'' contains all the palatal consonants except /c/ and /z/.

In dialects without PVF-2 and with a backing rule, backing must be limited in the same fashion:

\[(9) \quad \begin{array}{c}
ā \\ a
\end{array} \quad \begin{array}{c}
\begin{array}{c}
C''
\
\quad \begin{array}{c}
= \\
= \\
\end{array}
\end{array}
\end{array} --
\]

Inside roots, the exclusion of /c/ and /z/ is fairly obvious, as shown by the common words CALB 'whole; healthy' and ZALO 'very', which are never written with -ā- in OCS [9]. It could of course be possible that a lexical-level |c| or |z| triggered backing of |ā| in endings, as it triggers the fronting of |A| (as in the loc. sg. LOTČ+A| -> OTČI 'father'). But the question is purely theoretical: there simply are no forms in which a stem terminating in |c| or |z| would take an ending with |+ā|.

No nominal or pronominal case ending begins with |ā|. The comparative formative is |āi|, but the sole adjective stem in
|c| is |nic-| 'prostrate', which naturally does not form a comparative. Some later manuscripts outside the Canon contain the adjective |gobъz-| 'fruitful, abundant', but no comparative is attested (SJS, s.v.). Lunt (1974: 102) reconstructs a verb from the same root [10]: *gobъzăti. It is indeed more likely that the infinitive looked like this than that it was **gobъzati; but the sole attested form is the present participle gobъzăştìa 'fruitful' (def. fem. nom. sg.). This hapax legomenon is found in the Psalterium Sinaiicum as a "glossa scribae in margine ... ad ПЛОДОВИТА", according to SJS, which assumes the lemma *gobъziti. This lemma and *gobъzati would have the same present participle, so it is by no means certain that the infinitive contained an ā (or a, for that matter). Notice that the aorist ugorbъzi se 'brought forth a rich harvest' (Lunt 1974: 132) presupposes the infinitive *ugorбziti se [11]. All in all, the question of synchronic backing of |ā| after |c, z| may never have presented itself in OCS.

In certain Middle Bulgarian manuscripts we do find traces of the developments cā > ca, zā > za, and the same change is observed in some South Bulgarian and Macedonian dialects, e.g. цаувам < ЦЪЛВА 'I kiss' (Mladenov 1979/1929: 99ff.; van Wijk 1931: 132; Mirchev 1978: 210). Mladenov, van Wijk, and Mirchev unanimously explain this dialectal change as the result of "hardening" or "depalatalization" of c and z. The explanation is highly dubious, though, because there is no reason why "hard" /c/ and /z/ could not have supported the opposition /a/ vs. /ā/ equally well (or even better) as their "soft" predecessors did -- and, at any rate, the "hardening" would not have been a phonemic change at all (cf. also Saur 1983: 259-262). It should rather be thought that /ā/ was backed after /c, z/ precisely because they still were morphophonologically conceived of as palatal consonants; they simply followed the older model of /ś, ž, č/. As to their phonetic realizations, /c/ and /z/ may have been "hard" or "soft"; the change /ā/ > /a/ after them does not tell us anything about it [12].
Finally I must say something about the groups št and žd, which function as palatals, triggering both phonological and morphological fronting. Trubetzkoy (1936), developing Durnovo's (1929: 52ff.) ideas, assumed that these combinations were monophonemic in "Urkirchenslavisch", but the evidence is scanty. They certainly were monophonemic if we go far enough into the prehistory of OCS, but attested OCS must be described as a system in which /št, žd/ were biphonemic combinations counting as palatals -- although /t, d/ were non-palatals. Of course we could consider št and žd as digraphs for writing certain palatal sounds, just as /č/ could have been written *čš (but it wasn't, which is relevant for this question, too). There are, however, problems with the digraph interpretation. There would be no biphonemic /št, žd/, although /št, žd/ were entirely normal combinations. The morphophonologilal correspondences |sk| ←→ št, lžg| ←→ žd before certain endings are exactly parallel to |sk| ←→ št, lžg| ←→ žd before some others (cf. Lunt 1974: 38).

Brozović (1970: 28-29) assumes that in the combinations /št, žd/, the phonems /t/ and /d/ were realized as palatal allophones [t', d'], and aptly compares them to [j]: they have an independent syntagmatic and morphophonological status, but paradigmatically (i.e., distributionally) they are but allophones of /t, d/. We could therefore posit morphophonemes |t', d'|, especially because /t, d/ are the only dentals which do not have palatal counterparts (cf. section 6 on the status of /š/ and /ž/). But this solution would not account for the supine |tek+t| ←→ tešť, 'run', in which the palatal character of /t/ is only seen in the surface representation (cf. the supine nestř, 'carry'). At present there are no better alternatives than simply listing |št, žd| and št, žd as bisegmental combinations in the context conditions of the fronting and backing rules; there is no way of directly referring to [t', d'].

83
FRONTING IN PRONOUNS

The pronominal stems vbš- 'all' and sic- 'of this kind, such' generally require that endings be fronted, as in the gen.
singualrs vbšego, sicego (cf. togo, gen sg. of te 'that').
They do not, however, trigger the morphological fronting |A|
(\textarrow{\textntilde} i, as shown by the loc. and gen. plurals vbš\textup{\textntilde}x\textbar, sic\textup{\textntilde}x\textbar (just as in t\textbar\textntildex\textbar, but differently from |moj+\textbar A\textbar| (\textarrow{\textntilde} moix\textbar 'my'). The fronting |Y| (\textarrow{\textntilde} e is regular in nom. pl.
fem., acc. pl. masc. & fem. vb\textsuperscript{s}ge, sic\textsuperscript{e}. There are thus two
problems: (i) why is |A| not fronted, and (ii) what triggers
fronting in vbš-, given that /s/ is not a palatal consonant?

In the declension of nouns |A| is fronted after |c|, but the
process is not phonotactically motivated, as is shown by the
fact that it is not triggered by a surface c (see section 5
above). In this context the fronting of |A| has only arisen as
a result of morphophonological leveling (Shevelov 1964:
348-349). Sic\textup{\textntilde}x\textbar preserves the older state of affairs. The
context condition of |A| (\textarrow{\textntilde} i can be rewritten as follows:

\begin{equation}
|A| \leftrightarrow \left\{ C' + \left| C'' \right| \right\} \quad \text{(10)}
\end{equation}

Here "+" is the normal morpheme boundary; pronominal endings
are supposed to begin with a different boundary symbol "/".
Recall that set C' contains /c/ and /z/, but set C'' does not.

In order to explain why vbšk is declined like sic\textsuperscript{e} we can
posit an underlying |š|, which is always realized as s, and
belongs to the complement of C'' in C', just as |c| and |z| do.
But in another respect |š| does not behave like |c| and |z|:
although it does not trigger the fronting of |A|, it does
cause |a| to be fronted. The Glagolitic form for nom. sg.
fem., nom. & acc. pl. neuter is vbš\textbar å/ also appears,
instead of the expected /a/, in the derivatives vbš\textbar x
'every', vbš\textbar ko 'wholly', vbš\textbar amo 'to all places' etc. In
grammars and dictionaries these forms are often "normalized" as \textit{vəšja}, \textit{vəšjakъ} -- so in SJS, whose own material nevertheless shows that the oldest forms were \textit{vəšā} etc. and, in the dialects where \textit{lə} was not fronted, \textit{vəša}. Modern Bulgarian \textit{vseki} 'every' (masc.; Macedonian \textit{sekoj}), \textit{vsjaka} (fem.) likewise points to an original *\textit{vəšā}.

Thus, \textit{lə} behaves partly like \textit{c, z}, partly like the other palatalized dentals \textit{l'ă, ĭ, ţ}. It belongs to the former group by virtue of not triggering the morphological fronting of \textit{lə} over a pronominal morpheme boundary \cite{13}; and it is a member of the latter group in that \textit{lə} must be fronted after it.

The behavior of the pronoun \textit{vəšb} strongly suggests that there was a surface phoneme /ʃ/ in OCS, even though it is not reflected in the orthography. It should be borne in mind that \textit{l'ă, ĭ, ţ} were not consistently marked, either. There would then have been a minimal pair /vəšb/ 'all' vs. /vəšb/ 'village', both written \textit{vəšb}. (The possible suprasegmental distinctions do not show in writing.) The /ʃ/ of /vəšb/ is a product of the third palatalization (\langle *\textit{vəx}, see ESSJ, s.v.) and must therefore sometimes have been palatal; the problem is only whether it still was so when OCS was being shaped.

Shevelov (1964: 489) argues that there was no /ʃ/ in OCS any longer, because it was /ʒ/ that substituted for /s/ in words like \textit{razmyšlęnie} 'meditation; hesitation' (from \textit{myslići} 'to think'). But the alternation /s/ : /ʒ/ was of course historically older than the third palatalization was, and synchronically it remained a productive process. The phoneme /ʃ/ may have taken part in other synchronic alternations, but the defective orthography does not tell us whether the correspondence /x/ \langle \textit{sx} reflecting the second palatalization, was actually /x/ \langle /ʃ/. Both the second and the third palatalization change *\textit{x} into s in East and South Slavic, but into \textit{s} in the West Slavic. This suggests that these palatalization produced the same result in Common Slavic (diachronically they overlapped, cf. Shevelov 1964: 351ff.), and *\textit{s} would be a natural reconstruction for the intermediary
stage. Phonetically, \([x] \succ [ç] \succ [ɡ] \succ [ɡ] = [s]\) is a plausible development.

The crucial form for establishing the status of \([s]\) in OCS is the acc. sg. fem. of \(vbs̩\) 'all', which is attested both as \(vbs̩̣\) and \(vbs̩\). Trubetzkoy (1954: 127) assumes that \(vbs̩\) was the original form, because \(z\) could not have appeared after \(s\); but this obviously begs the question about /š/. According to the calculations presented in SJS (s.v. \(vbs̩\)), the codices of the Canon (in which I do not include the Ostromir Gospel) contain 71 occurrences of \(vbs̩\) against 19 occurrences of \(vbs̩̣\). Since \(z\) was, at any rate, rarely written after palatal consonants (see section 1 above), the 19 instances of \(vbs̩̣\) are more than sufficient for positing a phonemic /š/ in this root.

Another argument in favor of the existence of /š/ is provided by the fact that in most forms of OCS, we find /ž/ instead of /s/ (=[dž]; cf. Diels 1932: 47, 128-129, 139; Vaillant 1964: 89). Although the orthography only writes \(z\), the palatality of this consonant is clearly seen from the fronting it triggers, e.g. \(pâneg\) (for \(pâneg\)) 'coins' (acc. pl.; see Vaillant 1964: 89). It is natural to assume that the opposition /ž/ vs. /š/ could not have existed had there not also been an opposition of /s/ and /š/.

The spelling \(zūpel\) 'sulfur' (Diels 1932: 129) could be interpreted as a piece of evidence for /ž/ even before the change /s/ \(\succ /š/\), since it occurs in the Psalterium Sinaicum, which has otherwise retained the use of /s/ (Leskien 1962: 57). Unfortunately, this spelling is attested only once; the normal form is \(zūpel\) or \(zūple\). The word is a borrowing from Germanic (cf. Old High German \(swēbal\), \(swēfal\) and similar forms), but no phonetically satisfactory etymon has been found yet (cf. Kiparsky 1934: 124; Vasmer s.v.; Shevelov 1964: 592). As suggested by Diels (ibid.), the word might have been borrowed twice, in two different forms. It is possible that one of these forms made use of /ž/ in the
initial position; but of course zūpelh may simply be a scribal error, and not much importance can be attached to it.

Positing /ʃ/ explains why the nom. pl. fem., acc. pl. masc & fem. of the pronoun vəše is vəse. It there were only an /s/ on the surface, **vəsy would be equally possible as vəsāx is; but after /ʃ/ there cannot be /y/. Historically, *vəxy was replaced by vəse just as *vəxogo was replaced by vəsego. But whereas vəsego was a simple "correction" of the phonotactically impossible **/vəsogo/, vəse could not have arisen without the model of the existing y : e alternation (Shevelov 1964: 139). A simple phonotactic correction would have yielded **vəsi. This shows the synchronic reality of morphological fronting [14].

It might now seem natural to posit /ʃ/ also for the pronoun səh 'this', which likewise makes use of the "soft" endings. But it does so even as regards the /A/ endings (sixt). Part of its forms are formed from the longer stem /sij-1 -- either optionally, as in the nom. & acc. sg. neuter se / sie, or as the only possibility, as in the nom. pl. fem., acc. pl. masc. & fem. sie. As noted by Ferrell (1963: 87-88), the longer stem is obligatory in just those forms which would most clearly reveal the nature of s in this root. This holds true especially for the acc. sg. fem. siõ (never **sp or **sõ). Since there is no etymological basis for positing /ʃ/ in this root, Ferrell may be right in assuming that the shorter forms have originated as allegro forms, e.g. *sij+ogo > sijego > sjiego > sego.

Vaillant (1950: 189) argues for /ʃ/ in this root because of the fact that 'hither' is sāmo, even though the normal adverbial suffix for direction is -amo, as in kamo, tamo, ovamo etc. But it is just the consistent use of this form which shows that it is not synchronically derivable. It is used even in dialects which do not front /a/, and it is written CHMO in Cyrillic (and not CHAMO, which is a much later form). Sāmo arose as an allegro form of *si(j)āmo and, once
lexicalized, was taken over by dialects in which there was no phonotactic motivation for the ā. Notice that after /s/, both /a/ and /ā/ were permitted vowels.

Saur (1983: 262ff.) contends that the later Bulgarian form samo 'hither' shows the development ā > a after a palatal consonant; he assumes the series *šāmo > šamo > samo. But the early šamo stage is only based on a single instance of the spelling čšamo in a certain inscription, and the analogical influence of tamo etc. is so obvious that it is utterly unconvincing to posit /š/ in šamo. Moreover, as I argued in section 3 above, there was no change /C'ā/ > /C'a/, only the change /C'a/ > /C'ā/ in certain dialects which happened to form the basis of early OCS. The much later East Bulgarian change /Cā/ > /C'a/ in certain contexts contributed to the rise of new palatalized phonemes and was not conditioned by any palatality in the consonant.

Lunt's (1974: 188-194) description makes exceptions the rule and vice versa -- in a truly generative spirit, somebody might say. For šk he posits an underlying /š/; actually /š/ is the sole palatal consonant besides /j/ that is allowed to appear in his lexical representations (p. 195)! To account for the loc. and gen. plurals vbs̡ax̡, sic̡ax̡ vs. sīx̡, the stems vbs̡- and sic̡- (with the underlying forms /wbs̡-/ and /sik̡-/) must be marked as exceptions. Such solutions were perhaps fashionable in the heyday of generative phonology, when it was possible to derive novoje (= novo) 'new' (ins. sg. fem. def.) from the underlying /naw+ajam#j+ajam/ (op. cit., p. 208). But research into language history cannot profit from a synchronic description which merely recapitulates diachrony.
7 CONCLUSIONS

The fronting rules have now acquired the following form:

Phonological vowel fronting, I:

\[
\begin{align*}
y \; \vdot \; 0 & \quad \Rightarrow \quad \begin{array}{c|c|c|c|c}
C' & = & = & = & = \\
i \; b \; e & \end{array} \quad \text{---} \\
\end{align*}
\]

(C' = š, ž, č, c, z, l', n', t, š, j)

Exception: after |j|, |w| is tensed into i.

Phonological vowel fronting, II:

\[
\begin{align*}
u \; o & \quad \Rightarrow \quad \begin{array}{c|c|c|c|c}
C' & = & = & = & = \\
u \; o & \end{array} \quad -- \\
\end{align*}
\]

\[
\begin{align*}
a & \quad \Rightarrow \quad \begin{array}{c|c|c|c|c}
C'' & = & = & = & = \\
Ra & \end{array} \quad -- \\
\end{align*}
\]

(C'' = š, ž, č, l', n', t, j)

Backing (an alternative to phonological fronting II):

\[
\begin{align*}
\ddot{a} & \quad \Rightarrow \quad \begin{array}{c|c|c|c|c}
C'' & = & = & = & = \\
\end{array} \quad -- \\
a & \quad \Rightarrow \quad \begin{array}{c|c|c|c|c}
C'' & = & = & = & = \\
\end{array} \quad -- \\
\end{align*}
\]

Morphological vowel fronting:

\[
\begin{align*}
\ddot{a} & \quad \Rightarrow \quad \begin{array}{c|c|c|c|c}
C' & C''/ & = & = & = \\
i & \end{array} \quad -- \\
\end{align*}
\]

("/" = pronominal morpheme boundary;
"+/" = other morpheme boundary)

\[
\begin{align*}
\ddot{a} & \quad \Rightarrow \quad \begin{array}{c|c|c|c|c}
C' & = & = & = & = \\
\end{array} \quad -- \\
\end{align*}
\]

As regards the phonemic status of [j] and [š], the following
conclusions can be made:

(i) There was a segment (morphophoneme) \( lj \) at the lexical level, but the original orthography did not acknowledge a phoneme \( /j/ \). Such a phoneme can, however, be posited, provided that the vowel parts of \( ã (\mathfrak{U}) \) and \( ã (\mathfrak{U}c) \) are treated as mere quasiphonemes.

(ii) There was a phoneme \( /s/ \) at least in \( vbsb \) 'all', even though the orthography did not directly mark it, and probably also in other word forms in which \( s \) originated from the second and third palatalization. The pronoun \( sb \) 'this' contained an ordinary \( /s/ \).

Two-level morphology provides a suitable formalism for expressing synchronic morphophonemic generalizations in a succinct fashion. But when we are dealing with an older stage of a language, as is the case with OCS (and Proto-OCS), there are not always clear synchronic facts just waiting for formalization. The research must then be continued with the method of reconstruction. Synchronic and diachronic methods complement each other.

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NOTES

[1] "<-" should not be confused with the logical equivalence sign "<=" ('if and only if') used in two-level rules to connect the correspondence part with the context condition. The "<-" sign is not needed in two-level rules, for the vertical arrangement of characters shows the correspondences in them. Note also that in two-level rules, vertical strokes are used to separate alternatives: [ a | b | c ] means 'either a, b, or c'.

[2] Instead of /Ø/ and /õ/, Trubetzkoy preferred the phonemizations /oN/ and /õN/, where /N/ = a nasal archiphoneme. But as noted by Lunt (1955: 210), /õ/ and /ũ/ would then be in a complementary distribution. The status of nasality in ź, ž, and ż is a difficult question that cannot be solved here, and the use of these symbols is not intended to support one or another phonemization. Hamm (1974: 79) argues that at least before fricatives, the nasality was not realized as a separate segment; he compares OCS with Polish. But actually the Modern Polish nasals are never monophonemic, although the traditional orthography has led Slavists to believe so (see Feldstein 1983 and the literature cited there).

[3] Actually, the form of the lexical level is better represented as /g/-golj+o/ (Lindstedt 1984: 170, footnote 2, and 176).

[4] Pešikan (1959-1960) assumes that diacritic signs were used to mark /j/, but this seems highly dubious.

[5] "It is entirely excluded that one and the same word could have been pronounced both wže and jüže."

[6] It is a notational convention of two-level morphology that lexical-level characters always realized as zero, such as j, are not mentioned in context conditions if their presence is optional (cf. Koskenniemi 1983: 40).

[7] By using a lexical representation with /j/- in this verb, a two-level description can include imp : eiti 'to take' in the same stem alternation pattern as kněno : klęti 'to curse' (cf. Lunt 1974: 116-117).

[8] Leskien (1962/1910: 39) argues that ja and ź cannot have totally merged, because "Δ = ja eine andre Einwirkung auf vorgehende Konsonanten ausübt als Δ = ż"; he contrasts końa 'horse' (gen. sg., nom. & acc. du.) and nąmę (not **nämę) 'mute'. The argument is clearly mistaken. The palatalization of ź can neither synchronically nor diachronically be ascribed to the vowel. Diachronically, ż comes from *nj: synchronically it is ź that fronts the vowel, not the other way round (nämę of course has ją|
even in the underlying form). Leskien's error is repeated by Mirčev (1978: 134).

[9] Historically these roots contain a-2, but there is no synchronic reason for positing [A] in the lexical forms. I think this a more revealing analysis than that presented in Lindstedt (1984: 174-175).

[10] From Gothic *gabihs (Kiparsky 1934: 198) or *gabeihs (ESSJ, s.v. gobýzb).

[11] ESSJ contains both *gobyziti and *gobyzéti, but the latter goes back to a hapax legomenon recorded in Sreznevskij's Old Russian dictionary (s.v.): ГОБЬЗЭ 'at ease, well-to-do' in a 16th-century Biblical text. Notice that this verb would be inflected *gobyžejp, *gobyžejęs, not *gobyže, *gobyžišb.

[12] Mirčev (ibid.) also explains the West Bulgarian /Macedonian сакам 'I want' as the result of "hardening of s" in с'акам 'I think' (attested in East Bulgarian dialects) < *СЪKAM 'I cut', an imperfectivization of СЪК 'I cut'. The etymological connection between с'акам and СЪК is nicely supported by the semantic parallel of the Latin puto 'I cut, I prune' > 'I think, I consider', as Mirčev points out, but сакам cannot be related because the etymology would entail (i) the East Bulgarian change /Cα/ > /C'α/ in the West, and (ii) an ad hoc hardening of /s'/. Mirčev does not take account of the fact that сака-, like the Standard Bulgarian иска- 'want' or Spanish querer 'to want; to love', seems to have originally meant not 'think' but rather 'search', as in Mac. dial. го сакам детето, ама не можам да го најдам 'I am looking for the child, but cannot find him/her' (RMJ, s.v.). There is a verb sakati 'to want, to search' in Serbo-Croatian, too; and in Russian dialects we find сакать 'to talk', which may be related. Neither shows any trace of е. As shown convincingly by Goštub (1963: 216-217), сака- is a regular iterativization of соч- 'to show, to point; to track, to follow'.

[13] In 13th- and 14th-century Russian this morphophonological distinction between nominal and pronominal declension seems to have been partly blurred, as shown by forms like BСXb (Kiparsky 1967: 161). But these analogical formations could not establish themselves in Russian.

[14] Laleva (1984: 119) has recently attempted to explain всьег historically as a regular phonetic development. But her explanation would presuppose that there were still endings of the type *-Vns in Slavic when the third palatalization operated, and this assumption runs counter to such standard examples of the third palatalization as витецб 'hero', пеньеъ 'money', кънегб 'prince', which clearly show that the nasal vowels had already appeared by that time. On this and other points Laleva would have profited from reading Shevelov more carefully.
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