

# The Historical Development of Tense Jers in East Slavic

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## 1. Introduction

It has been said that "In Late Common Slavic (=LCS), the environment before [j] was, with few exceptions, a position of neutralization for tense diffuse vowels /i, y/ and lax diffuse vowels /ь, ъ/" (Flier 1988: 91).<sup>1)</sup> The neutralization of /ь/ with /y/ and of /ь/ with /i/ as a sandhi rule is reflected in certain graphic alternations found in Old and recensional Church Slavic texts, e.g., <ljудѣ ~ ljудii> 'people (gen. pl.)'; <новѣ ~ novyi> 'new (nom. sg. masc.)'; <въ истинѣ ~ vy istinŏ> 'in truth'; see Lunt (1974: 29-30).<sup>2)</sup>

In most of the Slavic languages, the lax high vowels /ь, ъ/ from CS

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1) Phonetic transcription will be enclosed in square brackets ([ ]), phonemic transcription in slashes (/ /), morphophonemes in braces ({}), and graphemes in angle brackets (< >).

2) CS \*i/ŭ before [j] were reflected as e/o in certain OCS texts, e.g., <vyšnei> (Euchologium Sinaiticum 93a: 14), <svętoi >(Luke 1: 72, Codex Marianus, odex Zographensis, Euchologium Sinaiticum 17a:14), <naricaemoi> (John 21: 2, Codex Marianus) (see Diels 1932: 64-69, 194). The reflection of CS \*i/ŭ before [j] as e/o in Old Church Slavonic and other medieval Slavic manuscripts requires further investigation and will not be discussed here.

\*ī/ŭ were eventually replaced altogether by the tense high vowels /i, y/ in the environment before jod - hence the traditional term "tense jers"-, and by mid- or low-vowels in other environments, e.g., \*šijǎ 'neck' > U. šyja, BR. šyja, P. szyja, Cz. šije, Sk. šija, SC. šija, Sn. šija, Bul. šija, but, \*sünŭ > U. son 'dream', BR. son, P. sen, Cz. sen, SC. san; \*dīnī 'day' > U. den', BR. dzen', P.dzien, Cz. den, SC, dan, etc. (see Carlton 1991: 334-335).<sup>3)</sup> Furthermore, in many Slavic dialects, the conditioning jod was later syncopated in desinences in the process of contraction, e.g., \*mǎld-ŭ-jī 'young (nom. sg. masc.)' > BR. malady, P. młody, Cz. mlady, SC. mládi.<sup>4)</sup>

However, the eastern dialects of East Slavic (=ES1), which form the basis of Contemporary Standard Russian, show notable exceptions<sup>5)</sup>: In these extreme peripheral dialects, CS \*ī and \*ŭ were rephonologized as the mid-vowels /e/ and /o/ before [j] as well as in other environments, e.g., R. molodoj and son, respectively.<sup>6)</sup> Furthermore, the reflexes of CS \*ī and

3) In all the Slavic languages, \*ī/ŭ before [j] developed like weak jers in specific morphological environments - for example, the collective suffix \*-ij as in R. kamen'ja, brat'ja. P. bracia, SC. kamenje, brača, etc. A discussion of those morphologically influenced developments is beyond the scope of this paper.

4) Serbo-Croatian genitive plural -ā (< њ̄ >) is controversial, e.g., <отъцъ̄> > <otaca>; see Belič (1965: 75-84). This development requires further research.

5) The contemporary standard Russian adjectival endings in yj, -ij in unstressed position are considered to have been due to the orthographic norms of Church Slavonic (Filin 1972: 237).

6) The reflexes of CS \*ī/ŭ before [j] in the contemporary East Slavic dialects provided by Pšeničnova (1960: 43-54) may be summarized as follows; see Flier (1988:96-97):

Form	U	BR	BR/R.Border	R
Noun in -#j-	solovej	salavej	salavej	solovej
Noun, gen.pl.	hostej	hascej	hascej	gostej
Noun	šyja	šyja	šeja	šeja
Verb, imper.	pyj	pi(j)	pej	pej
Verb, non-past	myju	myju	meju	moju
Adj. nom.sg.m.	molodyj	malady(j)	maladej	molodoj

(Adapted from Flier 1988:96)

\**ǔ* before jod do not show clear-cut isoglosses even in extreme eastern East Slavic. The Novgorod and the Pskov birchbark documents show dual reflexes <y(i)>-<oi> and <i(i)>-<ei> (see Zaliznjak 1986: 126). A number of scholars have interpreted this variation as dialect mixing, i.e., as an indication that the reflex of \**ьjь* was /oj/ in Il'mensko-Slověne dialects while it was /yj/, /ej/ or /oj/ in Kriviči dialects, from which the Northwest Russian dialects were to evolve (see Nikolaev 1988: 118-121 and Zaliznjak 1993: 205).

These facts have given rise to a number of debates in the scholarly literature: (1) Why do the reflexes of CS \**ї* and *ǔ* in the environment before jod differ from those in other positions in most of the Slavic languages? (2) Conversely, why are the reflexes of CS \**ї* and *ǔ* before jod the same as those in other environments in the eastern dialects of East Slavic, from which Russian is descended? (3) Why do certain East Slavic dialects show different reflexes of CS \**ї* and *ǔ* before [j] in different morphological environments?<sup>7)</sup> (4) What are the phonetic/phonemic status of the tense jers and jod,<sup>8)</sup> etc. Of these questions, the first two

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7) Many Ukrainian and Belorussian dialects including the standard languages show /ej/ instead of expected /ij/ (/yj/) from \**її* in certain morphological environments. According to Flier (1987), this is a later, analogical development rather than a phonological reflex. This problem is beyond the scope of this paper.

8) The phonetic/phonemic status of the tense jers are quite loosely defined. The uncertain phonetic status of these neutralized reflexes is reflected in the various ways in which they are characterized. Some scholars term them "tense reduced vowels (reducirovannye)" ([ĕ, ê]), - e.g., Bulaxovskij (1937: 59) - or "tense jers" (ǝ, ĭ) - e.g., Flier (1988: 91). Other scholars treat them as "reduced y/ı", using the same symbols ([ǝ, ĭ]) - e.g., Pšeničnova (1960: 43), Shevelov (1965: 439) and Filin (1972: 237). The disagreement on the terms and the symbols for these sounds shows that they are interpreted as allophones of /ɛ, ɛ/ by some scholars and as allophones of /y, i/ by others. For example, Flier interprets those sounds as allophones of /ɛ, ɛ/. Flier (1988: 103. n. 3) writes that "some scholars object to the use of the term 'tense jers', maintaining that the Late Common Slavic short diffuse vowels never developed into jers in the

questions will be the main focus of this article.

I will argue that the "exceptional" reflexes of CS \*ĭ/\*ŭ before [j] in the eastern dialects of East Slavic were the result of a different phonologization of CS \*ĭ/\*ŭ before [j] as compared to other Slavic dialects. This different phonologization will be suggested to be due not only to the different chronology of the given sound changes as was argued by Flier (1988), but also due to Late Common Slavic (=LCS) dialectal differences in syllable structure, as witnessed by divergent developments of various CS diphthongs. The latter argument is mainly adopted from Bethin (1992, 1993). Contraction in desinences will provide additional evidence for such a typological analysis.

In organization of this article, I will first review the traditional explanations for the divergent East Slavic reflexes of CS \*ĭ/\*ŭ before [j]. Then, I will discuss a non-linear approach to the given problem and, in the framework of auto-segmental phonology, try to explain about why the tense jers were reflected differently in different Slavic dialects. Finally, I will provide evidence from contraction to support the view that the tense-jer phenomenon should be viewed not only in terms of chronology, but also in terms of typology.

## 2. Traditional views of the development of the so-called "tense jers" in East Slavic

In approaching the problem of the divergent reflections of CS \*ĭ/\*ŭ before [j] in certain East Slavic dialects, many scholars have focused on what happened between the reconstructed stage of CS \*ĭ/\*ŭ and the

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environment before [j], e.g., Shevelov (1965: 439). While it may be true that these tense jers were not phonetically identical to non-tense jers, they were capable of interpretation as jers, since the environments that elicited tense and non-tense jers were complementary."

attested stage of /e/, /o/ in the given environment. Most of the works on this problem offer phonetic and phonological interpretations. Some scholars claim that the sounds [ǔ, ǐ], which originated from CS \*ǔ and \*ǐ first changed (lowered and/or shortened) into [ъ, ъ], which were later reinterpreted as the mid-vowels /o/, /e/ in the eastern dialects of East Slavic; see Trubeckoj ([1925] 1987: 151-152) and Bulaxovskij (1937: 59). Others do not recognize the change of [ǔ, ǐ] to jers before [j]; see Seliščev ([1941] 1968: 193-194) and Shevelov (1965: 439, 1975:121). A third approach posits different chronologies for the development of CS \*ǔ and \*ǐ in specific environments in the individual Slavic dialects. In other words, the given sound changes have been treated mainly in terms of relative chronology; see Flier (1988: 91-105).

### 2.1. A brief History of the question

Trubeckoj ([1925] 1987: 151-152) proposes that in the extreme ESl dialects [ǔ, ǐ] before [j] changed into jers, which later, when in strong position, became /o/, /e/, without regard to the stress or the quality of the vowel following [j]. According to Trubeckoj, the change could not spread to the southern and western dialects of East Slavic, from which Ukrainian and Belorussian were to develop, because the weak jers had already fallen there at the time when the change of [ǔ, ǐ] to [ѣ], [ѧ] was occurring in the eastern dialects of East Slavic.<sup>9)</sup> Trubeckoj's approach may be summarized as follows:

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9) The loss of jers began in the South and West Slavic dialects in the early tenth century and was completed in the East Slavic dialects in the thirteenth century (see Shevelov 1965: 459). Evidence of the Novgorod birchbark documents shows that the change must have been completed in Novgorod by the beginning of the thirteenth century (see Zaliznjak 1986: 122-124). Evidence of the Old Ukrainian texts show that the completion of the loss of jers in Ukrainian falls in the mid twelfth century (See Shevelov 1979: 237). In the Belorussian dialects, the loss of jers falls somewhat later than in Ukrainian dialects, but probably earlier than in the Russian dialects (see Wexler 1977: 126. n.3).

## (1) Trubeckoj's Model

	pre jer-shift	>	jer-shift	>	post jer-shift <sup>10)</sup>	
Peripheral ESl:	ǃ, ĭ	>	ǃ, ĭ	>	o/e	/_ j
Other ESl:	ǃ, ĭ	>	y, i			/_ j

Trubeckoj cites the form <Novgorodъskъje> in the Novgorod Kormčaja Kniga (1282) as evidence that [ǃj] > [ǃ] occurred before the full vocalization of the strong jers. Trubeckoj's hypothesis is that [ǃ, ĭ] and [ǃ, ĭ] before [j] were chronologically successive stages rather than synchronically complementarily distributed variants. What is noticeable in Trubeckoj's claim is that he distinguishes 'tense' /ǃ/ (a non-labialized vowel) from 'normal' /ǃ/ (a labialized one) without distinguishing them graphically.<sup>11)</sup> That is, Trubeckoj uses the same symbol <ǃ> for both the 'tense jer' and the 'non-tense' jer. Furthermore, he uses the symbols <y, i> to denote the sounds from which the tense jers were descended. The assumptions underlying these distinctions would appear to be that [ǃ, ĭ] were allophones of /y, i/ before [j], and that they were reinterpreted as allophones of /ǃ, ǃ/ in the eastern dialects of East Slavic after the loss of the weak jers had occurred in most of the other Slavic dialects. In other words, Trubeckoj assumes that there was a pan-Slavic tendency to phonologize [ǃ, ĭ] as /y, i/ before the jer-shift. After the jer-shift, most

10) The term jer-shift will be used for convenience, following Isačenko (1970). The term, coined by Isačenko, and also known as "Havlík's Law", may be restated in the following way: Word-final jers and jers in syllables followed by vowels other than jers become weak. Weak jers are dropped. Jers in syllables followed by a weak jer become strong. Strong jers merge with one of the non-reduced vowels (see Isačenko 1970:73).

11) Trubeckoj (1987: 152, n. 7) writes: "ǃ, возникшее из у перед j, было, впрочем, не во всех древневосточнорусских говорах идентично нормальному ǃ. Это последнее было лабиализованным гласным заднего ряда (у, приближающееся к о): напротив, ǃ, возникший из у, в некоторых говорах являлся гласным среднего ряда и, по крайней мере по диалектам, неогубленным: отсюда диалектные южновеликорусские [moju]... т. п."

Slavic dialects continued to phonologize the reflexes of \**ŷ*, \**ĩ* as allophones of /*y*, *i*/, while the eastern dialects of ESI rephonologized them as /*o*, *e*/ or omitted them, when in weak position. In order to verify Trubeckoj's assumption that \**ũ*/\**ĩ* > [ŷ/ĩ] > [ĕ/ĕj] > jer-shift > *o/ej* in the eastern ESI dialects, we would need documents in which CS \**ũ* and *ĩ* in the environment before [j] were reflected as <*y*>, <*i*> prior to the jer-shift in the given area. However, Trubeckoj does not show any examples to verify his claim. There are a lot of counter-examples, e.g., <Nestere

čjudъnoi> (the Novgorod Menaion of 1096), <věčnoi životъ> (the Novgorod Menaion of 1097), etc.; see Filin (1972: 239-240). If the reflexes of CS \**ũ*/\**ĩ* before [j] in the extreme ESI dialects were the same as those of the jers prior to the jer-shift, why do we have to assume in the first place that [ŷ/ĩ] were initially phonologized as /*y*, *i*/ and only later rephonologized as /*ь*, *ь*/?

Unlike Trubeckoj, Seliščev ([1941]1968:193-194) does not admit the stage of [ĕ, ĕj] at all in the eastern dialects of East Slavic. In other words, Seliščev does not admit the existence of tense jers as allophones of /*ь*, *ь*/. Instead, Seliščev claims that [ŷ/ĩ] were originally the reflexes before vocalic /*i*/, not /*j*/. In most Slavic dialects, this /*i*/ was syncopated after causing assimilation and compensatory lengthening of the preceding [ŷ/ĩ]. However, in Russian, /*i*/ did not assimilate to the preceding [ŷ/ĩ], but changed to non-vocalic /*j*/. The change may be summarized as follows (Ibid:194):

(2) Seliščev's Model

Extreme ESI:	* <i>ŷ</i> i	>	ŷj	>	oj
	* <i>ĩ</i> i	>	ĩj	>	ej
Other ESI:	* <i>ŷ</i> i	>	ŷĭ	>	y
	* <i>ĩ</i> i	>	ĩĭ	>	i

The change of ŷj > oj and ĭj > ej is considered to be a process of dissimilation; the high vowels /*y*/, /*i*/ were lowered to become mid-vowels /*o*/, /*e*/, respectively, before [j]. In modern terminology, the [+high] vowels

[y, i] lowered before [j], whose dorsal feature was [+high]. Seliščev's observation is very important in that he explains the exceptional reflections of the tense jers in East Slavic by positing [j̥] instead of positing [j].<sup>12)</sup> However, Seliščev's explanation only covers the case of desinences which he says underwent the process of contraction. Seliščev also does not account for the fact that jod is retained after the reflexes of \*ŷ, \*ĩ in many Ukrainian dialects, as in molodij.<sup>13)</sup> Furthermore, he does not give any explanation for why the \*j/ĵ split and dissimilation occurred.

Filin (1972: 242) argues that the problem of the Russian reflexes of CS \*ũ/\*ĩ before [j] can not be solved by a purely phonetic interpretation. He states that the different East Slavic reflexes of CS \*ũ/\*ĩ in the given environment are closely related with the fate of the following [j], and that those reflexes can vary not only in different dialects, but also in different parts of speech within the same dialect. According to Filin, in dialects which underwent the reduction and consequent loss of /j/, the change of [ŷ], [ĩ] to [y], [i] was motivated by grammatical factors such as the influence of infinitive stem on the non-past conjugated forms or the necessity of differentiating the nominative-singular adjective ending from the genitive plural ending of certain nouns.<sup>14)</sup> For example, in Belorussian and some dialects of Ukrainian, the ending of masculine adjectives in the nominative and accusative cases singular is /i/ (Ukrainian /y/) without /j/, e.g., stary(j) 'old'. In the northeastern Russian dialects, /j/ was preserved and [ŷ], [ĩ] were replaced by [ɔ], [ɔ]. Filin proposes that the

12) This point will be treated in section 3 from a different angle. Seliščev's notion of [j̥] is taken by Bethin (1993), but she does not acknowledge Seliščev in her article.

13) In most Belorussian dialects, [j] was dropped after [y] and [i] in word-final and pre-consonantal position, e.g., CS \*-ũĩ > yj̥ > yj > y: stary 'old', pi 'drink'. After all other vowels, syllable-final [j] is retained, e.g., raj 'paradise'; see Wexler (1977: 158).

14) Although Filin does not exemplify the influence of infinitive stem on the non-past conjugated forms, presumably he has in mind cases such as pi-ti, vs. p̆ju/p̆ju.

fate of /j/ played an important role in the development of CS \*ǔ/\*ĩ; however, he does not make the connection between the loss of [j] and 'tensing' clear. Furthermore, in the face of extensive syncretism in the Slavic languages, Filin's claim that the tensing was motivated by grammatical factors is not cogent.

## 2.2. Tonality Attraction Theory

Flier (1988) gives a more precise and plausible explanation of the given problem than the investigators discussed above. He suggests that the environment before /j/ was conducive to an earlier and more consistent delabialization of CS \*ǔ than other environments. The resonance feature of flatting was changed from [+flat] to [-flat] in the environment before [j] in LCS.<sup>15)</sup> Flier terms this process 'tonality attraction' (1988: 91).

According to Flier (1988: 93-94), the LCS high vowels may be analyzed as follows:

(3)	/y/	/+grave,+tense/ [-flat]
	/ɸ'/	/+grave,-tense/ [+flat]
	/i/	/-grave,+tense/ [-flat]
	/ɸ/	/-grave,-tense/ [-flat]

The CS rounded long vowel \*ū changed into the unrounded vowel /y/; Similarly, the short high back vowel \*ǔ was delabialized in most dialects, although it maintained its roundness (=flatness) in some peripheral dialects. The central dialects of Slavic, which have unrounded reflexes of the strong back jer, provide strong evidence that there was an early tendency to delabialize /ɸ' / to /ɸ/; for example, \*сѣнѣ is reflected as /sən/ in Bulgarian and Slovene (where /ə/ is the reflex of either strong jer in short

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15) The features which Flier uses come from the study of the distinctive features by R. Jakobson, C. Fant and M. Halle. For a detailed discussion, see Jakobson, Fant and Halle (1976: 26-39).

syllables), /san/ in Serbo-Croatia, /sen/ in Czech, West Slovak, and Polish. However, the tendency to delabialize did not reach the peripheral dialects, which have rounded reflexes of the strong back jers - e.g. /son/ in East Slavic, Central and Eastern Slovak, Macedonian, and /sǎn/ in Polabian. According to Flier (ibid: 94), the fact that the reflex of the strong back jer in Ukrainian and Belorussian is rounded /o/, while that of \*ǔ before jod is unrounded [y] - e.g., U myju 'I drink' but son 'dream' - suggests that the environment before /j/ promoted early delabialization. The fact that the strong jers are reflected as mid or low vowels in all of the Slavic languages suggests that another process, the lowering of lax high vowels, was also at work.<sup>16)</sup>

Flier (ibid: 93-96) proposes that the separate chronologies of the above-mentioned three phonological processes of lowering, delabialization before /j/, and delabialization in other environments led to the differentiation of the reflexes of CS \*ǔ, \*ǐ in the various Slavic dialects. In the central dialects - Czech, West Slovak, Polish, Bulgarian, Serbo-Croatian and Slovene - delabialization preceded lowering before /j/, but coincided with it elsewhere; hence [i, y] were reinterpreted as /i/ and /y/, but the strong back jer as an unrounded non-high vowel (/e/, /a/ or /ə/), e.g., Cz. pij 'drink', miji 'I wash', but sen 'dream'. In peripheral dialects that bordered on the central dialects, such as central

16) The reflexes of front and back jers in Slavic languages is summarized as follows (B=Bulgarian, BR=Belorussian, Cz=Czech, Sk=Slovak, K=Kashubian, LS=Lower Sorbian, M=Macedonian, P=Polish, Pb=Polabian, R= Russian, SC=Serbo-Croatian, Sn=Slovene, U=Ukrainian, US=Upper Sorbian):

West Slavic		East Slavic		South Slavic	
P	e	R	e (o)/o	B	e/ə
Cz	e	U	e (o)/o	M	e/o
Sk	e (o,a)	BR	e (o)/o	Sn	a (/ə/)
US	e/o			SC	a
LS	e				
Pb	ǎ				

(Adapted from Horálek [1955] 1992: 122-125)

and eastern Slovak, Ukrainian and most of Belorussian, delabialization preceded lowering before /j/, but followed it elsewhere; hence [ĩ, ỹ] were reinterpreted as /i/ and /y/, but the strong back jer as the rounded vowel /o/, e.g., U pyj, myju, but son. In certain peripheral Belorussian and Russian dialects, i.e. dialects along the Belorussian-Russian political boundary and also some located south of Lake Onega, delabialization before /j/ coincided with lowering, but followed it in other environments; hence [ĩ, ỹ] were both reinterpreted as /e/, but the strong back jer as /o/, e.g., p'ej, meju (with a non-palatalized consonant before the reflex of \*ỹ), but son. In the far eastern periphery, i.e., in most Russian dialects, lowering occurred in any environment before delabialization; hence both the strong jers and [ĩ, ỹ] are reflected as mid-vowels /e, o/. Therefore, according to Flier (ibid: 94), "the earlier the onset of delabialization, the greater the likelihood that [ĩ, ỹ] would be identified as /i, y/. The earlier the onset of lowering, the greater the likelihood that [ĩ, ũ] would not be identified as diffuse vowels, but rather as mid or low vowels."

Flier's explanation of the tense-jer phenomenon in East Slavic makes it clear how dialectal differentiation for the reflections of CS \*ĩ, \*ũ took place. However, Flier takes neutralization as a given, thereby, he only focused on the end result of the changes, without asking why and how delabialization or lowering happened.

### 2.3. Summary

In sum, we may state the following. 1) Most of the investigators believe that before the jer-shift the sounds \*ỹ, \*ĩ before jod were allophones of /y, i/ in most of the Slavic dialects. In this respect, it is plausible to treat them as "reduced y/i (=ỹ/ĩ)". However, the investigators do not agree on their phonemic status prior to the jer-shift in the eastern peripheral dialects. Some of the investigators believe that [ỹ, ĩ] were rephonologized as /ɤ, ɤ/ in the eastern dialects of East Slavic after the jer-shift had taken place in the other dialects (Trubeckoj, Bulaxovskij etc.). Others

believe that the neutralized sounds [ǔ, ǖ] before jod were never rephonologized as /b, b/ in the eastern dialects of East Slavic, and that their change to /o, e/ in those dialects was due to dissimilation (e.g., Seliščev). 2) The existing explanations take the conditioning factor of jod as a given, without covering the problem of why they did so in the given environment.

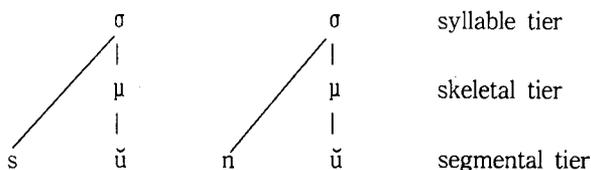
### 3. The syllable structure of LCS dialects

The change of syllable structure in LCS dialects provides some clues to why the reflexes of CS \*ǔ, \*ǖ before jod are the same as those in other environments in the eastern dialects of East Slavic, but different in the other Slavic dialects. Dialectal differences in syllable structure in LCS may be inferred from the divergent results of the changes of various diphthongs, as Bethin demonstrates (1992: 296-343, 1993: 230-250) in the framework of auto-segmental phonology. The reanalysis of syllable structure of LCS dialects before the jer-shift suggests that what have been traditionally called "tense jers" are not only a matter of chronological, but also of typological divergences. In this section, I will give brief sketch of auto-segmental phonology and summarize Bethin's argument, with certain modifications.

#### 3.1. The framework of autosegmental phonology

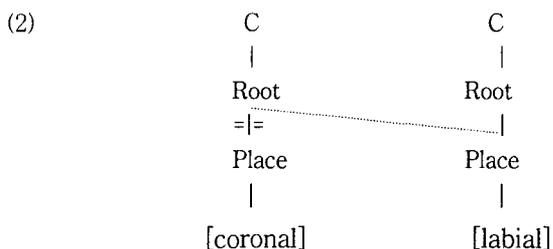
Since the appearance of the autosegmental model in the mid-seventies, phonologists have developed "a three-dimensional model of phonological representation that is based on a fundamental distinction between a phoneme and the position it occupies in phonological structures" (Kenstowicz 1994: 395). The sequence of positions (syllabic nuclei) is referred to as the moraic tier or the skeletal tier.<sup>17)</sup> The phonological representation of LCS \*sǔnǔ "dream" may be sketched as follows:

(1) The phonological representation of LCS \*sǔnǔ ( $\sigma$ =syllable,  $\mu$ =mora)



Mora is a traditional pre-autosegmental notion that refers to the quantity of segments. Long vowels are distinguished from short as having two moras instead of one.

In autosegmental phonology, the distinctive features are hierarchically organized under a root node, which may be associated with the skeletal tier. Phonological changes are described as instances of association, disassociation (delinking), or spreading of features or nodes. For example, regressive assimilation in place of articulation, e.g.,  $n \rightarrow m/\_b$ , may be formulated as the disassociation of one place node and the spread of the following place node from the adjacent segment, as in the following; see Bethin (1993: 231):



17) In autosegmental phonology, there are three models of the skeleton: a CV model, an X-slot model, and a moraic model. The three models are related in that phonological position is distinct from segments, but they are different in the way that the phonological positions are represented. Among these three models, the moraic model develops a prosodic conception of the skeleton, which offers a useful tool for the analysis of the CS sound changes from quantitative to qualitative distinctions in the vocalic system: For the discussion of each model, see Hayes (1989:253-306) and Kenstowicz (1994: 395, 424-432).

If the disassociated root node is not linked to the next available place node, the segment is either not pronounced or eventually deleted.

### 3.2. The Sonorants in Early Common Slavic

In Early Common Slavic (=ECS), there were four long and four short vowels, as well as a number of diphthongs (glide diphthongs, liquid diphthongs and nasal diphthongs) as in (3):

(3) CS Vowel Inventory after the Shortening of Super-long Diphthongs  
(Diph.=diphthong)

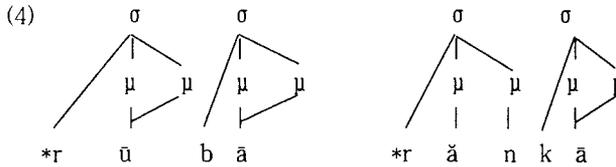
<u>Vowels</u>	<u>Glide Diph.</u>	<u>Liquid Diph.</u>	<u>Nasal Diph.</u>
ī/ī̄ ū/ū̄	ei ai	ir il ur ul	in im un um
ē/ē̄ ā/ā̄	eu au	er el ar al	en em an am

Three features were distinctive for vowels: /±high/, /±back/ and /±long/ (see Velcheva 1988: 25-26). The distinctions in vowel quantity were still preserved in LCS. ECS long vowels and diphthongs are considered to have two moras, and short vowels one mora. A distinction between long and short diphthongs had been eliminated by shortening the long vowels in liquid diphthongs (see Mareš [1956] 1965: 15 and Stieber 1969: 17).<sup>18)</sup>

What is curious about ECS diphthongs is that the non-vocalic sonorants in diphthongs could carry a mora. In other words, they could function as part of the syllable nucleus, e.g., \*rūbā 'fish'; \*rānkā 'hand' 19);

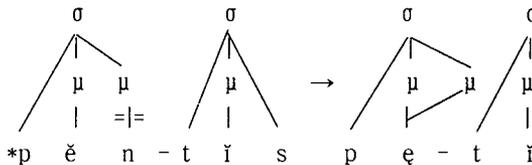
18) Mareš ([1956] 1965: 15) writes: "Only syllables of no more than two-mora value occurred in a very early stage of Slavic ... in other words, three-mora (long) diphthongs were shortened by this time."

19) For the phonological representation of long diphthongs such as '-āI-' in ECS, Bethin suggests that a distinction between long and short diphthongs can be expressed not so much by a difference in mora count as by difference in how the mora count was distributed over segments. Thus, Bethin (1992: 304) suggests that the second mora in \*bāl- is shared by both -ā- and -I-. Bethin's suggestion leaves the phonological representation of long diphthongs



By LCS, the vowel system had undergone a series of changes. In particular, the non-vocalic sonorants in various diphthongs had undergone certain changes that resulted in open syllables. This series of phonological changes is known as due to "the tendency or law of rising sonority", because it led to syllables in which the most sonorous element (the vocalic nucleus) came last.<sup>20)</sup> For example, in the change of \*pěn-tīs > \*pe-tī, the /n/ dropped out because /n/ was less sonorous than /e/, while the /e/ nasalized, with compensatory lengthening:

(5) The monophthongization of nasal diphthongs



As is seen here, in the monophthongization of nasal diphthongs, the second segment of the diphthong (/n/ in this case) is deleted from the coda (symbolized by the crossed line), and the unassociated mora node is linked to the preceding vowel (/e/ in this case). In other words, the basic quantitative structure of the syllable remains stable even though the

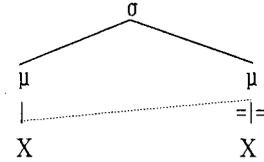
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ambiguous; that is, it may indicate that long diphthongs had three moras. However, the ambiguity does not weaken the point that nonsyllabic sonorants as well as vowels could carry a mora in ECS.

20) The entire class of speech sounds is ranked by sonority, with the low vowels as the most sonorous and the obstruents the least: low vowels > high vowels > glides > liquids > nasals > obstruents; see Kenstowicz (1994: 254).

phonemic sequences are changed. This is what has been called 'compensatory lengthening'; In autosegmental theory, 'compensatory lengthening' is defined as 'mora preservation', as in (6) (see Bethin 1993: 234):

(6) Mora Preservation Principle (=MPP)



The MPP was also in effect in the monophthongization of glide diphthongs. That is, /i/ and /u/, the second element of diphthongs, were coalesced with the preceding vowel into a raised vowel because they were less sonorous than the preceding vowel, e.g., \*ei > i, \*au > u, etc.; see (Bethin 1993: 233).

(7) The monophthongization of glide diphthongs

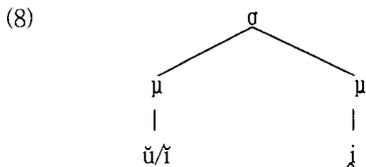


Unlike nasal and glide diphthongs, which followed the MPP, the divergent reflexes of the liquid diphthongs in LCS show that MPP was in effect in some, but not all the LCS dialects, e.g., \*gărdŭ "city" > SCr. grad, B. grad, Cz. hrad, with \*ŭ, but R. go.rod. Kb. gard. The changes of liquid diphthongs came at the end of the series of changes that tended to produce open syllables; they were completed by the mid- or late ninth century, that is, before the beginning of the jer-shift; see Bethin (1992:

303).<sup>21)</sup> On the basis of these changes, Bethin (1992: 296–343) proposes that there were different underlying syllable structures in the LCS dialects.

As was seen above, sonorants, which could carry a mora in ECS, lost their association with the mora node in LCS dialects. In nasal and glide diphthongs, the disassociated sonorant was simply dropped, with compensatory lengthening and qualitative changes in the preceding vowel. In liquid diphthongs, the liquid was not dropped, but rather repositioned in the given syllable by metathesis or pleophony, with or without lengthening, depending upon the syllable structure of the given dialects; see Bethin (1992: 296–343).

Bethin interprets the sequences of \*ǔ/ĭ plus jod in the same framework. Analyzing the phonemic status of jod in LCS in the framework of autosegmental phonology, she claims (1993: 230) that "the glide in Common Slavic was nonmoraic /j/... and the 'consonantization' of /i/ to /j/ took place later and then only in a limited area of Late Common Slavic."<sup>22)</sup> According to Bethin (1993: 239), CS \*ǔ/ĭ plus glide sequences were interpreted as diphthongs, with the /j/ associated with mora node:

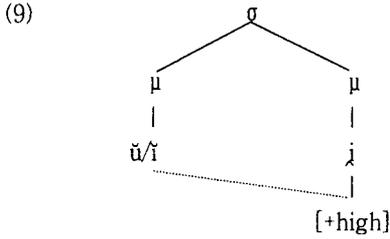


Given the structure of \*ǔ/\*ĭ plus glide sequences, the tensing of \*ǔ/\*ĭ

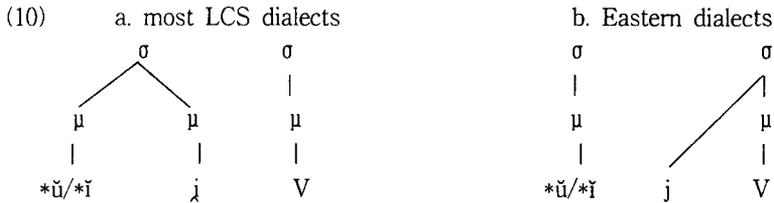
21) The fall of the jers began in Macedonian, Bulgarian, and probably Slovak and Czech in the tenth century; see Shevelov (1965: 458).

22) Arguments for the existence of a phoneme /j/ in Old Church Slavic are presented in Collins (1992). However, the phonemic status of the CS glides is controversial. For example, Lunt (1974: 26) writes: "In the absence of clear orthographical evidence, it is not easy to determine the distribution of the phonetic jod (j) and its phonemic function. The contrasts u/ju and a/ja suffice to illustrate that the jod was phonemic, though it may have been a non-syllabic variant of /i/ and not an independent phoneme."

before jod is explained by the spread of the dorsal feature of jod, that is [+high], to the preceding vowel, which was not specified for height (i.e., they did not have a dorsal node), as in (9); see Bethin 1993: 240):<sup>23)</sup>



In order for the spread of the height feature to occur, \*ũ/\*ĩ plus jod sequences must have been in the same syllable. Therefore, assuming that this interpretation is valid, the reflection of \*ũ/\*ĩ plus jod sequences in the eastern dialects of East Slavic as /o, e/ suggests that, in this area, \*ũ/\*ĩ plus jod sequences followed by a vowel were syllabified as \*ũ/\*ĩ .jV, not as \*ũ/\*ĩ j .V (V=vowel). Thus, the syllable structures of \*ĩ + j , \*ũ + j plus a vowel may be summarized as follows (see Bethin 1993: 241):



(Adapted from Bethin 1993: 241)

23) Unlike Bethin, who assumes that CS \*ũ/\*ĩ were not specified for height, Flier (1988) assumes that \*ũ/\*ĩ were specified for height ([+diffuse]). If we accept Flier's assumption, the spreading feature would be [-flat], not [+high]. However, whether the spreading feature is [+high] or [-flat] does not affect the point that two sounds must be tautosyllabic in order for a specific feature to spread.

In the southern and the northwestern dialects of East Slavic, the assimilation could take place because [*\*ǔ/\*ĩ*] were tautosyllabic with [*ǐ*]. In the eastern dialects of ESl, the assimilation could not take place because they did not allow bimoraic nuclei; Consequently, [*i*] was interpreted as the onset of the next syllable – that is, consonantized to /*j*/. According to Bethin, this is why, in the extreme northeastern dialects, CS *\*u/\*i* before jod behaved like jers. Thus, Bethin (1993: 243) defines tense jers as "jers tautosyllabic with the following /*i*/".

Bethin's analysis provides a method for interpreting the tense-*jer* phenomenon not only in terms of chronology, but also in terms of typology. In other words, the tense *jer*-phenomenon in Slavic is not only due to the different chronology of the sound changes in the individual dialects, but also due to the different syllable structures characteristic of the dialects before the *jer*-shift.

### 3.3. Some problems with Bethin's approach

In spite of the many benefits that Bethin's analysis of the given problem provides, it still leaves the phonemic status of jod ambiguous. Bethin proposes three different phonemic statuses for jod: moraic /*i*/, non-moraic /*i*/, and consonantal /*j*/. She writes (1993: 241) that "insofar as sonorants could be moraic, but could lose their association to the mora in certain well-defined environments, the sonorant /*i*/ ... could be at times moraic /*i*/ and at other times nonmoraic /*i*/." What Bethin means by proposing a non-moraic /*i*/ in LCS is not that /*i*/ did not have the ability to carry a mora, but that it did not have a mora in its underlying form. The jod could be assigned to a mora if a given dialect allowed moraic syllable codas. Therefore, three different phonemic statuses of jod assumed by Bethin may be summarized as follows:

## (11) Underlying representation of jod in CS

a. ECS jod	b. LCS jod	c. Eastern LCS jod
μ	μ	
/i/	/j̥/	/j/

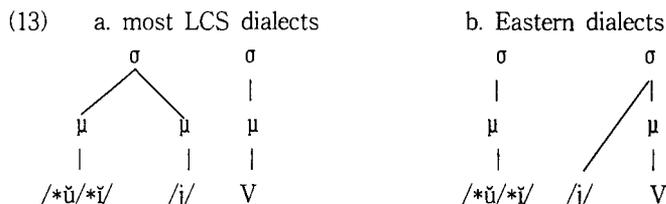
Given the underlying structure of jod in LCS, the surface structure of \*ũ/\*ĩ plus jod sequences in most of the LCS dialects may be derived as follows:<sup>24)</sup>

(12) a. Underlying form	b. σ assignment	c. μ assignment
$\begin{array}{c} \mu \\   \\ *ũ/*ĩ \quad j \end{array}$	$\begin{array}{c} \sigma \\ \vdots \\ \mu \\   \\ *ũ/*ĩ \quad j \end{array}$	$\begin{array}{c} \sigma \\   \quad \diagdown \\ \mu \quad \mu \\   \quad \vdots \\ *ũ/*ĩ \quad j \end{array}$

If we assume that a mora was not assigned to the jod in an underlying level, it is hard to see why Bethin distinguishes a "non-moraic /j̥/" from a "consonantal /j/" on the phonemic level. The difference in syllable structure of LCS dialects may be established without any distinction between a non-moraic /j̥/ and a consonantal /j/. The difference is not that one dialect had a non-moraic /j̥/ and the other had a consonant /j/ on the phonemic level, but that one dialect allowed the jod in a coda position to project a mora, while the other did not. In other words, the difference is a matter of coda-constraint, rather than a matter of the distinction between a non-moraic /j̥/ and a consonantal /j/. In this respect, Bethin's notation of "a non-moraic /j̥/" has to be replaced by a "non-moraic [j̥]". In other words, moraicity was on the allophonic level. In the eastern dialects of ESI, the jod with no mora value was reanalysed as the onset of the following syllable when it was followed by another vowel. Therefore, the

24) The view that, for a given phoneme, a mora may not be represented in an underlying level, but is assigned in an intermediate stage of derivation is proposed by Hayes (1988: 256-260).

phonological representation of CS \*ǔ/\*ĩ plus jod sequences in (10) may be revised as follows:



#### 4. Chronology vs. Typology

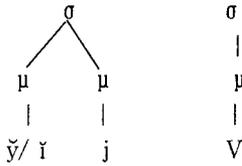
The jod in the sequences of \*ǔ+j, \*ĩ+j diphthongs was conducive to another phonological change, i.e., contraction. In desinences, jod was dropped, with compensatory lengthening of the preceding vowel, in most Slavic dialects, in a manner similar to the earlier monophthongization of nasal diphthongs, e.g., P. *młody*, Cz. *mlady*, SC. *mlády*, but, P. *myje*, Cz. *miji*, SC. *mijem*, etc.. In Russian, the jod in both cases was not dropped, e.g., *molodoj*, *moju*.

The process of contraction supports the view that the tense-jer phenomenon was not only due to the different chronology of the given sound changes in LCS dialects, but also due to the result of the dialectal differentiation of LCS syllable structure. Contraction is dated to be approximately in the tenth century, and the center of this process is said to have been the Czechoslovak area.<sup>25)</sup> In the framework of autosegmental phonology, we can posit the following structure for the sequences of \*ǔ+j, \*ĩ+j in desinences:

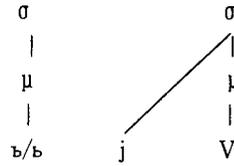
25) Slavists do not agree on the chronology of contraction. Shevelov (1965: 634) dates contraction to the tenth century, when changes in the jers began, while Marvan (1979: 144-147) assumes that contraction preceded the fall of the jers.

(14) Before the jer-shift

a. most LCS dialects

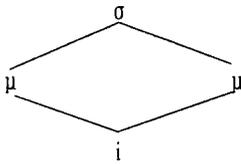


b. Eastern dialects

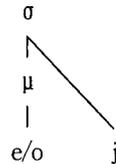


(15) After the jer-shift

a. most LCS dialects



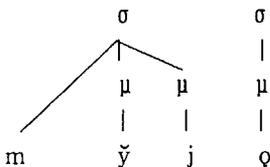
b. Eastern dialects



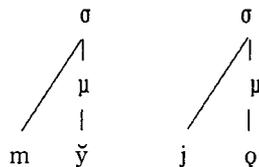
In most LCS dialects before the jer-shift, the contraction of \**ũ*+*j*/ \**ĩ*+*j* to *y*/*i*, with compensatory lengthening in desinences, was possible because [*\*ũ*, *\*ĩ*] were tautosyllabic with [*j*]. In the extreme ESL dialects, the contraction could not take place, because the jod could not project a mora and consequently was interpreted as the onset of the next syllable, with the following jer as the syllable peak. After the jer-shift, the jod in the eastern dialects of ESL was associated with the preceding syllable as a syllable coda without a mora value.

When the sequences of \**ũ*+*j*/ \**ĩ*+*j* were followed by other vowels, the syllabification of a given word followed the pattern in (14), as in the following diagrams:

(16) a. most LCS dialects



b. Eastern dialects of LCS



## 5. Conclusion

In Slavic historical linguistics, the term "tense jers" has not been clearly defined. Most of the studies on tense jers have been carried out on the basis of vague definitions. Recent studies by Bethin offer a new perspective on the given problems. The different reflections of CS \*ǔ/\*ĩ before jod in Slavic territories are best explained in the light of the syllable structures of the given dialects at the stage of LCS.

In the extreme eastern dialects of LCS, when followed by a vowel, the jod that was combined with \*ǔ/\*ĩ was reinterpreted as the onset of the following syllable, because the given dialects did not allow the jod to project a mora. Other LCS dialects allowed the jod in a coda position to project a mora. Consequently, in most LCS dialects, the jod was tautosyllabic with preceding \*ǔ/\*ĩ, and could trigger tensing of a preceding vowel. Given the dialectal differentiation of LCS syllable structure, the traditional term "tense jers" should be replaced and redefined as "the reduced \*y/\*i (= \*ŷ/\*ĩ) tautosyllabic with a following /j/, which could carry a mora." This view suggests that there were no tense jers or, properly speaking, reduced \*y/\*i, in the eastern dialects of ESl.

The exceptional reflections of CS \*ǔ/\*ĩ plus jod sequences in the extreme eastern dialects of ESl were due not only to the different chronology of the given sound changes, as is argued by Flier (1988), but also due to the consequence of typological differences. This view is also supported by the evidence of contraction in desinences. In the eastern dialects of ESl, contraction failed to occur not only because the territory was far away from the center of the given phonological change, but also because the eastern dialects did not allow the jod to carry a mora.

## Reference

- Belić, A.(1965) 『*Istorija srpskoхrvatskog jezika*』, 2nd ed. Beograd.
- Bethin, C.Y.(1992) "The Syllable in Slavic: Evidence from Liquid Diphthongs", 『*Die Welt der Slaven*』, volume 37, pp. 296-343
- (1993) "The Glide [j̥]/[j] in Late Common Slavic", 『*American Contributions to the Eleventh International Congress of Slavists*』, ed. Robert A. Maguire and Alan Timberlake, pp. 230-250. Columbus.
- Bulaxovskij, L.A.(1937) 『*Istoričeskij komentarij k literaturnomu ruskomu jazyku*』, Kiev.
- Carlton T.R.(1991) 『*Introduction to the Phonological History of the Slavic Languages*』, Columbus
- Collins, Daniel E.(1992) "Front Rounded Vowels and the Phoneme /j/ in Proto-Church Slavonic", 『*Die Welt der Slaven*』, volume 37, pp. 1-32.
- Diels, P.(1932) 『*Altkirchenslavische Grammatik. Part 1: Grammatik*』, 1st ed. Sammlung slavischer Lehr- und Handbueher, 1, 6. Heidelberg.
- Filin, F.P.(1972) 『*Proisxoždenie ruskogo, ukrainskogo I belorusskogo jazykov*』, Leningrad
- Flier, M.S.(1987) "Morphophonemic Consequences of phonemic Bifurcation: The Ukrainian genitive plural in -yj/-ej", 『*Language, linguistics, literature: In honor of Francis J. Whitfield on his Seventieth Birthday*』, ed. Michael S. Flier and Simon Karlinsky, pp. 40-57. Berkeley
- (1988) "Morphophonemic Consequences of the Development of Tense Jers in East Slavic," 『*American Contributions to the Tenth International Congress of Slavists*』, ed. Alexander M. Schenker, pp. 91-105. Columbus.
- Hayes, B.(1989) "Compensatory Lengthening in Moraic Theory", 『*Linguistic Inquiry*』, volume 20, pp. 253-306.
- Horálek, K.([1955] 1992) 『*An Introduction to the Study of the Slavonic Languages*』, volume 1. trans. and ed. Peter Herryty. Nottingham.
- Išačenko, A.S.(1970) "East Slavic Morphophonemics and the Treatment of

- the Jers in Russian: A Revision of Havlik's Law", *International Journal of Slavic Linguistics and Poetics*, volume 13, pp. 73-124
- Jakobson, R., Fant, C., and Halle, M.(1976) *Preliminaries to Speech Analysis: The Distinctive Features and their Correlates*, 11th ed. Cambridge.
- Kenstowicz, M.(1994) *Phonology in Generative Grammar*, Cambridge.
- Lunt, H.G.(1974) *Old Church Slavonic Grammar*, 6th ed. The Hague.
- Mareš, F. V. (1965) *The Origin of the Slavic Phonological System and its Development up to the End of Slavic Language Unity*, trans. J. F. Snopek and A. Vitek. Michigan Slavic Materials, 6. Ann Arbor.
- Marvan, J.(1979) *Prehistoric Slavic Contraction*, The Pennsylvania State University Press.
- Nikolaev, S.L.(1988) "Sledy osobennostej vostočnoslavenskix plemennyx dialektov v soveremennyx velikoruskix rovorax. I. kriviči", *Balto-slavjanskije issledovanija*, 1986, ed. V. V. Ivanov, pp. 115-154. Moskva.
- Pšeničnova, N.N.(1960) "K istorii reducirovannyx y, i v vostočno-slavjanskix jazykax", *Naučnye doklady vysšej školy: Filologičeskie nauki*, volume 1, pp. 43-54.
- Seliščev, A.M.([1941] 1968) "Kritičeskie zametki po istorii russkogo jazyka", *Izbrannye Trudy*, ed. E. Vasilevskaja, pp. 189-212. Moskva.
- Shevelov, G.Y.(1965) *A Prehistory of Slavic*, New York.
- (1976) "On the Problem of the Participation of y and i in the Loss of Jers." *Južnoslovenski Filolog*, volume 32, pp. 121-141
- (1979) *A Historical Phonology of the Ukrainian Language*, Historical Phonology of the Slavic Languages, 4. Heidelberg.
- Stieber, Z. (1969) *Zarys gramatyki porównawczej języków słowiańskich*, Warsaw.
- Trubeckoj, N.S.([1925] 1987) "O zvukovyx izmenenijax russkogo jazyka i raspade obščerusskogo jazykovogo edinstva", *Izbrannye trudy po filologii*, ed. T. V. Gamkrelidze et al.. pp.143-167. Moskva.
- Velcheva, Boryana(1988) *Proto-Slavic and Old Bulgarian Sound Changes*, Trans. and ed. Ernest A. Scatton. Columbus.

- Wexler, Paul(1977) 『*A Historical Phonology of the Belorussian Language*』, Historical Phonology of the Slavic Languages, 3. Heidelberg.
- Zaliznjak, A.A.(1986) "Novgorodskie berestjanye gramoty s lingvističeskoj točki zrenija", 『*Novgorodskie gramoty na bereste (iz raskopok 1977-1983 gg.)*』, ed. V. L. Janin and A. A. Zaliznjak, pp. 89-219. Moskva.
- (1993) "K izučeniju jazyka berestjanyx gramot", 『*Novgorodskie gramoty na bereste (iz raskopok 1984-1989 godov)*』, ed. V.L. Janin and A. A. Zaliznjak, pp. 191-319. Moskva.

## 국문 요약

## 동슬라브어에서의 긴장성 약화 모음(tense jers)의 역사적 발전

유 승 만

본 논문은 동 슬라브어에서의 긴장성 약화 모음(tense jers)의 발달 과정을 기존의 이론에 대한 비판적 검토를 바탕으로 재 고찰하고자 하였다. 슬라브 역사 언어학에 있어서 긴장성 약화 모음이 명확하게 정의되고 있지 않음을 지적하고, 그 모음들이 왜 동슬라브어, 그 중에서도 러시아어에서만 다른 결과를 초래하였는지를 몇 가지 음성 변화(예를 들어, lowering, delabialization)의 방언에 따른 상대적 연대와, 후기 공통 슬라브어의 음절 구조상의 상이성에서 찾으려 하였다.

후기 공통 슬라브 방언의 대부분에서는 요트(jod)가 선행하는 약화 모음과 같은 음절에 속했기 때문에, 긴장화(tensing)를 유발할 수 있었던 반면, 러시아 방언들에서는 요트가 선행하는 약화 모음이 아니라, 뒤에 따르는 모음과 같은 음절에 속했기 때문에 긴장화를 불러일으킬 수 없었으며, 이것이 러시아에서 긴장성 약화 모음이 다른 약화 모음과 같은 음운적 결과물을 낳게 하는 원인으로 해석하였다.

따라서 긴장성 약화 모음 현상이란 약화 모음이 후행하는 요트와 같은 음절에 속할 때만 가능한 것이며, 이런 의미에서 긴장성 약화 모음 현상은 러시아에서 일어나지 않았다고 할 수 있겠다. 후기 공통 슬라브어에 나타나는 음절 구조상의 차이는 형용사 어미에 나타나는 축약현상(contraction)의 방언적 분포와도 어느 정도 일치하는 것으로 볼 때, 긴장성 약화 모음 현상의 발달은 상대적 연대 뿐 아니라, 유형론적인 원인에도 기인하고 있음을 지적하였다.