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The Interchangeability of the Graphemes <o> and <ъ> in Old Russian Birchbark Documents: A Graphical Effect or a Reflection of Sound Change in Progress?

1. Introduction

Considering the general significance of the Old Russian birchbark documents to historical linguistics, at first glance, the interchangeability of the graphemes <o> and <ъ> represents an insignificant detail only. This is why this phenomenon has failed to trigger any attention in the study of phonology so that no particular studies habe been published that would consider the possibility of interpreting this phenomenon in phonological terms. More succinctly, the possible implications of how a sound change has taken place in the corresponding northern Russian dialects have remained largely beyond the scope of present-day research. The only scholar to devote a considerable number of studies to this problem is A.A. Zaliznjak, Even so, Zaliznjak uses the framework of the traditional Old Russian phonological development which, in turn, leads to interpreting this phenomenon as a purely graphical confusion.[1]

In my view, however, a closer scrutiny of this interchangeability reveals regularities that allow more general conclusions to be drawn concerning the mechanisms and chronology of early Slavonic sound change. Thus, the purpose of this study is to demonstrate that heterogeneous and inexpedient orthography may be based on phonological distinctions and that this orthography must not be interpreted as being a deviation from the literary tradition. In other words, there is no need to postulate any one, local

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[1] Zaliznjak repeats this view that the phenomenon in question is purely graphical in all of his corresponding publications (see, eg., Zaliznjak 1986; 1993; 2002b; 2004).

literary tradition, characterised by specific orthographic conventions. Furthermore, this means that the orthographic heterogeneity can be viewed as positive evidence in interpreting sound change. So, the question arises as to whether the encountered 'graphical effects' should be interpreted in purely graphical terms or whether they represent manifestations of sound change in progress, being thus realisations of the actualisation of sound change.[2]

1.1. Description of the phenomenon: 'grafičeskie èffekty'

One of the most striking deviations from what is referred to as the standard Old Russian orthography[3] is the seemingly irregular and random interchangeability and distribution of the graphemes <o> and <ъ>.

Zaliznjak (e.g. 1986: 101) describes this interchangeability of <o> and <ъ> as follows:

$$<ъ> = <o>$$
$$<ъ> \rightarrow <o>$$

A similar description applies to the /E/-type graphemes: <e>, <ь> and <ѣ> (Zaliznjak 1986: 101).[4] However, Zaliznjak's observation (1986: 101) that "meždu èffektami v pare *ъ–o* i èffektami v pare *ь–e* ne obnaruživaetsja kakoj-libo otčetlivoj korreljacii" is very symptomatic. As I aim to demonstrate no significant correlation can be established on the basis of the premises adopted and the arguments put forth in this study. In fact, Zaliznjak himself questions his view of the very existence of 'graphical effects'. In phonological terms, the interchangeability of the graphemes of the <O> and the <E> type must rely on different phonological conditions

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[2] Actualisation should be here understood as "the observable manifestation of grammar innovations in speech" (Andersen 2001: 225). According to this definition, actualisation is an observable sound change in phonological terms. See also Nuorluoto (2006b).

[3] In his earlier publications, Zaliznjak uses the notion of *standardnyj drevnerusskij jazyk*. But he has since changed it, due to the somewhat erroneous connotation of the English meaning of *standard*, to *naddijalektnaja forma drevnerusskogo jazyka* or *naddialektnyj drevnerusskij* (see Zaliznjak 2004: 3).

[4] According to Zaliznjak (1985: passim), the notion of the O- and E-type phonemes denotes the generalisation of a narrow /ô/ and a broad /ɔ/, and a narrow /ê/ and a broad /ɛ/, respectively. The same denotation applies to the graphemes with which these phonemes are designated (written in angular brackets).

despite their typological similarity. This means that all the potential sources of the /E/-type phonemes must be taken into account, including what is called *jat'*. Moreover, the occurrence of the /E/-type phonemes is conditioned by the development of the preceding and succeeding consonantism, which does not apply to the phonemes of the /O/ type. This study analyses only the relationship between the O-type graphemes and phonemes, whereas the relationship between the <E>-type graphemes and /E/-type phonemes will be addressed in another study.

Zaliznjak (1986: 94–96) has labelled the above-mentioned phenomena as systematical graphical effects (*sistemnye grafičeskie èffekty*). The description provided above should demonstrate that there are lengthy birchbark documents[5], in which an expedient ('etymological') <ъ> may be represented as an <o> and, to a lesser extent, vice-versa. The distribution of the given graphemes may thus be random or inconsistent without any clearly observable rules in their usage (denotation =) or every expedient <ъ> is replaced consistently by an <o> (denotation →). It is important to note that this confusion can be interpreted as a s y s t e m a t i c effect if it is typical of one and single document. Yeat, it is rather striking that no s i n g l e   d o c u m e n t has been unearthed in which a contrary graphical effect <o> → <ъ> occurs.[6] However, it should be emphasised that there are certain constraints on the possibilities of occurrence of <ъ>. These are, for instance, the initial position of a phonetic word or the first component of the digraph <oy>. Constraints such as these diminish the probability of the occurrence of the graphical effect <o> → <ъ> (cf., e.g., Zaliznjak 2002b: 576).

The circumstance that the above-described phenomenon is considered to be purely graphical, in that it does not reflect any type of phonological structure, is based, above all, on a 'short-cut' reconstruction of the development of the *jers*. This position maintains that the change of *ъ > o* is a simple formula whose origin and results are known.[7] This sort of

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[5] Lengthy documents only count as the basis for analysis because they allow systematic observations.

[6] "Čistogo èffekta *o → ъ* v skol'ko-nibud' dlinnyx gramotax poka ne otmečeno" (Zaliznjak 2002b: 582).

[7] Apart from the change of *ъ > o*, the very same applies to the change of *ь > e*. For this reason it is understandable why the sound change of *e > o* has a relatively late dating. As I have argued in two earlier studies (Nuorluoto 2004b; 2006a), these sound changes are in no way simple developments and their mechanisms do not follow the traditionally postulated lines of develoment. I refer, further, to Stieber (1973: 25), who moderately criticises the traditional pattern and especially to Mareš (1999: 74 ff.), whose

reconstruction of sound change is simplified, and it does not take into account the possible intermediary stages which, according to traditional reconstruction, do not exist because they are not attested directly in texts. One should note, nevertheless, that in general, sound change in progress must not be visible or the evidence for it is ambiguous. This is a problem which is particularly typical in diachronic linguistics. It is thus no wonder that Zaliznjak attributes the confusion of <o> and <ъ> to the group of phenomena that is typical of the colloquial graphical system.[8]

For the below interpretation, the instances in which the 'etymological' /o/ is rendered by the grapheme <ъ> appear to be important.

Apart from the birchbark material, one significant document exists in which the confusion of the graphemes <o> and <ъ> is even more random, namely the *Spisok A dogovora Smolenska s Rigoj i Gotlandom* from 1229.[9] It should, however, be noted that the genre (official document) of the given document hardly supports the view that the confusion of graphemes would represent a *bytovaja grafičeskaja sistema*.[10] It also remains unclear as to whether the author of this document was a native Slav.[11]

1.2. Criticism of Zaliznjak's position

The emergence of an unconventional graphemic structure certainly requires an explanation. This puzzle leads us to the principal question: what are the causes, other than the dialects underlying birchbark literacy, that could lead to anomalies in regard to the 'standard' Old Russian or Church Slavonic orthography? Of course one cannot require that medieval scribes be fully consistent in their writing. To be consistent in orthography would also require consistent and systematic education which, in the case of medieval

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explanation of the mechanism of sound change in the given cases is completely different but, in my opinion, the most plausible. Another important point nonetheless is that Mareš does not extend his observations to East Slavonic diachronic phonology.

[8] Zaliznjak (2004: 21–23) postulates a *bytovaja grafičeskaja sistema* as opposed to a *knižnaja grafičeskaja sistema*. In his earlier work, Zaliznjak spoke about several *bytovye grafičeskie sistemy*, but in his later studies, he prefers to speak about one single colloquial graphical system (see Zaliznjak 2004: 21, footnote 2).

[9] The same phenomenon is encountered in many other literary works, albeit its scope is more limited in them (Zaliznjak (2002b: 577).

[10] It is interesting that Zaliznjak (2002b: passim) uses this particular argument to defend the existence of a *bytovaja grafičeskaja sistema*.

[11] The view that the author would be of Low German origin was launched in particular by Kiparsky (1960). On this point, cf. Bratishenko (2002) and Schaeken (2003).

Novgorod, was hardly possible.[12]

As Zaliznjak (2002b: 585 f.; 2004: 23) argues, the phenomenon in question is not due to *malogramotnost'*, as was argued earlier. Zaliznjak (2002b: 593, 597 f.) suggests (with a reference to Šaxmatov, Durnovo and Uspenskij) that the orthographical heterogeneity originates in the liturgical pronunciation in which <ъ> was pronounced as [o] and <ь> as [e]. If this were true, one could think that instead the liturgical pronunciation would have affirmed the standard nature and homogeneity of the orthography.

The purpose of this study is to question Zaliznjak's view of the graphical nature of the confusion of the graphemes <ъ> and <o> (and the very existence of a *bytovaja grafičeskaja sistema*) and propose instead a phonological interpretation. Zaliznjak (2002b: 592 f.) also considers a possibility such as this but rejects it.

2. Material

The data presented in this section is based on the birchbark material published in Zaliznjak (2004). Without a doubt, Zaliznjak's material is sufficiently representative for the present analysis. Zaliznjak has classified his material chronologically which helps in classifying it for the purpose of the present study[13] although the linguistic criteria adopted by Zaliznjak remain less transparent. As one of the main objectives of this study is to criticise Zaliznjak's views, for operational reasons, his own chronology suits well my presentation.

In the exposition below, the following principles have been followed: (i) The occurrence of graphemes is based on their 'etymological' correspondences. Thus, the denotation follows the traditional denotation. This method is purely operational and the underlying phonological structures will be presented in the following sections; (ii) I shall follow Zaliznjak's division into razdely (see footnote 13), using the notions of

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[12] Zaliznjak (2002b: 594 ff.) analyses the methods of writing command among the Novgorodians thoroughly. I suppose that his views on this point to be mere assumptions.

[13] The birchbark material presented by Zaliznjak (2004) is classified chronologically as follows: A = 11th century – first quarter of the 12th century; Б = second quarter of the 12th – 1210s (podrazdel Б I = 1125–1160, podrazdel Б II = 1160 – appr. 1220); В = 1220s–1290s); Г = 14th century (podrazdel Г I = appr. 1300 – appr. 1360, podrazdel Г II = appr. 1360 – appr. 1400); Д = 15th century. The razdely A ja Б point to the 'rannedrevnerusskij period' and the later razdely refer to the 'pozdnedrevnerusskij period'.

Early Old Russian and Late Old Russian, respectively. Further, lengthy documents are only considered because the existence of a possible system remains unclear in fragments. This is also the method used by Zaliznjak.

In the present interpretation, accent plays a crucial role. Still, the corresponding problems are considerably difficult to solve. On the one hand, we do not know the old Novgorodian accent for sure and we have to rely on the accentuation of modern Russian. On the other hand, the birchbark material is full of names, and some of these are non-Slavonic. Since we are not able to retrieve the accent in these names, they have been omitted from our analysis. The material presented below is not exhaustive but it tends to be sufficiently representative to support the subsequent interpretation.

During the oldest period (11th century – ca. 1220 = Zaliznjak's sections А–Б), the confusion of the graphemes <o> and <ъ> is relatively rare. Cases in which the 'etymological' <o> in the unstressed position is rendered with a <ъ> yet do exist: добръ (acc.sg.N. 613), хъчоу (613), къстʌтина (241), добръмь (246), добръ… (Smol. 12), грамътицю (854), пъкланʌние (870, 87), тъмоу (891), хътʌ (2x, 48), грамъта (656), пъвели (809), Бъриса (237).

Examples in which a stressed expedient <o> is rendered with a <ъ> are extremely rare: цьтъ ('100', 752), кетъ ('who', 891), съли (219). The cases with a 'polnoglasie' such as коръву (831) or въ гъръдъ (891) are rather unindicative because the 'polnoglasie' can be dated later. A substancial amount of fluctuation can also be observed in rendering the sequences of the ъ+liquid or liquid+ъ, cf. мълваше, мълви (605), мълъви (St. R. 7, 794), бъръже (891). This implies that the history of what is referred to as the 'second polnoglasie' should be examined in more detail.

The significant number of instances of <o> occurring for the unstressed *jers* can aptly be explained by the scansion principle, which is a notion launched by Zaliznjak (*skandirujuščij princip*, see Zaliznjak 1993: 243) According to this principle, the writing of consonants has required an accompanying vowel element.[14] Furthermore, it is interesting that <o>

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[14] As a matter of fact, there is a typological parallel in designating the accompanying, inherent vowel in the writing systems that make use of the *devanāgarī* script (without, of course, having anything to do with the scansion principle of the Novgorodians). In the *devanāgarī* script, namely, each consonant grapheme contains an inherent *a*. It is interesting to note that of all the possible vowels, this inherent vowel is the least marked.

represents almost exclusively such an accompanying vowel even in the earliest documents: восолеши, водала, восоли (2x), водале (all 644), кото ('who' 831), дова ('2', 831, 630). The most clear example is document number 915, in which the *jers* have been rendered 'correctly'. The scansion principle therefore has little to do with the 'vocalisation' of the *jers* for chronological reasons (see Section 3.3.). Namely, crucial for the chronology is the circumstance that, beginning in the 1220s the frequency of <ъ> loses ground at the cost of <o> drastically. Another interesting factor is that the grapheme <ь> does not loose its frequency in its 'etymological' positions at the cost of other graphemes of the <E> type.

3. Interpretation

3.1. Problem of actualisation

The re-evaluation of literary evidence implies that certain chronologies and mechanisms differ in regard to what has been commonplace in Slavonic and, in this particular case, Old Russian historical phonology. One of the purposes of the present study is to demonstrate that early variation need not be observable in the way it is usually described on the basis of the 'short-cut' reconstruction.[15] In other words there is a tendency to prefer simplified sound laws and formulas of the type /x/ > /y/ without considering (often several) intermediary stages and positional conditions. Those formulas are also many times phonetically implausible. In general, a s o u n d c h a n g e i n p r o g r e s s is difficult to follow and it is even more difficult to observe it in diachronic linguistics.[16] In the analysis presented below, I intend to clarify the mechanism of a sound change whose results are clearly attestable. In short, I will argue that the sound change of ъ > *o*, which in its apparent simplicity represents a textbook example of the most observable and simple sound change, is actually not that straightforward as it is generally thought to be, and that it is organically connected to the

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[15] Typical examples of identifying sound change on the basis of the 'short-cut' reconstruction is the tracking of *akan'e* with the search for the grapheme <a> in the positions in which the *okan'e* area possesses /o/. Another example is the tracking of the sound change of *e* > *o* with instances of the <O>-type graphemes (Nuorluoto 2006a).

[16] For the problems of sound change in progress, see especially the observations of the 'Variationist school' (Chambers et al. 2002). As for diachronic problems, the reader is advised to consult, e.g., Chamber & Trudgill (1998).

development of the short ă.[17] I also propose a new chronological framework for the sound change in question.

The graphemic analysis in in the present study is most often based on the tracking of graphemic representations for the /O/-type vowels with the distribution of the <O>-type graphemes. Distribution such as this is observable in later texts (e.g., in *Merilo pravednoe*, see Zaliznjak 1990). Likewise in earlier texts, the /O/-type phonemes are certainly represented by the graphemes <o> and <ω> without possessing phonological relevance. The logical conclusion is therefore that if the medieval Novgorodians wanted to make a distinction between the /O/-type phonemes, they must have employed different means to do so.

3.2. Hypotheses and postulates

Can graphemics and especially orthography render the phonological development of the /O/-type phonemes? It is obvious that if we postulate this phonological development in traditional terms, the only possible way to observe the actualisation of this sound change is to track its ultimate result. However, there is no need to postulate the development and chronology of the sound change in question in traditional terms, but include intermediate stages of actualisation.

The tracking of sound change (stages of actualisations) in graphemic terms requires a certain degree of induction and the evidence should rather be used to demonstrate the probability of reconstruction. One has to accept the principle point of departure that the anomalies, in regard to standard orthographies, may be based on phonological motivation. What is most apparent is that medieval Russian scribes must not have been consistent in their writing and that their orthography may reflect a combination of literary, more standardised and prestigious type mixed with their individual phonological thinking. As a consequence, variation in one single document or even in one single word are not rare in our material.

The interpretation of the 'graphical interchangeability' is in this study based on the following postulates which in turn deviate from the usual postulates that are encountered in the description of Old Russian (or, more generally, Slavonic) historical phonology:

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[17] Above all, I rely on the reconstruction patterns presented in Mareš (1999). However, this does not mean that I would subscribe to all the views presented by him.

1. The origin of the sound change of *ă > o* (illabial short *ă*)[18] and the result (a labial mid-high *o*) are known.[19] The mechanism and its sequence in turn are disputed, i.e. we do not exactly know in which positions and order the sound change has occurred. It is a known fact that in some dialects, the primary reflex of the short *ă* is a narrow *ô* (which may have neutralised in certain dialects secondarily) whereas the unstressed *ă* yields a broad *ɔ*. This reconstruction heavily relies on the dialect material (see especially Zaliznjak 1985: 160–161). This reconstruction is very logical and plausible, but it does not explain the chronology of sound change.

2. The change of *ŭ >> o* is organically connected to the change of *ă > o*, and there is no reason to not postulate the intermediary stage with *ă* for the former change, in which cases the development could be described as *ŭ (> ə) > ă > o*. A postulate such as this is supported by the fact that the result is similar in both developments. Furthermore, the development of *ä > o* can further be connected to the same development (see Nuorluoto 2006a).[20]

3.3. The graphemes <o> and <ъ>

According to the above postulates, there appears to be no motivation to assume that the unstressed (or even stressed) short *ă* would have undergone labialisation early. As a criterium, albeit not necessarily very strong, the vocalism could serve as being reflected in early Slavonic loanwords in Finnic which clearly indicate that Slavonic at the time of borrowing possessed an illabial *ă* – whether stressed or unsressed. It is significant to note that the illabiality is also reflected in early Christian borrowings such as Fi. *pappi* 'priest' < Sl. *păpŭ* (trad. *popъ*); cf. as well as in the unstressed

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[18] This represents the generally accepted current state of affairs in Late Proto-Slavonic.

[19] In this connection I do not differentiate a possible variation in the aperture of the /O/-type phonemes but indicate the state of affairs in the written form of the modern standard language and the *okan'e* dialects. It could be noted here that, e.g., Kiparsky (1963: passim) uses the symbol /ɔ/ for the neutralised /O/.

[20] I wish to thank Georg Holzer for his comment and suggestions that a contrary development has taken place, i.e. *ă > ъ* (p.c.). However more simple or more economical an explanation such as this may appear, it still cannot be accepted because it cannot explain the development of *e > o* (traditional notation) as is evident on the basis of Nuorluoto (2006a).

position Fi. *Raamattu* 'Bible' < Sl. *grāmătā* (trad. *gramota*).[21] As noted by some scholars, Christian loanwords could have been adopted prior to the Christianisation of Rus' as appellatives but I rather consider this to be a coincidence. For the chronology of the change of *ă > o* in northern Russian dialects, see also Vaahtera (2007).

The mechanism of reconstructing the change of *ъ > o* requires new chronology for the very reason that it is connected to the change of *ă > o*. As a result, it is important to define the vowel, which is designated traditionally with the symbol *ъ*, in phonetic terms without operating with abstractions (cf. Lindstedt 1991). Certainly we only know exactly its origin (= *ŭ*) and its reflex in strong position (= *o*). For operational purposes I shall, however, continue using the notion of *jer*.

A closer scrutiny of the graphemes at hand reveals a detail that should ring a bell: the grapheme <ъ> occurs relatively rarely in stressed syllables. This applies in particular to the denotation of the 'etymological' short *ă*. It should be noted that the observations concerning the accent rely on the position of accent in modern Russian. It is probable that in the majority of cases, the north-western Old Russian accentuation did not deviate significantly from this state of affairs. In addition, the onomastic material has not been included in this analysis because its accentuation cannot be ascertained except for some cases (see the above Section 2.). The principle followed here has the convenience that possible deviations from the tendency of the grapheme <ъ> to not occur in stressed positions, can be explained away with dialectal accentuation, whereas the well attested Proto-Slavonic accent is difficult to consider to be false if it is supported by evidence from, for instance, the South Slavonic languages. Thus, postulating accent in this way assures a certain degree of probability.[22]

The observation that the grapheme <ъ> tends to reflect an unstressed vowel only supports the conclusion that the history of the /O/-type phonemes should not be tracked in the usage of the <O>-type graphemes

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[21] The word-final vocalism in the Finnic borrowings is unindicative and one cannot draw conclusions on the Slavonic vocalism, although in certain cases, the word-final vowel clearly displays the Proto-Slavonic state of affairs, cf. Fi. *papu* < Sl. *băbŭ* 'bean' or Fi. *turku* < *tŭrgŭ* 'market place' (see Kalima 1956: 57 f.; Kiparsky 1975: 184).

[22] As Krys'ko (1998: 78) correctly states, the state of affairs in ancient dialects is irretrievable on the basis of modern dialects. As a result, it is safer to postulate the accent in accordance with the modern Russian standard, which need not reflect the state of affair in ancient dialects in each detail but the standard nonetheless offers a solid frame of reference for the analysis.

such as <o> or <ω>, as has usually been the case in interpreting the Old Russian graphemic-phonological correspondences.[23]

The material consulted for this study points to the circumstance that the change of ъ > o in north-western Old Russian dialects was not straighforward but took place gradually, consisting of primarily stressed syllables. Subsequently, this sound change was extended to cover restructured syllables which had emerged after the loss of the *jers* and finally, the change of ъ > o covered all the northern Russian *okan'e*-dialects, in which each vowel representing a short /ă/ or a *jer* structure in the strong position, are reflected as /o/.

Contrary to the earlier widely accepted view that the narrow East Slavonic /ô/ refers to the neo-acute intonation only, Zaliznjak (1985: 160–161) has plausibly demonstrated that each and every short stressed /ă/ was early labialised, resulting in a narrow /ô/.[24] It is therefore rather strange that the standard dialectologies of Russian repeatedly state that /ô/ can only reflect /ă/ (or even more traditionally, /o/) under the neo-acute intonation. The narrow /ô/ originates, at least in certain dialects, in syllables to which stress was adopted from the following syllable containing a stressed weak *jer*.[25]

The development of /ă/ and the *jers* follows the outlines of Zaliznjak's chronological tables and graphs (see Zaliznjak 1986: 102; 2002b: 608; 2004: 25). It is possible that, in the earliest documents, the unstressed /ă/ could easily have maintained its illabiality which means that its primarily employed designation with <o> does not point to labiality. The 'unetymological' occurrences can be accounted for by what is called the 'scansion principle' (Zaliznjak 1993: 243), in which case each consonant grapheme was accompanied by a vowel element. For this reason, it is natural to assume that the vowel grapheme occurs where it does not belong.

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[23] This kind of differentiation occurs in later manuscripts (Zaliznjak 1985: 208 f.) but it appears to be irrelevant in the birchbark material.

[24] Žuravlev (1986: 187) draws similar conclusions but bases his arguments on slightly different grounds. On the other hand, Zaliznjak (1985: 161–163) also expresses his doubt in regard to Ukrainian: "Vopros o tom, sovpali li v vostočnoslavjanskom dve raznye intonacii praslavjanskogo (akutovaja i novoaktovaja) ili v dannoj gruppe praslavjanskix dialektov (i.e. the dialects upon which Ukrainian is based, JN) ètogo različija voobšče ne sformirovalos', ostaetsja otkrytym". Yet it is important to point out that the early isoglosses must not, in dialectological terms, represent any type of homogeneous East Slavonic continuum.

[25] This kind of situation is encountered in the mixed dialects, represented, e.g., in *Merilo pravednoe* of northern Russian origin, cf. Zaliznjak (1985: 174).

It is likewise natural that in such cases the most unmarked vowels /a/ and /ə/ were used, implying that, on the graphical level, the graphemes <o> and <ъ> were used. In short, the use of <o> in implementing the scansion principle means that the phonological structure underlying this grapheme was an illabial vowel.

In line with this one can assume that the weak *jers* were still pronounced at the end of the 10th century and in the beginning of the 11th century. This is observable in the oldest documents. It is therefore not surprising that Zaliznak's 'graphical effects' did not operate at that time, excluding some cases (cf. Zaliznjak 1993: 269). The essential fact is that at the time the first birchbark documents appear, the *jers* had not yet merged with /ă/ but they were distinct phonemes. Still, it is probable that the *jers* had merged into one single phoneme which was maximally unmarked.[26] Subsequently, the distinction was transferred to the preceeding consonant in which case their merger had produced the correlation in palatalisation.[27] This state of affairs is observable in the oldest documents in which the graphemes for the *jers* are written relatively consistently in their etymological positions without being mixed with other graphemes.

As demonstrated by, e.g., Zaliznjak (1985: 173), the strong back *jer* is always represented in East Slavonic as a broad /ɔ/ and it never appears as a narrow /ô/ – insofar as a distinction such as this exists. Since the result (actualisation) of the development of the unstressed /ă/ and the strong back *jer* is identical, it is logical to assume that the back *jer* in the strong position merged with the short /ă/. The mechanism of sound change after that point was common, i.e. the resulting vowel was labialised.

It is my opinion that the above-mentioned merger can be observed during the first intermediate period (*perexodnyj period*) postulated by Zaliznjak, i.e. it is reflected as a 'graphical effect' in the 12th century documents. A stressed /O/ is on the one hand represented by an <o>,

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[26] The notion translates Trubetzkoy's 'unbestimmter Vokal' (Trubetzkoy 1939/1968: 105 f.).

[27] In this connection I wish to emphasise that I do not subscribe to the dogmatic view that the late Proto-Slavonic language type possessed two distinct, very often undefinable phonemes called *jers*. Instead, I have suggested that the delabialisation of the short /ŭ/ resulted in the continuants of *ŭ* and *ĭ* merging into a single phoneme. This explanation suggests that in a part of the Slavonic speech area the short /ĭ/, while it still existed, had a palatalising effect on the consonants in front of it. Later, after the loss or 'vocalisation' of the *jers*, palatalisation has been retained in one part of the language area, whereas in another part of it, it has been neutralised (see Nuorluoto 1993; 2003). The present study uses the notion of the *jers* in the plural for operational reasons.

implying that the underlying vowel was a narrow /ô/. The illabial /ă/, which still existed at that time, could be written either as the grapheme <o> or the grapheme <ъ>. The non-existence of the systematical 'graphical effect' of the type <o> → <ъ> can be considered to be a coincidence.

The fact that the graphemes <o> or <ъ>, when designating an unstressed vowel, are not confused with the grapheme <a> (except for a few cases) implies that the phoneme underlying <a> was different from the one represented by the grapheme <o> or the grapheme <ъ>. Thus, the logical conclusion is that the phoneme inventory of that time still had preserved an illabial long /ā/. This means simply that the vowel /A/ had retained a quantitative opposition, whereas in the case of other vowels, the quantitative opposition had changed to qualitative oppositions.[28]

The graphemes <ъ> and <ь> do not basically appear in the absolute anlaut of a phonetic word because no phonetic word can begin with vowels which they designate – required that they were used 'correctly'. In the northern dialects, however, there is a position in which the primarily unstressed /ă/ yields a narrow /ô/ independently of the accent. This is the case in the restructured initial syllable (*perestoennyj načal'nyj slog*, see Zaliznjak 1985: 174). This brings to mind the occurrences of the initial /O/, which must be statistically rare in unstressed or non-restructured syllables. And even if such cases would exist, there still would be the possibility to denote the unstressed /ă/ or /ɔ/ with an <o>, which would be in harmony with the 'standard' Old Russian orthographical convention. In other words, it is possible that the occurrence of an <o> in those positions, which according to the strict phonological orthography, would require the use of the grapheme <ъ>, simply reflects a more standardised orthographical usage. It is a well-known fact that, for instance, in the dialects underlying the Kievan Old Russian tradition, there was no differentiation of the phonemes /ô/ and /ɔ/. This circumstance applies, above all, to texts which display the prestige tradition of Church Slavonic.

Gippius and Zaliznjak (1998) have suggested a similar orthographical

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[28] This sort of typological parallel can be found in several modern Indian languages, although the *devanāgarī* orthography tends to preserve the graphical opposition in quantity when denoting other vowels, too. The East Slavonic long *ā̃* (trad. *ě*) – which is still attested in early Slavonic loanwords in Finnic – had presumably been narrowed or diphthongised at the time literacy appeared in Rus'. However, in the early Pskov dialects, cases are encountered in which *jat'* is realised as <ᴧ> if stressed (see Galinskaja 2002: 85). This circumstance implies that *jat'* in certain positions had retained its broad character. I thank Jouni Vaahtera for this reference.

development applicable to what is refered to as the *Suzdal'skij zmeevik*. Their conclusions are phonologically motivated but unfortunately they do not extend their observations to cover Novgorod or, more generally, the northern dialects.

3.4. The graphemes <e>, <ь> and <ѣ>

The above interpretation can basically be considered to be relatively plausible under one particular condition: the interchangeability of the graphemes <e> ~ <ь> ~ <ѣ> must take place independently of stress, being thus conditioned in another way. This condition is therefore valid, although the confusion of these graphemes is encountered in parallel or simultaneously with the confusion of the <o> and <ъ>, forming similar statistical graphs (Zaliznjak 2004: 25). In the light of dialectology, however, it is possible that the different /E/-type phonemes did not display the correlation in aperture in the northern dialects. This, in turn, would imply the existence of an asymmetrical vowel system. However, there is no need to postulate a symmetrical system which means that the distribution of the <E>-type graphemes may have been more random.

4. Excursus: The 1229 Smolensk–Riga Trade Treaty

In most of the Old Russian literary evidence, in which the confusion of <ъ> and <o> is encountered, the phenomenon at hand represents a later conflict between graphemics and phonology. The confusion in these cases is rather graphical and it originates in the preservation of the <ъ> in the inventory of graphemes.

   One example is the Smolensk–Riga Trade Treaty from 1229, in which the confusion of the mentioned graphemes is frequent and the interpretation of this document is consequently difficult. Namely, in this document the confusion of the <o> and <ъ> also occurs in the stressed syllables (of the type <дъбрыи>), see Sumnikova & Lopatin (1963). Two possible interpretations are available: first, the 'vocalisation' (*projasnenie*) of *ъ > o* may already have taken place, which means that the confusion would be purely graphical. Second, the labialisation of *ă* in the given dialects may not have taken place even in the stressed position. The second explanation is also difficult because we do not know the scribe's origin (see footnote 11). As far as I can see, the second explanatory model also is unprobable

for chronological reasons.[29] It should also be noted that considering the genre of the given document it would be expedient to encounter the most standardised Old Russian orthography in this document. The confusion of of <o> and <ъ> consequently remains a puzzle in this document.

5. Conclusions and implications

The purpose of this study was, firstly, to demonstrate that the medieval Slavonic graphemic structure is more complex than it is usually assumed to be. Secondly, if the assumption that local graphemic usages and orthographical conventions can be adapted to fit the local phonological systems, it is basically possible to draw conclusions on their basis about the sound change in progress. What appears to be very indicative is the graphemic inconsistencies and apparent mistakes in regard to standard orthographies – supposing what appears to be chaos reveals a systematic tendency which is in some way conditioned.[30] In short, if the sound change in progress is retrievable, its mechanism and chronology can be postulated more precicely and plausibly.

5.1. Medieval Slavic graphemics and its weight as evidence

The views presented in this study are based on the observation that medieval standard orthographies have contributed to the affirmation of the reconstruction patterns in scholarship to that extent that certain dogmas have emerged. The main argument of this study is that it is time for these dogmas to be rooted out. This is because in certain cases, the logical reconstruction has been rejected in favour of the seemingly most simple possible explanation. It is possible, namely, to assume that as the graphemic inventory of medieval scribes was relatively stable, the only possibility was to implement the orthographic means[31] to render their native phonological system. Bearing in mind the development of early

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[29] Interesting, albeit in my opinion improbable are Schaeken's (2001) observations about the instability of the orthography of this treaty. According to Schaeken, its orthographical system is 'conditionné par le lexique'.

[30] As Anttila (1989: 85) puts it, "Many hidden regularities were found when systematic conditioning emerged from apparent disorder, and the ultimate regularity of change was saved."

[31] The notion of orthography refers here to the mutual relationship (usage) of graphemic units (graphemes) and it should not be understood as a notion of 'correctness' (cf. also Zaliznjak 2002a).

Slavonic phonology and its relationship to the original Cyrillo-Methodian graphemic inventory, it can be concluded that the later graphemic inventories have become, in general, more simple, in which case 'superfluous' graphemes could be employed for new functions.[32]

The theoretical conclusions of this study continue the research of the textual evidence presented in my earlier publications, focusing predominantly on Old Church Slavonic (Nuorluoto 1994; 1997; 2004a). This analysis extends the scope of my earlier study to cover the birchbark material and to test the implementation of a phonological framework as a means of observing sound change. In the aforementioned earlier studies, I have focused my criticism on the exclusively deductive method which has ascribed to early Glagolitic or Cyrillic, in spite of their graphemic heterogeneity, a strong position in postulating early phonological structures. The present study a focuses instead on phonological abduction (logical reconstruction) which was tested inductively. Towards this end, I have tried to find negative or positive evidence to test the correctness of this abduction. The material used here is based exclusively on Zaliznjak's publications. The fact that I have seriously questioned his views by no means implies that I question his observations and precision.

5.2. Actualisation of sound change

As noted recently by the representatives of the 'Variationist school' it is difficult to identify a sound change in progress even as a synchronic phenomenon.[33] It is understandably even more difficult to identify sound change in progress as a diachronic phenomenon. Still, as I argue, the correct interpretation of evidence, in this particular case evidence from texts, creates perspectives for an explanation of the mechanisms of diachronic sound change.[34]

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[32] The question of the inventory of graphemes in the original Glagolitic remains open. It is nevertheless justified to assume that there was a certain degree of necessity to extend this inventory during the Cyrillo-Methodian mission in Moravia or Pannonia (cf. the moderate view in Mareš 1971 and a more radical view in Nuorluoto 1997). In the East (and South) Slavonic cases, there was a rather contrary tendency to reduce the inventory of graphemes.
[33] Cf. especially the articles included in Chambers et al. (2002).
[34] The substancial difference between a synchronic and diachronic description is that although the origin and the result are known in both approaches, the synchronic linguist has to focus on description and prediction on the basis of the premises available, whereas the diachronic linguist operates with the mechanisms of reconstruction. The

As demonstrated above, the confusion of graphemes at hand is not random, although it appears to be, to a certain extent, facultative due to another, more prestigious literary tradition. Thus, the confusion of the given graphemes cannot be juxtaposed onto a similar phenomenon in later texts, including the late birchbark texts. The early confusion of the given graphemes does not imply the later merger of ъ and *o* (traditional denotation) but rather reflects a sound change in progress.

In more general terms, this means that the 'short-cut' reconstruction of the development of *ŭ* (> ъ) > *o* must be postulated otherwise. It should, however, be noted that I use the notion of sound change in progress as an umbrella development whose possible stages are irretrievable at the phonetic level. This is justified because the language used in Novgorod must have been, even in Slavonic terms, relatively stratified, and it was not an ethnically homogeneous society. Another factor is that we do not possess the information that is available to a modern dialectologist, such as the age, social ranking or even sex of the scribes. It is in this light possible that the Novgorodian language included extensive variation, which in our case means that the /O/- and /E/-type phonemes could contain significant inner variation even in the speech of one single individual. Thus, they could reflect, for example, [a] [ʌ] [ə] [o] [ɔ] [ô] and [e] [ɛ] [ê] [ie] ['e] ['ie] [i], respectively.

In the graphemic sense of a medieval Novgorodian, in which the graphemes <ъ> and <o> tended to be confused, the grapheme <o> apparently denoted primarily a labialised /O/ and it even more probably referred to a narrow /ô/. Still, this grapheme was also used to designate the illabial /ă/ or the less labialised broad /ɔ/. Several interpretations for this inconvenience are available. The use of <o> did not violate the rules of 'standard' Old Russian orthography which also certainly was known in Novgorod. By the same token, the grapheme <ъ> tended to retain its 'etymological' position and functions which were carried over to it after the loss of the weaks *jers*. In addition, the grapheme <ъ> could appear in positions which were carried over to it from the grapheme <o> to denote phonological structures which were originally different from the phonological structures typical of the South Slavonic-based Kievan literary tradition which continued to use <o>.

To summarize, we can state that the grapheme <o> primarily denoted the

problem of a diachronic linguist is to prove the correctness of the available data which in turn cannot be proven by the use of informants.

stressed /ă/ or /ô/ and that the grapheme <ъ> denoted primarily the unstressed /ă/ or /ɔ/. eviations from this rule can be attributed to confusion, not to interchageability.[35]

5.3. Implications

If the above interpretation proves to be acceptable, it has certain implications for the entire reconstruction of the East Slavonic diachronic phonological development. First, the sound change of /ă/ > /o/ should be considered to have taken place later and more slowly than is usually assumed. This, in turn, has implications for the reconstruction of the relationship, emergence mechanism and spread of *okan'e* and *akan'e*. Second, a relatively late merger of the vowels ъ and ă very well explains the sound changes such as (/C'ь/ >) /C'ă/ > /C'o/, provided that one assumes that the Proto-Slavonic *ĭ* (trad. *ь*) had the early effect that it palatalised consonants in front of it (such an assumption may well apply to *e*, too) (cf. Nuorluoto 2006). The original /e/, which at an early stage was an open vowel [ä] in the northern Slavonic dialects, as unambiguously shown by loanwords into Finnic (cf. Fi. *pätsi* < OR pre-literary *pădčĭ*, in traditional denotation *pečь*), could easily have joined the development of the *ĭ* > /'ă/ (= [ä]). In this case, the following 'umlaut' which later results in /e/ or /o/, can be explained as the elimination of the correlation in timbre and the transphonologisation of the vowels (see Nuorluoto 2006a).

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[35] Zaliznjak (2002b: 576–577) rejects the notion of confusion (*smešenie*) because it does not correspond to his view of the systematic nature of the phenomenon. I basically agree with him in this, but also consider that the notion of the confusion of graphemes is justified in certain cases because the system (of whatsoever nature) apparently was not watertight.

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