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DERIVING THE RUSSIAN SECONDARY IMPERFECTIVE

Problèmes avec les généralisations basées sur la surface, Université Paris 8, October 8-9, 2007

1. BACKGROUND

The vast majority of Russian verbal stems are imperfective by default. Adding an Aktionsart-changing prefix renders a stem perfective (Vinogradov 1952, Forsyth 1970, Švedova 1970, Smith 1991, Garde 1998, etc.):

(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. sYpat' 'to pour (a non-liquid)'
  b. rassYpat' 'to strew$_{PRF}$'

A prefixed verb can be made imperfective (the so-called "secondary imperfective") by adding the secondary imperfective suffix, which has 3 allomorphs: -*yv*- (4), -*v*- (5), or zero (6):
NB: -*a(j)*- is the default first conjugation marker.

(4) root -pis- 'write' -yv-
  a. pisAt' 'to write'
  b. podpisAt' 'to sign$_{PRF}$'
  c. podpIsyvat' 'to sign$_{IMPRF}$'

(5) root -bol'- 'pain' -v-
  a. bolEt' 'to be sick'
  b. zabolEt' 'to become sick$_{PRF}$'
  c. zabolevAt' 'to become sick$_{IMPRF}$''

(6) root -syp- 'pour' -Ø-
  a. sYpat' 'to pour (a non-liquid)'
  b. rassYpat' 'to strew$_{PRF}$'
  c. rassypAt' 'to strew$_{IMPRF}$' (note the stress shift)

Proposal: the **underlying form** of the secondary imperfective suffix is **a back rounded yer**; the surface forms are derived.

1.1. The Russian yers

Standard assumption: Russian has two abstract vowels (yers): the back one and the front one, subject to special vocalization rules (Pesetsky 1979).

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

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

Our hypothesized yer is not subject to the first rule.

In addition, yers trigger stress retraction (Lightner 1972, Halle 1994): if a yer is underlyingly accented, the stress shifts to the preceding syllable.

Historically, yers were short. Pesetsky 1979, Rubach 1984, Czaykowska-Higgins 1988, Halle 2004, etc.: the **diacritic feature** that synchronically distinguishes yers from other vowels is [± ATR]

1.2. The Russian vowel system

Standard assumption: only [i] and [ɨ] have lax counterparts. New assumption: [u] also does:

Table 1: Russian vowels

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

The introduction of a new yer fits easily into the system.

2. THE PHONOLOGY OF THE SECONDARY IMPERFECTIVE SUFFIX

Components:

- the verbal stem
- the secondary imperfective suffix (underlying form -ʊ-)
- the thematic suffix/v^0 (underlying form -*a*- or -*aj*-)

2.1. The zero allomorph and Jakobson's rule

Jakobson 1948: Russian does not tolerate hiatus:

(iii) V → Ø / __ V Jakobson's vowel truncation

Prediction: since the secondary imperfective suffix is a vowel and the thematic suffix begins with a vowel, the former will never be visible:

Simplifying away from cyclicity issues and the underlying form of thematic suffixes:

(7) First conjugation stem, zero allomorph

[[[po-kid]$_1$-(ʊ]$_2$-a]$_3$-l

cycle 3: Jakobson's vowel truncation

[[[po-kid]$_1$-(ø]$_2$-a]$_3$-l

Stress: since the accented suffix -ʊ- is removed, its accent is shifted to the next syllable. This correctly derives the observed post-accenting behavior of the zero allomorph

Both the surface form (Ø) and the stress pattern provide the correct outcome, but for the non-default case! For the vast majority of stems, the secondary imperfective suffix is realized as -*yv*-

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.

Intervocalically, -ʊ- becomes a glide:

(iv) [ʊ] → [-syll] / V __ V [w]-glide formation

NB: Alternatively, the labial glide is inserted between -ʊ- and the preceding vowel; the yer itself is deleted by Jakobson's rule at the next cycle

Simplifying away from cyclicity issues and the underlying form of thematic suffixes:

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

[[[[za-bol]$_1$-e]$_2$ -ʊ]$_3$-a]$_4$-l

cycle 3: glide fomation

[[[[za-bol]$_1$-e]$_2$ -w]$_3$-a]$_4$-l

Stress: since the accented suffix -ʊ- becomes non-syllabic and thus unstressable, its accent is shifted to the next syllable.

2.3. The *-yv-* allomorph and glide-insertion

As mentioned above, yers that remain high and lax are not phonologically realized. Also, our yer is in a pre-vocalic position. It should be deleted!

Solution: a **glide-insertion** rule:

(v) Ø → w / ʊ __ glide-insertion

NB: We set aside the consequences of the choice between glide-deletion before a consonant (Jakobson 1948) vs. glide-insertion before a vowel for Russian phonology in general

Glide-insertion is followed by a **dissimilation** rule:

(vi) x x [ʊw]-dissimilation

[-ATR] [round]

Setting aside what we have learned in prior sections:

(9) First conjugation stem, *-yv-* allomorph:

[[[o-pro-kid]$_1$-ʊ]$_2$-a]$_3$-l

cycle 2: [ʊ]-decomposition: glide insertion + dissimilation

[[[o-pro-kid]$_1$-ɨw]$_2$-a]$_3$-l

post-cyclic yer-tensing

[[[o-pro-kid]$_1$-ɨw]$_2$-a]$_3$-l

Stress: In this derivation, the accent falls on the yer and is retracted (Halle 1997), correctly yielding the pre-accenting pattern associated with the *-yv-* allomorph

This means that the tensing rule, responsible for the conversion of [ɨ] into [ɨ], is a late one:

(vii) V → [+ ATR] in secondary imperfectives secondary imperfective tensing

NB: The tensing rule is morphologically conditioned and also applies to (the last vowel of) the verbal stem

All of this can be replaced by a dumb ʊ → *ɨw* rule, of course

2.4. Summary

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

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

Problem: They seem to exclude each other!

3. THE ROLE OF THE CYCLE

Proposal: The node formed by the verbal stem and the secondary imperfective suffix may be **cyclic** (default) or **non-cyclic** (marked) in function of the verbal stem (the combination root-prefix, actually):

(10) root -kid- 'throw'
a. po-: pokɪnut' 'abandon$_{PRF}$' → pokidʌt' 'abandon$_{IMPRF}$' -a(j)-
b. o-pro-: oprokɪnut' 'turn over$_{PRF}$' → oprokɪdyvat' 'turn over$_{IMPRF}$' -yva(j)-

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 *-yv-* allomorph)
(vii) secondary imperfective tensing (post-cyclic)

In the cycle where the verbal stem combines with the secondary imperfective suffix, it is not yet known what follows the suffix (even though it will always be the vocalic suffix *-a(j)-*). Thus (iii) is not applicable, while (iv) and (v) are. Since (iv) bleeds (v), *-yv-* is impossible if the verbal stem ends in a vowel

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

3.1. The default cases

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

(11) First conjugation stem, *-yv-* allomorph:

[[[o-pro-kid]$_1$-ʊ]$_2$-a]$_3$-l

cycle 2: [ʊ]-decomposition: glide insertion + dissimilation
vowel truncation (iii) before a vowel inapplicable
[w]-glide formation (iv) after a vowel inapplicable

[[[o-pro-kid]$_1$-ɨw]$_2$-a]$_3$-l

post-cyclic secondary imperfective tensing

[[[o-pro-kid]$_1$-ɨw]$_2$-a]$_3$-l

If the verbal stem ends in a vowel (possibly, v^0), a different derivation takes place:

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

[[[[za-bol]$_1$-e]$_2$ -ʊ]$_3$-a]$_4$-l

cycle 2: nothing happens

[[[[za-bol]$_1$-e]$_2$ -ʊ]$_3$-a]$_4$-l

cycle 3: [w]-glide formation (iv)
bleeds [ʊ]-decomposition
vowel truncation (iii) before a vowel inapplicable

[[[[za-bol]$_1$-e]$_2$ -w]$_3$-a]$_4$-l

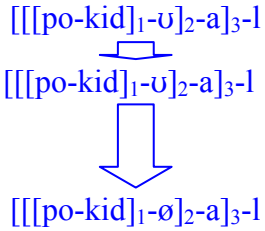
Even though the stress patterns are different, the derivation proceeds in parallel

The fact that ***-e-*** (which is not part of the root) remains in secondary imperfectives suggests that it **corresponds to v^0 rather than to the thematic suffix** (generally intervening between the stem and inflection)

3.2. The post-cyclic node

The zero allomorph is obtained as previously, with cyclicity taken into account:

(13) First conjugation stem, zero allomorph



cycle 2: []$_2$ is a post-cyclic node, nothing happens

cycle 3: vowel truncation (iii) before a vowel
bleeds [ʊ]-decomposition
[w]-glide formation (iv) inapplicable

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 ([ʊ]-decomposition, [w]-glide formation) do not apply

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 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.

4. "IMPERFECTIVE LENGTHENING"

The name of "imperfective lengthening" is given to the phenomenon whereby the root vowel changes in quality (becomes tensed in our system; long in the alternative approach to yers):

(14) root -sɨp- 'sleep'
a. spAt' 'to sleep'
b. dospAt' 'to finish sleeping$_{PRF}$'
c. dosypAt' 'to finish sleeping$_{IMPRF}$'

Hypothesis: "imperfective tensing" is vowel harmony phenomenon, whose trigger is the yer of the secondary imperfective suffix (which means that (vii) should be decomposed)

5. SECOND CONJUGATION STEMS

Standard assumption: second conjugation stems have the thematic suffixes *-e-* and *-i-* (others are first conjugation)

The so-called transitive palatalization (Jakobson 1948, Halle 1963, Coats and Lightner 1975, etc.) arises from the underlying sequence consonant-glide (*Cj*). The glide itself arises from [i] before another vowel (supplied either by *-yv-* or by the thematic suffix *-a(j)-*).

However, *-e-* and *-i-* verbs behave differently with respect to the secondary imperfective:
- All *-i-* stems trigger transitive palatalization (15), (16)
- Only one *-e-* stem (out of 34) does so unambiguously

(15) root -korm- 'feed'
a. kormIt' 'to feed'
b. otkormIt' 'to fatten$_{PRF}$'
c. otkArmlivat' 'to fatten$_{IMPRF}$'

(16) root -gruz- 'freight'
a. gruzIt' 'to load'
b. razgruzIt' 'to offload$_{PRF}$'
c. razgruzhAt' 'to offload$_{PRF}$'

The distinction falls out if *-i-* is v^0, while *-e-* is either part of the stem (one possible case) or a thematic suffix (which is not present in derivation).

The derivations are straightforward:

(17) Second conjugation, default *-yv-* allomorph

[[[[ras-kras]$_1$-i]$_2$ -ʊ]$_3$-a]$_4$-l
⇩ cycle 3: [j]-glide formation
[[[[ras-kras]$_1$-j]$_2$ -ʊ]$_3$-a]$_4$-l
⇩ cycle 3: [ʊ]-decomposition
[[[ras-krasj]$_2$ -ɨw]$_3$-a]$_4$-l
⇩ cycle 3: transitive palatalization
[[[ras-kraš]$_2$ -ɨw]$_3$-a]$_4$-l
⇩ post-cyclic: secondary imperfective tensing
[[ras-kraš]$_2$ -ɨv]$_3$-a]$_4$-l

(18) Second conjugation, zero allomorph

(19) [[[[u-kras]$_1$-i]$_2$ -ʊ]$_3$-a]$_4$-l
⇩ cycle 3: []$_3$ is a post-cyclic node, nothing happens
[[[u-kras]$_1$-i]$_2$ -ʊ]$_3$-a]$_4$-l
⇩ cycle 4: vowel truncation (iii)
[[[u-krasi]$_2$ -ø]$_3$-a]$_4$-l
⇩ cycle 4: [j]-glide formation (new edge environment)
[[[u-krasj]$_3$-a]$_4$-l
⇩ cycle 4: transitive palatalization
[[u-kraš]$_3$-a]$_4$-l

No additional assumptions are necessary

6. CONCLUSION AND NEW QUESTIONS

Introducing a new [round] yer into the Russian vowel system permits us to reduce secondary imperfective allomorphy 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

We account not only for the surface realization, but also for the accentuation patterns

The place of the new abstract vowel in the Russian phonology:

- Fits into a vacant spot
- Consistent with the history of Slavic, where [ɨ] is derived from the Indo-European [u:] and *-dux-*/*-dyx-*/*-dox-*, *-sux-*/*-syx-*/*-sox-* alternation in Modern Russian

The proposed treatment of the secondary imperfective suffix demonstrates once again that **abstraction and cyclic derivation are essential for Russian phonology**.

Issues:

- Vowel harmony
- The ATR nature of yers
- Insights into the structure of the verbal stem (independent of the precise treatment of the secondary imperfective suffix)
- **Evidence for abstraction**

APPENDIX 1: STEM-FINAL VOWELS

Transitive palatalization in secondary imperfectives shows that the final vowel preceding the verbal inflection may have different status for different classes of verbs.

Productive conjugation classes:

- The first conjugation *-a(j)-* disappears in secondary imperfectives.
- The first conjugation *-e(j)-* doesn't, nor does the second conjugation *-i-*.

NB: If the relevant morphemes underlyingly end in a glide, the [w]-formation rules need to be restated to involve a [j]-to-[w] rule (cf. Flier 1972, 1974)

Hypothesis: What can disappear is a thematic suffix (which is only present before inflectional morphology), what stays is v^0 or part of the verbal root

If this is true, we can hypothesize about more complicated cases, with rare stem-final vowels and null thematic suffixes:

- The *-oro-*/*-olo-* verbs (*kolot', polot', molot', porot', borot'*) form their secondary imperfective with the *-yv-* allomorph and obligatory imperfective tensing of the stem vowel (to [a]). The stem-final -o- drops.
- The secondary imperfective of the *-ere-* verbs (*teret', -meret', peret', prosteret'*) is constructed with the zero allomorph and obligatory imperfective tensing of the stem vowel (to [i]). The stem-final vowel (theoretically, the front yer [ɪ]) drops.

Athematic verbs, whose stems end in a vowel (before a consonant) or in [j] (before a vowel), form secondary imperfectives with the *-v-* allomorph, except stems ending in *-a-*/*-aj-*, which require the *-yv-* allomorph.

Hypothesis: for the latter, *-aj-* is part of the stem; for the former, the stem ends in a vowel

APPENDIX 2: ALTERNATIVE THEORIES

Previous attempts at unification have unified the zero/*-v-* allomorphs, setting aside the *-yv-* allomorph

Halle 1963: the *-yv-* allomorph has the underlying form *-ov-aj-* (with the surface [ɨ] derived by a rule), the other two allomorphs have the underlying form - *ø-aj-*, where [ø] is an underspecified rounded vowel

Flier 1972: two allomorphs: *-yv-* and *-Ø-*, with a special rule converting the final [j]-glide of vocalic stems (which is then underlyingly part of the stem) into [w]

Coats 1974: same; the *-yv-* allomorph is derived from the underlying *-aj-*, homophonous with the default thematic suffix. Needs an extra raising rule for [a]. See Feinberg 1980 for critique

Feinberg 1980: the *-yv-* allomorph results from reduplication; in the zero and *-v-* allomorphs reduplication fails. Observes that the choice of the allomorph is affected by the accentuation of the stem

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