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REGULAR PROPERTIES OF OLD CHURCH SLAVONIC VERBS

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Students approaching the Old Church Slavonic system of conjugation with the aid of the Jakobsonian one-stem verb system face a serious obstacle which is not present in Russian. A number of important Old Church Slavonic verbs present an alternation of the jer root-vowel. Since there are least four vowels which alternate with root jers, and since the morphological domain of the alternation varies with the stem-class, the student who wishes to master the conjugation system appears to be faced with a formidable task of memorization. Some of the attempts to regularize the Old Church Slavonic conjugation on the Jakobsonian one-stem model have not been of much help to the student in the area of root alternations. Halle (1951:162) simply listed such verbs as 'irregularities,' stating that "the following verbs undergo vowel changes in their major stems for which we were unable to find simple rules." Lunt applied the Jakobsonian verbal system but since, as he (1959:80) stated, "the treatment in this book is based on Halle's work," the original irregularities remained as a long list at the end of Lunt's description. A significant attempt to integrate these irregular verbs into a system can be found in the 'Epilogue' which Lunt appended to his grammar in its 1974 edition. These verbs are however still considered irregular, and the format of the epilogue is not the most convenient way to arrange the verbal root alternations as such. Lunt attempts to "re-examine the data of Old Church Slavonic . . . without . . . the need to decide whether surface alternations are automatic or morphologically conditioned," (1974:147).

This paper is an attempt to present the regular pattern found among many verbs which are usually considered irregular in Old Church Slavonic. Our system will not remove all irregularities, but it will deal with a significant number of the most troublesome root-vowel alternations. Let us state some of our basic assumptions. We agree with Lunt in rejecting the American descriptivist distinction between automatic phonemic and automatic morphophonemic rules, both of which can be stated in terms of purely phonological environments.[1] On the other hand we assume an important distinction between automatic (i.e., phonologically conditioned) rules and the non-automatic, morphophonemic type. This view comes quite close to the distinction of 'positional' and 'non-positional' alternations, as espoused by members of the Moscow Phonological School (Panov 1979:95-102).

We shall regularize virtually all Old Church Slavonic verbs which contain a jer-vowel in their Jakobsonian basic-stem by predicting that there is a regular mutation of all root front-jer vowels in the following instances:

1. when vocalic endings are added to first conjugation a-suffix verbs;[2]
2. when obstruent endings are added to non-suffixed verbs, regardless of whether the verbal stem ends in an obstruent or a sonorant.

Since we are concentrating on roots which contain a jer-vowel, and since liquids frequently occur following jers and preceding vowels (e.g., *bĭrati, mĭrǫ*) we must first state our assumptions regarding the phonological shape of the JER+LIQUID group when both vowels and consonants may follow the liquid. Our phonological rules will be seen to specify metathesis in order to get us from the phonological basic form to the surface. Although this may violate certain theoretical notions of linearity, we maintain it on the basis of its purely phonological environment for operation in Old Church Slavonic. Distributionally, JER+LIQUID groups can occur in prevocalic position (e.g., *mĭrǫ,*

stĭlati). Preconsonantally, this sequence is automatically realized as a syllabic liquid, orthographically rendered as LIQUID+JER in Old Church Slavonic texts—appearing in written form as if metathesis had taken place in comparison to the prevocalic environment (e.g., *sŭmrĭtĭ*[3], *zrĭxŭ, plĭzati*). Analogous to the proportion JER+LIQUID BEFORE VOWEL : SYLLABIC LIQUID BEFORE CONSONANT is the proportion NON-TENSE VOWEL e/o+LIQUID BEFORE VOWEL : LIQUID+TENSE VOWEL ě/a BEFORE CONSONANT. In other words, a basic VOWEL+LIQUID sequence in a prevocalic position is automatically modified to a syllabic liquid or a metathesized sequence in a preconsonantal position. Since such rules of metathesis have not often been used before for regularizing Slavic verbal systems, we should point out the significant introduction of precisely such a rule by Rado Lencek (1966:35) in his system of Slovene conjugation based on the one-stem principle.

We shall recognize the prevocalic sequences as the basic phonological shapes for our purposes and operate with them in our basic verbal stems, regardless of whether a vowel or a consonant actually follows the liquid in a given grammatical form. Only in this way can we separate an automatic, phonologically conditioned process from a morphologically conditioned one. Let us note in passing that the failure to do precisely this has kept these verbs on irregular lists rather than allow a more systematic interpretation. The environmental facts discussed so far are presented on TABLE I, which gives the assumed phonetic shapes of VOWEL+LIQUID and LIQUID+VOWEL groups.[4]

Table I illustrates, within the two types, alternations that are really phonological. This implies that when we encounter instances of other possible combinations of alternating vowel-and-liquid groups, e.g., ĭr/rě as in *mĭrǫ/mrěti*, they are non-automatic alternations, not on a par with those illustrated in the table. When we deal with Old Church Slavonic verbs which comprise non-automatic alternations we are in a position to realize a distinct advantage if we consider the jer variants to be basic, since in every instance of front jer mutation involving a jer before a liquid the Jakobsonian basic form contains the jer variant rather than the other alternating vowel. The fact that the Jakobsonian basic forms uniformly contain front jers, even when such jers regularly mutate in the non-basic conjugational forms, leads us to assert that the mutation is itself regular. Similar to the various consonantal mutations found in Old Church Slavonic and other Slavic conjugations, the front jer mutation is restricted to certain stem-classes only. As noted, these are the *a*-suffixed verbs of conjugation one, and the non-suffixed verbs. Let us now review the occurrence of front jer basic stems in Old Church Slavonic within these two categories.

Within the class of *a*-suffixed verbs the front jer mutation is conditioned in a way similar to the familiar consonant mutation of this class; namely, when a vocalic ending is added to the *a*-stem, causing the stem-final *a* to truncate. The specific choice of vowel to replace the front jer depends upon the consonant that follows the jer in question. There are three kinds of situation, presented in TABLE II (where the basic stem, infinitive and second person singular forms represent the three possibilities). We caution the reader that we intentionally represent Old Church Slavonic basic stems with JER+LIQUID, even where the infinitive form is written with liquid + jer, on the basis of our remarks above.

I. When sonorants follows the jer in the basic form (which we have established using our rule of automatic metathesis) the resulting phoneme is *e*;[5]

II. When the jer precedes jot in the basic form it belongs to the well-known class of tense jers; thus it is not surprising that its mutated value is the tensed value of *e*, viz., *jat'*.

III. When obstruents follow the jer the latter alternates with a diffuse vowel, where the vowel's acute or grave feature simply agrees with that of the obstruent following the jer.

TABLE I. VOWEL+LIQUID COMBINATIONS: SYNTAGMATIC BEHAVIOR

	PREVOCALIC	PRECONSONANTAL
TYPE 1. example:	jer + liquid mьrǫ	syllabic liquid mr̥lъ
TYPE 2. example:	e/o + liquid četvero	liquid + ě/a četvrěgubъ

TABLE II. EXAMPLES OF VERBAL FORMS IN a-STEM CLASS

I: Jer is followed by a sonorant (liquid or nasal) in the basic stem; front jer mutates to basic *e* before vocalic ending:

BASIC STEM	*INFINITIVE*	*PRESENT, 2 SINGULAR*
bьra-	bьrati	bereši
dьra-	dьrati	dereši
pьra-	pьrati	pereši
stьla-	stьlati	steļeši
jьma-	jьmati	jemļeši
čьrpa-	črьpati	črěpļeši
plьza-	plьzati	plěžeši
slьpa-	slьpati	slěpļeši
srьba-	srьbati	srěbļeši
tьrʒa-	trьʒati	trěžeši

II: Jer is followed by jot in the basic stem, and mutates to *ě*:

BASIC STEM	*INFINITIVE*	*PRESENT, 2 SINGULAR*
lьja-	lьjati	lěješi
smьja-	smьjati (sę)	směješi (sę)
zьja-	zьjati	zěješi

III: Jer is followed by obstruent in the basic stem:

A: Acute obstruent: front jer mutates to *i*

BASIC STEM	*INFINITIVE*	*PRESENT, 2 SINGULAR*
lьza-	lьzati	liže̍ši
pьsa-	pьsati	piše̍ši
zьda-	zьdati	zíždeši
žьda-	žьdati	žídeši

B: Grave obstruent: front jer mutates to *u*

BASIC STEM	*INFINITIVE*	*PRESENT, 2 SINGULAR*
bļьva-	bļьvati	bļjuješi
kļьva-	kļьvati	kļjuješi
pļьva-	pļьvati	pļjuješi

Let us now recapitulate the two major conditioning factors to be noted in the front jer mutation process illustrated above:

The first factor is the environment which conditions the occurrence of the mutation itself: namely, the present tense system of the first conjugation *a*-suffixed verbs. All such forms share the use of vocalic endings which cause the stem-final *a* to truncate. Most of these verbs also contain a consonant mutation which is conditioned in exactly the same environment.

The second is the selection of the particular mutated vowel in the subset of forms subject to mutation. We can see a pattern of mutation in which a front jer alternates either with a non-diffuse vowel or a diffuse vowel, when it precedes a non-obstruent or an obstruent respectively. This can be correlated with the sonority value of the post-jer segment, as a causal factor in the selection of vowel: when the more sonorous class (non-obstruents) follows the jer, the latter mutates to the more sonorous non-diffuse vowel; when the less sonorous class (obstruents) follows the jer, it mutates to the less sonorous class of diffuse vowels, where the choice between *i* and *u* depends on the acuteness and gravity of the obstruent in question.

Keeping these two major aspects of the problem in mind, let us now view front jer mutation as it functions in the class of non-suffixed verbs. As stated, front jer mutation in *a*-suffixed verbs is conditioned by vowel desinences added to a stem-final vowel. By contrast, in non-suffixed verbs it is obstruent endings that cause the root *ĭ* to mutate. These categories are not precisely the opposite of one another. In the case of *a*-suffixed verbs mutation occurs when the precise equivalent ending is added to the stem-final (vowel after vowel). In non-suffixed verbs mutation occurs when an obstruent ending is added to a stem-final consonant, itself either obstruent or sonorant. In TABLE III we present a graphic comparison of the two situations, with examples:[6]

The second aspect of this problem, as already noted, is the selection of the specific mutated vowel, depending on the consonant following the front jer. In this respect the non-suffixed verbs are completely parallel to those of the *a*-suffix class. This further justifies our attempt to portray this process as a unified and regular one, rather than as a collection of exceptions and iregularities.

In the case of non-suffixed stems ending in either *ĭn* or *ĭm* followed by another consonant (such as the *-lŭ* or the *-ti* desinence), there is an automatic phonological rule which converts the JER+NASAL group to the nasal vowel *ę*, regardless of the morphological environment. This neutralizes the possibility for a front jer mutation in the non-suffixed nasal type, since the essence of morphologically-conditioned mutation is differential change in a single phonological environment, rather than a change which can be uniformly predicted based on phonological factors. Thus the *ĭr* group has two types of change before consonants: an automatic change to *ŗ* before the *l*-participle endings, and a mutated change to *re* before the infinitive and *x*-aorist endings. The *ĭn* and *ĭm* groups have only one possible change before any consonantal ending, be it the *l*-participle, infinitive or *x*-aorist: namely, *ę*. With this in mind, let us now view the behavior of non-suffixed verbs with front jer roots, as set out in TABLE IV. Here we list the major sub-groups among non-suffixed verbs (cf. the sub-groups in the *a*-stem class in TABLE II above; here, it is the second person singular form that (since it takes vocalic endings) lacks the mutation and agrees with the basic stem, while the infinitival form (which takes the obstruent ending) does manifest the front jer mutation):[7]

Our system has interesting implications for the study of productive and non-productive aorist formations in Old Church Slavonic. If we compare the aorist endings in the forms

TABLE III. CONDITIONING PROPERTIES OF ENDINGS IN MUTATIONS OF ь

I. *a*-stems

Vocalic endings (a-V → V) condition front-jer mutation, while non-vocalic endings do not (a-C, or a-∅):

VOCALIC ENDINGS	*NON-VOCALIC ENDINGS*
ber-ǫ (bьra-ǫ → bьr-ǫ)	bьra-ti
ber-ı (bьra-ı → bьr-i)	bьra-lъ
	bьra-xъ
	bьra-∅
	bьra-nъ

II. Non-suffixed stems

Obstruent endings (C-OB → OB) condition front jer mutation, but non-obstruent endings do not (C-V, C-l), etc.)

OBSTRUENT ENDINGS	*NON-OBSTRUENT ENDINGS*
či-sъ (← čit-sъ)	čьt-ǫ
čıs-tı (← čьt-tı)	čьt-e
	čьt-oxъ
	čь-lъ (← čьt-lъ)
-vrě-sъ (← vьrz-sъ)	-vr̥z-ǫ (← -vьrz-ǫ)
	-vr̥z-lъ (← -vьrz-lъ)
	-vr̥z-oxъ (← -vьrz-oxъ)

TABLE IV. EXAMPLES OF VERBAL FORMS IN NON-SUFFIXED CLASS

I: Jer is followed by a liquid in the basic stem, and mutates to basic *e* before consonantal ending:

BASIC STEM	*PRESENT, 2 SINGULAR*	*INFINITIVE*
mьr-	mьreši	mrěti
-nьr-	-nьreši	-nrěti
-pьr-	-pьreši	-prěti
-skvьr-	-skvьreši	-skvrěti
-stьr-	-stьreši	-strěti
-žьr-	-žьreši	-žrěti
tьlk-	tьlčeši	tlěšti
vьrg-	vьržeši	vrěšti
-vьrz-	-vьrzeši	vrěšti

II: Jer is followed by a nasal consonant and automatically changes to *ę* (note: phonological rule, not mutation):

BASIC STEM	*PRESENT, 2 SINGULAR*	*INFINITIVE*
-čьn-	-čьneši	-čęti
jьm-	jьmeši	jęti
mьn-	mьneši	męti
tьn-	tьneši	tęti
žьm-	žьmeši	žęti

III: Jer is followed by an obstruent; a diffuse vowel appears by mutation of the front jer. All known cases involve acute obstruents; mutation is therefore to acute diffuse *i*:

BASIC STEM	*PRESENT, 2 SINGULAR*	*INFINITIVE*
cvьt-	cvьteši	cvisti
čьt-	čьteši	čisti

pĭsa-xŭ and *čĭt-oxŭ* we see that a non-vocalic ending is added to the a-stem, and a non-obstruent ending to the non-suffixed stem,
in neither instance conditioning a front-jer mutation by our system of rules. On the other hand, when the stem *čĭt-* forms a sigmatic aorist with the obstruent ending *-sŭ* we derive the form *čisŭ* with a mutation of the front jer to *i*. Thus the actual aorist ending used conditions the presence or absence of the front jer mutation. Lunt's statement (1974:177) that, e.g., the root *-vĭrz-* hesitates between root jer mutation in the unproductive aorist and no mutation in the productive aorist does not seem to emphasize an essential point: namely, that the productive aorist suffix affixes VOCALIC endings to non-suffixed verbal stems, while the unproductive sigmatic aorist affixes consonantal OBSTRUENT endings. This explains the difference between regular front jer mutation and its absence. Thus we have the productive *-vrĭz-ošę* and the unproductive *-vrě-sę* (← *vrez-*). This behavior is completely regular according to our description. Further, let us observe that in the second and third persons singular of the aorist a zero-ending behaves as the functional equivalent of an obstruent ending, and even alternates with *ĭ* in a number of stems. For example, the stem *mĭr-* uses either the zero-ending or *ĭ* and shows front jer mutation to *mrě-*, while *-vĭrzŭ* adds the vocalic ending *-e* and does not have jer-mutation (cf. TABLE IV). An interesting problem arises if one chooses to posit a BASIC zero-ending for the 2/3 singular ending of the aorist, realized as *-e* after obstruents but as zero otherwise. How could we maintain the basic zero ending, and also use the variable surface realization (*e* varying with zero) to condition our front jer mutation rule? The answer would probably lie in the use of rule ordering, so that front jer mutation would be conditioned only after the basic aorist ending's shape becomes determined as *e* or zero.

We have concentrated our attention on verbal roots in which a front jer mutates to another vowel in certain specifiable environments. The case of verbal roots in back jers has not been addressed, since, normally, back jer verbal stems show no vowel mutation, e.g., *rŭza-, sŭla-, lŭga-, rŭva-, sŭsa-, tŭka-*.

Exceptions to this last statement, and to our system of front jer mutation, are few. The following are the deviations in verbs belonging to Old Church Slavonic proper (i.e., excluding later periods of Church Slavonic): (a) three roots with back jers ARE mutated: *zŭva-/zov-, strŭga-/struž-, gŭna-/žen-*; (b) two roots with front jers DO NOT undergo the expected mutation: *žĭr-*[8], *tĭr-*. In addition, there are sporadic instances of both regular and irregular variants within verbs not mentioned here.

In conclusion, we have seen that the significant majority of Old Church Slavonic *a*-stems and non-suffixed stems containing front jer vowels undergo a regular mutation of the front jer to another vowel. While the specific value of the mutated vowel is conditioned by the last consonant of the verbal stem, the presence or absence of vowel mutation itself is determined by the desinence in relation to the stem-type, within the class of front jer stems. Generally speaking, environments which produce consonant mutations and truncations (VOWEL+VOWEL and CONSONANT+CONSONANT, with certain modifications) tend to favor the occurrence of the front jer mutations as well. Although the number of verbs containing front jers is not large, and some exceptions to the system do exist, a recognition of the above enumerated systematic factors seems preferable to a mere listing of these verbs as irregularities.

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EDITORS' NOTE: We regret the inconvenience to this article's readers, and the imposition on its author, occasioned by the use in the text of *ĭ* and *ŭ*, respectively, for the soft and hard jers. Modifications in the printing system made this necessary.

REFERENCES

1. For example, considering the alternation of [d] and [t] as morphophonemic in such Russian forms as NSg *moda* and GPl *mod* would simply be due to the phonemic behavior of /d/ vs. /t/ in other positions such as /da/:/ta/—even though, in the case of *moda* and *mod* the environment automatically determines the choice of [d] or [t]. On the other hand, the alternation between [g] and [ž] in *kniga* and *knižnyj* cannot be predicted phonologically.
2. "Ca-verbs" in the terminology of Lunt (1974:73).
3. There is some disagreement about whether to normalize such orthographic *trĭt* groups with a front or a back jer, due to the wide variations encountered in texts. We side with Lunt (1974:32) in opting for the front vowel normalization. Most likely, preconsonantal *rĭ* and *lĭ* spellings get confused because we do not really have a LIQUID+JER group here, but a syllabic liquid in which the front vs. back opposition is neutralized. On the other hand, the choice of basic phonemic front or back jer in such cases can more easily be decided in favor of the front jer, based on such prevocalic cases as *mĭrǫ*, already cited. The morphophonemic alternations can thus be a guide to the representation of these syllabic liquids at the phonemic level. Lunt's approach could be criticized since he chooses to distinguish between *rĭ* and *rŭ* transcriptions on the basis of 'etymology.' This is irrelevant to the Old Church Slavonic phonemic system, but the morphophonemic system (on which we base our transcription) is not.
4. Note that the example of type 1 in preconsonantal position is rendered *mrĭlŭ* orthographically.
5. Note that we can speak of the front jer mutating to basic *e* in all the instances cited in Section I of Table II, even though the *e* in question is automatically realized (a) as *e* when it is followed by a LIQUID+VOWEL, but as (b) *ě* with metathesis when it is followed by a LIQUID+CONSONANT. Thus we can derive the present tense forms of both *bereši* and *črěpleši* by means of the same mutational rule: this causes the basic-stem front jer to change to *e*, with a further automatic change to *ě* under condition (b). The forms of the last *five* verbs in this section, before the automatic modification and metathesis, are therefore: /čerpĭeši/, /pelžeši/, /selpĭeši/, /serbĭeši/, /teržeši/.
6. Note the orthographic shape of the last three forms on this table, *-vrĭžǫ*, *-vrĭžlŭ*, *-vrĭžoxŭ*.
7. The infinitives in sub-group I have basic forms as follows: /mer-ti, ner-ti, per-ti, skver-ti, ster-ti, žer-ti, telk-ti, verg-ti, verz-ti/. By the term 'basic' we refer to the phonemic representation, based on phonological criteria. We cannot include the front jer in these representations since it is conditioned morphologically. However, such rules as $g+t \rightarrow št$ are automatic, cf. Lunt 1974:37.—Also, note that the root *-žĭr-* here is that of the verb 'to swallow', not of the verb 'to sacrifice' (respectively, *požrěti požĭrǫ*, *žrĭti žĭrǫ* in their normal orthographic form).
8. 'to sacrifice,' cf. note 7.

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POVZETEK

PRAVILNOST STAROCERKVENOSLOVANSKIH GLAGOLOV

Kot pravilne je mogoče obravnavati večje število starocerkvenoslavanskih glagolov, kakor so jih v prejšnjih opisih. Z vidika Jakobsonovega enoosnovnega glagolskega sistema imajo vsi ti glagoli skupno važno lastnost: njihova osnova vsebuje v korenu jer, ki se v nekaterih določljivih spregatvenih oblikah preglasi v drug samoglasnik. To preglaševanje se dogaja dveh glagolskih razredih, v enem s pripono na -a *in drugem z brezpriponskimi osnovami na nezvočnik. Članek kaže, da izbira samoglasnika, v katerega se jer preglasi, določa prilagajanje k razločevalnim značilnostim soglasnika, ki v osnovi jeru sledi. Zato oblikoglasna premena jerov ne spada med nepravilnosti, ampak je analogna pravilnemu preglaševanju v glagolih s pripono* -i, -ě *ali* -a.