

## ***Jer* Vowels in Russian Prepositions\***

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The goal of this paper is to describe and analyze *jer* vowels in Russian monosyllabic prepositions *v/vo* ‘in’, *s/so* ‘with/from’, and *k/ko* ‘to’. I will show that patterns of *jer* realization in Russian prepositions are different from those in Russian prefixes. I will present empirical generalizations on the behavior of prepositional *fers* driven from the collected data and propose an OT analysis of the data.

Monosyllabic prepositions containing *fers* are especially interesting to investigate because they alternate between a syllable of their own and a single consonant, thus adding to the problem of the canonical syllable and extra-syllabicity in Russian.

The paper is organized as follows. §1 presents the background. §2 compares the behavior of prepositional *fers* with the behavior of *fers* in prefixes. §3 lays out assumptions about syllabification and prosodic parsing in Russian. §4 illustrates empirical generalizations on *jer* vowels in prepositions. §5 proposes an OT analysis of the data. §6 draws the conclusions.

### **1. Background**

All Slavic languages have one or two vowels that alternate with zero. Such vowels are called *jer* (or *yer*) vowels. Russian has two *jer* vowels: [ɛ] and [o], illustrated in (1)<sup>1</sup>. The data in (2) contain for comparison regular vowels [ɛ] and [o] that do not alternate with zero.

- |   |  |
|---|--|
| (1) <i>Jer</i> vowels [ɛ] and [o]   | (alternation with zero)  |
| a. <i>kus-<u>ó</u>k</i> [k <u>u</u> s <u>ó</u> k] ‘piece <sub>NOM</sub> ’ | <i>kus-k-á</i> [kuská] ‘piece <sub>GEN</sub> ’                     |
| b. <i>d’<u>é</u>n’</i> [d’ɛn’] ‘day <sub>NOM</sub> ’                      | <i>dn’-á</i> [dn’á] ‘day <sub>GEN</sub> ’                          |
| (2) <i>Regular</i> vowels [ɛ] and [o]                                     | (no alternation with zero)   |
| a. <i>kor<u>ó</u>l’</i> [k <u>ɔ</u> r <u>ɔ</u> l’] ‘king <sub>NOM</sub> ’ | <i>korol’-á</i> [k <u>ɔ</u> r <u>ɔ</u> l’á] ‘king <sub>GEN</sub> ’ |

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\*Many thanks to Gunnar Hansson, Patricia Shaw and Joe Stemberger for their helpful comments and suggestions on this paper. Thank you to the audience at FASL-15 for their useful feedback.

<sup>1</sup> *Jer* vowels are shown in **bold** and are underlined.



- (compare with *u-c'ěst* 'consider<sub>PERF</sub>')  
 c. *podo-rv-á-t'* 'to undermine' (UR: /podo-rov-a-t'/)  
 (compare with *rov* 'ditch')

(4) *Prefixal jers before unsyllabifiable stem-initial clusters*

- a. *so-lg-á-t'* 'to lie'  
 b. *podo-b'j-ú* '(I will) instigate'  
 c. *vo-l'j-ú* '(I will) pour in'  
 d. *so-v-m'est'-í-t'* 'to combine'  
 e. *podo-tk-n-ú-t'* 'to tuck in'  
 f. *podo-tk-á-t'* 'to add to the weaving'

The second of these generalizations is weak, because every single example in (4) also contains a *jer* in the stem underlyingly, which makes these data very similar to the data in (3). For example, the word *so-lg-á-t'* 'to lie' underlyingly contains a *jer* in the stem /so-log-a-t'/, because of the related *jer*-containing noun *lož<sup>2</sup>* 'lie'. Another example is the word *podo-b'j-ú* '(I will) instigate' that is underlyingly /podo-b'εj-u/, because of the imperative *pod-béj* 'instigate<sub>IMPERF</sub>'.

It seems that the data in (3) and (4) form in fact a single set of data, illustrating one generalization: prefixal *jers* are realized before a stem that underlyingly contains another *jer*.

2.2. *Jers in prepositions are different from jers in prefixes*

If *jer* vowels in Russian prepositions behaved similarly to *jer* vowels in prefixes, we would expect them to surface before a *jer*-containing major category word.

The following data, elicited from native speakers of Russian, show that unlike *jers* in prefixes, prepositional *jers* do not 'care' whether there is another *jer* in the following major category word.

- (5) *v p's'-é* [f p's'ε]/\**vo ps'é* 'in dog' (UR: /vo p'os'-ε/)

In (5), there is a *jer* vowel in the word *p'os* 'dog', because it alternates with zero: *p'os* 'dog<sub>NOM</sub>' – *ps-á* 'dog<sub>GEN</sub>'. The preposition *vo* 'in' surfaces without a *jer*. If Russian prepositions behaved like Russian prefixes, we would expect \**vo p's'-é* 'in dog' to be a grammatical example, and *v p's'-é* to be ungrammatical. However, as the data indicate, the opposite is true.

<sup>2</sup> There is a [g] - [ž] alternation in this word.

- (6) *s p'n'-óm* [s p'n'óm]/\**sǫ p'n'-óm* ‘with stump’  
 (UR: /*sǫ p'ɛn'-om*/) (compare with *p'én'* ‘stump’)

In (6), there is a *jer* vowel in the word *p'én'* ‘stump’, because it alternates with zero: *p'én'* ‘stump<sub>NOM</sub>’ – *pn'-á* ‘stump<sub>GEN</sub>’. The preposition *sǫ* ‘with/from’ is used without a *jer*. If *jer*s in prepositions and in prefixes behaved in a similar manner, we would expect \**sǫ p'n'-óm* ‘with stump’ to be a grammatical example, and *s p'n'-óm* to be ungrammatical. But the opposite happens in the language.

- (7) *k rt-ú* [k rtú] and *kǫ rt-ú* [kʌ rtú] ‘to (the) mouth’ (UR: /*kǫ rǫt-u*/)

The examples in (7) present an interesting case, because they show that a *jer* vowel can be *optionally* realized in prepositions. The word *rǫt* ‘mouth’ underlyingly contains a *jer* because it alternates with zero: *rǫt* ‘mouth<sub>NOM</sub>’ – *rt-á* ‘mouth<sub>GEN</sub>’. If the distribution of *jer* vowels in prefixes and in prepositions were the same, we would expect only the example *kǫ rt-ú* ‘to (the) mouth’ to be grammatical. However, both *k rt-ú* ‘to (the) mouth’ and *kǫ rt-ú* [kʌ rtú] ‘to (the) mouth’ are grammatical in Russian.

I have shown above that, unlike *jer* vowels in prefixes, *jer*s in prepositions are ‘blind’ to the presence vs. absence of another *jer* in the following syllable. With respect to this, the following questions arise. What determines the behavior of *jer*s in Russian prepositions? Why do they sometimes surface and sometimes not? In this paper, I will argue that the Russian syllable structure, prosodic parsing, and place sequencing are responsible for the observed behavior of prepositional *jer*s.

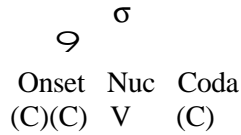
### 3. Syllable structure and prosodic parsing in Russian

#### 3.1. Syllable structure

To determine the syllable structure of Russian, I investigated 5000 words from Leed and Paperno’s dictionary (1987). It has been claimed in the literature that Russian prefixes and suffixes do not form a single prosodic domain with the root (Zubritskaya 1993 on prefixes, Cubberley 2002 on suffixes). For this reason, I assume a strict view that the canonical syllable can only be found root-internally in Russian. Because of space restrictions, only conclusions from this part of research will be presented here<sup>3</sup>.

<sup>3</sup> A more detailed analysis of the Russian syllable is developed in Steriopolu 2006.

(8) Syllable template for Russian



Russian has the following types of syllables (9)

(9) V	<i>lián-a</i>	[li.á.nə]	‘liana <sub>NOM</sub> ’
CV	<i>kor-á</i>	[kʌ.rá]	‘bark <sub>NOM</sub> ’
CCV	<i>túndr-a</i>	[tún.drə]	‘tundra <sub>NOM</sub> ’
VC	<i>paúk</i>	[pʌ.úk]	‘spider <sub>NOM</sub> ’
CVC	<i>arbúz</i>	[ʌr.bús]	‘water-melon <sub>NOM</sub> ’
CCVC	<i>zdráv-stv-uj</i>	[zdrás.tvuj]	‘hello <sub>IMPER</sub> ’

The Russian syllable exhibits the following severe restrictions on the CC onset cluster (10).

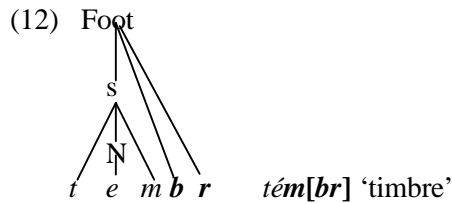
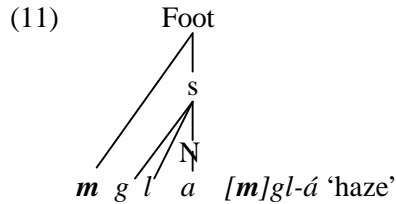
- (10) a. CC cluster can only be of types *stop + sonorant* or *stop + /v/*:  
*túndr-a* [tún.drə] ‘tundra<sub>NOM</sub>’, *zdráv-stv-uj* [zdrás.tvuj] ‘hello<sub>IMPER</sub>’;  
b. CC cluster is not allowed to agree in both features: *Place* and *[cont]*:  
*grúst-n-o* [grús.nə] ‘sad<sub>ADV</sub>’, *dožd-l’-ív-ĭj* [dʌž.ɫ’í.vĭj] ‘rainy<sub>ADJ</sub>’.

### 3.2. Prosodic parsing

According to the syllable template in (8), the Russian onset can consist of no more than two consonants, and the coda can consist of no more than one consonant. However, word-initially, clusters of three or four consonants may be found in Russian, for example, [m]gl-a<sub>NOM</sub> ‘haze’, [vs]tr’éc-a ‘meeting<sub>NOM</sub>’, [vz]-gl’ád ‘look<sub>NOM</sub>’. Word-finally, clusters of two, three, or four consonants may be found: sv’ók[l] ‘beet<sub>GEN.PL</sub>’, tém[br] ‘timbre<sub>NOM</sub>’, xám-[stv] ‘rudeness<sub>GEN.PL</sub>’. I assume that consonants that do not fit into the canonical syllable template, are not parsed into a syllable (extra-syllabic consonants)<sup>4</sup> (Kiparsky 1979, Halle & Vergnaud 1981, Steriade 1982, etc.). Such extra-syllabic consonants are parsed directly into the Foot (Green 2003, Hagstrom 1997, Kiparsky 2003) (11), (12).

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<sup>4</sup> Extra-syllabic consonants are shown in square brackets.



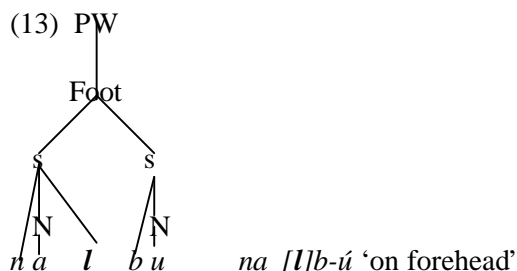
If the 'non-canonical' consonants are extra-syllabic in Russian, then the question arises: Where do prepositions go? Do they form a single prosodic domain with the following major category word, or have a separate prosodic domain of their own? I assume that monosyllabic prepositions form a single prosodic domain with the following major category word. This assumption is supported by a variety of empirical evidence.

The first piece of evidence comes from the fact that Russian prepositions form a single accentual group with the following major category word (e.g., *ná sm'ex* 'to laughter'; *na stol'-é* 'on table').

The second piece of evidence is that unlike major category words, Russian prepositions do not undergo final devoicing (e.g., *otkáz* [ʌtkás] *L'én-ĭ* 'Lena's refusal'; *iz* [iz] *L'en'ingrád-a* 'from Leningrad').

The third piece of evidence is that obstruent-final prepositions always agree in voicing with the initial obstruent of the following major category word. According to Padgett (2002), this process takes place in Russian obstruent clusters within a single prosodic word (e.g., *po-xód Gr'íš-ĭ* [pʌxót gr'íšĭ] 'Grisha's trip'; *pod groz-ój* [pəð grʌzój] 'under thunder').

Therefore, the structure that I assume here is in (13).



#### 4. Prepositional *jers*: empirical generalizations

To determine the behavior of *jers* in Russian monosyllabic prepositions, I conducted a separate study, for which I interviewed four native speakers of Russian: two younger speakers (age 20-30) and two older speakers (age 50-60)<sup>5</sup>. All the speakers interviewed for this study have university degrees and are non-linguists. For the lack of space, I will only present the main generalizations here<sup>6</sup>.

A *jer* vowel is always realized to break up extra-syllabic [v v] and [f f] clusters (e.g., vo [v]núk'-e 'in grand-son'; vo [f]-xód'-e 'in entrance').

A *jer* vowel is always realized to break up extra-syllabic [s s/š/] and [z z/ž] clusters (e.g., so [s]túl-om 'with chair'; so [š]káf-om 'with wardrobe').

A *jer* vowel is never realized to break up extra-syllabic [k k] and [g g] clusters (e.g., k [k]s'én'-e 'to Ksenja (name)'; k [g]žél'-i 'to porcelain').

*Older speakers* strongly prefer to realize a *jer* vowel to break up extra-syllabic obstruent-sonorant clusters, while *younger speakers* strongly prefer not to realize it (e.g., vo [r]vót'-e 'in vomit' is preferred by *older speakers*; v [r]vót'-e 'in vomit' is preferred by *younger speakers*).

A *jer* vowel is never realized before a complex onset (e.g., v trud'-é 'in work'; v blox'-é 'in flee').

#### 5. An OT analysis

##### 5.1. Previous OT analysis of *jer* vowels in Russian

Yearley (1995) assumes, following the analysis of Slovak by Rubach (1986) and Kenstowicz & Rubach (1987), that the difference between *jer*

<sup>5</sup> This survey was inspired by a more limited study in Hansson 1993, whose findings are mostly in line with the generalizations reported in this section.

<sup>6</sup> A detailed description of the data can be found in Steriopolo (2006).

vowels and regular vowels is that *jer* vowels are underlyingly non-moraic (14), while regular vowels are moraic (15).

(14) *Jer* vowels

$\mu$ $\text{g}$	$\mu$ $\text{g}$
a. /po.l <u>o</u> n/ ‘full <sub>SHORT ADJ</sub> ’ (pól <sub>n</sub> -ĭj <sub>LONG ADJ</sub> ’)	b. /b’ <u>ɛ</u> .d’ <u>ɛ</u> n/ ‘poor <sub>SHORT ADJ</sub> ’ (b’éd <sub>n</sub> -ĭj ‘poor <sub>LONG ADJ</sub> ’)

(15) *Regular vowels*

$\mu$ $\mu$ $\text{g}$ $\text{g}$	$\mu$ $\text{g}$
a. /po.xož/ ‘similar <sub>SHORT ADJ</sub> ’	b. /b’ <u>ɛ</u> l/ ‘white <sub>SHORT ADJ</sub> ’

Yearley (1995) also assumes that when a *jer* vowel is realized, it always acquires a mora in the output. This is shown in (16).

$\mu$ $\text{g}$	$\mu$ $\mu$ $\text{g}$ $\text{g}$
a. <u>Input</u> : /po.l <u>o</u> n/ ‘full <sub>SHORT ADJ</sub> ’	b. <u>Output</u> : po.l <u>o</u> n ‘full <sub>SHORT ADJ</sub> ’

Yearley’s analysis is cast in the earliest version of OT “Containment Theory”, which was developed in Prince & Smolensky (1993). The OT constraints used by Yearley (1995) are as follows (17).

(17) OT constraints

- a. **Mseg[ $\mu$ ]**: Every mora in a candidate undergoing evaluation should be exponent of the morpheme within which it occurs (i.e., it must correspond exactly to a mora in the input) (essentially equivalent to *Dep- $\mu$* ).
- b. **Parse-V**: A vowel should be parsed (essentially equivalent to *Max-V*).
- c. **\*Complex[coda]**: Codas are simple.
- d. **Align([Afx], R, s, E)**, where E is a variable over edges, (L or R), and [Afx] is a stand-in for the elements of the set of prefixes: The right edge of every prefix should be aligned with the edge of a syllable.

According to Yearley, the constraint *Mseg[ $\mu$ ]* should outrank *Parse-V*, because in the grammatical candidate *kus.+k+á* /UR: kus+ok+a/ ‘piece<sub>GEN</sub>’, the *jer* vowel is not parsed (shown in brackets).

Tableau 1: *Mseg[μ]* >> *Parse-V*

$\mu$ $\mu$ /kus- <u>o</u> k-a / 'piece <sub>GEN</sub> '	<i>Mseg[μ]</i>	<i>Parse-V</i>
$\mu$ $\mu$ ☺ a. kus.<o>.ka		*
$\mu$ $\mu$ $\mu$ b. ku.so.ka	*!	

As Tableau 1 shows, a *jer* is underlyingly non-moraic. The only way to realize it (=parse) is to for it to have a mora. Since the constraint *Mseg[μ]* is highly ranked in the tableau, candidate (b) loses. Candidate (a) has an unparsed *jer* and is the winning candidate because the constraint *Parse-V* is ranked lower in the tableau.

According to Yearley's analysis, the constraint *\*Complex[coda]* must outrank *Mseg[μ]*, because in the grammatical word *ku.s-ok* /UR: kus-ok/ 'piece<sub>NOM</sub>', the *jer* vowel is parsed to avoid a complex coda.

Tableau 2: *\*Complex[coda]* >> *Mseg[μ]* >> *Parse-V*

$\mu$ /kus- <u>o</u> k/ 'piece <sub>NOM</sub> '	<i>*Complex[coda]</i>	<i>Mseg[μ]</i>	<i>Parse-V</i>
$\mu$ $\mu$ ☺ a. ku.sok.		*	
$\mu$ b. kus<o>k.	*!		*

In Tableau 2, candidate (b) has an unparsed *jer*, which creates a complex coda *sk*. Because the constraint *\*Complex[coda]* is highly-ranked, candidate (b) loses. Candidate (a) has a parsed moraic *jer*, violating the constraint *Mseg[μ]*. However, (a) is the winning candidate, because *\*Complex[coda]* outranks *Mseg[μ]*.

The constraint *Align([Afx], R, s, E)* must also outrank *Mseg[μ]*, because in examples like *po.do.-br-á-t'* /*podo-bor-a-t'* 'to pick up', the *jer* in the prefix *podo-* is realized and aligned with a syllable. This example has underlyingly two *jer* vowels: a *jer* in the prefix *podo-* (compare with *pod-b'ir-á-t'* 'to pick up') and a *jer* in the root *bor* (compare with *so-bor* 'cathedral').

Tableau 3:  $Align([Afx], R, s, E) \gg Mseg[\mu] \gg Parse-V$

$\mu$ $\mu$ /pod $\underline{o}$ -b $\underline{or}$ -a-t'/ 'to pick up'	$Align([Afx],$ $R, s, E)$	$Mseg[\mu]$	$Parse-V$
☺ a.p o.do.b<o>r a t'		*	*
b. po d<o>b<o>ra t'	*!		**

In Tableau 3, candidate (b) loses, because it violates the highly-ranked constraint  $Align([Afx], R, s, E)$ . In this candidate, the right edge of the prefix *pod $\underline{o}$ -* is not aligned with the edge of a syllable. This crucially relies on the assumptions of Containment (i.e., that nothing is literally deleted, it is always in the output, just left unparsed). If the *jer* vowel is deleted – as is allowed in current versions of OT – then \*[pod.brat'] does not violate  $Align([Afx], R, s, E)$  and should therefore win, since 'Afx, R' now refers to the [d], not to the unparsed *jer*.

### 5.2. An OT analysis of *jers* between unparsed identical segments

In this section, I propose an OT analysis to account for realization of *jer* vowels between unparsed identical segments.

Earlier (§4), I showed that prepositional *jers* are always realized to break up adjacent identical fricatives if these fricatives are extra-syllabic. Thus, *v $\underline{o}$*  'in' is used instead of *v* 'in' to avoid [v v+C] and [f f+C] clusters (e.g., *v $\underline{o}$*  [v]núk'-e 'in grandson'). The preposition *s $\underline{o}$*  'with/from' is used instead of *s* 'with/from' to avoid unparsed [s]/[z] + sibilant fricative clusters (e.g., *s $\underline{o}$*  [s]v'et-om 'with light', *s $\underline{o}$*  [š]káf-om 'with wardrobe'). Unparsed stops seem to behave differently from fricatives. Adjacent unparsed stops are allowed, regardless of whether they are identical or not (*k* [k]s'én'-e 'to Ksenja (name)', *k* [p]t'íc-e 'to bird'). To account for these phenomena in Russian, I propose the following local conjunction constraints (18).

- (18) a. (\*[+cont, Lab] & Parse-Seg-to-s)<sup>2</sup>: Two *labial fricatives* that are both unparsed into a syllable are not allowed.  
 b. (\*[+cont, +strid] & Parse-Seg-to-s)<sup>2</sup>: Two *sibilant fricatives* that

are both unparsed into a syllable are not allowed.

- c. (**\*[-son] & Parse-Seg-to-s**)<sup>2</sup>: Two *obstruents* that are both unparsed into a syllable are not allowed.

Here, I adopt Yearley's analysis of *gers* as underlyingly non-moraic vowels that acquire a mora once they are realized. To account for this, I use *Dep-μ* constraint that prohibits insertion of a mora. *Dep-μ* is essentially Yearley's *Mseg[μ]* constraint, but translated into the machinery of Correspondence Theory (19).

- (19) **Dep-μ**: Output moras have input correspondents.

According to Yearley (1995), every time a *ger* is realized, a mora is inserted, so the constraints in (18a) and (18b) must outrank *Dep-μ*. It is more important to avoid unparsed *labial fricative + labial fricative* and *sibilant fricative + sibilant fricative* sequences, than to avoid insertion of a mora (20).

- (20) (**\*[+cont, Lab] & Parse-Seg-to-s**)<sup>2</sup>, (**\*[+cont, +strid] & Parse-Seg-to-s**)<sup>2</sup> >> **Dep-μ**

Yearley assumes that realized vowels are always moraic in Russian, therefore, we need a constraint that would prohibit non-moraic vowels in the output (21).

- (21) **V-to-μ**: vowels are moraic (Shaw 1996)

There is no crucial ranking between (**\*[+cont, Lab] & Parse-Seg-to-s**)<sup>2</sup> and *V-to-μ*, as well as between (**\*[+cont, +strid] & Parse-Seg-to-s**)<sup>2</sup> and *V-to-μ*. So, the following constraints ranking emerges (22).

- (22) **V-to-μ, (\*[+cont, Lab] & Parse-Seg-to-s)**<sup>2</sup>, (**\*[+cont, +strid] & Parse-Seg-to-s**)<sup>2</sup> >> **Dep-μ**

Tableau 4: *vŏ [v]nük'-ε* 'in grandson'

$\mu$ $\mu$ /vŏ vnu kε/	( <b>*[+cont, Lab] &amp; Parse-Seg-to-s</b> ) <sup>2</sup>	V-to-μ	Dep-μ
<p>⊙ a. <math>\begin{matrix} S &amp; S &amp; S \\ / &amp; / &amp; / \\ v\hat{o} &amp; vnu &amp; k\varepsilon \\ \mu &amp; \mu &amp; \mu \end{matrix}</math></p>			*
<p>b. <math>\begin{matrix} S &amp; S &amp; S \\ / &amp; / &amp; / \\ v\hat{o} &amp; vnu &amp; k\varepsilon \\ \mu &amp; \mu &amp; \mu \end{matrix}</math></p>		*!	
<p>c. <math>\begin{matrix} S &amp; S \\ / &amp; / \\ v &amp; [v]nük &amp; \varepsilon \\ \mu &amp; \mu &amp; \mu \end{matrix}</math></p>	*!		

As Tableau 4 shows, a *jer* vowel is mora-less underlyingly. In (a), a *jer* is realized and a mora is inserted in the output. In (b), a *jer* is realized, but there is no insertion of a mora. In (c), a *jer* is not realized and there is no insertion of a mora. Output (b) violates the highly ranked *V-to-μ*, therefore, it loses. Output (c) violates the highly ranked  $(*[+cont, Lab] \& Parse-Seg-to-s)^2$ , so it does not win. Output (a) violates lower ranked *Dep-μ*, but it satisfies the higher ranked *V-to-μ* and  $(*[+cont, Lab] \& Parse-Seg-to-s)^2$ . For this reason, (a) is the winning candidate.

Tableau 5: *so [š]káf-om* ‘with wardrobe’

/so š k á f o m/	$(*[+cont, +strid] \& Parse-Seg-to-s)^2$	V-to-μ	Dep-μ
			*
		*!	
	*!		

In Tableau 5, output (b) immediately loses because it violates the highly ranked constraint *V-to-μ*. Output (c) does not win because it violates the highly ranked  $(*[+cont, +strid] \& Parse-Seg-to-s)^2$ . Output (a) violates *Dep-μ*, but it is the winning candidate, because it satisfies the higher ranked *V-to-μ* and  $(*[+cont, +strid] \& Parse-Seg-to-s)^2$ .

As adjacent unparsed stops (identical or not) are allowed in Russian, the constraint  $(*[-son] \& Parse-Seg-to-s)^2$  must be ranked lower than *Dep-μ*. It is more important not to insert a mora, than to avoid unparsed *obstruent + obstruent* sequences (23).

(23) **Dep-μ** >>  $(*[-son] \& Parse-Seg-to-s)^2$

Since *V-to-μ* outranks *Dep-μ* (47), the following constraints ranking is in place (24).

(24) **V-to-μ** >> **Dep-μ** >>  $(*[-son] \& Parse-Seg-to-s)^2$


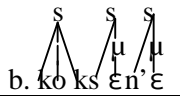
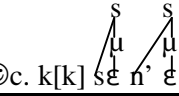
The alternative to inserting a mora (or realizing a *jer*), is deleting a *jer*. In that case, it would incur a violation of *Max-V* (25).

(25) **Max-V**: Input vowels must have output correspondents

*Max-V* must be ranked lower than *Dep-μ*, because for data like *k [k]s'én'-e* 'to Ksenja', it is more important not to insert a mora, than to avoid deletion of a vowel. In other words, deletion is the default, but is blocked in certain cases, due to higher-ranked constraints. There is no crucial ranking between  $(*[-son] \& Parse-Seg-to-s)^2$  and *Max-V*, therefore, the following constraints ranking is in place (26).

(26) **V-to-μ >> Dep-μ >> (\*[-son] & Parse-Seg-to-s)<sup>2</sup>, Max-V**

Tableau 6: *k [k]s'én'-ε* 'to Ksenja'

$\mu \mu$ /k <sub>o</sub> ks'én'ε/	V-to-μ	Dep-μ	$(*[-son] \& Parse-Seg-to-s)^2$	Max-V
a. 		*!		
b. 	*!			
©c. 			*	*

In Tableau 6, output (a) violates the highly ranked constraint *Dep-μ*, so it loses. Output (b) violates the highly ranked constraint *V-to-μ*, so, it does not win. Although output (c) violates the lower ranked constraints, it is the winning candidate, because it satisfies the highly ranked *V-to-μ* and *Dep-μ*.

To conclude, the following constraints ranking has been proposed for Russian *jer* vowels before unparsed identical segments (27).

(27) **V-to-μ, (\*[+cont, Lab] & Parse-Seg-to-s)<sup>2</sup>, (\*[+cont, +strid] & Parse-Seg-to-s)<sup>2</sup> >> Dep-μ >> (\*[-son] & Parse-Seg-to-s)<sup>2</sup>, Max-V**

### 5.3. An OT analysis of *jer*s before unparsed sonorants

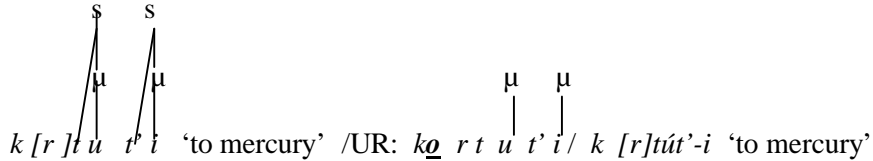
Here, I propose an OT analysis of *jer* vowels before unparsed sonorants.

I showed earlier (§4) that the speakers from the younger group strongly prefer not to realize a *jer* before unparsed sonorants, while the speakers from the older group, strongly prefer to realize it. Based on that, I propose that there are two simultaneously existing grammars in Contemporary Russian: *Grammar 1* that belongs to the younger speakers,

and *Grammar 2* that belongs to the older speakers. These grammars can be accounted for by re-ranking of the same OT constraints.

According to *Grammar 1*, it is more important to avoid insertion of a mora, than syllabifying an unparsed sonorant (28).

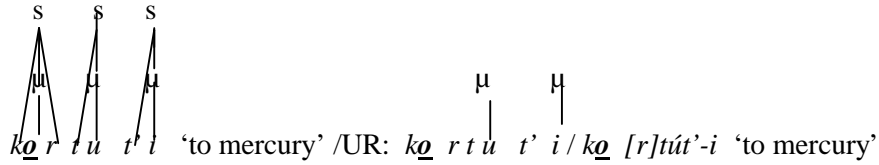
(28) *Grammar 1* (younger speakers)



In (28), a mora is not inserted in the preposition  $k_{\underline{\alpha}}$  'to', and the sonorant [r] remains unparsed into a syllable.

According to *Grammar 2*, it is more important to syllabify a sonorant, than to avoid insertion of a mora (29).

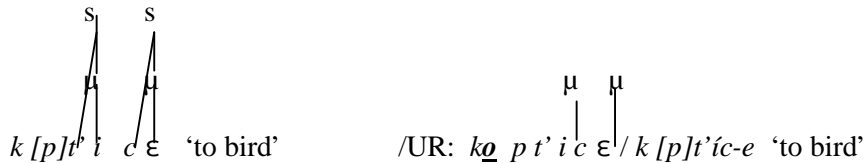
(29) *Grammar 2* (older speakers)



In (29), a mora is inserted in the preposition, and the sonorant [r] is parsed into the syllable.

Although a prepositional *jer* may or may not be realized before an unparsed sonorant (depending on the grammar of the speaker), all speakers unanimously agree that there is no *jer* before unparsed obstruents. Thus, in  $k [p]t'íc-ε$  'to bird',  $k [s]túl-u$  'to chair', there is no *jer*. So, for both groups of speakers, it is more important to avoid insertion of a mora, than to syllabify an unparsed obstruent (30).

(30) *Before unparsed stops* (all speakers)



The following OT constraints are used to account for this (31).

- (31) a. **Parse-R-to-s**: Each resonant must be parsed into a Syllable (Shaw 2002)
- b. **Parse-O-to-s**: Each obstruent must be parsed into a Syllable (Shaw 2002)

The *Grammar 1* speakers avoid insertion of a mora, but leave the sonorant unparsed into a syllable, therefore, **Dep- $\mu$**  >> **Parse-R-to-s**.


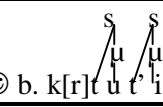
The *Grammar 2* speakers syllabify the sonorant, but insert a mora in the preposition, therefore, **Parse-R-to-s** >> **Dep- $\mu$** .

Both groups of speakers do not insert a mora before an unparsed obstruent, for this reason, **Dep- $\mu$**  >> **Parse-O-to-s**.

Thus, there are the following two grammars in Contemporary Russian:



- (32) a. *Grammar 1*: **Dep- $\mu$**  >> **Parse-R-to-s**, **Parse-O-to-s**  
 b. *Grammar 2*: **Parse-R-to-s** >> **Dep- $\mu$**  >> **Parse-O-to-s**

Tableau 7: *Grammar 1* (*k rtút'-i* 'to mercury')

$\mu$ $\mu$ /k <u>o</u> rtu t' i/	<i>Dep-<math>\mu</math></i>	<i>Parse-R-to-s</i>	<i>Parse-O-to-s</i>
 a. k o r t u t' i	*!		
 ☺ b. k[r] t u t' i		*	*

In Tableau 7, output (a) loses because it violates the highly ranked constraint *Dep- $\mu$* . Output (b) violates only lower ranked constraints *Parse-R-to-s* and *Parse-O-to-s*, and therefore, it wins.

Tableau 8: *Grammar 2* (*ko rtút'-i* 'to mercury')

$\mu$ $\mu$ /k <u>o</u> rtu t' i/	<i>Parse-R-to-s</i>	<i>Dep-<math>\mu</math></i>	<i>Parse-O-to-s</i>
 ☺ k o r t u t' i		*	
 b. k[r] t u t' i	*!		*

In Tableau 8, output (a) is the winning candidate. Although it violates the lower ranked constraint *Dep- $\mu$* , it satisfies the higher ranked *Parse-R-to-s*, and therefore, it wins.

The proposed *Grammar 1* and *Grammar 2* correctly account for the data with prepositional *jers*, however, *Grammar 2* makes incorrect

predictions concerning *jer*s in root syllables. For example, it predicts that a *jer* should be realized in \**rot-ú* ‘mouth’, while in the grammatical example *rt-ú* /*rot-u*/ ‘mouth’, there is no *jer*. This problem may be avoided if the constraint *Dep-μ* referred to a morphological stem (33).

(33) **Dep-μ (stem)**: Output mora in the stem has input correspondent.

Then for the *Grammar 2* speakers, it is more important not to insert a mora in the stem, than to parse a sonorant (34).

(34) **Dep-μ(stem) >> Parse-R-to-s >> Dep-μ**<sup>7</sup>

Tableau 9: *Grammar 2* (*rt-ú* /*rot-u*/ ‘mouth<sub>LOC</sub>’)

μ /r <u>o</u> tu/	<i>Dep-μ (stem)</i>	<i>Parse-R-to-s</i>	<i>Dep-μ</i>
μ ⊙a. [r]t u		*	
μ μ b. ro tu	*!		

In Tableau 9, (b) loses because it violates the highly ranked constraint *Dep-μ (stem)*. Output (a) violates *Parse-R-to-s*, but satisfies higher ranked *Dep-μ*, and therefore, it wins.

Tableau 10: *Grammar 2* (*ko rtút'-i* ‘to (the) mercury’)

μ μ /k <u>o</u> rtu t'í/	<i>Dep-μ (stem)</i>	<i>Parse-R-to-s</i>	<i>Dep-μ</i>
μ μ μ ⊙a. ko r. t u.t'í			*
μ μ b. k [r] t u.t'í		*!	

In Tableau 10, (b) loses because it violates *Parse-R-to-s*. Output (a) violates the lower ranked *Dep-μ*, so it is the winning candidate.

The proposed ranking also accounts for data like *ko rt-ú* /*ko rot-u*/ ‘to mouth’, where the prepositional *jer* is realized, but the *jer* in the root is not realized.

<sup>7</sup> Ignoring highly ranked *PropHead* (Shaw 1996) and *Dep-V*.

Tableau 11: Grammar 2 (*k<sub>o</sub> rt-ú /k<sub>o</sub> rot-u/* ‘to mouth<sub>LOC</sub>’)

$\mu$ /k <sub>o</sub> r <sub>o</sub> t <sub>u</sub> /	<i>Dep-<math>\mu</math></i> ( <i>stem</i> )	<i>Parse- R-to-s</i>	<i>Dep-<math>\mu</math></i>	<i>Parse-O-to</i> -s
$\mu$ a. k [r]t u		*!		*
$\mu \mu$ ☺b. k o r. tu			*	
$\mu \mu$ c. k r o. t u	*!			*
$\mu \mu \mu$ d. ko. ro.t u	*!		*	

In Tableau 11, (c) and (d) violate the highly ranked *Dep- $\mu$*  (*stem*), and therefore, they lose. Output (a) satisfies *Dep- $\mu$* , but it loses because it violates the higher constraint *Parse-R-to-s*. Output (b) violates *Dep- $\mu$* , but satisfies the higher ranked *Parse-R-to-s*, and therefore, it is the winner.

Based on the stated above, the proposed Grammar 1 and Grammar 2 should be revised taking into account *Dep- $\mu$*  (*stem*) (35).

(35) a. Grammar 1: *Dep- $\mu$*  (*stem*), *Dep- $\mu$*  >> *Parse-R-to-s*, *Parse-O-to-s*

b. Grammar 2: *Dep- $\mu$*  (*stem*) >> *Parse-R-to-s* >> *Dep- $\mu$* , *Parse-O-to-s*

## 6. Conclusions

This paper showed that *jer* vowels in Russian prepositions behave in a different manner from *jers* in Russian prefixes. Therefore, the distribution of *jers* in Russian prepositions can not be accounted for by the same OT constraints that were initially proposed by Yearley (1995) for Russian prefixes.

This paper illustrated that prepositional *jers* are realized to break up unparsed sequences of *labial fricative +labial fricative* and *sibilant fricative + sibilant fricative*. *Jer* vowels are never realized to break up unparsed *stop+stop* sequences. Based on that, the following constraints ranking has been proposed for Russian:

**V-to- $\mu$** , (**\*[+cont, Lab] & Parse-Seg-to-s**)<sup>2</sup>, (**\*[+cont, +strid] & Parse-Seg-to-s**)<sup>2</sup> >> **Dep- $\mu$**  >> (**\*[-son] & Parse-Seg-to-s**)<sup>2</sup>, **Max-V**

The paper also showed that younger speakers (20-30) strongly prefer not to realize a *jer* before an unparsed sonorant, while older speakers of Russian (50-60) strongly prefer to realize it in this context. I proposed that in Contemporary Russian, there are two co-existing

grammars: *Grammar 1* used by younger speakers and *Grammar 2* used by older speakers of Russian. I showed that these two grammars can be accounted for by reranking of the same OT constraints:

*Grammar 1*: **Dep- $\mu$ (stem), Dep- $\mu$  >> Parse-R-to-s, Parse-O-to-s**

*Grammar 2*: **Dep- $\mu$ (stem) >> Parse-R-to-s >> Dep- $\mu$ , Parse-O-to-s**

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