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ABLAUT AND TRANSITIVE SOFTENING IN THE RUSSIAN VERB
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1. INTRODUCTION

Transitive softening, a.k.a. iotation, or transitive palatalization, in Slavic languages and in Russian in particular (Jakobson 1929, Kortlandt 1994, Meillet 1934, Townsend and Janda 1996, *inter alii*; see Halle 1963, Lightner 1972, Coats and Lightner 1975, Bethin 1992 and Brown 1998 for generativist analyses of the phenomenon) is the term used for a special type of **consonant mutation resulting from an underlying [CjV] cluster**:[1]

Table 1: Transitive softening

	consonant	transitive softening	infinitive (*-tʲ-*)	1sg (*-u-*)
a.	s, z	š, ž	*pros-í-tʲ* 'to beg'	*proš-ú* 'beg-1SG'
b.	t, d	č, ž	*obíd-e-tʲ* 'to offend'	*obíž-u* 'offend-1SG'
c.	x, k, g	š, č, ž	*max-á-tʲ* 'to wave'	*maš-ú* 'wave-1SG'
d.	p, b, m, v	plʲ blʲ, mlʲ, vlʲ	*lʲub-í-tʲ* 'to love'	*lʲublʲ-ú* 'love-1SG'
e.	l, r, n	lʲ, rʲ, nʲ	*bel-í-tʲ* 'to whiten, tr.'	*belʲ-ú* 'whiten-1SG'

In the verbal domain transitive softening generally targets second conjugation verbs, where inflectional suffixes are preceded by the theme vowels *-e-* (row (b)) and *-i-* (rows (a), (d), (e))

Yet ca. 60 Russian first-conjugation verbs undergo transitive softening in the present tense despite no evidence for an underlying front vowel before the present tense suffix (row (c), the past-tense form contains the theme vowel *-a-*):

(1)   root *-pis-* 'write':

   a.   v- pis- a- l- a   ⇒ [vpisála]
        in write TH PAST FSG
        wrote in FSG

   b.   v- pis- ?- ě- u   ⇒ [vpišú]
        in write TH PRES 1SG
        will write in 1SG

The consensus is that these verbs somehow acquire [i] in place of [a] in their present tense. Yet how?

> My proposal: transitive softening verbs involve ablaut

Evidence: same triggering environment, same vowel changes

Consequences: explaining one more exception

Extensions: more questions on the nature of Russian ablaut

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[1] Transcriptions closely follow Russian orthography and do not indicate: (a) palatalization before front vowels (/Ci/ → [Cʲi], /Ce/ → [Cʲe]), (b) various vowel reduction phenomena in unstressed syllables, (c) final devoicing and voicing assimilation. The yers (abstract high lax unrounded vowels) are represented as /ĭ/ (front, IPA ɪ) and /ŭ/ (back, IPA ʊ). The letters ч (the IPA t͡ɕ, see Padgett and Żygis 2007), ш (IPA ʂ), ж (IPA ʐ), щ (IPA [ɕɕ]) are traditionally rendered as č, š, ž, and šč. Stress is marked by an acute accent on the vowel.

2.   INCURSION INTO TRANSITIVE SOFTENING

Second conjugation verbs use the present-tense suffix *-i-* and are characterized by the so-called thematic suffixes *-i-* and *-e-* intervening between the lexical stem and the infinitive or past tense exponent:

(2) a.   v- lʲub- i-   l-   a   ⇒ [vlʲubíla]   second conjugation thematic suffix *-i-*
            in love TH PAST FSG
            made __ to fall in love FSG

      b.   obid-   e-   l-   a   ⇒ [obídela]   second conjugation thematic suffix *-e-*
            offend TH PAST FSG
            offended FSG

The present-tense suffix *-i-* appearing after the thematic suffix creates a hiatus resulting in the deletion of the thematic suffix, as originally suggested by Jakobson 1948:

(3) a.   v lʲub- i-   i-   t   ⇒ [vlʲúbit]   i+3sg
            in love TH PRES 3SG
            will make __ to fall in love 3SG

      b.   obid-   e-   i-   t   ⇒ [obídit]   e+3sg
            offend TH PRES 3SG
            will offend 3SG

However, in the 1sg of the present tense, in the passive past participle and in the secondary imperfective second conjugation verbs undergo transitive softening: the thematic suffix *-i-* or the present-tense suffix *-i-* turns into [j] before a vowel distinct from [i]:

(4) a.   v- lʲub- i-   i-   u   ⇒ [vlʲubljú]   1sg
            in love TH PRES 1SG
            will make __ to fall in love 1SG

      b.   v- lʲub- i-   ě̌n-   a   ⇒ [vlʲubljená]   PPP
            in love TH PPP   FSG
            fallen in love FSG

      c.   v- lʲub- i-   Ø-   a- l-   a   ⇒ [vlʲubljála]   secondary imperfective
            in love TH IMPRF TH PAST FSG
            was making __ to fall in love FSG

(5) a.   obid-   e-   i-   u   ⇒ [obížu]   1sg
            in love TH PRES 1SG
            will offend 1SG

      b.   obid-   e-   ě̌n-   a   ⇒ [obížena]   PPP
            in love TH PPP   FSG
            offended FSG

      c.   obid-   e-   Ø-   a- l-   a   ⇒ [obižála]   secondary imperfective
            in love TH IMPRF TH PAST FSG
            was offending FSG

Conclusion: the vowels [e] and [i] (provided by the corresponding thematic suffixes) turn into [j] when followed by the vowels [u], [ě] (or [ǒ]) and [a] (or maybe just before non-[i])

3.   *WRITE*-VERBS (INCLUDING *MURLÍKAT^j* 'TO PURR')

Second-conjugation verbs (thematic suffixes *-ē-* and *-i-*) use the present-tense suffix *-i-*

The first-conjugation present-tense suffix is *-ě-* (or *-ʲo-*, cf. Lightner 1965)

Historically it was -*ě*-. Under stress -*ě*- turns into -*o*- (palatalization triggered by -*ě*- remains), and unstressed -*o*- preceded by a palatalized consonant turns into -*ě*-, which makes determining the underlying representation of this suffix a non-trivial task

The first conjugation is characterized by the thematic suffixes surfacing as -*nu*-, -*o*-, -*ē*- and -*a*- in the past tense, or by the lack of such a suffix

While the first three suffixes never trigger transitive softening, the suffix -*a*- falls into three categories, depending on what happens in the present tense forms

(1) -*aj*- **verbs** (a productive first conjugation class): the verbal stem is followed by -*aj*- before vocalic suffixes (i.e., the present tense suffix -*ě*- and the active present participle -*ŭšč*-), and by -*a*- before non-vocalic ones. So a glide is either deleted before consonantal suffixes (e.g., Jakobson 1948, Halle 1963, Lightner 1965, Lightner 1967, Melvold 1990, etc.) or inserted before vocalic suffixes

(2) -*ø*- **verbs** (15 roots): no trace of -*a*- remains in the present tense or in the active present participle

(3) **TS verbs** (60 roots, as well as all verbs formed by the productive verbalizing suffix -*ov*-): take the theme -*a*- in the past tense and show transitive softening and no sign of -*a*- in the present tense or active present participle:

Table 2: Surface forms, first conjugation, transitive softening: *pisátʲ* 'to write'

		singular-(M/F/N)	**plural**
present	1	piš-ú	píš-e-m
	2	píš-e-š	píš-e-te
	3	píš-e-t	píš-u-t
past		pis-á-l-(Ø/a/o)	pis-á-l-i
participle	**active** past	pis-á-vš-aja	
	active present	píš-ušč-aja	

Transitive softening here occurs in the entire present-tense paradigm indicating the presence of a glide before the present-tense suffix. Although this last case is not productive (setting aside the very productive -*ow.a*-/-*u.j*- derivation) and verbs slowly shift from this category to the first one, this does not mean that it doesn't require an explanation.

4. RUSSIAN VOWEL SYSTEM

The historical [α ATR] opposition is essential for verbal ablauts:

Table 3: Russian oppositions: [α high], [α back], [α ATR]:

[– ATR] vowels

	-back	*+back*
+hi	ĭ	ŭ
–hi	ě	ŏ

[+ ATR] vowels

	-back	*+back*	*[round]*
+hi	i	ɨ	u
–hi	ē	ā	

Historically the [ATR] distinctions correlated with the length distinctions, hence the notation

None of them are manifested in the surface representations (so [ě] and [ē] are both realized as [e], and [ŏ] and [ā] as [o] and [a])

The famous two yers, the front one [ĭ] and the back one [ŭ], are deleted unless either lowered (to [ě] and [ŏ], respectively) or tensed (to [i] and [ɨ])

5.   THE FRONT ABLAUT

Setting aside the only verb with a synthetic future, *bɨtʲ* 'to be', Russian has 26 stems subject to ablaut (see the list in section 10). We're interested in one:[2]

Table 4: Surface forms, first conjugation, front ablaut: *molótʲ* 'to grind'

		singular-(M/F/N)	**plural**
present	1	melʲ-ú	mélʲ-e-m
	2	mélʲ-e-š	mélʲ-e-te
	3	mélʲ-e-t	mélʲ-u-t
past		mol-ó-l-(Ø/a/o)	mol-ó-l-i
participle	**active** past	mol-ó-vš-aja	
	active present	mélʲ-ušč-aja	

So the underlying root vowel [o] (/ŏ/) turns into [e] in the present tense

How do we know it is underlyingly [o] and not the other way around? From the secondary imperfective, which is subject to an autosegmental vowel change of its own: the final vowel of the stem is tensed (lengthened) (Halle 1963, Flier 1972, Feinberg 1980, etc.):

(6)   a.   *skolʲznútʲ* 'to slide, glide'
       b.   *uskolʲznútʲ* 'to slip away PRF'
       c.   *uskálʲzɨvatʲ* 'to slip away IMPRF' (also *uskolʲzátʲ*)

In all ablaut verbs the base for the secondary imperfective is that past-tense form:

(7)   a.   *molótʲ* 'to grind'
       b.   *peremolótʲ* 'to grind down PRF'
       c.   *peremálɨvatʲ* 'to grind down IMPRF'

(8)   a.   *pétʲ* 'to sing'
       b.   *perepétʲ* 'to sing again PRF'
       c.   *perepevátʲ* 'to sing again IMPRF'

The ablaut (for these verbs) is therefore triggered by the present tense

Table 5: Russian vowel system: FRONT ablaut

[– ATR] vowels

	-back	*+back*
+hi	ĭ ⇐	ŭ
–hi	ě ⇐	ŏ

[+ ATR] vowels

	-back	*+back*	*[round]*
+hi	i ⇐	ɨ	u
–hi	ē ⇐	ā	

This phenomenon can be formalized by assuming a floating feature ([– back] for Lieber 1987, [+front] for Wiese 1996) or by parasitic elements (Ségéral and Scheer 1998)

However this is achieved, it can straightforwardly be extended to transitive softening verbs

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[2] Other instances of unpredictable ablaut are found in bare-stem deverbal nouns, and transitive and non-directed motion counterparts of unaccusatives.

5.1.   Transitive softening as ablaut: o-verbs

Russian o-verbs (*kolot^j* 'to stab', *molot^j* 'to grind', *polot^j* 'to weed', *borot^j* 'to fight', *porot^j* 'to whip' – 5 verbs in all) exhibit transitive softening in the present tense

Expected:

(9) $[[[kol-o]_1-Ø]_2 -u]_3$

        *kolu   cycle 2: vowel before vowel deletion

Correct: *kol^jú* 'stab.1SG'

Melvold 1990: the present-tense suffix is Ø in 1sg. Reason: lack of palatalization. Historically, the 1sg -u ending stems from a back nasal vowel, which depalatalized the preceding consonant. This is how we know that these verbs involve transitive softening

Proposal: the thematic suffix -*o*- is subject to the front ablaut, like the root -*mol*- above

(10) $[[[kol-o]_1-Ø]_2 -u]_3$

        $[[kol-ĕ]_2 -u]_3$ cycle 2: FRONT ABLAUT

        $[kolj-u]_3$ cycle 3: glide formation

                                     some more rules
        $[kol^jú]$

The glide formation process is modeled after Bethin 1992: a front vowel (rather than her [i]) followed by any vowel distinct from [i]:[3]

(11) $V_{[-back]} \rightarrow [-syll, -cons] /$ ___ V   GLIDE FORMATION (TS)

To exclude glide formation for [i]-[i] and [ē]-[i], I assume that front vowels are deleted before [i] by a rule that precedes this one

In non-1sg we get the sequence ĕ-ĕ, which should not trigger transitive softening, but triggers regular palatalization, which yields the same result for [r] and [l]

5.2.   Transitive softening as ablaut: *write*-verbs

We can now account for *write*-verbs by assuming that their -*a*-theme is also subject to the front ablaut, which, following Table 5, gives us [ē]:

(12) $[[[pis-a]_1-Ø]_2 -u]_3$

        $[[pis-ē]_2 -u]_3$ cycle 2: FRONT ABLAUT

        $[pisj-u]_3$ cycle 3: glide formation

                                     some more rules
        $[pišú]$

Independent evidence for [e] triggering transitive softening: second conjugation e-verbs (5)

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[3] For this rule to apply to active present participles of the first conjugation (-*ŭšč*-) yet not to active present participles of the second conjugation (-*ašč*-), it is necessary to assume that these suffixes are formed on the basis of the present tense suffix (correspondingly -*ĕ*- (turning into [o]) and -*i*-) followed by a nasal suffix (-*nšč*-), with subsequent nasal transformation, as suggested for nasal roots by Lightner 1965:49ff.

Transitive softening occurs in all present-tense cells, e.g., 3sg:

(13)   [[[pis-a]₁-ĕ]₂ -t]₃
                                        cycle 2: FRONT ABLAUT
         [[[pis-ē]₁-ĕ]₂ -t]₃
                                        cycle 3: glide formation
           [[pisj-ĕ]₂ -t]₃
                                        some more rules
             [píšet]

Here it is not the root that undergoes ablaut, it is the thematic suffix *-a-*

As this is also the thematic suffix selected by the productive verbalizing suffix *-ov-* (Lightner 1965, Melvold 1990), it is itself productive

6.   COMBINED ABLAUT

One verb with the thematic suffix *-ē-* behaves differently from all other *-e-*verbs

Generally, two classes:
- ➢   productive: first conjugation, subject to glide-insertion after the suffix
- ➢   non-productive: second conjugation

The verb *revét^j* 'to bellow' is first conjugation:

Table 6: Surface forms, exceptional first conjugation verb *revét^j* 'to bellow'

		singular-(M/F/N)	**plural**
present	1	rev-ú	rev^j-ó-m
	2	rev^j-ó-š	rev^j-ó-te
	3	rev^j-ó-t	rev-ú-t
past		rev-é-l-(Ø/a/o)	rev-é-l-i
participle	**active** past	rev-é-vš-aja	
	active present	rev-úšč-aja	

Why is there no transitive softening?

Expected:

(14)   [[[rev-ē]₁-ĕ]₂ -t]₃
                                        cycle 3: glide formation
           [[revj-ĕ]₂ -t]₃
                                        some more rules
           * [revl^{j}ót]

Correct: *rev^{j}ót* 'bellows'

Or, if the [ē-ĕ] sequence is unlikely to give rise to a glide, the problem arises for 1sg and the expected form will be *[revl^{j}u]

Even if we do not expect [ē-V] to give rise to a glide at all, the expected form will be *[rev^{j}u] in 1sg

We need another ablaut operating in the opposite direction or activating the feature [α back]

Independent evidence: another verb, where the root vowel surfaces as [ē] in the past tense and as [o] in the present tense:

Table 7: Surface forms, first conjugation, combined ablaut: *pétʲ* 'to sing'

		singular-M(F/N)	plural
present	1	poj-ú	poj-ó-m
	2	poj-ó-š	poj-ó-te
	3	poj-ó-t	poj-ú-t
past		pé-l-(Ø/a/o)	pé-l-i
participle	**active** past	pé-vš-aja	
	active present	poj-úšč-aja	

We know that the vowel in the past tense is [ē] because [ĕ] would have given us the incorrect
*revʲol, *pʲol.

So the simple reversal of the front ablaut is not enough: it creates the pairs [ĕ]/[ŏ] or [ē]/[ā]

Table 8: Russian vowel system: BACK ablaut

[– ATR] vowels

	-back	+back
+hi	ĭ ⇨	ŭ
–hi	ĕ ⇨	ŏ

[+ ATR] vowels

	-back	+back	[round]
+hi	i ⇨	ɨ	u
–hi	ē ⇨	ā	

Back ablaut would work for *revétʲ* 'to bellow' (Table 6) but not for *pétʲ* 'to sing' (Table 7): in
the latter there is also a change in the feature [α ATR]:

Table 9: Russian vowel system: ATR ablaut

[– ATR] vowels

	-back	+back
+hi	ĭ	ŭ
–hi	ĕ	ŏ

⇨

[+ ATR] vowels

	-back	+back	[round]
+hi	i	ɨ	u
–hi	ē	ā	

The ablaut connecting [ē] and [ŏ] require the change in two features: [α front] and [α ATR]

Independent evidence for combined ablaut: 5 verbs with the stem vowel [ŏ] in the present and
[ɨ] in the past

Table 10: Surface forms, first conjugation, front ablaut: *mítʲ* 'to wash'

		singular-M(F/N)	plural
present	1	mój-u	mój-e-m
	2	mój-e-š	mój-e-te
	3	mój-e-t	mój-u-t
past		mí-l-(Ø/a/o)	mí-l-i
participle	**active** past	mí-vš-aja	
	active present	mój-ušč-aja	

For these stems the value of the feature [α front] remains unchanged, but the features [α high]
and [α ATR] change

Two ways of dealing with this ablaut:
- two features change at once
- the underlying form of the stem vowel is [ŭ] and there are two ablauts, one in the past,
  one in the present

Whatever the solution, it can be extended to *pét^j* 'to sing' (Table 7)

7. CONCLUSION

Ablauts are there, some for a few roots, some for only one

If we assume that thematic vowels can also be subject to ablauts, we can explain not only transitive softening, but also the unexpected lack of it:

➢ FRONT ABLAUT: *-mol-o-* 'grind' (root + theme), other *-o-*verbs (theme), TS-verbs (60 roots + the suffix *-ov-*) (theme)

➢ COMBINED ABLAUT: *-rev-e-* 'bellow' (theme), *-pĕj-* 'sing' (root)

A lot of new takes on the old facts might follow

7.1. Ablaut or umlaut?

Wiese 1996 distinguishes *umlaut* (vowel fronting, systematically triggered in some stems by several different suffixes, which he treats as phonological) from *ablaut* (unpredictable vowel change occurring in the paradigm of strong verbs, which he assigns to morphology)
See Wiese 2008 for evidence that ablaut is more systematic than it might seem

Wiese 1996 also assumes that [+front] can spread from the suffix to the root only if the vowel of the root is underspecified for that feature

Wiese's umlaut proposal works perfectly for the Russian front ablaut in the stem of *molót^j* 'to grind'. It cannot be extended to other ablauts because different features are involved

Should we distinguish between ablaut and umlaut in Russian? No:
➢ it is precisely the same environment: the past vs. present tense series
➢ these are non-productive phenomena
➢ the thematic vowel change can go in the opposite direction (for the verb *revét^j* 'to bellow')
➢ stem "umlaut" can be combined with an [α ATR] ablaut (in the verb *pét^j* 'to sing')

But ablaut is a lot messier than umlaut

7.2. Direction of ablaut

The relationship between the stem vowels in the present and past forms is non-systematic:

(15) a. [der^{j}ót] 'tear.3SG' [dralá] 'tore.FSG'
b. [umr^{j}ót] 'will die.3SG' [umerlá] 'died.FSG'

The root yer is lowered in the present in (15a) and in the past in (15b)

How do we know that this yer is underlying? Because of secondary imperfective tensing, an independently motivated ablaut, which turns the back yer [ŭ] into [ɨ], the front yer [ĭ] into [i], and [ŏ] into [a] (see Jakobson 1966, Lightner 1967):

(16) root *-skol^{j}z-* 'slip'
a. *uskol^{j}znút^j* 'to slip away PRF'
b. *uskál^{j}zɨvat^j* 'to slip away IMPRF' (also *uskol^{j}zát'*)

(17) root *-sŭp-* 'sleep'
a. *dospát'* 'to finish sleeping PRF'
b. *dosɨpát'* 'to finish sleeping IMPRF'

In the secondary imperfective the verbs in (15) surface with [i]:

(18) a.   *raz* dir *át^j* 'to tear apart'
      b.   *u* mir *át^j* 'to be dying'

The underlying [ĕ] would have turned into [ē] in the secondary imperfective (no observable change on the surface)

These facts suggests that the underlying form of the stem vowel is [ĭ] in both cases and there are two ablauts, one in the past, one in the present

Likewise for the verb *pét^j* 'to sing' (Table 7): an underlying [ĕ] backed in the present (to [ŏ]) and tensed in the past (to [ē])

How can the same morpheme trigger opposite ablauts? How can the same root undergo two different ones?

8.   OTHER ABLAUTS AND LINKED PHENOMENA

The stem vowel also unproductively undergoes ablaut in truncating nominalizations (e.g., *rov* 'moat' from *róju/ríla* 'dig', *boj* 'fight' from *bjú/bíla* 'beat'), in transitivization (e.g., *poít^j* 'to give drink' from *pju/pilá* 'drink'), and in the formation of non-directed/iterative motion verbs from unaccusatives (e.g., *sidét^j* 'to be seated' from *s^jádu/séla* 'sit down')

It is possible that the unexpected third declension nominalizations of the transitive softening verb -*pis*- 'read' (e.g., *rúkopis^j* 'manuscript', *skóropis^j* 'stenography') result from ablaut
But other such nouns derived from -*a*-/-*i*- verbs are unexceptional

The two second conjugation verbs with [a] suffix in the past (*spát^j* 'to sleep', *gnát^j* 'to chase') might also involve an ablaut of the underlying -*e*-

8.1. Simultaneous stem and theme ablaut

The verbs *molót^j* 'to grind' and *gnát^j* 'to chase' involve simultaneous (different) ablauts in the root and in the theme: e-e/o-o for the former and o-i/ŭ-a for the latter. How can we handle this?

Matushansky 2009: secondary imperfectives involve simultaneous yer-tensing in the stem and in the secondary imperfective suffix itself (but there it is the same change!)

8.2. Potential second conjugation ablaut

Puzzle: why does the sequence of the second conjugation thematic suffix -*ē*- and the present-tense suffix -*i*- not convert into [ēj]?
  ➤   needed: -*ē*- should be deleted
  ➤   usual solution V-before-V deletion, rule ordering
  ➤   weird new proposal: the suffix -*ē*- is subject to a lowering ablaut (also exists) and then either coalescence (i-i) or maybe there is no present-tense suffix at all?

Possible alternative: the second conjugation is defined by the thematic suffix -*i*-, which can undergo ablaut and takes a zero present-tense suffix. If so, the thematic suffix -*e*- will only be a first conjugation suffix that will turn into -*ej*- in the present tense. We would still need to explain why it triggers glide insertion rather than transitive softening, but it's a more general question. More problematic would be the question of [e]-to-[a] change, not attested for [i], so this is probably not a good idea

8.3. Secondary imperfectives

A similar hypothesis can be advanced to explain why the second conjugation thematic suffixes -*e*- and -*i*- sometimes disappear before the secondary imperfective suffix:

(19) root -*korm*- 'feed', theme -*i*-
    a.   korm-í-t^j 'to feed'
    b.   ot-korm-í-t^j 'to fatten.PRF'
    c.   ot-kár ml^j-iv-a-t^j 'to fatten.IPFV'

(20) root -*kus*- 'bite', theme -*i*-
    a.   kus-í-t^j 'to bite'
    b.   ot-kus-í-t^j 'to bite off.PRF'
    c.   ot-kús-iv-a-t^j 'to bite off.IPFV' (*ot-kúš-iv-a-t^j)

If the thematic vowel here undergoes back ablaut, as we have already argued thematic vowels can, the resulting back vowel will be deleted before the secondary imperfective suffix

9. ALTERNATIVE PROPOSALS FOR TRANSITIVE SOFTENING VERBS

Halle 1963 (via Lightner 1967, Ward 1970): two rules:

    a. Transitive softening of consonants (tantamount to [j]-insertion) takes place before an unrounded vowel followed by a rounded vowel (p. 119)

    b. A vowel is deleted before another vowel (p. 116)

Halle assumes that the first conjugation present-tense suffix is -*o*- at this point of the derivation. If I make the same assumption, my glide formation will be even more reasonable, it will always be a front vowel before a back one

(21)   [[[pis-a]$_1$-o]$_2$-u]$_3$
                           cycle 2: glide insertion
    [[[pisj-a]$_1$-o]$_2$-u]$_3$
                             cycle 2, 3: vowel before vowel deletion
     [pisj-u]$_3$
                             some more rules
     [pišú]

(b) is clear, but (a) is unmotivated

Empirically, problems with transitive softening in secondary imperfectives (Flier 1972)

Lightner 1965: A tense vowel turns into [j] if followed by a lax one (for him as well, the present-tense suffix is -^{j}*o*-):

(22)   [[[pis-a]$_1$-o]$_2$-u]$_3$
                           cycle 2: glide formation
     [[[pisj-o]$_2$-u]$_3$
                             cycle 3: vowel before vowel deletion
     [pisj-u]$_3$
                             some more rules
     [pišú]

Same problems with transitive softening in secondary imperfectives

Ward 1970: doesn't discuss transitive softening in *write*-verbs, postulates j-initial allomorphs in other cases (PPPs, nominalizations, comparative suffixes)

Lunt 2001:182-184: totally follows Lightner (a → j)

Flier 1972: vague remarks about vowels turning into glides before other vowels

Coats and Lightner 1975: the underlying form of the thematic suffix is -*aj*-, the vowel is deleted by a minor rule (the same that applies in comparatives to the suffix -*eje*- to derive *molože*)

Bethin 1992:285: an adjustment rule for a-suffixed verbs by which the /a/ is replaced by /i/ in the present tense

Boyd 1997: follows Bethin

Brown 1998: this is allomorphy, who cares

Rubach and Booij 2001: OT-governed allomorphy

10.   STEM ABLAUT VERBS

25 verbs in all, not counting *bitʲ* 'to be' and the exceptional suppletive verb *idtí* 'to go' (present tense/infinitive root *-id-*, past tense *šed-*, imperfective *-xod-*):

    i. **5 roots in [ĭj] surfacing as [i] (before consonants) or [j] (before vowels)**: *bjú/bíla* 'beat', *vjú/víla* 'weave', *ljú/lilá* 'pour', *pjú/pilá* 'drink', *šjú/šíla* 'sew'. The root yer is detectable in the imperative, where it is lowered and surfaces as [e]

    ii. **5 roots in [ŭj] surfacing as [oj] (pres) or [ɨ] (past)**: *vóju/víla* 'howl', *móju/mɨla* 'wash', *nóju/nɨla* 'whine', *róju/rɨla* 'dig', *króju/krɨla* 'cover'

    iii. **1 root in [ej] (pres) or [i] (past)**: *bréju/bríla* 'shave'

    iv. **4 roots in [ĭr]**: *mrú/mʲórla* 'die', *prú/pʲórla* 'trudge', *trú/tʲórla* 'rub', and maybe as a synchronically separate root *prostrú/prostʲórla* 'stretch'

    v. **1 root in [oj] (pres) or [e] (past)**: *pojú/péla* 'sing'

    vi. **1 root in [el'] (pres) or [olo] (past)**: *melʲú/molóla* 'grind'

    vii. **1 root in [a] (pres) or [ĕ] (past)**: *lʲágu/leglá* 'lie down' (masculine singular *lʲóg*, showing that the vowel is [ĕ])

    viii. **1 root in [ʲa] (pres) or [e] (past)**: *sʲádu/séla* 'sit down' (masculine singular *sél*, secondary imperfective root *-sid-*, showing that the underlying vowel is [i])

    ix. **1 root in [a] (pres) or [o] (past)**: *rastú/roslá* 'grow' (masculine singular *rós*)

    x. **4 yer-containing -*a*- verbs**: the first conjugation *zovú/zvalá* 'call', *berú/bralá* 'take', and *deru/dralá* 'tear', the second conjugation *gonʲú/gnalá* 'chase' and maybe *stelʲú/stlála* 'spread'

    xi. **1 derived secondary imperfective verb with transitive softening** in [e] (pres) or [i] (past): *vnémlʲu/vnimála* 'harken'

Historically, *lʲágu/leglá* 'lie down', *sʲádu/séla* 'sit down', and *búdu/bɨlá* 'be' involved nasal infixation

11.   REFERENCES

Bethin, Christina Y. 1992. Iotation and gemination in Ukrainian. *The Slavic and East European Journal* 36:275-301.

Boyd, Michael S. 1997. Palatalization and coronalization in Russian and Czech: A non-linear approach, Ohio State University, Columbus, OH.

Brown, Dunstan. 1998. Stem indexing and morphonological selection in the Russian verb. In *Models of Inflection*, eds. Ray Fabri, Albert Ortmann and Teresa Parodi, 196-221. Tübingen: Niemeyer.

Coats, Herbert S., and Lightner, Theodore M. 1975. Transitive softening in Russian conjugation. *Language* 51:338-341.

Feinberg, Lawrence E. 1980. The morphology of Russian imperfective derivation. *The Slavic and East European Journal* 24:145-154.

Flier, Michael S. 1972. On the source of derived imperfectives in Russian. In *The Slavic word*, ed. Dean S. Worth, 236-260. The Hague: Mouton.

Halle, Morris. 1963. О правилах русского спряжения [About the rules of Russian conjugation]. In *American Contributions to the Fifth International Congress of Slavists 1, September 1963, Sofia*, 113-132. The Hague: Mouton.

Jakobson, Roman. 1929. Remarques sur l'évolution phonologique du russe comparée à celle des autres langues slaves. *Travaux du Cercle Linguistique de Prague* 2.

Jakobson, Roman. 1948. Russian conjugation. *Word* 4:155-167.

Jakobson, Roman. 1966. Relationship between Russian stem suffixes and verbal aspects. *Studia Slavica* 12:203–206.

Kortlandt, Frederik. 1994. From Proto-Indo-European to Slavic. *Journal of Indo-European Studies* 22:91-112.

Lieber, Rochelle. I987. *An integrated theory of autosegmental processes*. Albany: State University of New York Press. [Reprinted in Reprint.

Lightner, Theodore M. 1965. Segmental Phonology of Contemporary Standard Russian, MIT.

Lightner, Theodore M. 1967. On the phonology of Russian conjugation. *Linguistics* 35:35-55.

Lightner, Theodore M. 1972. *Problems in the Theory of Phonology, Vol. I: Russian Phonology and Turkish Phonology*. Edmonton: Linguistic Research, Inc. [Reprinted in Reprint.

Lunt, Horace G. 2001. *Old Church Slavonic Grammar*. The Hague/Paris: De Gruyter. [Reprinted in Reprint 7th revised edition].

Matushansky, Ora. 2009. On the featural composition of the Russian back yer. In *Studies in Formal Slavic Phonology, Morphology, Syntax, Semantics and Information Structure. Proceedings of FDSL 7, Leipzig 2007*, eds. Gerhild Zybatow, Uwe Junghanns, Denisa Lenertová and Petr Biskup, 397-410. Frankfurt: Peter Lang.

Meillet, Antoine. 1934. *Le slave commun*. Paris: Champion. [Reprinted in Reprint.

Melvold, Janis. 1990. Structure and stress in the phonology of Russian, MIT.

Padgett, Jaye, and Żygis, Marzena. 2007. The evolution of sibilants in Polish and Russian. *Journal of Slavic linguistics* 15:291-324.

Rubach, Jerzy, and Booij, Geert. 2001. Allomorphy in optimality theory: Polish iotation. *Language* 77:26-61.

Ségéral, Philippe, and Scheer, Tobias. 1998. A generalized theory of ablaut: the case of Modern German strong verbs. In *Models of Inflection*, eds. Ray Fabri, Albert Ortmann and Teresa Parodi, 28-59. Tübingen: Niemeyer.

Townsend, Charles E., and Janda, Laura. 1996. *Common and comparative Slavic: phonology and inflection*. Columbus, Ohio: Slavica. [Reprinted in Reprint.

Ward, Dennis. 1970. Softening in the morphophonemics of Russian. In *The Slavic Word*, ed. Dean S. Worth, 215-231. The Hague: Mouton.

Wiese, Bernd. 2008. Form and function of verbal ablaut in Contemporary Standard German. In *Studies in Integrational Linguistics* ed. Robin Sackmann, 97–151. Amsterdam/Philadelphia: John Benjamins.

Wiese, Richard. 1996. Phonological versus morphological rules: on German Umlaut and Ablaut. *Journal of Linguistics* 32:113-135.