

## On the Featural Composition of the Russian Back Yer

### 1. Background

As is well-known from traditional grammars and the literature on the formal semantics of the Russian aspect (see Vinogradov 1952, Forsyth 1970, Švedova 1970, Smith 1991, Garde 1998, among others), the vast majority of Russian verbal stems are imperfective by default. Adding an Aktionsart-changing prefix renders a stem perfective, as illustrated in (1)-(3):<sup>1</sup>

- (1) root -pis- ‘write’
  - a. pisat’ ‘to write’
  - b. podpisat’ ‘to sign PRF’
- (2) root -bol’- ‘pain’
  - a. bolet’ ‘to be sick’
  - b. zabolet’ ‘to become sick PRF’
- (3) root -syp- ‘pour’
  - a. syvat’ ‘to pour (a non-liquid)’
  - b. rassivat’ ‘to strew PRF’

Under certain (semantically and pragmatically defined) conditions, a prefixed verb can be made imperfective again (the so-called “secondary imperfective”) by adding the secondary imperfective suffix, which has 3 allomorphs: *-iv-* (4), *-v-* (5), or zero (6).<sup>2</sup>

- (4) root -pis- ‘write’ *-iv-*
  - a. pisat’ ‘to write’
  - b. podpisat’ ‘to sign PRF’
  - c. podpisyv<sup>u</sup>at’ ‘to sign IMPRF’
- (5) root -bol’- ‘pain’ *-v-*
  - a. bolet’ ‘to be sick’
  - b. zabolet’ ‘to become sick PRF’
  - c. zabo<sup>l</sup>ev<sup>u</sup>at’ ‘to become sick IMPRF’
- (6) root -syp- ‘pour’ *-Ø-*
  - a. syvat’ ‘to pour (a non-liquid)’
  - b. rassivat’ ‘to strew PRF’
  - c. rassyp<sup>u</sup>at’ ‘to strew IMPRF’ (note the stress shift)

I propose to derive all three surface forms in(4)-(6) by assuming that the underlying form of the secondary imperfective suffix is a back rounded yer. To do so, it is necessary to, first, present the Russian vowel system, and second, discuss the vocalization of Russian yers.

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\* Many thanks, to Morris Halle for inspiration and support, as always, and to Tobias Scheer for discussion.

<sup>1</sup> In transliterations of actual Russian words, I will resort to the traditional use of the grapheme *y* to indicate the high back unrounded vowel [ɨ]. In the transcription of underlying forms of individual morphemes I will use the more phonologically adequate [ɨ].

<sup>2</sup> [a], surfacing between the secondary imperfective suffix and the infinitival marker *-t’-* is the default marker of the first conjugation verbs. It is realized as [a] before consonants and as [aj] before vowels (Jakobson 1948).

## 1.1 The Russian Vowel System

On the surface, Russian phonologically distinguishes six vowels (the standard five, plus the high back unrounded vowel [ɨ]). However, in order to account for vowel-zero alternations in certain environments (see, e.g., exx. (7) and (8)), two abstract high vowels (the so-called yers or jers) are introduced (see Lightner 1972, Pesetsky 1979, Rubach 1984, Czaykowska-Higgins 1988). An additional property of yers is that they trigger stress retraction (Lightner 1972, Halle 1994): if a yer is underlyingly accented, the stress shifts to the preceding syllable. This property will become relevant later.

- (7) a. kostër (NOM-SG), kostr-a (GEN-SG) ‘campfire’  
b. kostr (GEN-PL), kostr-a (NOM-SG) ‘boon’ (textile)
- (8) a. lasok (GEN-PL), lask-a (NOM-SG) ‘weasel’  
b. lask (GEN-PL), lask-a (NOM-SG) ‘caress’

As shown in the examples (7) and (8), it would have been impossible to state environment for vowel insertion (Pesetsky 1979): while in (7a) the yer in the root triggers palatalization of the preceding consonant, in (8a) it doesn’t. Given the existence of yer-containing palatalizing suffixes (such as the generic possessive adjectival suffix, discussed in Halle and Matushansky 2006)), the contrast cannot be explained away by assuming the underlyingly palatalized root consonant in (7a): hence two yers, a front one and a back one, have to be assumed. The front yer is generally vocalized as [e], while the back one is vocalized as [o]; in one environment (in secondary imperfectives), the back one is pronounced as [ɨ] and the front one, as [i]).

## 1.2 “Imperfective Lengthening”

The name of “imperfective lengthening” is given to the phenomenon whereby the root vowel changes in quality:

- (9) root -*sp*- ‘sleep’
  - a. spAt’ ‘to sleep’
  - b. dospat’ ‘to finish sleeping PRF’
  - c. dosypat’ ‘to finish sleeping IMPRF’

As can be seen from the examples below, the phenomenon is not limited to yers and is one of the main reasons for the diacritic feature distinguishing two classes of vowels, and placing yers in the same category as [o], whereas [i] and [ɨ] should be classified with [a]:

- (10) root -*mol*- ‘grind’
  - a. molOt’ ‘to grind’
  - b. peremolOt’ ‘to grind down PRF’
  - c. peremAlyvat’ ‘to grind down IMPRF’
- (11) root -*skol’z*- ‘slip’
  - a. skol’znUt’ ‘to slide, glide’
  - b. uskol’znUt’ ‘to slip away PRF’
  - c. uskAl’zyvat’ ‘to slip away IMPRF’ (also uskol’zAt’)

Although [e] does not exhibit any surface alternation, there are good reasons to believe that there are underlyingly two variants of [e], of which historically one was long (the so-called *jat*’) and the other short. If such diacritic feature is proposed, Russian vowels can be separated along the following lines: The front yer is taken to be the counterpart of [i] and the back yer is viewed as the counterpart of [o] (with which it shares roundness, since it can be vocalized as

[o]) or of [ɨ], with which it shares the lack thereof. On the other hand, [u] does not participate in this phenomenon and is usually not treated within this system.

In the recent tradition (Pesetsky 1979, Rubach 1984, Czaykowska-Higgins 1988, Halle 2004), preference has been given to assuming that the feature under consideration is [ $\pm$  ATR], even though this distinction is not reflected on the surface, and that the back yer corresponds to [ɨ].<sup>3</sup>

**Table 1: Russian vowels**

		[-back]		[+back]	
		[-round]		[-round]	[+round]
[-ATR]	[+hi]	[ɪ]		[ɨ]	[ʊ]
	[-hi]	[ɛ]		[ɔ]	
[+ATR]	[+hi]	[i]		[ɨ]	[u]
	[-hi]	[e]		[a]	

To explain the allomorphy of the secondary imperfective suffix I will first propose that its underlying form is -ʊ-, the lax counterpart of [u]. As shown in the table, the introduction of a new yer fits easily into the system. Then I will show how this assumption can account for the allomorphy of this suffix.

### 1.3 The Russian Yers

Setting aside the issue of whether the back yer is underlyingly [+round] or not, the question is how to account for the vowel/zero alternation that they undergo. Pesetsky 1979 proposes the following two rules (stated here in the terms of [ $\pm$  ATR]):<sup>4</sup>

(i)  $V_{[+hi, -ATR]} \rightarrow [-high]/\_\_\ [\sigma V_{[+high, -ATR]}$  YER LOWERING

(ii)  $V_{[+hi, -ATR]} \rightarrow \emptyset$  YER DELETION

As can be seen from the table above, our hypothesized back rounded yer cannot be subject to the first rule: this would have yielded [o] instead of the observed allomorphy. Hence some additional rules, presumably preceding rule (i), have to be proposed.

## 2. The Phonology of the Secondary Imperfective Suffix

The following morphosyntactic components are relevant for the computation of the surface form of the secondary imperfective suffix: the verbal stem, the secondary imperfective suffix itself (which we will assume to have the underlying form -ʊ-), and the thematic suffix of the first conjugation (or possibly  $v^0$ , whose underlying form is -a- or -aj-). I will now show how the three allomorphs can be derived, without yet discussing how to reconcile the fact that all three are available.

<sup>3</sup> Historically, yers were short (cf., e.g., Bethin 1998), which property may also have coincided with being lax (as is the case for short vowels in Modern Dutch); since we do not view vowel-length as a feature, we cannot adopt such a hypothesis. The theoretical treatment of the vowel/zero alternation (Yearley 1995, Steriopolo 2006, etc., following Rubach 1986) is based on the assumption that yers are non-moraic. This assumption is orthogonal to the discussion here and we will not pursue it.

<sup>4</sup> Obviously, simply lowering the back yer [ɨ] would not yield an [o]. An additional operation of rounding is required.

## 2.1 The Zero Allomorph and Jakobson's Rule

As argued by Jakobson 1948 on the basis of Russian verbal forms, Russian does not tolerate hiatus:

(iii)  $V \rightarrow \emptyset / \_ V$  Jakobson's vowel truncation

The immediate prediction of this rule is that, since the secondary imperfective suffix is a vowel and the thematic suffix begins with a vowel, the former will never be visible. This permits us to correctly derive the zero allomorph, as long as we completely ignore cyclicity issues (which will become relevant later) and the underlying form of thematic suffixes (-*a*- or -*aj*-, which is not important for the purposes of this paper):

(12) First conjugation stem, zero allomorph

[[[po-kid]<sub>1</sub>-(u)<sub>2</sub>-a]<sub>3</sub>-l



cycle 3: Jakobson's vowel truncation

[[[po-kid]<sub>1</sub>-(ø)<sub>2</sub>-a]<sub>3</sub>-l

This analysis makes an additional correct prediction: if the suffix -u- is accented, when it is removed, its accent is shifted to the next syllable. As a result, the observed post-accenting behavior of the zero allomorph is derived.

The problem with this analysis is that, although both the surface form (Ø) and the stress pattern are derived, the zero allomorph does not represent the default realization of the secondary imperfective suffix. For the majority of stems, the secondary imperfective suffix is realized as -*iv*-. I will return to this issue after having discussed the derivation of the second non-default allomorph, -*v*-.

## 2.2 The -v- Allomorph and Flier's Rule

As is well-known (cf. Coats and Harshenin 1971, Lightner 1972 and Kavitskaya 1999, among others), the Russian [v] is underlyingly a glide. It is pretty natural to assume that the rounded back yer of the secondary imperfective suffix -u- intervocalically becomes a glide, thus giving rise to the -v- allomorph:<sup>5</sup>

(iv)  $[u] \rightarrow [-\text{syll}] / V \_ V$  [w]-glide formation

The derivation, again abstracting away from cyclicity issues and the underlying form of thematic suffixes, once again predicts the accentual properties of the allomorph: since the accented suffix -u- becomes non-syllabic and thus unstressable, its accent is shifted to the next syllable.

(13) First conjugation stem, -v- allomorph

[[[[[za-bol]<sub>1</sub>-e]<sub>2</sub>-u]<sub>3</sub>-a]<sub>4</sub>-l



cycle 3: glide formation

[[[[[za-bol]<sub>1</sub>-e]<sub>2</sub>-w]<sub>3</sub>-a]<sub>4</sub>-l

Once again, although technically correct, this derivation does not yield the default surface form of the secondary imperfective suffix, to which we now turn.

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<sup>5</sup> Alternatively, the labial glide [v] is inserted between -u- and the preceding vowel; the yer itself is deleted by Jakobson's vowel truncation rule at the next cycle. Under the cyclic approach this solution is preferable.

## 2.3 The *-iv-* Allomorph and Glide-insertion



As mentioned above, yers that remain high and lax are not phonologically realized. Also, the yer of the secondary imperfective suffix is in a prevocalic position, which means that it should be deleted. To obtain the default *-iv-* allomorph under these conditions, a glide-insertion rule can be used, followed by a dissimilation rule.<sup>6</sup>

(v)  $\emptyset \rightarrow w / \text{u} \_$  glide-insertion

(vi)  [uw]-dissimilation

Once again setting aside what we have learned in previous sections and cyclicity issues, we obtain the following derivation:

(14) First conjugation stem, *-iv-* allomorph:

[[[o-pro-kid]<sub>1-u</sub>]<sub>2-a</sub>]<sub>3-l</sub>  
 cycle 2: [u]-decomposition: glide insertion + dissimilation  
 [[[o-pro-kid]<sub>1-ɪw</sub>]<sub>2-a</sub>]<sub>3-l</sub>  
 post-cyclic yer-tensing  
 [[[o-pro-kid]<sub>1-iv</sub>]<sub>2-a</sub>]<sub>3-l</sub>

In this derivation the yer of the suffix is not deleted. Since the underlying accent falls on it, it is retracted (Halle 1997), yielding the pre-accenting behavior of the *-iv-* allomorph without having to recourse to the assumption that there exists a property of placing the accent on the preceding syllable.

In order to pass from the now-created back unrounded yer [ɪ] into [i], a tensing rule has to be postulated. This rule is a lot less arbitrary than it sounds, since exactly in this environment the root vowel of the verbal stem is tensed (as discussed in section 1.2):

(vii)  $V \rightarrow [+ATR]$  in secondary imperfectives secondary imperfective tensing

The sequence of three rules proposed here can, of course, be replaced by a dumb  $u \rightarrow \text{ɪw}$  rule. My goal in introducing this sequence was to account for the surface form of the suffix in the most logical way, which would also be compatible with what is known of the history of the phenomenon. The weak side of this story is, of course, that if glide-insertion applies, it should be followed by dissimilation and then by yer-tensing – independent resurgence of any of these rules seem to be unattested.

## 2.4 Summary

Assuming that the underlying form of the secondary imperfective suffix is *-u-* allows for a natural derivation of all three allomorphs:

- *-iv-* by glide-insertion
- *-v-* by intervocalic glide-formation
- zero by Jakobson's rule of hiatus resolution

<sup>6</sup> Alternatively, first, the vowel loses the feature [+round], and then the glide is inserted between the vowel and the following theme suffix.

We set aside here the consequences of the choice between glide-deletion before a consonant (Jakobson 1948) vs. intervocalic glide-insertion for Russian phonology in general, though it is obviously of paramount importance for deciding what the underlying form of the thematic suffix is, *-a-* or *-aj-*.

However, the problem with the proposed derivations is that they seem to exclude each other: if the yer is deleted (before a vowel), it cannot be tensed and trigger glide-insertion, and if it triggers glide-insertion (the *-iv-* allomorph), it cannot be deleted! To resolve this seeming contradiction, I will appeal to the phenomenon of the cycle ([Halle, 1987 #289]).

### 3. The Role of the Cycle

To simplify the exposition, I will begin by proposing the order in which the relevant rules apply and then demonstrate that, together with certain very specific assumptions about the (non)cyclic status of the relevant node, it will account for all of the attested allomorphs.

The relevant rules are ordered in the following way:

- (iii) Jakobson's vowel truncation before a vowel (for the zero allomorph)
- (iv) [w]-glide formation after a vowel (for the *-v-* allomorph)
- (v), (vi) glide-insertion after [ʊ] + dissimilation (for the *-iv-* allomorph)
- (vii) secondary imperfective tensing (late)

Our first impression is that the secondary imperfective suffix should always be realized as zero, since rule (iii) bleeds the environment for the remaining relevant rules. However, as can be seen from the examples below, it would seem that the choice of the allomorph not only is not possible, but also cannot be restricted to a particular morpheme: the roots *-kid-* and *-svet-* are compatible with both the zero and the *-iv-*, and the same is true for the prefix *o-*:

#### (15) root *-kid-* 'throw'

- a. *po-*: *pokɪnut* 'abandon-PRF' → *pokidat* 'abandon-IMPRF' -Ø-
- b. *o-pro-*: *oprokɪnut* 'turn over-PRF' → *oprokɪdyvat* 'turn over-IMPRF' -iv-

#### (16) root *-svet-* 'light'

- a. *o-*: *osvetit* 'illuminate-PRF' → *osveščat* 'illuminate-IMPRF' -Ø-
- b. *za-*: *zasvetit* 'over-expose-PRF' → *zasvečivat* 'over-expose-IMPRF' -iv-

To account for this phenomenon it is necessary to provide the node formed by the verbal stem and the secondary imperfective suffix with a special feature, which would determine in some way or another which allomorph to use. In the rule system proposed above, this diacritic feature could straightforwardly be the cyclic or non-cyclic status of the relevant ( $Asp^0$ ) node: I propose that  $Asp^0$  may be cyclic (default) or non-cyclic (marked) in function of the root-prefix combination.<sup>7</sup>

Briefly, in the cycle where the verbal stem (perfectivizing prefix + root) combines with the secondary imperfective suffix, it is not yet known what follows the suffix (even though it will always be the vowel-initial first conjugation suffix *-a(j)-*). Thus (iii) does not apply, while (iv) and (v) do. As (iv) bleeds (v), *-iv-* is impossible if the verbal stem ends in a vowel, and the suffix surfaces as *-v-*. In all other environments the default *-iv-* allomorph is predicted.

If the relevant node is post-cyclic, none of these rules apply until the next cycle, where (iii) applies, yielding the zero allomorph.

I will now demonstrate step by step that the right results are, in fact, obtained.

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<sup>7</sup> Feldstein 2006 provides several examples, where it is claimed that the prefix-root combination may give rise to secondary imperfective forms with both allomorphs:

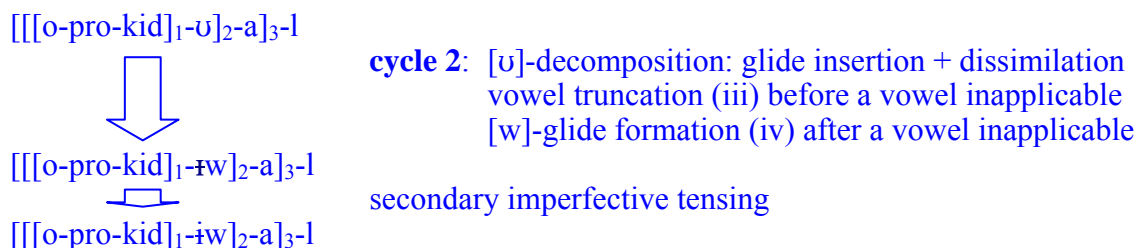
- (i) root *-uč-* 'teach'  
*otučit* 'wean, break (someone) of-PRF' → *otučat*, *otučivat* 'wean, break (someone) of-IMPRF'

My personal perception of such examples is that the different forms (if possible at all) belong to different dialects or registers, and thus do not constitute a counterexample to the idea that, within a single idiolect, the prefix-root combination uniquely determines the realization of the secondary imperfective suffix.

### 3.1 The Default Cases

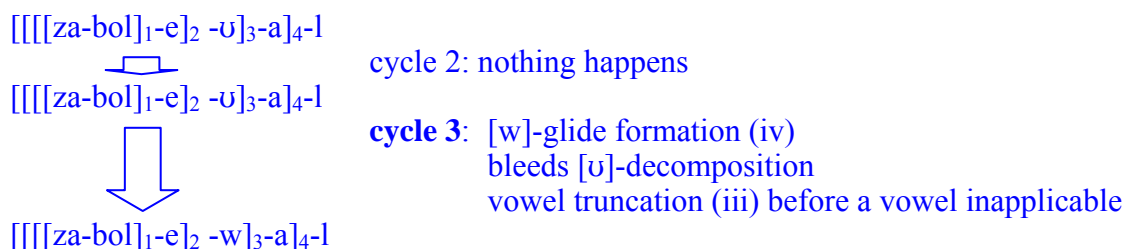
By default the combination of the verbal stem and the secondary imperfective suffix is cyclic:

(17) First conjugation stem, *-iv-* allomorph:



If the verbal stem ends in a vowel, a different derivation takes place:

(18) First conjugation stem, *-v-* allomorph

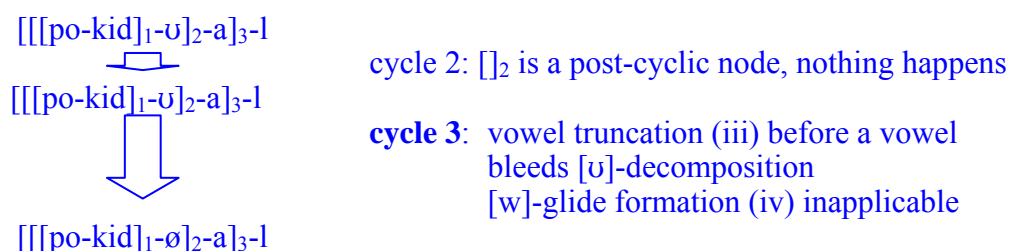


The derivation proceeds in the same way for both allomorphs. The different surface forms (and stress patterns) are due to the different environments: while in one case, the environment for a rule is present, in the other case it is not.<sup>8</sup>

### 3.2 The Post-Cyclic Node

To derive the zero allomorph, it is necessary to assume that the node corresponding to the stem-suffix combination ( $Asp^0$ ) is non-cyclic. As a result, the surface form is derived exactly as before, due to the effect of cyclicity:

(19) First conjugation stem, zero allomorph



The neat result of making the node formed by the combination of the verbal stem and the secondary imperfective suffix post-cyclic is that the rules ordered before vowel truncation by virtue of the cycle ([u]-decomposition, [w]-glide formation) do not apply

<sup>8</sup> Various vocalic suffixes following the stem in simplex and perfective forms do not behave the same in the secondary imperfective. The default first conjugation marker *-a-* (or *-aj-*) disappears, while *-e-* (or *-ej-*) remains, which suggests that *-e-* corresponds to  $v^0$ , while *-a-* corresponds to the thematic suffix (generally intervening between the stem and inflection). See Appendix 2 for discussion.



### 3.3 Summary

The appeal to the cycle permits to derive all three allomorphs of the secondary imperfective suffix correctly. No special assumptions are needed in order to derive secondary imperfectives of second conjugation stems and exceptional cases, as long as we assume that the so-called thematic suffixes are not preserved in secondary imperfectives, while verbalizing suffixes ( $v^0$ ) are (see Appendix 2). Introducing a new [round] yer into the Russian vowel system permits us to reduce the allomorphy of the secondary imperfective suffix to phonology on the following additional assumptions:

- The new yer can trigger glide-insertion or become a glide itself
- The decisive factor is the (non)cyclic nature of the  $Asp^0$  node, which is uniquely determined by the prefix-stem combination.

As a result, we account not only for the surface realization, but also for the accentuation patterns associated with these allomorphs. However, the price – introduction of a new abstract vowel into the phonological system of Russian – seems rather high, even though the new yer appears to fit into a vacant spot in the Russian vowel system, and in addition, the existence of an abstract vowel with such characteristics ([+hi] [+rd] [-back]) also can be motivated by the synchronic stem alternation in *-dux-/-dyx-/-dox-*, *-sux-/-syx-/-sox-* in Modern Russian: if the underlying form of the root vowel is [u], all the surface forms differ from it by one feature.

In the next section I will suggest that we can do even better than this.

### 4. Do we need a third yer?

As discussed, for instance, in Bethin 1998, Common Slavic yers were historically derived from the Indo-European [ī] and [ū], which leads us to expect synchronically either [i] and [u] (short → lax) or [ɪ] and [ɨ] (similar to their non-yer counterparts [i] and [ɨ]).

At this point it is natural to ask whether the standardly assumed [ɨ] can be always derived from the underlying [u]. In the proposal above, a glide is inserted (by default) between [u] and another vowel and then the dissimilation rule (vi) rule applies. Suppose yer-decomposition is a morphologically conditioned readjustment rule. Suppose further that yer-lowering is ordered after it.

In environments such as the secondary imperfectives (and maybe some others), yer-decomposition takes place, eventually giving rise to the observed *-iv-* suffix. Since yers in general appear before consonants (the secondary imperfective suffix *-u-* being an exception), no glide will appear. In non-theoretic terms, since there is no hiatus to resolve, the glide will either be not inserted or will be deleted before a consonant by the glide-deletion rule proposed for independent reasons by Jakobson 1948 and modified by Kayne 1967:<sup>9</sup>

(viii)  $w, j \rightarrow \emptyset / \_\_ [+cons]$

Joakobson's glide-deletion

This is what happens in the *-dyx-/-syx-* stem allomorphs, where there is no glide after the surface [ɨ].<sup>10</sup>

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<sup>9</sup> For the cyclicity-based solution proposed above to work, the glide-insertion rule (v) was made insensitive to the following context, which leads, in the larger picture with only two underlying yers, [i] and [u], to a Duke-of-York solution, where the newly-inserted glide is deleted before a consonant. An alternative solution would be to make the matter purely lexical: glide-insertion would take place between [u] and another vowel and for certain prefix-root combinations, it would fail and vowel-deletion would apply. I leave the issue open pending further inquiry into the nature of Russian intervocalic glides.

<sup>10</sup> Another environment where [o]-[ɨ]-[u] alternations suggest an underlying back rounded yer that is subject to readjustment rules is the adjectival theme suffix, hypothesized to be underlyingly *-oj-* in [Halle, 2006 #284]. If the suffix is instead *-uj-*, this would also make more natural the copying rule introduced in order to account for the fact that in direct cases, the vowel of the theme suffix is the same as that of the case ending. I will set this issue aside here.



When, as is the default case, the yer-decomposition rule does not apply, the back rounded yer is lowered and thus vocalized as [o].<sup>11</sup> As an additional result, we retain the parallelism with the Modern Russian [ɨ] (derived from the Indo-European [uː]) by presupposing that the diachronic loss of rounding is retained synchronically.

## 5. Conclusion and further developments

The examination of the secondary imperfective suffix allomorphs has lead us to assume the existence in Russian of a high back rounded lax vowel ([ʊ]). We have proposed a cyclicity-based treatment of this allomorphy, spanning from the hypothesis that the relevant morpho-syntactic node may be cyclic or non-cyclic, depending on the prefix-root combination.

After having completed this, empirical side of the matter, we have returned to the question whether two back yers are required in the Russian vowel system, and arrived at a negative answer: if underlyingly, the back yer is always rounded and loses this feature in a couple of morphologically determined environments, such as the secondary imperfective or certain stems, we can simultaneously account for the allomorphy of the secondary imperfective suffix and still explain the behavior of the Russian back yer in other contexts.

We therefore conclude that we now have firm evidence in favor of the following featural composition of the back Russian yer: [high][back][round][ATR] (although the status of the last feature is still under debate).

In the appendices I would like to review prior attempts at unifying the three allomorphs of the secondary imperfective suffix and discuss what else the secondary imperfective can teach us about Russian morphology.

## Appendix 1: Previous attempts at unification

The allomorphy of the secondary imperfective suffix has attracted attention before, although most attempts have been directed towards unifying two of the three allomorphs. Thus Halle 1963 proposes that while the *-iv-* allomorph has the underlying form *-ov-* (with the surface [ɨ] derived by a special rule), the other two allomorphs have the underlying form *-ø-*, where [ø] is an underspecified rounded vowel, turning into the [w] glide after a vowel-final stem.<sup>12</sup> Halle bases his analysis on the fact that in certain dialects the suffixal vowel is realized as a schwa (see also Feinberg 1980) – in addition, in Czech the suffix is, in fact, *-ov-*, which lends further support to Halle's analysis (or to ours, of course). Thus, in Halle's approach there are two allomorphs instead of one, with a readjustment rule changing the putative underlying *-ov-* into the surface *-iv-*.

Flier 1972 also proposes two allomorphs: *-iv-* and *-ø-* (zero). As he assumes that there are no vocalic stems (those that appear to be vocalic actually end in the [j]-glide), to derive the *-v-* allomorph he makes use of a special rule converting the final glide of vocalic stems into [w] – a process attested elsewhere in Russian. If the hypothesis that there are no vocalic stems in Russian is correct, exactly the same mechanism can be used in our approach, with no loss of empirical coverage or theoretical adequacy.

Coats 1974 also assumes two suffixes, of which one is zero and the other is underlyingly *-aj-* (homophonous with the default thematic suffix). This proposal is not much different from the previous one, but also needs an extra phonologically unmotivated rule converting [a] into [ɨ].

Feinberg 1980 criticizes this proposal and then extends it by assuming that the *-iv-* form allomorph is derived as in Coats' view, but places its source in the reduplication of the default thematic suffix *-aj-*. In his view, in the zero and *-v-* allomorphs reduplication fails.<sup>13</sup> Although

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<sup>11</sup> As in earlier accounts (e.g. Lightner 1972), [u] does not fit into this system and will not be considered.

<sup>12</sup> Actually, Halle talks about the *-ov-aj-* and *-ø-aj-* allomorphs, but this is non-essential.

<sup>13</sup> Feinberg claims that the choice of the allomorph is affected by the accentuation of the stem – that this is not correct can be easily seen from the examples (15) and (16).

this theory does propose a single underlying representation for all the allomorphs, in order to derive their surface forms it is necessary, first, to assume a reduplication process (unattested elsewhere in Russian), second, to adopt Flier's hypothesis that no stem underlyingly ends in a vowel, and third, to have a phonologically unmotivated process transforming *-aj-* into *-ɪw-*.

I conclude that no prior approach is theoretically superior to the one developed here.

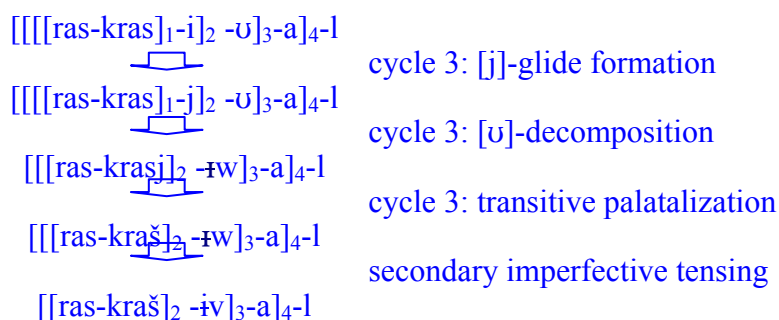
## Appendix 2: Second conjugation stems

The consideration of transitive palatalization effects in secondary imperfective forms of the second conjugation stems leads us to an interesting reassessment on the function of the vowel appearing between the verbal stem itself and the tense-agreement morpheme.

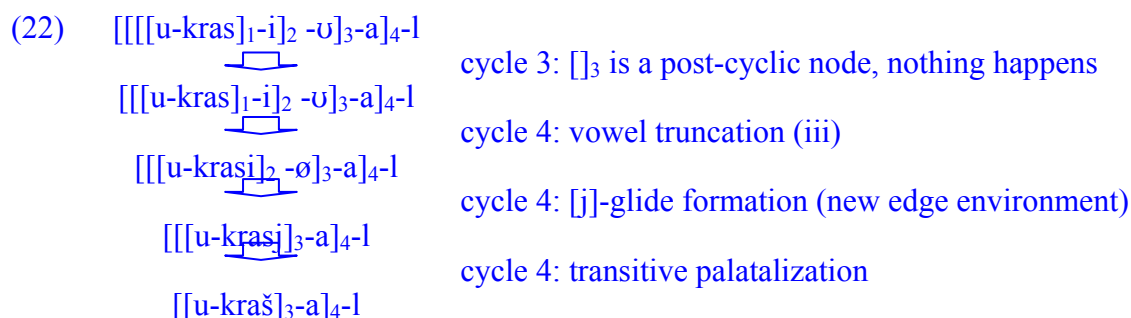
Empirically, in second conjugation verbs the tense morpheme (*-i-* in the present tense, *-l-* in the past) is preceded by either *-e-* or *-i-* (all other vowels or lack thereof belong to the first conjugation). The standard assumption is both of these vowels have the same status – that of thematic suffixes or perhaps,  $v^0$ . However, the two do not behave the same in the secondary imperfective.

The so-called transitive palatalization (Jakobson 1948, Halle 1963, Coats and Lightner 1975, etc.) arises from the underlying sequence consonant-glide (*Cj*), arising on morphemic boundaries. The derivations are straightforward:

### (20) Second conjugation, default *-ɪv-* allomorph



### (21) Second conjugation, zero allomorph



Whereas all *-i-* stems trigger transitive palatalization (23), (24), by far not all *-e-* stems do so ((25) vs. (26)). In addition, no first conjugation verb triggers transitive palatalization.

- (23) root -korm- ‘feed’  
 a. kormIt’ ‘to feed’  
 b. otkormIt’ ‘to fatten PRF’  
 c. otkArmlivat’ ‘to fatten IMPRF’

- (24) root -gruz- ‘freight’  
 a. gruzIt’ ‘to load’  
 b. razgruzIt’ ‘to offload PRF’  
 c. razgruzhAt’ ‘to offload PRF’

- (25) root -vert- ‘turn’  
 a. vertEt’ ‘to twist, rotate’

- (26) root -kip- ‘boil’  
 a. kipEt’ ‘to boil (process)’

- b. navertEt' 'to twist all over-PRF'  
 c. navErCivAt' 'to twist all over-IMPRF'

- b. zakiPEt' 'to start boiling-PRF'  
 c. zakiPAt' 'to start boiling-IMPRF'

As transitive palatalization arises from the *Cj* cluster, it seems natural to assume that such a cluster is created for all the *-i-* verbs and some of the *-e-* verbs due to a phonologically natural rule turning a front vowel into a glide before another vowel. If both *-i-* and *-e-* correspond to  $v^0$ , we expect both of them to persist in the secondary imperative. On the other hand, if both of them correspond to the thematic suffix, we expect them to disappear, as is the case with the non-ambiguously thematic *-a-/-aj-* of the first conjugation, which disappears in secondary imperatives.<sup>14</sup> This is why we conclude that, while *-i-* is unambiguously  $v^0$ , *-e-* is either part of the stem (in exx. like (25), where it remains in the secondary imperfective form and triggers transitive palatalization) or a thematic suffix (in exx. like (26), where it is absent).

We conclude that secondary imperfectives provide us with some evidence for assigning different status to superficially the same vowels in the morpho-syntactic structure of Russian verbs.

## References

- Bethin, C. Y. (1998). *Slavic Prosody*. Cambridge: Cambridge University Press.
- Coats, H. S. (1974). On the Alternation J/v in Russian. In D. J. Koubourlis, ed., *Topics in Slavic Phonology*. Cambridge, Massachusetts: Slavica, pp. 29-42.
- Coats, H. S. and A. P. Harshenin (1971). On the Phonological Properties of Russian v. *Slavic and East European Journal* 15/4, pp. 466-478.
- Coats, H. S. and T. M. Lightner (1975). Transitive Softening in Russian Conjugation. *Language* 51, pp. 338-341.
- Czaykowska-Higgins, E. (1988). Investigations into Polish Morphology and Phonology. Ph.D. thesis, MIT.
- Feinberg, L. E. (1980). The Morphology of Russian Imperfective Derivation. *The Slavic and East European Journal* 24/2, pp. 145-154.
- Feldstein, R. F. (2006). On the Formal and Semantic Structure of Russian Dual Simplexes and Dual Perfectives. Paper presented at *SLS 2006*, September 8 - 10, 2006, Bloomington, Indiana.
- Flier, M. S. (1972). On the Source of Derived Imperfectives in Russian. In D. S. Worth, ed., *The Slavic Word*. The Hague: Mouton, pp. 236-260.
- Forsyth, J. (1970). *A Grammar of Aspect. Usage and Meaning in the Russian Verb*. Studies in the Modern Russian Language. Cambridge: Cambridge University Press.
- Garde, P. (1998). *Grammaire Russe: Phonologie et Morphologie (2nd Edition)*. Paris: Institut d'études slaves.
- Halle, M. (1963). O Pravilax russkogo Sprjaženija. *American Contributions to the Fifth International Congress of Slavists 1, September 1963, Sofia*. The Hague: Mouton, pp. 113-132.
- Halle, M. (1994). The Russian Declension: An Illustration of the Theory of Distributed Morphology. In J. Cole and C. Kisseberth, eds., *Perspectives in Phonology*. Stanford: CSLI Publications, pp. 29-60.
- Halle, M. (1997). On Stress and Accent in Indo-European. *Language* 73, pp. 275-313.
- Halle, M. (2004). Russian Phonology: The Core. Ms., MIT.
- Halle, M. and O. Matushansky (2006). The Morphophonology of Russian Adjectival Inflection. *Linguistic Inquiry* 37/3, pp. 351-404.
- Jakobson, R. (1948). Russian Conjugation. *Word* 4, pp. 155-167.
- Kavitskaya, D. (1999). Voicing Assimilation and the Schizophrenic Behavior of /v/ in Russian. In K. Dziwirek, H. S. Coats and C. Vakareliyska, eds., *Formal Approaches to Slavic Linguistics 7: The Seattle Meeting*. Ann Arbor, Michigan: Michigan Slavic Publications, pp. 225-244.
- Kayne, R. S. (1967). Against a Cyclic Analysis of Russian Segmental Phonology. Ms., MIT.
- Lightner, T. M. (1972). *Problems in the Theory of Phonology, Vol. I: Russian Phonology and Turkish Phonology*. Edmonton: Linguistic Research, Inc.
- Pesetsky, D. (1979). Russian Morphology and Lexical Theory. Ms., MIT. Available at <http://web.mit.edu/linguistics/www/pesetsky/russmorph.pdf>.
- Rubach, J. (1984). *Cyclic and Lexical Phonology – the Structure of Polish*. Dordrecht: Foris.

<sup>14</sup> That it does, in fact, disappear can be seen from the different behavior of stems in the productive *-a-/-aj-* suffix and stems in the no less productive *-e-/-ej-* suffix: while the latter takes the *-v-* allomorph, the former can only appear with the *-iv-* one, and if the suffix had persisted, we would have expected its vowel to remain in the final representation.

- Rubach, J. (1986). Abstract Vowels in Three Dimensional Phonology: The Yers. *The Linguistic Review* 5, pp. 247-280.
- Smith, C. S. (1991). *The Parameter of Aspect*. Dordrecht: Kluwer Academic Publishers.
- Steriopolo, O. (2006). Jer Vowels in Russian Prepositions. Paper presented at *SLS 2006*, September 8 - 10, 2006, Bloomington, Indiana.
- Švedova, N. J. (1970). *Grammatika sovremennogo russkogo literaturnogo jazyka*. Moscow: Nauka.
- Vinogradov, V. V. (1952). *Grammatika russkogo jazyka*. Moscow: Soviet Academy of Sciences.
- Yearley, J. (1995). Jer Vowels in Russian. In J. N. Beckman, L. W. Dickey and S. Urbanczyk, eds., *Papers in Optimality Theory*. Amherst: GLSA, pp. 533-571.