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Non-uniformity of Russian thematic suffixes

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I will argue that contrary to the view generally adopted in Russian traditional grammars and much literature on Slavic, thematic suffixes do not form a uniform group syntactically, semantically or morphologically. I will demonstrate that even those thematic suffixes that seem to have no semantic import do not behave in a unified way expected from theme vowels and cannot have the same position in the verb structure.

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1 Introduction*

Besides the lexical stem the Russian verb may contain a variety of affixes (1a), including one or more Aktionsart prefix, a verbalizing suffix, a secondary imperfective or semelfactive suffix and finally, tense and agreement morphology (1b). Most of this material can be absent. The focus of this paper is on the morpheme that can be found before the tense suffix, the so-called *thematic suffix* (a.k.a. *theme*).¹ While for some 80 Russian verbs the thematic suffix is null (1c), such is not the case for the rest:

- (1) a. [[[[[[PFX + [stem + v]] + ASP] + ?] + TENSE] + AGR]
- b. pere- -start- ov- iv- **a-** e- t → *perestartóvivajet*
 over start V IPFV TH PRES 3SG
is restarting
- c. lez- e- t → *lézet*
 climb PRES 3SG
is climbing/climbs

Most Russian verbs are not athematic: as **Table 1** shows, in all rows except (a) and (f) the tense morphology is preceded in the past tense and in the infinitive by a vowel, which in the present can disappear (rows (c), (g), (j), see section 2.2.1), be followed by a glide (rows (b), (e), see sections 2.2.2 and 4.3) or change (rows (d), (h), see section 2.2.3); in (f) the thematic suffix disappears in the past (see section 3.2). The shaded rows in the table correspond to the open verbal classes (b), (e), (g) (first conjugation) and (i) (second conjugation), while all others are closed.²

The unification of these suffixes is standard for traditional Russian grammatical description and often surfaces in modern research on Russian (Es'kova 1989; Gladney 1995; Itkin 2007;

* The transcriptions below 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) voicing assimilation and final devoicing. Stress is marked by an acute accent on the vowel. The yers (abstract high lax unrounded vowels) are represented as /i/ (front) and /ü/ (back). The letters ч (IPA [t͡ɕ]), ш (IPA [ɕ]), ж (IPA [ʒ]), ц (IPA [t͡s]), and щ (IPA [ʃ]) are traditionally rendered as č, š, ž, šč, and c.

¹ To distinguish between the empirical category of “one of the suffixes in Table 1” and the theoretical notion of “a meaningless morpheme serving as glue”, after Oltra Massuet (2000), I will use the traditional term *thematic suffix* for the former and *theme* for the latter. The gloss TH can correspond to either of them.

² Verbs from closed classes are listed in the Appendix (section 7). While the class of underived verbs with the pattern (d) is closed, this theme is selected by the productive verbal suffix *-ow-* (Melvold 1989). Likewise the pattern (j) is usually considered to be closed but can be enriched with new onomatopoeic verbs (Itkin 2013). There exist also a handful of irregular verbs not fitting into any of these patterns: *gnatʲ* ‘to chase’, *spatʲ* ‘to sleep’, *revéti* ‘to bellow’, *ušíbítʲ* ‘to hit’, *estʲ* ‘to eat’, *datʲ* ‘to give’, *bežátʲ* ‘to run’, *xotéti* ‘to want’, *ssatʲ* ‘to piss’, and *byti* ‘to be’, see Garde (1998:374–377) for discussion.

among others). The tendency to treat all thematic suffixes as occupying the same syntactic position is also observed in literature on other Slavic languages (e.g., Marvin 2002 on Slovenian, Jabłońska 2004, 2007 on Polish, Medová 2013 on Czech). The goal of this paper is to argue that this conclusion is unwarranted, even though these suffixes all appear between the lexical stem and the tense suffix, by demonstrating that the suffixes in **Table 1** exhibit different morphological behavior, semantics, and distribution. I will show that only some of them ((e)–(g)) come with a semantic contribution, that only some are visible in the secondary imperfective and that their selectional properties are different. This means that thematic suffixes cannot be viewed as corresponding to a single syntactic head and the status of each item would need to be determined separately. I will hypothesize that some of these suffixes are themes in that they do not appear to correspond to any identifiable functional head and cannot be omitted in verb formation, while others can be identified with verbalization and Aktionsart.

	PRES.1SG	PRES.2SG	PAST.FSG	INF	gloss	class	thematic suffix
a.	léz-u	léz-e-š ^j	léz-l-a	léz-t ^j	‘climb’	C	none or Ø
b.	čit-áj-u	čit-áj-e-š ^j	čit-á-l-a	čit-á-t ^j	‘read’	O	aj
c.	žážd-u	žážd-e-š ^j	žážd-a-l-a	žážd-a-t ^j	‘thirst’	C	a/Ø
d.	piš-ú	píš-e-š ^j	pis-á-l-a	pis-á-t ^j	‘write’	C	a/i
e.	bel-ěj-u	bel-ěj-e-š ^j	bel-ě-l-a	bel-ě-t ^j	‘be white’	O	ej
f.	gíb-n-u	gíb-n-e-š ^j	gíb-l-a	gíb-nu-t ^j	‘perish’	C	nu (mutative)
g.	tolk-n-ú	tolk-n-ó-š ^j	tolk-nú-l-a	tolk-nú-t ^j	‘push’	O	nu/n (semelfactive)
h.	kol ^j -ú	kól-e-š ^j	kol-ó-l-a	kol-ó-t ^j	‘stab’	C	o/i
i.	smol ^j -ú	smol-í-š ^j	smol-í-l-a	smol-í-t ^j	‘tar’	O	i
j.	gor ^j -ú	gor-í-š ^j	gor-ě-l-a	gor-ě-t ^j	‘burn’	C	e/Ø

Table 1: Russian thematic suffixes.

In what follows I will first (section 2) introduce some background assumptions on Russian phonology, including hiatus resolution and the status of the glide [j]. Then (section 3) I will examine those thematic suffixes for which an analysis is clear: the suffix *-a/-i-* (a theme), the mutative and semelfactive suffixes *-nu-* (verbalizing and aspectual, respectively) and the deadjectival suffix *-ej-*. I will show that the semantic and distributional distinctions between these suffixes necessitate a differentiated treatment for them, even though it is not always clear what status each should receive. I will begin (section 3.1) with the thematic suffix *-a/-i-*, whose

status as a theme can be determined with the help of verbs involving the productive denominal suffix *-ow-* (surface [ov]/[u]) and the non-productive suffix *-ot-* (surface [ot]/[et]). I will argue that these verbs provide a baseline, where *-ow-* and *-ot-* are verbalizers and *-a-/-i-* is the theme. Sections 3.2 and 3.3 discuss three more suffixes with an identifiable semantic contribution: the semelfactive and the mutative *-nu-*, and the deadjectival degree achievement suffix *-ej-*. The intermediate summary in section 3.4 concludes that no unified analysis is possible for the suffixes examined so far.

In section 4 I examine the compatibility of the secondary imperfective with the productive thematic suffixes *-aj-* and *-i-*, which seem to not be associated with a clear semantic import. Since it is expected that only verbal stems can combine with the secondary imperfective, it can be determined whether thematic suffixes share the same structural position. The answer will be shown to be negative. First, only the thematic suffix *-aj-* can be found after the secondary imperfective suffix, showing minimally that it differs from all other thematic suffixes. The evidence that it is not present before the secondary imperfective suffix suggests that it is a theme, while *-i-*, which is clearly detectable in that position, is a verbalizer. The other thematic suffixes will be reexamined in this context as well.

Section 5 analyzes the productivity of thematic suffixes and their use in neologisms. It will be shown that the two most productive thematic suffixes, *-i-* and *-aj-*, can be used to form new verbs from the same root without a clear distinction of meaning. Section 6 is the conclusion, and the appendix in section 7 lists the verbs in closed thematic classes.

2 Russian phonology: background assumptions

In this section I introduce the treatment of Russian phonemic inventory adopted here, discuss the general phonological processes of Russian that are relevant for understanding the interaction of thematic suffixes with tense and agreement suffixes and motivate the choices that I make for the underlying representations of some of the suffixes involved.

2.1 Russian vowels

I adopt without discussion here the general assumptions made in Halle (1959); Lightner (1965; 1972); Pesetsky (1979); Halle and Vergnaud (1987) and much subsequent work in generative phonology about the vowel inventory of Russian and the relations between vowels (**Table 2**). More specifically, I assume, despite the lack of surface realization, the active feature [\pm ATR] distinguishing two middle front vowels that surface as [e]: an underlying tense /e/, surfacing as [e] and an underlying lax /ɛ/, surfacing as [e] or as [ʲo]; as only the latter will be relevant here, I will not indicate this distinction. The ATR feature also characterizes the two abstract lax high vowels, the historically short yers /ɨ/ and /ʉ/, which

are lowered to [e] and [o] when the next syllable contains a yer and tensed to [i] and [i̥] in the secondary imperfective. The Russian vowel system is therefore richer in the underlying representation than on the surface, where the laxness distinction is obliterated and non-lowered non-tensed yers are deleted.

[- ATR] vowels			[+ ATR] vowels			
	-back	+back	-back	+back	[round]	
+hi	ĩ	ũ	i	ĩ	u	
-hi	ε	ǒ	e	ā		

Table 2: Russian oppositions: [α high], [α back], [α ATR].

I also assume with Lightner (1965); Andersen (1969); Coats and Harshenin (1971); Kavitskaya (1999), among others, that the surface [v] in Russian is underlyingly the labial glide /w/ (or /ʋ/). In the current context this independently motivated assumption is needed in order to deal with the denominal verbalizing suffix alternating between the surface [ov] (before the surface [a]) and the surface [u] (before the surface [i]), both derived from the underlying -ow- (see Lightner (1965)), as well as with the secondary imperfective suffix, whose relevant allomorphs will also be treated as underlyingly -iw- (surface [iv]) and -w- (surface [v]).

2.2 Hiatus resolution

While Russian allows a sequence of two vowels root-internally (e.g., *paúk* ‘spider’ or *váučer* ‘voucher’) or at the prefix-stem juncture (2), which is a non-cyclic node (see Pesetsky 1979), at a stem-suffix juncture hiatus is not tolerated.

- (2) a. *za-* ‘behind’ + *-igr-* ‘to play’ → [zaigrátʲ] ‘to keep sth. to oneself instead of returning it to the rightful owner’
 [zigratʲ]/[zigratʲ]/*[zʲigratʲ]
- b. *po-* ‘over’ + *-isk-* ‘look for’ → [poiskátʲ] ‘to look for.PFV’
 [piskatʲ]/[piskatʲ]/*[pʲiskatʲ]

Three strategies of hiatus resolution are available in Russian. [i] preceding a vowel other than [i] turns into [j], with subsequent mutation of the consonant (see section 2.2.3). Other vowels are either deleted before vowels (section 2.2.1) or separated from them by a glide, which is generally [j], but sometimes [v] (underlying /w/). I will show (section 2.2.2) that it is not always clear whether a given instance of [j] before a vowel is underlying or epenthetic, and in cases of doubt will avoid argumentation based on a specific choice.

2.2.1 Vowel deletion

In rows (c) (f), (g) and (j) of **Table 1** the vowels present in the past-tense forms disappear in the present-tense forms. Since Jakobson (1948), who hypothesized that the longer form of the verbal stem is always the underlying one (see also Lightner 1965; Melvold 1989, etc.), this has been assumed to be due to a general vowel-before-vowel deletion process:

- (3) gib- nu- e- t → *gĭbnet* ‘perishes’
 perish MUT PRES 3SG

In some cases, however, vowel deletion appears to fail. One such instance is the nominalizing suffix in (4) followed by a vocalic case-number suffix:

- (4) podob- i[j]- a → *podóbija* ‘similarity.GEN’
 similar NMLZ SG.GEN

Two takes on the origin of the intervocalic glide in (4) are possible. One possibility is that the underlying form of the suffix is *-ij-*. The other is that the hiatus is resolved by the epenthesis of the homorganic glide [j]. While it is likely that the latter hypothesis is correct for this case, in other environments there is no glide epenthesis, as will now be shown.

2.2.2 Glide insertion vs. glide deletion

Two suffixes in **Table 1** ([a]/[aj] in row (b) and [e]/[ej] in row (e)) surface as simple vowels before a consonantal suffix and as the same vowels followed by the glide [j] before a vocalic suffix. The natural question is which form is underlying.

Following Jakobson (1948), the longer form has been assumed to be underlying (Lightner 1965; Melvold 1989, etc.), with the glide deleted before a consonant: the three athematic verbs with a stem-final [w] (*živú/žilá* ‘live.PRES.1SG/PAST.FSG’) support this view. A natural consequence of this view is the distinction between rows (b) and (e), where the surface [a] and [e] in the past correspond to [aj] and [ej] in the present, and rows (c) and (j), where the surface [a] and [e] of the past-tense forms are deleted in the present.

The opposite view is taken by Garde (1972), who argues that Russian has a productive hiatus-resolving process of glide-insertion that is triggered not only in verbal morphology but also in loanword adaptation, e.g., creating *lakéj* ‘lackey’ and *gerój* ‘hero’ (from the French *laquais* [lake] and *héros* [ɛʁo] respectively). This process would also naturally account for (4). The same view on the genesis of [j] in verbs is defended by Itkin (2007).

Both approaches have their advantages and disadvantages. As Garde points out, it is artificial to draw the distinction between rows (b) and (e), on the one hand, and rows (c) and (j), on the other, by complicating the underlying representations of the more productive patterns with an underlying glide that would be deleted before the consonantal past-tense suffix. Garde also lists

a number of cases where [j] surfaces before a consonant. While some of them constitute either underived environments (root-internally), post-cyclic junctures (e.g., *pojtí* ‘to start going’, from *po-id-ti*), or an underlying initial yer in a suffix that surfaces as consonantal, two cases support his claim: the superlative/relative suffix *-ejš-* (which might also be viewed as a combination of two comparative suffixes, the productive *-ej-* and the unproductive *-š-*, for which there is no independent motivation for a yer before [š]), and the nominalizing suffix *-stv-* (e.g., *zlodějstvo* ‘villainy’, from *zloděj* ‘villain’), where an initial yer is motivated only historically (though Melvold (1989:139ff.) argues for an initial segmentally unspecified timing slot there).

Conversely, the three athematic *w*-final verbs *žít/živú* ‘live.INF/1SG’, *slít/slívú* ‘be known as.INF/1SG’ and *plít/plívú* ‘swim.INF/1SG’ would be difficult to analyze synchronically as cases of glide-insertion. Furthermore, glide-insertion has to be assumed to fail in rows (c) and (j) in **Table 1**, for the suffixes *-nu-* (rows (f) and (g)) and with the secondary imperfective suffix *-iw-*, which means that the choice, be it for glide-insertion or glide-deletion, has to be lexically based (see Itkin (2008:147) for further counterexamples).³

As the choice between these two approaches is far beyond the scope of this paper, I will not attempt to resolve it here and continue to refer to these two suffixes as *-aj-* and *-ej-* to facilitate their differentiation from the superficially similar *-a-* (row (c)) and *-e-* (row (j)) and base no argumentation on their underlying form.⁴

2.2.3 Transitive softening

If glide-epenthesis is postulated, e.g., in (4), something should block it in cases of *transitive softening*, a.k.a. iotation, or transitive palatalization (Jakobson 1929; Meillet 1934; Kortlandt 1994; Townsend and Janda 1996, *inter alii*; see Halle 1963; Lightner 1972; Coats and Lightner 1975; Bethin 1992; Brown 1998 for generativist analyses). Transitive softening is a type of Slavic consonant mutation known to arise from a [Cj] cluster in a prevocalic position. The output is different for different consonants: in Russian, velar and alveolar obstruents change into the post-

³ An anonymous reviewer points out that the failure of glide insertion for these thematic suffixes can be taken as evidence for their different morphosyntactic status. On the one hand, while the semelfactive *-nu-* and secondary imperfective *-iw-* are aspectual, the mutative *-nu-* does not appear to be different from the inchoative *-ej-*. On the other, Itkin (2008:147) provides such examples as *marsiánin* ‘a Martian’ (vs. *persijánin* ‘a Persian’) suggesting that the lexical identity of the morphemes involved also plays a role (cf. also his pair *veneciánec* ‘a Venetian’ vs. *Venécija* ‘Venice’). Finally, the contrast between *dz’udoíst* ‘judoka’ (glide insertion) and *karatíst* ‘karateka’ (final vowel deletion) demonstrates that the choice can be item-specific.

⁴ One more environment where [j] does not surface is the passive past participle (PPP). The PPP suffix surfaces as [en] (or [on]) with verbs that appear with a surface [e] or [i] in the past tense or whose stems end in a consonant, and as [n] with verbs that appear with a surface [a] in the past tense (the third allomorph, *-t-* is used with athematic stems ending in a vowel and with *-nu-* verbs). If the underlying representation of the two allomorphs is unified as *-en-*, the lack of a glide is unexpected under both accounts.

alveolar /š, ž, č/, a labial followed by [j] turns into a palatalized [ʲ], *j* remains unchanged, and all other sonorants alternate with a corresponding palatalized form:⁵

Except for row (c), **Table 3** illustrates transitive softening for second-conjugation verbs where the thematic suffix (visible as *-e-* or *-i-* before a consonantal suffix) turns into a glide before the vowel [u] of the 1SG (see Bethin (1992:281)).⁶ The fact that this hiatus is not resolved by an epenthetic glide suggests either that the glide in (4) is indeed underlying or that sometimes glide insertion fails.

consonant		transitive softening	infinitive	1sg
a.	<i>s, z</i>	š, ž	<i>pros-$\bar{[i]}$-t^j</i> ‘to beg’	<i>proš-ú</i> ‘beg-1SG’
b.	<i>t, d</i>	č, ž	<i>obíd-$\bar{[e]}$-t^j</i> ‘to offend’	<i>obíž-u</i> ‘offend-1SG’
c.	<i>x, k, g</i>	š, č, ž	<i>max-$\bar{[a]}$-t^j</i> ‘to wave’	<i>maš-ú</i> ‘wave-1SG’
d.	<i>p, b, m, v</i>	<i>p^ʲ b^ʲ, m^ʲ, v^ʲ</i>	<i>l'ub-$\bar{[i]}$-t^j</i> ‘to love’	<i>l'ubl^ʲ-ú</i> ‘love-1SG’
e.	<i>l, r, n</i>	<i>l^ʲ, r^ʲ, n^ʲ</i>	<i>bel-$\bar{[i]}$-t^j</i> ‘to whiten, tr.’	<i>bel^ʲ-ú</i> ‘whiten-1SG’

Table 3: Transitive softening.

To conclude, there is evidence in Russian both for and against postulating an underlying glide in rows (b) and (e) in **Table 1** and the conditions under which a front vowel turns into a glide before another vowel are unclear. Since mostly specific instances of these phenomena are of relevance here, I will attempt to stay neutral in all cases where a difference in analysis would entail a difference in the underlying form.

3 Derived verb formation

In this section derived verbs containing what can be identified as an overt verbalizing suffix will be examined. While in the examples in **Table 1** no identifiable verbalizing suffix appears between the verbal stem and the thematic suffix, such is obviously not always the case. I will first discuss verbs that contain an overt verbalizer and a thematic suffix (*-ow-a-*) and then argue that the thematic suffixes *-nu-* and *-ej-* contribute identifiable semantics and should be analyzed as an aspectual head (Asp) and a verbalizer (*v*), respectively.

⁵ While there are many instances of a surface [CjV] cluster in Russian, they involve either an underlying yer (*semjá* ‘family’, root *-semj-* visible in the genitive plural *seméj*) or an underived environment (*djak* ‘deacon’).

⁶ There are no second-conjugation verbs that can illustrate this for the velars [x], [k], [g] because velars turn into [š], [č], [ž] before front vowels, so a second-conjugation verb (whose thematic suffix is [i] or [e]) with a root in a velar (e.g., *-krik-* ‘shout’) will surface with a palatal (*kričít* ‘shouts’) throughout the paradigm.

3.1 Transitive softening and the *-a-/-i-* theme

Two closed classes of Russian verbs (rows (d) and (h) in **Table 1**) exhibit transitive softening of the stem-final consonant (**Table 3**) in the present (including the present gerund and active participle), although in the past tense they appear with the thematic suffixes *-a-* and *-o-*, with the latter being an allophone of the former.⁷ To account for this difference between the past and present forms, this suffix can be assumed to be subject to tense-triggered allomorphy. While Itkin (2007:130) argues that the present-tense allomorph of these thematic suffixes is [j], in the interests of a more transparent derivation I will follow the generative tradition, which suggests that in the relevant environments /a/ is replaced by /i/ (*max*^[a]*tʲ* vs. *max*^[i]*u* → *max*^[j]*ú* → *mašú* ‘wave’ (imperative vs. 1SG)).⁸

3.1.1 The *-a-/-i-* suffix as a theme

In this section I will argue that the morphosyntactic status of *-a-/-i-* suffix can be tentatively established from the fact that it appears after verbalizing suffixes, the productive *-ow-* and the unproductive *-ot-*. While the former is usually regarded as denominal, the next section 3.1.2 will show that the issue is more complex.

The large (ca. 20 strong) sub-class of sound-emission verbs with a stem ending in [ot] (e.g., *xoxotátʲ* ‘to laugh loudly’, *klokotátʲ* ‘to gargle’, *topotátʲ* ‘to stamp’, etc.) or [et] (e.g., *lepetátʲ* ‘to babble’, *skrežetátʲ* ‘to gnash’, etc., see Itkin (2007:204–205) on the “vowel harmony” determining the realization of the suffix) suggests that *-ot-* is a meaningful (though non-productive) verbalizer. While for most verbs in this category no meaningful root can be identified before *-ot-*, at least the verbs *vorkotátʲ* ‘to grumble’, *topotátʲ* ‘to stamp’ and *trepátʲ* ‘to tremble’ can be argued to be built on the roots *-vork-*, *-top-* and *-trep-*, given the corresponding verbs *vorkovátʲ* ‘to coo’, *tópátʲ* ‘to stamp, tramp’ and *trepátʲ* ‘to pull, flutter’.

While Bernshteyn (1974:61–62), who mentions the use of *-ot-* in other Slavic languages and calls it onomatopoeic, treats it as nominal, given the existence of such nouns as *xóxot* ‘loud laughter’ or *tópot* ‘tramp’, I think this is incorrect for at least the current stage of Russian. Firstly, all nouns in *-ot-* denote *nomina actionis*, and the derivation of action nouns by theme truncation is very well attested for unquestionable verbs (e.g., *prixód* ‘arrival’ from *prixodítʲ* ‘to come’; see

⁷ The five verbs with the thematic suffix *-o-* have stems ending in [olo] or [oro], which are systematic pleophonic (full) variants of [la] and [ra] in Russian (on Russian pleophonic variation in the Slavic context see, e.g., Sussex and Cumberley 2006:36–37;207). I thank an anonymous reviewer for pointing this out.

⁸ Bethin (1992:285) suggests a simple readjustment rule (for Ukrainian, which is no different from Russian in this respect) turning /a/ into /i/ in the present tense; this is also proposed by Czaykowska-Higgins (1988). Halle (1963) (via Lightner 1967; Ward 1970) proposes that the glide arises from an unrounded vowel followed by a rounded vowel, and Lightner (1965), from a tense vowel followed by a lax one. While neither approach requires allomorphy, [j]-formation from an [aV] sequence is not independently motivated. See Matushansky (2023) for a proposal assimilating this allomorphy to the other ablaut phenomena of Russian.

Itkin (2013) for second-conjugation *e*-verbs). Secondly, all *-ot-* nouns have a corresponding verb.⁹ Crucially, if *-ot-* is a verbalizer, the suffix *-a-/-i-* cannot be one, and, given that it does not seem to have any identifiable semantic import, the question arises if it can correspond to aspect (the functional head Asp) or theme.

The answer is provided by the suffix *-ow-*. As (5) shows, this suffix surfaces as [ov] in the past (before the thematic suffix [a]) and as [u] followed by the surface glide [j] in the present:¹⁰

(5) *kritik-[ov]-á-tʲ* ‘to critique’ vs. *kritik-[ú]-j-e-t* ‘critiques’

While the Russian grammatical tradition treats *-owa-/-uj-* as a single complex thematic suffix (see, e.g., Es’kova 1989 and Itkin 2007:125, cf. also Jabłońska 2004 and Svenonius 2004a for Polish), Melvold (1989) argues that it should be regarded as the combination of the verbalizing suffix *-ow-* with the *-a-/-i-* theme. As the existence of this theme is independently motivated, it follows that the glide in the present tense arises from its *-i-* allomorph:

(6) a. *kritik- ow- [a]- tʲ* (surface *kritikováť*)
 critique- VBLZ- TH- INF
to critique

b. *kritik- ow- [i]- e- t* (surface *kritikújet*)
 critique- VBLZ- TH- PRES- 3SG
critiques

If this analysis of the [owa]/[uj] allomorphy is correct, the question arises once again what the roles of the two suffixes are. I will now show that the aspectual properties of *-ow-* suggest that it is either a verbalizer or Asp, whereas *-a/i-* must be concluded to be a theme in the sense of Aronoff (1994) and Oltra Massuet (2000).

While the vast majority of unprefixated verbs in Russian are imperfective, many unprefixated verbs with the suffix *-ow-* can behave as imperfective or perfective (on Russian biaspectuality see Gladney 1982; Chertkova and Chang 1998; Janda 2007; Itkin 2014; Zinova and Filip 2015; Piperski 2018, among others):

⁹ The fact that some *-ot-* verbs do not have corresponding nouns (e.g., there is no **bormot*) is fully consistent with the fact that not all verbs can form null-derived nominals (e.g., the athematic *vezti* ‘to transport’ fails to do so). It should be noted that there are a lot of *-ot-* nouns that are not necessarily deverbal, e.g., *milotá* ‘cuteness’ from *milij* ‘charming, cute’, *slepotá* ‘blindness’ from *slepój* ‘blind’, etc., but they are all feminine.

¹⁰ See Melvold (1989) for a discussion of the influence of syllable structure on the surface realization of *-ow-*. Systematic treatments of (some other instances of) the surface [u] as an underlying /ow/ before consonants are presented in Lightner (1965) and more recently in Itkin (2007:147–148). While some authors, including Shapiro (1971) and Flier (1972; 1974), argue that [j] and [v] can be regarded as the same segment underlyingly, Melvold’s proposal has the additional advantage of correctly accounting for the position of the stress.

- (7) Vi ispolʹzujete sejčas/zavtra èti materiali?
 you use.2PL now/tomorrow these materials
Are you using now/will you use tomorrow these materials? Chertkova and Chang (1998)

Since no underived *-a/-i-* verb is biaspectual,¹¹ while many *-ow-* verbs are, biaspectuality must come from *-ow-* rather than from *-a/-i-*, which excludes the possibility that *-a/-i-* corresponds to Asp.

Further support for this comes from the fact that the suffix *-a/i-* has no recognizable semantic contribution. Gardiner (1979) tentatively suggests that it introduces an “Extension” feature, which amounts to volitionality: “The actor in directional verbs appears as purposeful, as directing the process in a certain direction” (p. 386). However, for at least the verbs *sniskátʹ* ‘to gain (arch.)’ and *alkátʹ* ‘to crave’ (as well as *stradátʹ* ‘to suffer’ and *dvígatʹ* ‘to move’, which have somewhat archaic variants with transitive softening in the present, *stráždu* ‘suffer.1SG’ and *dvížu* ‘move.1SG’), this is incorrect. Gardiner’s tentative generalization further breaks down with the suffix *-ow-* taking the *-a/-i-* theme and deriving such verbs as *bréžgovatʹ* ‘to be squeamish (about)’ (which is stative) or *vibrírovatʹ* ‘to vibrate’ (which applies to inanimate actors).

It might seem that a verbalizer need not have a clear semantic contribution beyond an event argument. If so, one can imagine an alternative take on *-ow-*, built on the analysis of Russian deverbal nominalization by Babby (1997) and Pazelskaya and Tatevosov (2008), who propose that Russian deverbal nominalization involves two steps: deverbalization (creating a nominal, [-V]) followed by nominalization (deriving a noun [-V, +N]). One can similarly hypothesize that denominalization (creating a [-N] node) must occur before verbalization (turning it into [-N, +V]) and that the function of *-ow-* is that of a denominalizer while *-a/i-* is verbalizing. Indeed, the verbal suffix *-ow-* would seem to be homophonous with both the genitive plural suffix *-ow-* (surface allomorphs [ov] and [ej]) and the adjective-forming suffix *-ow-* (surface [ov]), so a unification would seem desirable (see Simonović and Mišmaš 2020 for a proposal).

Setting aside the fact that neither the genitive plural nor the adjectival [ow] alternate with [u], further evidence against this view comes from athematic action nouns, as in (8). Since such nominalizations show that stems in *-ow-* are already verbal, *-a/i-* alone cannot be treated as a verbalizer.

¹¹ The only potential exception is the compound verb *živopisátʹ* ‘to paint/describe vividly’ (from *žívo* ‘vividly’ and *pisátʹ* ‘paint.IPFV.INF’ or *opisátʹ* ‘describe.PFV.INF’). It returns 557 imperfective hits in the Russian National Corpus (<https://ruscorpora.ru/>) and 10 perfective hits, none of which involves the present-tense stem, which, moreover, is irregular (*živopisíj-*, which would point at the unattested infinitive **živopisovátʹ*). Finally, among the 10 perfective hits the two finite past-tense uses can also be interpreted as imperfective, while the passive past participles (3) and past gerunds (3) have no perfective counterparts. The biaspectuality of *živopisátʹ* is therefore severely limited and might even be due to the uncertainty as to which verbal stem is used for compounding.

- (8) a. zim-ov-á-tʲ ‘to winter’
 b. zim-óv-k-a ‘wintering’

A further issue with the denominalization hypothesis is that it is not clear what this process would mean from the compositional point of view. Finally, the appearance of *-ow-* in verbs derived from loanword roots, such as (6) and those discussed in the next section, casts further doubt on the intuition that *-ow-* is denominal.

3.1.2 Affix pleonasm and other issues with *-ow-*

Russian, like many other languages, is subject to affix pleonasm (Gardani 2015) in loanword integration. The status of *-a-/-i-* as a theme could be contested on the basis of the fact (9) that with loanword roots the suffix *-ow-* is often preceded by the sequences *-iz-*, *-ir-*, and *-iz-ir-*, which I will refer to as stem augments. The question arises which of these suffixes correspond to *v*, and *-ow-* is obviously no longer the only candidate for this status.¹²

- (9) a. kompil-ír-ov-a-tʲ ‘to compile’
 b. social-iz-ír-ov-a-tʲ ‘to socialize’
 c. real-iz-ov-á-tʲ ‘to realize’

The nature of stem augments is unclear. On the one hand, they are not obligatory: as shown by some randomly chosen verbs (10) from a modern slang dictionary (Nikitina 2003), *-ow-* is highly productive without any augments, even with borrowed stems (10d).

- (10) a. kiks-ov-á-tʲ ‘to produce a false musical note’ (from *kiksá* ‘a false note’)
 b. kipeš-ev-á-tʲ ‘to make a fuss’ (from the noun *kípeš* ‘fuss, noise’)
 c. kislót-stv-ov-a-tʲ ‘to lead the life of a raver’ (from *kislótá* ‘rave’, *-stv-* is nominal)
 d. kis-ov-á-tʲ-sʲa ‘to kiss (each other)’ (from ‘kiss’)

Secondly, a simple search in Zaliznjak (1977) shows that, unlike in Serbo-Croatian (Simonović 2015) or in Romanian (Bleotu 2019), stem augments cannot be used without being followed by *-ow-* (which in turn requires the theme *-a-/-i-*). While the obligatoriness of *-ow-* with stem augments is equally well compatible with its status as the actual verbalizer or as Asp, the behavior of semelfactive correlates of augmented *-ow-* verbs argues that (a) the augments have no semantic contribution and (b) the suffix *-ow-* is more likely to encode Asp.

¹² While Simonović (2015) discusses at length the loanword suffixes *-iz(a)-* and *-ir(a)-* in Serbo-Croatian, he does not mention the possibility of their combination. Nonetheless, some verbs listed in the text (e.g., *organizovati* ‘to organize’, p.212), as well as *organizirati* provided by anonymous reviewer, show that the same issues arise there.

As examples in (11) show, *-ir-* can be either retained (11a) or dropped (11b) and Google search for the two possible semelfactives from the verb *sterilizovat^{tj}* ‘to sterilize’ yields both variants (11c). If the augments represented unquestionable verbalizers, they would not be omissible.¹³

- (11) a. *korrekt- ir- nu- t^j* → *korrektirnúť*, cf. *korrektírovat^{tj}*, from Sokolova (2015)
critique- AUG- SMLF- INF
to quickly correct
- b. *kompil^l- nu- t^j* → *kompilnúť*, cf. (6), from Gorbova (2016)
compile-SMLF- INF
to compile very quickly
- c. *steril^l- (iz-) nu- t^j* → *steril(iz)núť*, cf. *sterilizovat^{tj}*
sterilize- AUG- SMLF- INF
to quickly sterilize

The complementary distribution of *-ow-* and *-nu-* with systematic concurrent differences in Aktionsart suggests that they should be treated the same, despite the fact that the former is often denominal while the latter is deverbal, and makes it even less likely that *-a-/i-* is a verbalizer. I conclude that the thematic suffix *-a/i-*, given its morphosyntactic position (after verbalizing suffixes) and its lack of meaning, as well as the fact that it has no effect on aspect and therefore cannot be regarded as Asp, must be a theme in the Oltra-Massuet’s sense.¹⁴

3.1.3 Summary: *-a-/i-* as a showcase for a thematic suffix

The discussion in section 3.1 shows how difficult it is to pinpoint the contribution of a theme, but also to distinguish it from a verbalizer. The productive denominal suffix *-ow-* cannot be assigned an obvious meaning, its contribution is further obscured by stem augments, and the putatively non-verbal status of the stem it combines with is cast into doubt by the fact that it may alternate with the semelfactive *-nu-*. Yet these very facts contrast *-ow-* with other thematic suffixes arguing against a unified analysis, since, as I will presently show, some of them will pattern closer to *-ow-* and others, closer to *-a-/i-*.

¹³ The situation is more complex in *-acij-* ‘-ation’ nominalizations: *-ir-* is obligatorily omitted, while *-iz-* cannot be. However, since the suffix *-acij-* ‘-ation’ is obligatorily eventive, it might incorporate the functions of both the stem augments and *-ow-*, not revealing anything about their division of labor.

¹⁴ It is tempting to recall at this point that in addition to the functional head hosting the event argument, another functional head, Voice, has been postulated, hosting the external argument. The fact that thematic suffixes are obligatory in all but 80 verbs, and that both thematic and athematic verbs include unaccusatives and middles allows this hypothesis to also be discarded as a unified take on all thematic suffixes. The question of whether it can be used just for themes remains open.

3.2 Stems in *-nu-*

The main property distinguishing *nu*-verbs from others in **Table 1** is that their thematic suffixes do not begin with a vowel. From the semantic standpoint *nu*-verbs fall into two categories: the productive semelfactive class,¹⁵ yielding perfective verbs, and the rest: a non-productive group of 65 verbs, which contains 49 unprefixated imperfective mutative verbs (only one of which, *tonúti* ‘to drown’, does not have pre-suffixal stress), 14 obligatorily prefixated perfective accomplishment or achievement verbs characterized by the disappearance of the thematic suffix in the past, and 2 unprefixated transitive verbs (*gnúti* ‘to bend’ and *t’anúti* ‘to pull’). I will assume (with Isačenko 1960; Es’kova 1989; 2011b; Jabłońska 2007; among others, and against Taraldsen Medová and Wiland 2019 for Polish and Czech) that there are two suffixes with this segmental representation, and that the semelfactive verbs formed by one and the mutative verbs formed by the other cannot be unified, as suggested by the summary in **Table 4**:

a.	semantics	semelfactive	mutative
b.	aspect	perfective	imperfective
c.	transitivity	both	intransitive
d.	productivity	productive	unproductive
e.	stress	accented	pre-accenting
f.	base	verbal	nominal/adjectival
g.	allomorphy	<i>-anu-</i>	
h.	non-finite form drop	non-productively	non-productively
i.	stem-final consonant drop	≥ 5 cranberry roots	yes
j.	prefixation	yes	yes
k.	presence in the secondary imperfective	no	no

Table 4: The two *-nu-* suffixes.

Historically the two suffixes come from the same source (hypothesized to be *-nq-* by Dickey 2001 and Nessel 2013, and *-nVn-* by Wiemer and Seržant 2017), which explains the otherwise unexpected shared phonological characteristics. Thus both suffixes exhibit a limited ability to induce the drop of the final consonant of the stem, which varies sometimes even with the same root (12) (see Isačenko 1960:187, 261 and Itkin 2007:91–93 on the non-productive and irregular character of this drop), and a synchronically increasing tendency towards being deleted in

¹⁵ Plungjan (2000), Sokolova (2015) and Gorbova (2016) give a more nuanced picture of the semantics of this class, providing evidence for non-semelfactive uses of the perfective *-nu-* and distinguishing multiple meaning classes sharing the general presupposition that the denoted event is brief.

past-tense forms (13) (for a discussion of the various factors affecting the drop of *-nu-* in various forms see Es'kova 2011b and Nessel and Makarova 2012).¹⁶

- (12) *-dvig-* 'move'
- a. *dvínut^{tj}* 'to make move' (imperfective *dvígat^{tj}* 'to move')
 - zadvínut^{tj}* 'to move _ behind' (secondary imperfective *zadvígát^{tj}*)
 - b. *-dvígnut^{tj}* (prefixed only)
 - vozdvígnut^{tj}* 'to erect' (secondary imperfective *vozdvígát^{tj}*)
- (13) a. *zadvínul/*zadvíg* 'moved _ behind.MSG'
- b. *vozdvígnul/vozdvíg* 'erected.MSG', yet **vozdvígnula/vozdvígla* 'erected.FSG'

Apart from the points indicated in rows (j)–(k), the most crucial similarity between the two suffixes is that they both have a clear semantic import. One (open) class of verbal stems ending in *-nu-* contains perfectives with a semelfactive interpretation, as illustrated in (14a). As a rule, the verbal stem also has a non-punctual realization (very often with the thematic suffix *-aj-*, but others are also attested, see section 3.2.1 below), which serves as the basis for the secondary imperfective:

- (14) a. max- nu- t^j
 wave SMLF INF
to wave
- b. pod- max- nu- t^j
 PFX wave SMLF INF
to scribble a signature on
 - c. max- a- t^j
 wave TH INF
to wave (iterative, habitual or progressive)
 - d. *pod- max- a- t^j
 PFX wave TH INF

¹⁶ It is often claimed (Garde 1998:368; Es'kova 2011b; Nessel 2013, etc.) that the mutative *-nu-* differs from the semelfactive one in that only the former but not the latter may disappear in these environments. This generalization is contradicted by the five transitive *nu-*verbs with non-mutative semantics that can undergo *nu-*drop, as in (13b). All these verbs involve cranberry roots, but as they are transitive, they are extremely unlikely to be prefixed mutative verbs: among the 28 unprefixed imperfective *nu-*verbs none are transitive.

Some further blurring between the two classes is due to their shared origin. As observed by Garde (1998:368), some *-nu-* verbs are perfective without being semelfactive (e.g., *vernút^{tj}* 'to return', but see fn. 15) and some are imperfective while not containing the mutative *-nu-*. This latter class contains the transitive verbs *gnút^{tj}* 'to bend' and *éanút^{tj}* 'to pull' (though see fn. 15), *tonút^{tj}* 'to drown' (which exhibits the wrong stress pattern for a mutative verb) and perhaps *lhnút^{tj}* 'to cling'.

- e. pod- max- iv- a- tʲ
 PFX wave IPFV TH INF
to scribble a signature on (iterative, habitual or progressive)

Stems formed with the other *-nu-* suffix form a closed class of 49 verbs (Garde 1998:368 lists 40). They are all imperfective and for the most part interpreted as mutative.¹⁷ The addition of a prefix creates a perfective stem whose imperfective counterpart (if any) is necessarily formed with the thematic suffix *-a-* (as in row (b) in **Table 1**):

- (15) a. vis- nu- tʲ za- vis- nu- tʲ
 hang MUT INF PFX hang MUT INF
to be hanging *to crash (of a program)*
- b. za- vis- a- tʲ
 PFX hang TH INF
to crash (habitual or progressive)

The two suffixes can also be distinguished by their accentual properties: as shown in Garde (1998:368), the mutative *-nu-* is pre-accenting (stress is assigned to the syllable before the suffix), while the semelfactive *-nu-* is accented (and so the stress falls on the suffix unless the verbal stem is accented). Two out of the four roots that can give rise to both semelfactive and mutative derivatives can be distinguished not only semantically, but also phonologically:¹⁸

- (16) a. dr[ɔ̃]g- nu- tʲ
 shake SMLF INF
to falter
- b. dr[ɔ̃]g- nu- tʲ
 shake MUT INF
to be cold
- (17) a. b[ɨ]x- nu- tʲ
 bang SMLF INF
to bang

¹⁷ Taraldsen Medová and Wiland (2019) describe these verbs as degree achievements (like the English intransitive *lighten* or *redde*n), but this description is incorrect for Russian: what *-nu-* derives is the properties of *being in the state of X* or *being in the state of X and becoming more so*: the choice depends on the stem (for the specifics see Nessel and Makarova 2012). Gardiner (1979) further observes that these verbs share the semantics of cancellation or negative transformation: to restate his intuition, the change undergone is always negative or to the worse (as far as I can tell, this is generally correct, although there are a few exceptions, such as (15a) or (17b)).

¹⁸ The colloquial semelfactive verb *buxnúť* ‘to tank up’ probably originally shared the root with (18), but the difference in the stress pattern suggests that such is no longer the case. The verbs *-tópnuť* ‘to drown’ (a variant of *tonúť*, both have the same secondary imperfective *-topátʲ*) and *tópnuť* ‘to stomp’ (with the secondary imperfective *-tópátʲ*) are clearly simple homophones.

- b. b[ú]x- nu- tʲ
 bang MUT INF
 to swell
- (18) a. dox- n[ú]- tʲ
 breathe SMLF INF
 to draw a breath
- b. d[ó]x- nu- tʲ
 breathe MUT INF
 to die/croak
- (19) a. pax- n[ú]- tʲ
 smell SMLF INF
 to emit the smell (of)
- b. p[á]x- nu- tʲ
 smell MUT INF
 to smell (of)

Statistically, the semelfactive *-nu-* combines predominantly with verbal roots, while most mutative *-nu-* verbs have a corresponding adjective, which may itself be a derived one.¹⁹ A further distinction between the two *-nu-* suffixes is that the semelfactive one has the colloquial or dialectal variant *-anu-*, which the mutative one does not have.²⁰ While the choice of the semelfactive allomorph mostly depends on the root, doublets (e.g., *pleskanútʲ/plesnútʲ* ‘to splash’) exist, though they always give rise to the same meaning.

3.2.1 Can the semelfactive allomorph *-anu-* be bimorphemic?

The first vowel of semelfactive allomorph *-anu-* could be hypothesized to correspond to one of the *-a-* thematic suffixes (rows (b-d) in **Table 1**). If correct, this hypothesis would suggest that (a) in Russian, as in Romance, a verb can have a thematic suffix between the lexical stem and the aspectual/verbalizing suffix, and (b) if the *-nu-* allomorph is taken to be preceded by a null theme, athematic verbs should be analyzed as containing a null theme. There are, however, arguments against this view.

¹⁹ To provide a few examples, the mutative verb *blʹóknutʲ* ‘to fade’ corresponds to the adjective *blʹóklj* ‘faded’ (the historically participial suffix *-l-* is originally identical to the *-l-* of the past tense, but no longer perceived as such), cf. also *dóxlj* ‘dead (of an animal)’ from (18b), and *páxlj* ‘having a strong smell, coll.’ from (19b); the verb *górknutʲ* ‘to go bitter’ corresponds to the underived adjective *górʹkij* ‘bitter’ and the verb *vʹáznutʲ* ‘to sink’ corresponds to the adjective *vʹázkij* ‘viscous’ derived with the suffix *-ük-*.

²⁰ While Isačenko (1960:265–266) and Kuznetsova and Makarova (2012) indicate that *-anu-* has a more expressive or intensive meaning, Plungjan (2000) (see also Gorbova 2016) comes to the conclusion that there is no difference in intensity, and Makarova and Janda (2009) claim that there is no statistical difference in their distribution.

Firstly, the accentual properties of *-anu-* (which is dominant and accented on [u]) do not seem to follow from the accentual properties of the semelfactive suffix *-nu-* (which is accented but not dominant) or of any of the *-a-* themes, none of which is dominant: the *-a-/∅-* theme (row (c) in **Table 1**) is unaccented, whereas the gliding *-aj-* theme (row (b)) and the transitive softening *-a-/i-* theme (row (d)) are accented (Garde 1998:334). The minimal pairs below involving the two suffixes with the same roots illustrate the different positions of the main stress:

- (20) a. *šikatʲ* ‘to shush’: *šik[nu]tʲ*/[%]*šik[anu]tʲ* ‘to give a shush’
 b. *šikovátʲ* ‘to show off’: [%]*šik[n]útʲ*/*šik[anu]tʲ* ‘to splurge’ (from *šik* ‘chique’)
 c. *xápatʲ* ‘to grab, steal’: *xáp[nu]tʲ*/*xap[anu]tʲ* ‘to swipe’

Secondly, the imperfective aspectual pairs of verbs formed with the suffix *-anu-* need not involve the thematic [a], e.g., *gazanútʲ* ‘to step on the gas’ vs. *gazovátʲ* (*-ow-a-*, imperfective), *dolbanútʲ* ‘to hit’ vs. *dolbítʲ* (*-i-*, imperfective), *skrebanútʲ* ‘to scrape’ vs. *skrestítʲ* (athematic imperfective). Conversely, as Kuznetsova and Makarova (2012) point out, if *-nu-* could combine with a thematic *a*-verb, why does it not combine with any other thematic suffixes?²¹

3.2.2 Can the two *-nu-* suffixes be bimorphemic?

It can be argued (see Garde 1998:366) that the *-nu-* sequence represents not one morpheme, but two: that *v* is expounded by *-n-* and *-u-* is the theme that it selects for. Evidence for this can be drawn from the observation that in at least two verbs (*obmanútʲ* ‘to cheat’ and *mínutʲ* ‘to pass’), *-n-* is synchronically part of the stem (cf. *obmán* ‘a lie’), which makes more likely the possibility that *-u-* could be a theme, albeit with a limited distribution. A further advantage of this view would be a simple explanation of the mechanism by which *-nu-* is deleted in the past tense: for some verbs the theme *-u-* would have a phonologically null allomorph in the past and *-n-* would be deleted before the past-tense suffix *-l-* by an independently motivated rule of Russian deleting stem-final dental consonants in this environment (even though nasals are usually not subject to it).

Three objections can be raised to this proposal. Firstly, it requires non-local allomorphy: the choice of the zero allomorph in the past would have to be determined by the root across the putative suffix *-n-*. Given, however, that *-nu-* deletion is made more likely by the presence of a

²¹ The nonce semelfactive *tvorožnútʲ* ‘to turn into cottage cheese’ (Sokolova 2015) contains the nominal root *tvoróg* ‘cottage cheese’, whose final velar is subject to mutation showing that the base for the semelfactive is the dictionary verb *tvoróžitʲ* (same meaning, but in the imperfective). While this verb can be taken as evidence for the verbalizer *-i-* preceding the semelfactive *-nu-* I hesitate to do so, since, given that both *-i-* and *-nu-* are productive, the lack of other such examples is suspicious: the default is no palatalization, as in (16b), whose imperfective counterpart, *díšátʲ* ‘to breathe’, contains the second-conjugation thematic suffix *-e-* (i.e., underlying *dox-e-tʲ*, with ablaut of the stem and velar mutation as above and in fn. 6). Regular depalatalization before a nasal is the general rule in Russian, except for stem-final [l], *kolótʲ*/*kolʹnútʲ* ‘stab.IMPV/SMLF.INF’.

prefix (Garde 1998:368, Es'kova 2011b, Nessel and Makarova (2012)), this objection could be regarded as minor.

The second objection is that the thematic suffix *-u-* would be selected by just two morphemes, which also happen to be homophonous (and maybe by verbs like *mínut^{tj}* ‘to pass’ and *obmanút^{tj}* ‘to cheat’, for which a degemination account is also possible). Given that the theme *-o-* (row (h) in **Table 1**, see section 3.1) is selected by just five roots, this objection is also quite minor.

Thirdly, if *-u-* were assumed to be the shared thematic suffix, the difference between the pre-accenting mutative suffix and the accented semelfactive suffix illustrated in (16)–(19) would have to be counterintuitively attributed to the consonants rather than the vowels.

Given that no observable gain is provided by the more complex bimorphemic view, I leave open the question whether it is desirable (cf. Božič 2015 reaching the same conclusion for the Slovenian cognate *-ne-/ni-* and Štarkl et al. 2022 for the opposite one for Slovenian and BCMS).²² Irrespective of whether *-nu-* is bimorphemic, its semantic import (semelfactive for the productive accented *-nu-* and stative for almost all others) means that there is no reason to regard *-nu-* (or *-n-*) as a theme, which clearly differentiates it from the *-a-/i-* suffix.

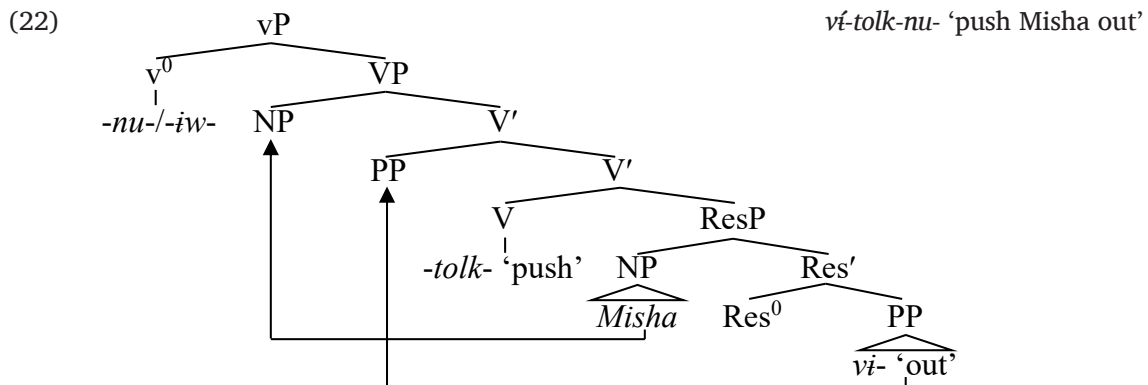
3.2.3 Can *-nu-* be Asp?

As discussed in section 3.1.2, the complementary distribution of the semelfactive *-nu-* and the denominal *-ow-* (21) suggests that the two should be treated the same, and the clear semantic profile shared by mutative *-nu-* verbs suggests that all of them should be viewed as *v*.

- (21) a. kritik- nu- t^j → *kritiknúť^{tj}*, cf. (6), from Gorbova (2016)
 critique- SMLF- INF
to deliver quick critique
- b. risk- nu- t^j → *risknúť^{tj}*, from *riskovát^{tj}* ‘to risk’
 risk- SMLF- INF
to take a risk

²² Given the fact that in masculine singular past tense forms, where *-nu-* is followed by non-syllabic material, its omission is less likely than with other past tense forms, it could be argued that *-u-* is epenthetic. Two objections can be raised to this hypothesis. Firstly, the full hierarchy of the likelihood of *-nu-* omission (see Nessel and Makarova 2012) includes active participles (the suffix *-vš-*, obligatorily followed by the long-form adjective suffix *-Vj-*) and gerunds (the suffix *-v-* is used as-is in the presence of the thematic suffix *-nu-* but augmented or replaced by the suffix *-ši-* if *-nu-* is omitted): non-masculine > masculine > active participle > gerund, showing that this is not just the matter of prosody. Secondly, [u] is not attested as an epenthetic vowel anywhere else. Thirdly, the [u] in question surfaces as [ov] in historical nominalizations (e.g., *v.dox-nov-en-i-e* ‘inspiration’, cf. (18)), which suggests the underlying form /ow/. (The different behavior in the present tense (change into the surface [u] with the verbalizer *-ow-* and disappearance with the suffix *-nu-*) further supports the analysis of [j] in the *-ova-/uj-* alternation as a theme rather than an epenthetic glide. I am grateful to the anonymous reviewer whose observation about this difference has led me to expand the discussion in this subsection.

Yet the fact that neither of the two *-nu-* suffixes can survive in the secondary imperfective (14b), (15b), even though, like all thematic suffixes, both can combine with Aktionsart prefixes (14a), (15a),²³ can also mean that they and the secondary imperfective suffix *-iw-* occupy the same syntactic head. Markman (2008) proposes, based on their complementary distribution, that the semelfactive *-nu-* and the secondary imperfective *-iw-* are both merged in a verb-selecting light *v*, as shown in (22).²⁴ (Note that Markman does not discuss *-ow-* and does not address either the complementary distribution of *-ow-* and *-nu-*, or the compatibility of *-iw-* and *-ow-*.)



In the framework used by Markman roots combining with *-nu-* (and *-iw-*) are already verbal, so these suffixes are not category-changing (a view that is non-controversial for *-iw-* but can be contested for *-nu-*). The situation is less clear for the mutative *-nu-*: the roots it combines with are mostly bound ones in the sense that the adjectives that they form are often also derived (see fn. 19). Yet the fact that both the semelfactive and the mutative *-nu-* form semantically uniform classes makes them more similar to the denominal *-ow-* (section 3.1) than to *-a/i-* and further demonstrates that the thematic suffixes in **Table 1** do not form a syntactically uniform group (*pace* Svenonius 2004a, b, arguing that the semelfactive *-nu-* is merged in the same *v* as the theme).

The final piece of evidence against treating the semelfactive *-nu-* as a verbalizer comes from the fact that *-nu-* can combine with verbalizing suffixes: the sound-emission suffix *-ot-* (section 3.1.1) and the de-onomatopoeic suffix *-k-* (see Itkin 2007:205):

- (23) a. *xoxotátĭ* ‘to laugh loudly’ → *xoxotnúťĭ* ‘to give a loud laugh’
 b. *skrežetátĭ* ‘to gnash’ → *skrežetnúťĭ* ‘to give a gnash’

²³ Jabłońska (2004) appeals to semantics to explain this incompatibility. Markman (2008) argues against this view by noting that inherently perfective verbs with a minimal event interpretation can be made imperfective.

²⁴ The prefix is analyzed here as a PP introduced in the Result phrase complement of the lexical verb following Svenonius (2004a, b), with the direct object merged in [Spec, ResP]. The position of the source argument (‘push X out of Y’) is left unclear.

- (24) a. *m'aukatⁱ* 'to meow' → *m'auknu^t* 'to give a meow'
 b. *tikatⁱ* 'to address with the familiar *ti* (2SG)' → *tiknu^t* 'to call with the familiar *ti*'

The incompatibility of *-nu-* with *-ow-* cannot therefore be derived from the assumption that they compete for the same syntactic position (*v*) and makes it more likely that *-nu-* and the secondary imperfective *-iw-* are both in Asp (but see Tatevosov 2013 for arguments against treating *-iw-* as the locus of semantic imperfectivity). If such were shown to be the case, it would further support the claim that thematic suffixes cannot all be treated the same.

3.3 The deadjectival suffix *-ej-*

Unprefixed verbs in Russian are overwhelmingly imperfective, and the suffix *-ej-* (surfacing as [ej] before vocalic suffixes and as [e] before consonantal ones) also produces verbs that are imperfective, unlike the semelfactive *-(a)nu-* and like the mutative *-nu-* (to which it is also similar in interpretation).²⁵ The suffix *-ej-* is productively combined with adjectival roots to form degree achievement verbs (25), with (25e) providing an instance of surface-opaque cyclic phonology,²⁶ and used in combination with the prefix *o-*, on which see Endresen (2013), to derive achievement verbs from nouns (26a) or from caritive PPs (26b):

- (25) a. *krasn-[ej]-e-t* 'be/become red-VBLZ-PRES-3SG' ← *krás-n-ij* 'red'
 b. *bel-[ej]-e-t* 'be/become white-VBLZ-PRES-3SG' ← *bél-ij* 'white'
 c. *al-[ej]-e-t* 'be/become scarlet-VBLZ-PRES-3SG' ← *ál-ij* 'scarlet'
 d. *prav-[ej]-e-t* 'be/become rightwing-VBLZ-PRES-3SG' ← *práv-ij* 'right'
 e. *dič-[aj]-e-t* 'be/become wild-VBLZ-PRES-3SG' ← *dík-ij* 'wild'
- (26) a. *o- [bez- síl]- [ej]- e- t*
 PFX without force VBLZ PRES 3SG
[he] will lose strength
- b. *o- fonarⁱ- [ej]- e- t*
 PFX lantern VBLZ PRES 3SG
[he] will become nuts
- c. *bez síli*
 without strength.GEN
without strength

²⁵ As noted by Apresjan (1995:88), deadjectival verbs in *-ej-* are systematically ambiguous between a stative meaning (*to be X*) and a process one (*to become more X*). Mutative verbs in *-nu-*, on the other hand, have either one or the other.

²⁶ The surface [č] in (25e) arises from the independently attested productive process of velar mutation turning the velars *k, g, x* before front vowels into *č, ž* and *š*, respectively (see Halle 1963; Lightner 1965; 1972; Coats and Lightner 1975; Pesetsky 1979, etc., for early generativist descriptions of this process). The surface [a] after the hushing sibilants *š, ž*, etc., results from a morphologically conditioned (see Itkin 2007:208–209 for details) phonological process also attested for the 2nd conjugation thematic suffix *-e-* and for the superlative suffix *-ejš-*.

- d. fonar^j
lantern

I suggest that habitual/stative verbs in (27)–(29) are also derived by the suffix *-ej-* forming part of the suffixal complex *-n-ik-ej-* (surfacing as [ničaj] due to the same processes as yield the surface form in (25e), see also fn. 26). The underlying *-ej-* (rather than *-aj-*) not only permits to account for the semantics of these verbs, but also links them to nouns in *-nik-* (27) and to adjectives in *-n-* (28) that can serve as input for this suffixal complex (though many questions remain, as it is also used for bare roots (29) and in combination with other suffixes).

- (27) a. báb -n -ič -[aj] -e t
woman -ADJ -N - VBLZ -PRES 3SG
womanize.PRES.3SG
b. bab -n -ik
woman -ADJ -NMLZ
womanizer
- (28) a. nérv -n -ič -[aj] -e t
nerve -ADJ -NMLZ -VBLZ -PRES 3SG
be nervous.PRES.3SG
b. nérv -n -aj a
nerve -ADJ -LF FSG
nervous
- (29) a. jábed -n -ič -[aj] -e t
sneak -ADJ -NMLZ -VBLZ -PRES 3SG
carry tales.PRES.3SG
b. jabled-a
sneak-NOM
a sneak, a telltale

Finally, it must be noted that the class of unprefixated verbs in *-ej-* is not limited to deadjectival and complex verbs, since it also contains a small number of denominal (30a) and cranberry (30b) derivatives:

- (30) a. *plamen-ěj-e-t* ‘flame-TH-PRES-3SG’ (from *-plamen-* ‘flame’)
b. *cepen-ěj-e-t* ‘be/grow torpid-TH-PRES-3SG’ (cranberry)

It seems rather obvious that the suffix *-ej-* is semantically non-empty, since verbs created by it share the semantics of (change-of-) state. It is also non-inert morpho-syntactically, as it has very specific selectional properties (on adjectival stems, in circumfix with *o-* and in the suffixal

complex *n-ik-ej*). Yet the suffix *-ej-* differs from the *-nu-* suffixes discussed in the previous section in that *-ej-* can also be detected in secondary imperfectives, which (along with the proper source for [v]) will be discussed in more detail in section 4:

- (31) a. o- slab- [e]- v- áj- -e t
 PFX weak VBLZ IPFV TH PRES 3SG
is growing weaker
- b. slab - [éj]- e- t
 weak VBLZ PRES 3SG
is growing weak
- (32) a. za- bol- [e]- v- áj- -e t
 PFX pain VBLZ IPFV TH PRES 3SG
is falling sick
- b. bol- [éj]- e- t
 pain VBLZ PRES 3SG
is sick

Concluding, the suffix *-ej-* always yields (change-of-)state verbs and is always retained in the secondary imperfective, which makes it a prime candidate for a verbalizer. It differs from the denominal *-ow-* suffix discussed in section 3.1 on two counts: *-ej-* creates imperfective verbs rather than biaspectual ones and *-ej-*, unlike *-ow-*, is directly followed by the tense suffixes, with no theme in between. Both properties also characterize athematic verbs, which thereby might become less exceptional.

3.4 Section summary

Four thematic suffixes have been investigated so far and shown to not pattern the same with respect to their semantic contribution, perfectivity, lexical selection, or behavior in the secondary imperfective. While the semelfactive *-(a)nu-*, the mutative *-nu-* and the (change-of-)state *-ej-* pattern with the denominal suffix *-ow-* in that they all make a semantic contribution, the thematic suffix *-a/i-* does not, which makes it the most likely candidate for a theme.

Another possibility, discussed in section 3.2.2 and largely dismissed, is that the phonological [nu] sequences should be decomposed into two morphemes: the meaningful *-n-* suffixes and the meaningless *-u-* theme. If this is correct, one could argue that it is the *vocalic* segments of the suffixes in **Table 1** that form a uniform group and correspond to the notion of a theme, but the issue requires further investigation.

Summarizing the properties of the various verbal suffixes observed so far (**Table 5**), it can be noted that they all differ from each other in their semantics and morphosyntax:

	<i>-ow-</i>	<i>-ot-</i>	<i>-(a)nu-</i>	<i>-nu-</i>	<i>-ej-</i>	<i>-a/i-</i>
base	nominal	root	activity verb	stative root	adjective or noun	verb
meaning	activity	activity	semelfactive	(change-of) state	(change-of) state	undetectable
aspect	biaspectual	default	perfective	default	default	default
secondary imperfective	<i>-iw-</i>	<i>-iw-</i>	no	no	<i>-e-w-</i>	undetectable
status	v or Asp	v	v or Asp	v	v	theme

Table 5: Verbs with overt verbalizers vs. a theme.

Some clarifications are necessary here. Given that Russian has a rule deleting a vowel before another vowel (cf. section 2.2.1), it is impossible to determine if the thematic suffix *-a/i-* is present in the secondary imperfective: the *-a-* allomorph would be undetectable before the vocalic *-iw-* allomorph due to the hiatus resolution (section 2.2). This uncertainty gives rise to the possibility that *-ow-* must always appear with *-a/i-* and then the semantic contributions of the two suffixes cannot be disentangled. The same would be true for the putative suffix *-ot-*, which is also compatible with secondary imperfectivization. Since there is no evidence for this scenario, I do not adopt it.

I now turn to another characteristic distinguishing *v* from potential themes: the retention of the suffix in the secondary imperfective. Indeed, a verbalizing suffix, which is a crucial element in the construction of verbal semantics, is not expected to disappear when the verbal stem is combined with aspect morphology (modulo all caveats advanced above for the *-nu-* suffixes).

4 Secondary imperfectives

A well-known property of Russian is that the vast majority of verbal stems are imperfective by default and become perfective after the addition of an Aktionsart-changing prefix or the semelfactive suffix. A prefixed verb can be rendered imperfective (progressive, iterative, or habitual) by the secondary imperfective suffix, which has three surface forms: [iv], as in (33), zero before consonants (34), or [v] after stems ending in a vowel, as in (35). The surface [a] following the secondary imperfective suffix is the thematic suffix *-aj-*:

- (33) root-*čit-* ‘read’ + *-aj-* [iv]
 a. *čit-á-tʲ*
 read-AJ_{TH}-INF
 ‘to read’

- b. do.čit-á-tʲ
 PFX.read-AJ_{TH}-INF
 ‘to finish reading.PFV’
- c. do.čit-iv-a-tʲ
 PFX.read-IPFV-AJ_{TH}-INF
 ‘to finish reading.IPFV’
- (34) root-*síp*- ‘pour’ + *-a/-i-* ∅
- a. síp-á-tʲ
 pour-A/I_{TH}-INF
 ‘to pour’
- b. ras.síp-a-tʲ
 PFX.pour-A/I_{TH}-INF
 ‘to strew.PFV’
- c. ras-síp-a-á-tʲ
 PFX.pour-IPFV-AJ_{TH}-INF
 ‘to strew.IPFV’
- (35) root-*terp*- ‘suffer’ + *-e-* [v]
- a. terp-é-tʲ
 suffer-E_{TH}-INF
 ‘to suffer’
- b. pre.terp-é-tʲ
 PFX.suffer-E_{TH}-INF
 ‘to withstand.PFV’
- c. pre.terp-e-v-á-tʲ
 PFX.suffer-E_{TH}-IPFV-AJ_{TH}-INF
 ‘to withstand.IPFV’

Since an imperfective suffix is necessarily attached to a verbal stem, if the thematic suffixes in **Table 1** correspond to *v*, they are expected to appear in secondary imperfectives. As I will now show, direct evidence for their presence or absence can be only found for those that begin with a front vowel, yet indirect evidence shows that some thematic suffixes are not retained in the secondary imperfective and some are.

4.1 The underlying representation of the secondary imperfective suffix

The three allomorphs of the secondary imperfective suffix do not have the same status. Both the zero allomorph and the surface [v] allomorph of the secondary imperfective suffix assign stress

to their right (to the thematic suffix), while the surface [iv] allomorph is pre-accenting. The fact that the surface [v] allomorph appears after vowel/glide-final roots (e.g., *za.gni.v.á.tʲ* ‘to start rotting’ from *za.gní.tʲ*, the root is *-gni-* or *-gnij-*, cf. the discussion on the status of glides in section 2.2.2) or after *e*-stems (35) strongly suggests that its distribution is determined by phonology and the zero allomorph and the surface [v] allomorph should be viewed as a single item.

Given that the surface [v] of Russian may correspond to an underlying glide (/w/), three types of accounts have been proposed for the appearance of [v] in the secondary imperfective. One option (Garde 1972:386; 1998:384; Thelin 1973; Gladney 1985; 2013:635) is that the [w] glide is inserted to break the hiatus between the vocalic thematic suffix *-e-* of the stem and the vocalic thematic suffix of Asp represented here as *-aj-* (regarded by Garde as the secondary imperfective suffix). The second possibility (Enguehard 2017) is that the underlying representation of the secondary imperfective suffix (as well as of the thematic suffix *-aj-*, see section 4.3.2) should be *-va-*, with [v] deleted after a consonantal stem. Thirdly, Matushansky (2009) argues for a common underlying representation as a back yer (*-ǔ-*), turning intervocalically into a glide. Notably, all these approaches share the intuition that the realization of the secondary imperfective suffix in (33) vs. (34) is a phonological issue.

The surface [iv] appears to be a different matter and the choice between it and the zero/[v] allomorph cannot be attributed to any of the self-evident factors (Harrington 1967, though see Garde 1998:383, 387 for some influencing factors): the same stem can combine with either in function of the prefix, the prefix itself does not determine the choice, and neither does compositionality, though the *-iw-* allomorph is more frequent and hence more likely to appear with semantically transparent prefixed verbs. As for the underlying representation of this suffix, several generativist options have been proposed. Halle (1963) derives the surface [iv] from the underlying *-ow-*. Coats (1974), Feinberg (1980) and Enguehard (2015; 2017) suggest an underlying *-aj-aj-* (or *-va-va-*, Enguehard (2017)) sequence. Finally, Matushansky (2009) argues that the underlying back yer (*-ǔ-*) can not only delete or surface as [v] (see above), but also develop into [iw] (surface [iv]) in function of whether the prefix-root combination is lexically marked as cyclic or post-cyclic (but see Tatevosov 2013:65–72 for arguments that undermine this proposal). Some of these options will be further discussed in section 4.3.2.

4.2 Second conjugation thematic suffixes

As discussed in section 2.2, Russian resolves vowel-vowel sequences in verbal derivation by deleting the first vowel (Jakobson 1948). One exception to this rule is when the first vowel is [i] and the second one is not: in this case, the first vowel turns into a glide. Such a situation arises with second-conjugation *i*-verbs in the 1SG (36)–(37) or in the secondary imperfective, irrespective of the allomorph: before *-iw-*, as in (38), and before the thematic suffix *-aj-* taken by the zero allomorph of the secondary imperfective suffix (39) the vowel turns into a glide

(detectable from the characteristic transitive softening mutation of the stem-final consonant, cf. section 2.2.3):

- (36) root *-korm-* ‘feed’, theme *-i-*
 a. *korm-í-tʲ* ‘to feed’
 b. *korm-i-u* → *korm-j-u* → *kor[m̩]ú* ‘feed.1SG’
- (37) root *-gruz-* ‘freight, weight’, theme *-i-*
 a. *gruz-í-tʲ* ‘to load’
 b. *gruz-i-u* → *gruz-j-u* → *gru[ʒ]ú* ‘load.1SG’
- (38) a. *ot-korm-í-tʲ* ‘to fatten.PFV’
 b. *ot-kár[m̩]-iv-a-tʲ* ‘to fatten.IPFV’
- (39) a. *raz-gruz-í-tʲ* ‘to offload.PFV’
 b. *raz-gru[ʒ]-á-tʲ* ‘to offload.IPFV’

The second-conjugation thematic suffix *-i-* is productive and *i*-verbs systematically undergo transitive softening in the secondary imperfective, which means that *-i-* can appear internal to aspect, as expected from a verbalizing suffix (cf. section 3.2.3).²⁷

The situation is more complicated for the second-conjugation thematic suffix *-e-*. In this 80-strong class (see Itkin 2013 on the limited productivity of sound verbs in this class), the 1SG forms and the secondary imperfective do not behave the same. While in the 1SG of *e*-verbs transitive softening is obligatory (40), in the secondary imperfective it is the exception: out of the 36 *e*-verbs in my list that can form secondary imperfectives, twenty lose the thematic vowel and show no transitive softening (41), four verbs retain the thematic vowel and appear with the

²⁷ There are 14 verbal roots that yield perfective verb stems with the *i*-suffix and do not undergo transitive softening in the corresponding imperfective forms (thus showing that the *i*-suffix is absent there). Six of them (*-bros-* ‘throw’, *-pusk-* ‘let’, *-stup-* ‘step’, *-xvat-* ‘grab’, *-task-* ‘pull’, and *-kat-* ‘roll’) denote directed motion and have *aj*-counterparts that denote non-directed motion (the first four are inherently perfective as well). Two (*-kup-* ‘buy’ and *-rub-* ‘chop’) might be argued to fit the same semantic profile but have no imperfective *a*-counterparts when unprefixated. The remaining six verbs take the *-i-* suffix only when prefixed. Four of them (*-glot-* ‘swallow’, *-skok-* ‘jump’, *-kus-* ‘bite’, and *-lom-* ‘break’) in standard Russian require the *-aj-* suffix when unprefixated, take the *-i-* theme when prefixed and form *-iw-* imperfectives, while *-niz-* ‘pierce’ only allows an imperfective in *-iw-*. Finally, *-log-* ‘put’ allows zero imperfectives with ablaut (*-lag-*) and *-iw-* imperfectives with the suppletive perfective root *-klad-*. Suggestions that these are not true aspectual pairs and the *a*-variants are not derived from the *i*-variants can be found in Gribanova (2013) (see fn. 37) and Tatevosov (2013), but this approach cannot account for the lack of transitive softening in *-iw-* secondary imperfectives for, e.g., *za-xvat-í-tʲ/za-xvát-iv-a-tʲ* ‘to conquer’. Finally, all of them but one (*-bros-* ‘throw’) show the variant accentual pattern in the present tense: final stress in the 1SG, stem-final elsewhere. An interesting discussion of Russian dual simplex verbs can be found in Feldstein (2007).

epenthetic [v] (42),²⁸ five show transitive softening in the secondary imperfective (43),²⁹ and for five it is impossible to tell.³⁰ All other *e*-verbs do not form secondary imperfectives at all.

- (40) root-*obid-* ‘offend’, thematic suffix *-e-*
 a. *obíd-e-tʲ* ‘to offend’
 b. *obid-e-u* → *obid-j-u* → *obí[ž]-ú* ‘offend.1SG’
- (41) a. *zakupétʲ/zakuplʲú* ‘start boiling_{PFV.INF/1SG}’ → *zakup[átʲ]*_{IPFV.INF} -Ø- (3 roots)
 b. *poglʲadétʲ/poglʲa[ž]ú* ‘take a glance_{PFV.INF/1SG}’ → *poglʲa[d]ivatʲ*_{IPFV.INF} -*iw-* (17 roots)
- (42) *preterpétʲ/preterp[plʲ]ú* ‘tolerate_{PFV.INF/1SG}’ → *preterp[ev]átʲ*_{IPFV.INF} -*e-w-* (4 roots)
- (43) a. *obídetʲ/obí[ž]u* ‘offend_{PFV.INF/1SG}’ → *obí[ž]átʲ*_{IPFV.INF} -Ø- (1 root)
 b. *navertétʲ/naver[č]ú* ‘twist onto_{PFV.INF/1SG}’ → *navér[č]ivatʲ*_{IPFV.INF} -*iw-* (4 roots)

The behavior of second-conjugation *e*-verbs can be explained if their thematic vowel changes to [i] in the present for all verbs and in the secondary imperfective for some (Matushansky [to appear]-a): before vocalic suffixes [i] turns into [j] and [e] is deleted. Under this view, both [e] and [i] are retained in the secondary imperfective. This retention is expected if these thematic suffixes are analyzed as *v*, while the loss of the thematic suffix in the secondary imperfective either means that the suffix does not correspond to *v* or requires an independent explanation. Under this view, the fact that most first-conjugation verb stems (rows (a)–(h) in **Table 1**) exhibit no sign of the thematic suffix in the secondary imperfective raises the question of the status of these suffixes.

4.3 First-conjugation thematic suffixes

Two of the thematic suffixes of the first conjugation, *-aj-* and *-ej-* (rows (b) and (e) in **Table 1**), surface with a glide before the present-tense suffix *-e-* and as pure vowels before the past-tense suffix *-l-* (44)–(45). As discussed above, this could be analyzed as glide deletion before a consonant or as glide insertion before a vowel. All other thematic suffixes lose their (final) vowel:

- (44) a. *bol-é-l-a*
 sick-TH-PAST-FSG

²⁸ The relevant verbs are *terpétʲ* ‘to tolerate’ (*preterpevatʲ* ‘to suffer’), *velétʲ* ‘to order’ (*povelevátʲ* ‘to rule’), *zretʲ* ‘to behold’ (*prozrevátʲ* ‘to recover one’s sight’) and the archaic *obujátʲ/obujevatʲ* ‘to seize’.

²⁹ These are: *obídetʲ* ‘to offend’ (zero secondary imperfective, cf. (43)), *vertétʲ* ‘to twist’ (-*iw-*, cf. (42)), *sidétʲ* ‘to sit’ (-*iw-*), *smotrétʲ* ‘look’ (-*iw-*), and *zudétʲ* (*pozúživátʲ*) ‘to itch’.

³⁰ These are (all with the secondary imperfective in *-iw-*): *bojátʲsʲa* (*pobáivatʲsʲa*) ‘to fear’, *bolétʲ* (*pobáivatʲ*) ‘to ache’ (underlyingly palatalized root *-bolʲ-* ‘pain’), *deržátʲ* (*zadrživatʲ*) ‘to hold’, *ležátʲ* (*polóživatʲ*) ‘to lie’, *stojátʲ* (*postáivatʲ*) ‘to stand’.

- b. bol-éj-e-t
pain-TH-PRES-3SG
- (45) a. čit-á-l-a
read-TH-PAST-FSG
b. čit-áj-e-šⁱ
read-TH-PRES-2SG
- (46) a. tóp-nu-l-a
stomp-SMLF-PAST-FSG
b. tóp-n -e-šⁱ
stomp-SMLF-PRES-2SG
- (47) a. kol-ó-l-a
prick-TH-PAST-FSG
b. kól- -e-šⁱ
prick-TH-PRES-2SG
- (48) a. žážd-a-l-a
thirst-TH-PAST-FSG
b. žážd- -e-šⁱ
thirst-TH-PRES-2SG
- (49) a. pis-á-l-a
write-SMLF-PAST-FSG
b. pís- -e-šⁱ
write-SMLF-PRES-2SG

That the phenomenon cannot be due to the morphological deletion of the suffixes themselves is obvious from (46), where the nasal remains, and (49), where a front vowel is detectable from the mutated final consonant of the stem. In the secondary imperfective, however, these six suffixes behave differently, even though they also appear before a vowel: before [a] (if the zero allomorph of the secondary imperfective suffix is used) and before [i] (otherwise).

Starting with first-conjugation verbs in *-ej-* (44), in the secondary imperfective they behave like second-conjugation *e-*verbs in (42): the vowel is retained but followed by the glide [w] (surface [v]) rather than [j]:

- (50) a. za-bol-é-tⁱ ‘to become sick.PFV’ (surface form *zabolétⁱ*)
b. za-bol-e-w-á-tⁱ ‘to become sick-IPFV’ (surface form *zabolevátⁱ*)

As discussed in section 4.1, the intervocalic secondary imperfective [v] has been attributed to a number of causes. Garde (1972:386; 1998:384), Thelin (1973) and Gladney (1985) argue that it is inserted to break the hiatus. Enguehard (2017) hypothesizes that the secondary imperfective suffix is underlyingly *-va-*, and Matushansky (2009) proposes that it should be *-ǔ-*, which turns into a glide. For first-conjugation verbs like (50) another option has been advanced: that the underlying representation of the thematic suffix is *-ej-* and its glide turns into [w] before [a] (Flier 1972; Coats 1974; Worth 1978; Swan 2015, etc.).³¹

Whichever hypothesis turns out to be correct, the retention of *-ej-* in the secondary imperfective is expected if the suffix is a verbalizer. Likewise, the denominal suffix *-ow-* is also retained in the secondary imperfective (which is always realized by the *-iw-* allomorph):³²

- (51) a. tanc- ow- a- tʲ (surface form: *tancevátʲ*)
 dance VBLZ TH INF
to dance
- b. ot- tanc- ow- a- tʲ (surface form: *ottancevátʲ*)
 PFX dance VBLZ TH INF
to dance off (e.g., *to dance s.o.'s feet off*)
- c. ot- tanc- ow- iw- a- tʲ (surface form: *ottancóvívátʲ*)
 PFX dance VBLZ IPFV TH INF
to dance off (habitual or progressive)

The behavior of the various *a*-suffixes (rows (b)–(d) in **Table 1**) is strikingly different: they systematically exhibit no evidence for the presence of [a] in the secondary imperfective.

4.3.1 The disappearance of *a*-suffixes

First-conjugation verbs with the vowel [a] before the past-tense suffix fall into three different classes in function of how they look in the present: the *-aj-* theme (row (b) in **Table 1**, (52a)), the *-∅-/a-* theme (row (c) in **Table 1**, (52b)), and the *-i-/a-* theme (row (d) in **Table 1**, (52c)):

- (52) a. ‘read’ (productive): čítá-l čítáj-e-t -aj-
 b. ‘suck’ (15 verbs): sosá-l sosʲ-ó-t -∅-
 c. ‘write’ (60 verbs): pisá-l píš-e-t (< pís-j-e-t) -i-

³¹ For the sake of completeness, as Feinberg (1980) notes, the orthographic [e] also appears in about six secondary imperfectives derived from *i*-stems (e.g., *prodl[e]vátʲ* from *prodlítʲ* ‘to extend’; that this cannot be the denominal verbalizer *-ow-* is shown by the fact that it takes the thematic suffix *-aj-*). One possibility (Švedova 1980–I:349) is that since [e] and [i] are neutralized in unstressed syllables, this orthographic [e] in an unstressed syllable corresponds to the hypercorrection of an underlying [i].

³² Though some biaspectual verbs in *-ow-* could in principle be regarded as underlyingly perfective and taking the zero secondary imperfective allomorph, this hypothesis lacks the necessary generality.

All three types show no evidence of the thematic suffix in the secondary imperfective:

- (53) a. ot-sos-á-tʲ ‘to suck off.PFV’
 b. ot-sás-iv-atʲ ‘to suck off.IPFV’
- (54) a. pod-pis-á-tʲ ‘to sign.PFV’
 c. pod-pís-iv-a-tʲ ‘to sign.IPFV’
- (55) a. ot-čit-á-tʲ ‘to tell off.PFV’
 b. ot-čit-iv-atʲ ‘to tell off.IPFV’

(53) and (54) are inconclusive: due to hiatus resolution, even if present, the vowel [a] would be deleted before the vocalic secondary imperfective suffix. (55), however, is more telling. If the underlying representation of this thematic suffix is *-aj-*, it would not give rise to hiatus and its surface absence from the secondary imperfective would argue that it is not present there underlyingly. Conversely, if the underlying representation of this suffix is *-a-*, the question arises why the hiatus created by the thematic suffix *-a-* and the secondary imperfective suffix *-iw-* is not resolved by the insertion of [j] (as in the present tense) or by the insertion of [w] (as in secondary imperfectives of second-conjugation *e*-verbs, deadjectival *-ej-* verbs, or verbs with the roots *-dal[j]-* ‘give’, *-zna[j]-* ‘know’, and *-sta[n]-* ‘become’, illustrated in (56)).

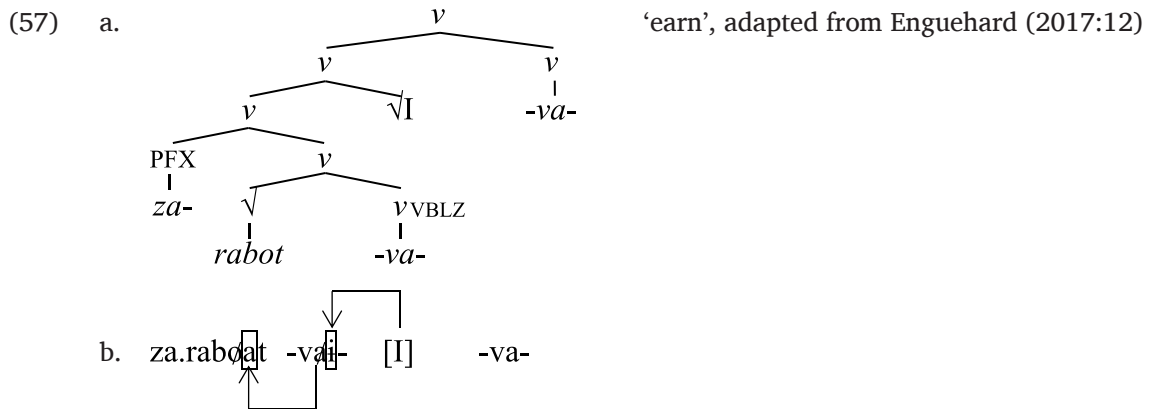
- (56) a. uznáju/uznála ‘recognize.PFV.PRES.1SG/PAST.FSG’
 b. uznavajú/uznavála ‘recognize.IPFV.PRES.1SG/PAST.FSG’

However, the disappearance of the thematic suffix *-aj-* from the secondary imperfective has been given yet another explanation.

4.3.2 Could *-iw-* be the same as *-aj-*?

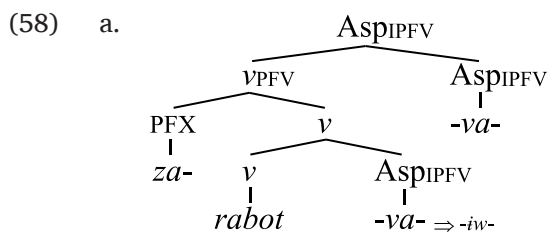
As discussed in section 4.1, several attempts have been made to account for the allomorphy of the secondary imperfective suffix. One such strategy can also explain the lack of the thematic suffix *-aj-* in the secondary imperfective by assimilating *-iw-* to *-aj-*. Coats (1974), Feinberg (1980) and Enguehard (2015; 2017) propose that the *-iw-* allomorph of the secondary imperfective suffix and the thematic suffix *-aj-* share the underlying representation, which is *-va-* for Enguehard (2017) and *-aj-* for the other three works. To explain how the underlying *-aj-* is turned into *-iw-*, Coats (1974) and Feinberg (1980) rely on a stipulative readjustment rule, while Enguehard (2015; 2017) offers a phonological derivation that also explains the concomitant [o]/[a] change in the verbal root ((38), (53)) by the reassociation of the first (thematic) [a].³³

³³ The floating [I] in (57) is, according to Enguehard (2017), a semantically null morpheme inserted to avoid two adjacent identical heads. However, to obtain the correct interpretation the stem that the prefix combines with must be verbal and therefore, the root should first combine with the thematic suffix (which is, indeed, independent of the prefix) and only then with the prefix. As a result, there will be no structural adjacency between the two suffixes in the resulting structure.



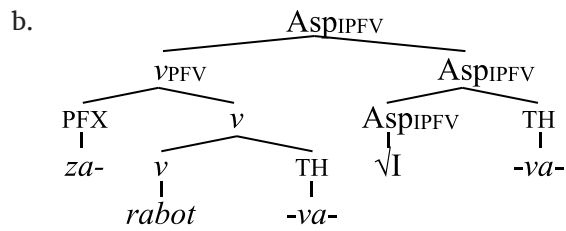
Setting aside the fact that these analyses lose the intuition that [v] is epenthetic, what is the semantics of both instances of *-aj-* (*-va-* in (57))? Suppose first that the first *-aj-* (putatively turning into *-iv-*) is a verbalizer, i.e., contributes some category-changing semantics.³⁴ In this case, however, the second instance of *-aj-* cannot be identical to it (as imperfectivization does not change the meaning of the verb or its category).³⁵

Two possible alternatives are that *-aj-* corresponds to contentful aspectual (imperfective) heads in both positions (58a) or to themes, i.e., meaningless exponents on *v* and Asp (58b); in this latter case Enguehard's (2017) floating [I] can be the exponent of the secondary imperfective suffix. While neither of these structures leads to interpretational issues, the question then arises why the *-iv-* suffix also appears with the second-conjugation suffix *-i-* (38)–(39).

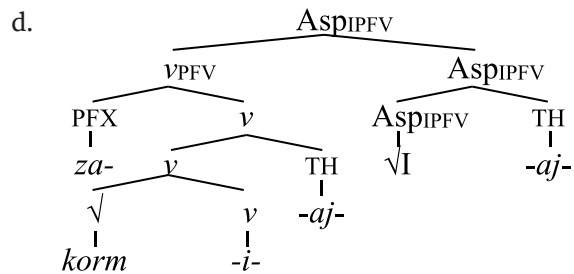
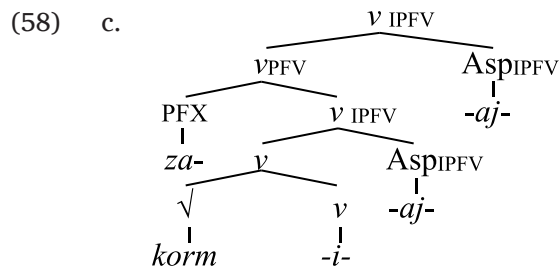


³⁴ Given that *-aj-* verbs can be impersonal (e.g., *Svetáet* 'Dawn is coming'), *-aj-* cannot contribute an external argument, so the most likely candidate becomes the introduction of an unspecified event argument.

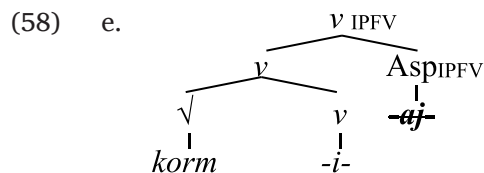
³⁵ Arsenijević, Milosavljević and Simonović (2023) propose that the second thematic suffix combines with the set of telic events created by prefixation from the original primary imperfective to yield their atelic counterparts. Two problems arise: besides progressive, imperfectives can be habitual or iterative (with event descriptions remaining telic), and the two instances of *-aj-* cannot be claimed to be the same even with respect to semantic type because a different semantics is needed for creating a verb.

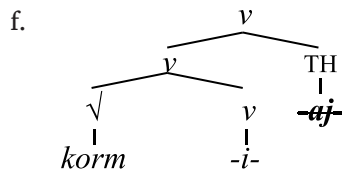


Indeed, if the suffix *-i-* in (38) is the second-conjugation aspect head, as in (58a), or its theme, as in (58b), then only one (higher) *-aj-* is expected and no *-iw-* is predicted to appear, contrary to fact. If the suffix *-i-* is a verbalizer and what turns into *-iw-* in the secondary imperfective is aspect (58c) or theme (58d), Enguehard's (2017) underlying *-va-* can no longer be maintained (or we would find the incorrect **kormivivatʲ* in the surface representation):



However, an underlying *-aj-* as the underlying representation for the surface [iv] after Coats (1974), Feinberg (1980) and Enguehard (2015) is also not unproblematic when primary imperfective *i*-verbs (36)–(37) are considered. If their structure is as illustrated in (58e) or (58f), why is the underlying *-aj-* not pronounced?





Even supposing that an answer to this question can be found, a major difference between the thematic suffix *-i-* and of the thematic suffix *-aj-* would still persist: given that [iv] appears in secondary imperfectives of *i*-verbs (58e-f), even if [iv] is an allomorph of *-aj-*, the status of the thematic suffix *-i-* ends up different from that of the thematic suffix *-aj-*.

From my standpoint, therefore, two most empirically and theoretically adequate accounts of the interaction between the secondary imperfective and thematic suffixes can be proposed. The first one would be that while *-i-* is a verbalizer and therefore must be present in the secondary imperfective, *-aj-* isn't and therefore must not. The second one (maintaining the hypothesis that the two suffixes have the same morphosyntactic status) is that the underlying representation of the thematic suffix *-aj-* is *-a-*, which is deleted before the vocalic secondary imperfective suffix *-iw-*, triggers glide insertion before the vocalic present-tense suffix *-e-* and potentially causes the deletion of the vowel in the following passive past participle suffix *-en-* (see fn. 4):

- (59) prefix *pro* + root *-čit-* 'read' + the thematic suffix *-a-*:
- | | | |
|----|---|-----------------|
| a. | + <i>-iw-</i> : <i>pročítivat'</i> 'to read through.IPFV' | V1-deletion |
| b. | + <i>-e-</i> : <i>pročítájet</i> 'will read through.3SG' | glide insertion |
| c. | + <i>-en-</i> : <i>pročítan</i> 'read through.PPP.MSG' | V2-deletion |

While (59c) is needed to account for the behavior of all [a] thematic suffixes before the PPP suffix, to maintain the hypothesis that the thematic suffix *-aj-* is present in the secondary imperfective just like the thematic suffix *-i-*, the contrast between (59a) and (59b) needs to be explained. Importantly, it is not just the lack of glide insertion that needs to be explained: an alternative would be the use of the *-w-* (surface [v]) secondary imperfective allomorph, which is regularly used with the deadjectival suffix *-ej-* (50) and occasionally, with the unproductive second-conjugation thematic suffix *-e-* (35). In the absence of such an explanation, the two thematic suffixes cannot have the same morphosyntactic status,³⁶ and since *-aj-* appears after the secondary imperfective suffix, it can be reasonably assumed to be merged in a higher position.

Additional evidence for treating *-aj-* as a high suffix comes from the small, closed class of unprefixated perfective verbs. While most of them take the thematic suffix *-i-* (e.g., *rešit'* 'to decide'), there are also unprefixated perfectives without a thematic suffix (e.g., *pást'* 'to fall'), with the suffix *-a-/-i-* (e.g., *ob^jazát'* 'to oblige') and with the suffix *-ej-* (e.g., *odolét'* 'to overcome'). Yet

³⁶ It is possible to claim that both are themes, but *-i-* is associated to *v* and *-aj-*, to some higher node, like Asp. I cannot detect any empirical gain from this assertion.

the only verb in this class with the thematic suffix *-aj-* (*pojmatʲ* ‘to catch’) can be analyzed as made perfective by a prefix (added to a cranberry root). Since *-aj-* is the only thematic suffix that can follow the secondary imperfective suffix, the hypothesis that it is too high to also precede *-iw-* or to yield unprefixated perfectives seems more reasonable than an attempt to explain what forces it to be absent in those environments.

To summarize, there is no *a priori* evidence that the thematic suffixes *-a-/-i-*, *-aj-* (whatever its underlying representation), and *-a-* are present before the secondary imperfective suffix *-iw-*. They clearly differ in this respect from the thematic suffix *-ej-*, which is always retained in the secondary imperfective (50), as well as from *-i-* (which is sometimes absent) or *-e-* (for which, as argued in section 4.2, there is evidence for its presence in the secondary imperfective and no evidence for its absence there). These distributional facts seem to suggest that thematic suffixes differ also in their ability to appear in the secondary imperfective, which brings up the question of the semelfactive (14) and the mutative (15) *-nu-* suffixes, which, as mentioned in section 3.2, are also obligatorily absent from the secondary imperfective.

4.3.3 Aspects of *-nu-*

Starting with the easier case of semelfactives, nearly all semelfactive verbs have imperfective variants with a different verbalizer or thematic suffix (60)–(61) and it is those that are used to form their secondary imperfectives (in *-iw-*).

- (60) a. *kompilʲ- nu- tʲ* *-ow-*
 compile SMLF INF
to do a (quick) compilation
- b. *kompilʲ- ir- ov- a- tʲ*
 compile AUG_{IR} VBLZ TH INF
to compile
- (61) a. *krik- nu- tʲ* *-e-*
 yell SMLF INF
to give a yell
- b. *vs- krik- nu- tʲ*
 PFX yell SMLF INF
to cry out
- c. *krič- a- tʲ* (← *krik-e-tʲ*)
 yell TH_e INF
to yell
- d. *vs- krik- iv- a- tʲ*
 PFX yell IPFV TH INF
to cry out repeatedly

The aspectual contribution of the semelfactive *-nu-* is unquestionable. Irrespective of whether it and the imperfective *-iw-* are both in *v*, as Markman (2008) argues, or in *Asp*, as suggested by Gribanova (2013) and supported by the evidence from *-ot-* and *-k-* verbs (section 3.2.3),³⁷ they would be predicted to be in complementary distribution.

Stems combining with the mutative *-nu-* suffix form their secondary imperfectives only with the zero allomorph (15), just like first-conjugation [ej]-verbs discussed in section 3.3, and the mutative *-nu-* suffix is never present:

- (62) a. *vísnutⁱ* ‘to hang_{IMPV}’: *zavísnutⁱ/zavisátⁱ* ‘to freeze (of a computer)_{PFV/IMPV}’
 b. *m’órznutⁱ* ‘to be cold_{IMPV}’: *zam’órznutⁱ/zamerzátⁱ* ‘to freeze_{PFV/IMPV}’
 c. *gásnutⁱ* ‘to die out_{IMPV} (of a light)’: *ugásnutⁱ/ugasátⁱ* ‘to die out_{PFV/IMPV} (of a light)’

The absence of a verbalizer in the secondary imperfective is unexpected: an aspectual suffix cannot combine with a non-verbal stem. The alternative that the thematic suffix *-aj-* functions as a verbalizer (or a theme on a null verbalizer) with a missing unprefix verb should also be discarded: prefixed primary imperfectives are systematically perfective.

Should it therefore be concluded that the presence or absence of a given thematic suffix in the secondary imperfective is not by itself an indication of its morpho-syntactic status? If the answer is yes, then the different behavior of the second-conjugation suffix *-i-* and the first-conjugation suffix *-aj-* says nothing about their status as a verbalizer.

Alternative explanations are, however, available for the mutative *-nu-*. Firstly, since many mutative verbs lose this suffix in the past tense (13) for no obvious reason, the explanation could lie in very superficial allomorphy. Secondly, it can be argued that the stative semantics of *-nu-* is somehow incompatible with the secondary imperfective (see fn. 25 for a semantic distinction between *nu-*verbs and *ej-*verbs). Yet a third alternative is that the mutative *-nu-* is also a kind of *Asp*, which would place it in complementary distribution with the secondary imperfective suffix. No definite conclusion is therefore to be drawn from this suffix.

³⁷ Observing that the semelfactive *-nu-* and the secondary imperfective *-iw-* can antecede each other in verb-stranding VP-ellipsis, Gribanova (2013) argues that they should both be placed above Voice, i.e., in *Asp*. She also notes that the same is true for aspectual pairs without transitive softening, like those discussed in fn. 27, which she considers as evidence (p. 131) that the *i-* suffix in such cases is not a verbalizer, unlike in those cases where it remains. She also notes that this diagnostic is useless for other thematic pairs, as these go hand in hand with a change in the lexical semantics and/or valency of the verb. Tatevosov (2013), however, argues for a low position of *-iw-* on semantic grounds, showing that *-iw-* should be dissociated from imperfectivity.

4.4 Section summary

Checking the compatibility of different thematic suffixes with the secondary imperfective paints an unclear picture. The thematic suffix *-aj-*, while the only one to appear after all secondary imperfective allomorphs, is also most likely absent before it. The other productive thematic suffix with no clear semantic contribution, *-i-*, on the other hand, generally persists in the secondary imperfective. The picture is murky for most of the remaining suffixes from **Table 1** and is at best partially correlated with their semantics: while the deadjectival suffix *-ej-* and the second-conjugation *-e-* are preserved, the semelfactive and mutative suffixes disappear.

5 Productivity

Irrespective of whether a thematic suffix has semantic import, it can be productive or not. So the mutative *-ej-* is productive while the mutative *-nu-* is not. The contrast in productivity between the mutative and the semelfactive *-nu-* shows that phonology is also not a factor. Conversely, as also noted by Gardiner (1979), the productive thematic suffixes *-aj-* and *-i-* do not seem to be distinguishable on semantic grounds: while Arsenijević and Milosavljević (2021) argue that in Serbo-Croatian *-i-* verbs carry the feature [scale] that is absent from *-a-* verbs,³⁸ I find no evidence for this in Russian. To see this, consider the two lists of novel verbs in (63) and (64) from a randomly chosen section of a modern slang dictionary.

- (63) *-aj-* final: directly on borrowed stems or with a verbalizing suffix Nikitina (2003:272–301)
- a. *kiĭ-á-tʲ* ‘to kill (of computer processes and programs)’
 - b. *kiĭ-á-tʲ-sʲa* ‘to keel over (of a boat)’
 - c. *kirʲ-á-tʲ* ‘to drink alcohol, to be an alcoholic’ (from *kir* ‘alcohol’)
 - d. *kís-a-tʲ* ‘to kiss’ (also *kisovátʲsʲa* as a variant of the reciprocal *kísatʲsʲa*)
 - e. *klem-á-tʲ* ‘to drink alcohol (as a recreational activity)’
 - f. *klík-a-tʲ* ‘to click (as a computer term)’
 - g. *klík-a-tʲ* ‘to perform a sexual act with (transitive)’ (from *klík* ‘vulg. penis’)
 - h. *kníž-nič-a-tʲ* ‘to drink (as a generic activity)’
 - i. *kompilʲ-á-tʲ* ‘to compile’ (also the more standard *kompilírovatʲ*)
- (64) 2nd conjugation *-i-* Nikitina (2003:272–301)
- a. *kipiš-í-tʲ-sʲa* ‘to make a scandal, a fight’ (from *kípiš* ‘a scandal, a row’; *kipeševátʲ* is also attested)
 - b. *kifir-í-tʲ* ‘to perform fellatio’

³⁸ Support for their claim is drawn from two facts. Firstly, the transitive counterparts of deadjectival degree achievement *ej-* verbs are formed with the thematic suffix *-i-* (in Russian, as in Serbo-Croatian). Secondly, the lack of unprefix perfective *a-* verbs observed in the previous section extends to Serbo-Croatian.

- c. klín-i-t^l (1) impers. ‘to block someone’s mental activity’, (2) ‘to be temporarily out of it as a result of drug or alcohol abuse’ (from *klin* ‘wedge’)
- d. klub-í-t^l-s^{ja} ‘to actively participate in a club activity’
- e. kob’án-i-t^l-s^{ja} ‘to behave haughtily’
- f. kozl-í-t^l ‘to ride a motorcycle on the back wheel only’ (from *koz’ól* ‘goat’)
- g. kóks-i-t^l ‘to snort cocaine’ (from *koks* ‘cocaine’)
- h. kolbás-i-t^l (1) ‘to enjoy oneself’, (2) ‘to entertain the public’, (3) ‘to stroll around’, (4) ‘to drink alcohol’, (5) impers. ‘to be experiencing hangover’, (6) impers., ‘to feel the effects of a drug’, (7) impers. ‘to be depressed’ (from *kolbasá* ‘sausage’)
- i. koles-í-t^l ‘to use drugs under the form of pills’ (also *kolesmán-i-t^l*, from *kol’ósa* ‘drugs under the form of pills’ from the singular *kolesó* ‘wheel’)
- j. komatóz-i-t^l ‘to understand (the situation) poorly’ (cf. *komatóznyj* ‘comatose’)
- k. kommunízd-i-t^l (1) ‘to beat up’, (2) ‘to steal’ (cf. *kommunízm* ‘communism’)
- l. kompil-í-t^l ‘to compile’
- m. kóndor-i-t^l ‘to visit another camp to get food (transitive)’ (from *kóndor* ‘condor’)

There seems to be no identifiable semantic component distinguishing one list from the other.³⁹ As is easy to see, for instance, the root *-kompil-* ‘compile’ appears in both lists with the same resultant meaning. Moreover, both lists contain transitives ((63a), (64k)), intransitives ((63f), (64h)) and reflexives ((63b), (64e)), both include accomplishments ((63g), (64b)) and activities ((63c), (64f)), and both suffixes can be used to create verbs from loanwords (here, from verbs). Strikingly, for the borrowed root *-drink-* the dictionary lists (p. 168) five possible derivations (with the same interpretation: ‘to drink (of alcoholic beverages)’): *drínkat^l* (with the thematic suffix *-aj-*) and *drinkovát^l* (with the verbalizing suffix *-ow-* and the thematic suffix *-a/i-*), as well as *drínčit^l* (with the thematic suffix *-i-*), as well as their derivatives *drínknut^l* (with the semelfactive *-nu-*) and *drinkanút^l* (with its augmented variant).⁴⁰ While it is not impossible that in its current use the *-i-* suffix is more likely to combine with roots and *-aj-*, with nominal stems, these would seem to be tendencies rather than deterministic rules (but see Kovačević, Milosavljević and Simonović 2021, comparing *-owa-* and *-i-* in Serbo-Croatian). Likewise, the correlation between the intransitive/causative meaning in deadjectival formation and the thematic suffixes *-ej-* and *-i-* mentioned in fn. 38 (see Jabłońska 2007; Medová 2013; Arsenijević and Milosavljević 2021; Mišmaš and Simonović 2021; etc.), while supporting the hypothesis that both thematic suffixes are verbalizers, only characterizes a limited set of verbs that have both variants; the set of *-i-* verbs is much larger.

³⁹ Impersonal and stative verbs are only found in (64), but this is probably accidental: one recent addition to Russian is the impersonal *lomát^l* ‘to experience drug withdrawal’ (from the root meaning ‘to break’). The productive *-ow-* suffix also allows impersonal and stative verbs.

⁴⁰ The verb *drínčát^l* ‘to use perorally’ is probably derived from the noun *drinč* ‘alcohol’.

6 Conclusion

Even a superficial investigation of the so-called thematic suffixes of Russian (**Table 1**) shows that they cannot be regarded as a uniform group. To determine their morphosyntactic status, several independent characteristics of these suffixes have been examined.

Combining the conclusions reached in section 3.4 with the newly acquired information about secondary imperfectives and productivity, as well as about the thematic suffixes *-aj-* and *-i-*, **Table 5** can be expanded yielding **Table 6** (additional information about the accentuation of various thematic suffixes comes from Matushansky ([to appear]-b)):

As is easy to see, for no two criteria do thematic suffixes pattern together, which means that it is highly unlikely that they should be treated as a unified class.

From the semantic standpoint three suffixes out of eight have a clearly defined meaning: the semelfactive *-nu-*, the mutative *-nu-*, and the deadjectival degree achievement *-ej-*. From the syntactic point of view, three suffixes combine with verbal stems, three with non-verbal stems, and for the remaining two (*-aj-* and *-i-*) it seems impossible to determine. Aspectually, all but one of them usually yield imperfective verbs, and four (*-ow-*, *-ej-*, *-e-* and *-i-*) are systematically retained in the secondary imperfective. Morphologically, their productivity and conjugation class do not seem to be correlated with any other properties.

I hypothesize that if a thematic suffix remains in secondary imperfective, it is likely to be *v*. If it appears after secondary imperfective suffix, like *-aj-* does, it cannot be *v*. So *-i-* seems to be *v*, and *-aj-* does not seem to have the same status, but the two *-nu-* suffixes, whose semantics would suggest that they are verbalizers and are, nevertheless, in complementary distribution with the secondary imperfective suffix, show that the criterion cannot be applied mechanically. Furthermore, the brief comparison (section 5) of novel Russian verbs formed with the thematic suffixes *-i-* and *-aj-* did not reveal any clear semantic differences.

Russian therefore supports approaches like Simonović and Mišmaš (2022) that treat Slavic thematic suffixes as a heterogeneous class and argues against unification approaches like Milosavljević and Arsenijević (2022). While some of the thematic suffixes in **Table 1** are amenable to treatment as *v*, others do not fit the same criteria and might be best analyzed as themes, i.e., as meaningless morphological “glue” (cf. Aronoff 1994; Oltra Massuet 2000) with no syntactic import. Any theory seeking to unify them needs to account for the huge variation in **Table 6**.

An issue not addressed here is that of nominalizations. While some nominalizing suffixes are attached on top of the thematic suffix, others are not, and there does not seem to arise any systematic difference between the resulting nominals (see Schoorlemmer 1998; Pazelskaya 2009a, b; Matushansky 2021). I feel justified therefore in leaving nominalization out of the discussion here.

	-a/o/-i-	-(a)nu-	-ow-	-nu-	-e-	-ej-	-aj-	-a-	-i-
base	V	V	N	states	V	A	?	V	?
meaning	none	SMLF	none	mutative	none	mutative	none	none	none
aspect	default	PFV	both	default	default	default	default	default	default
secondary IPFV	no?	no	-ow-iw-	no	yes	-e-w-	no?	no?	-i-(iw)-
productive	no	yes	yes	no	minor	limited	yes	no	yes
conjugation	I	I	I	I	II	I	I	I	II
status	theme	v or Asp	v or Asp	v or Asp	v	v	theme	theme	v
accented, unaccented, post- or pre-accenting	A (or Post)	A	Post	Pre	A (or Post)	A	A	UA	A (or Post)
vocalic	yes	(no)	yes	no	yes	yes	yes	yes	yes
hiatus resolution	gliding	deletion	gliding	deletion	deletion	glide-insertion	glide-insertion	deletion	gliding

Table 6: Varying properties of thematic suffixes.

7 Appendix: Russian closed verb classes

These lists have been compiled from several sources, which comprise (but are not limited to) Halle (1973), Garde (1998), and Itkin (2007). The verbs are given in the infinitive, with the root provided only in cases of possible confusion and the number of verbs in the class indicated in parentheses in the title. The degree-sign (°) marks rare, obsolete, archaic, or dialectal forms, as well as verbs that may have migrated towards a productive conjugation class.

7.1 Athematic verbs (81)

беречь, бить, блюсти, брести, брить, быть, везти, вести, взять (and other verbs with the bound root *-nĭm-/-jĭm-*), вить, влечь, волоочь, выть, гнести, гнить, гнуть, грести, грызть, °грести (*-grʲad-*), °густы (*-gud-*), дать (*-dad-*), деть, дуть, есть (*-ed-*), °ети (*-jeb-*), жать (*-žĭm-*), жать (*-žĭn-*), жечь, жить (*-žĭw-*), идти, класть, клясть, красть, крыть, лезть, лечь, лить, мереть, мести, мочь, мыть, мястись, мять, начать (and other verbs with the bound root *-čĭn-*), нести, ныть, обрести, обуть, пасти, пасть, переть, петь, печь, пить, плести, плыть, ползти, почить, простереть, прясть, -прячь, распясть, рассвети, расти, -речь, рыть, сесть, сечь, скрести, слыть, стать, стеречь, -стичь, стричь, тереть, течь, толочь, трясти, цвести, -честь, шить

In the three *-ere-* verbs (мереть, переть, тереть) the second [e] in the infinitive is epenthetic

7.2 Second-conjugation *-e-* verbs (82)

The thematic suffix *-e-* surfaces as [a] after sibilants

бдеть, бздеть, блестять, болеть, бояться, брэнчать, брюзжать, бурчать, велеть, °верезжать, верещать, вертеть, видеть, визжать, висеть, ворчать, галдеть, глядеть, гнать, гореть, греметь, гудеть, держать, дребезжать, дрожать, дудеть, дышать, жужжать, журчать, зависеть, звенеть, звучать, зреть, зудеть, кипеть, кишеть, коптеть, корпеть, кричать, кряхтеть, лежать, лететь, молчать, мчать, мычать, обидеть, пиздеть, пищать, пыхтеть, рычать, свербеть, сверчать, свиристеть, свистеть, сидеть, скворчать, скорбеть, скрипеть, слышать, смердеть, смотреть, сопеть, спать, стоять, стучать, тархтеть, терпеть, торчать, трещать, трухтеть, трындеть, урчать, фурчать, фырчать, храпеть, хрипеть, хрустеть, шелестеть, шипеть, шуметь, шуршать, ячать

7.3 Transitive softening *-o-/-i-* verbs (5)

бороть, колоть, молоть, полоть, пороть

7.4 Transitive softening *-a-/-i-* verbs (103)

°алкать, баять, бляеть, бормотать, брехать, брызгать, веять, °внимать, воркотать, вязать, глаголать, °глодать, гоготать, граять, грохотать, двигать, деяться, дремать, жаждать, заклать, затеять, искать, казать, °капать, каяться, квохтать, клеветать, клекотать, клепать,

кликать, клокотать, клохтать, колебать, колыхать, °крапать, кудахтать, лаять, лелеять, лепетать, лизать, лопотать, мазать, махать, маять, метать, миропомазать, мурлыкать, надеяться, низать, обязать, °опоясать, орать (пахать), пахать, писать, плакать, °плескаться, плясать, °полоскаться, прятать, пыхать, реготать, резать, реять, рокотать, роптать, рукоплескаться, рыскать, свистать, сеять, скакать, скрежетать, слать, снискать, содеять, стлать, °страдать/°страждать, стрекотать, сыпать, таять, тесать, топотать, топтать, трепать, трепетать, тропотать, °тыкать, хаять, хвостать, хлестать, хлобыстать, хлопотать, хлыстать, хохотать, цокотать, чаять, чесать, чують, шептать, щебетать, щекотать, °щепать, щипать

Verbs ending in [j] do not exhibit any sign of transitive softening and could therefore belong to either this class or the next one. The decision to include in this class the verbs *жаждать* and *страждать*, exhibiting Slavonic transitive softening throughout,⁴¹ and most verbs with *j*-final stems is based on their stress pattern (Matushansky ([to appear]-b)): the *-a/-∅-* class contains no verbs with systematic stem stress.

7.5 Non-alternating *-a/-∅-* verbs (21)

брать, вопиять, врать, драть, ебать, ехать, ждать, жрать, звать, лгать, орать (кричать), попать, рвать, ржать, -смеять, сосать, срать, ссать, стонать, ткать

The OCS verb *вопиять* and the bound-root verb *-смеять* have been included in this class because the class has no verbs with systematic post-stem stress.

7.6 Mutative *-nu-* verbs (65)

блѣкнуть, брюзгнуть, бухнуть, виснуть, волгнуть, вязнуть, вянуть, гаснуть, гибнуть, глохнуть, горкнуть, грузнуть, грязнуть,дохнуть, дрогнуть, дрыхнуть, дрябнуть, дряхнуть, жолкнуть, жухнуть, зябнуть, киснуть, крепнуть, липнуть, мёрзнуть, меркнуть, мокнуть, молкнуть, мякнуть, никнуть, пахнуть, пухнуть, сипнуть, склизнуть, слабнуть, слепнуть, слизнуть, сохнуть, стынуть, сякнуть, терпнуть, тихнуть, тонуть, тускнуть, тухнуть ('to go out (of light)'), тухнуть ('to rot'), хрипнуть, чахнуть

14 verbs existing only as bound stems cannot all be associated with mutative semantics, but lose the suffix *-nu-* in the past tense:

-бегнуть, -брякнуть, -вергнуть, -верзнуть, -выкнуть, -двигнуть, -корузнуть, -креснуть, -мозгнуть, -рыднуть, -стигнуть, -торгнуть, -хряснуть, -чезнуть

3 more are imperfective but do not have mutative semantics:

гнуть, льнуть, тянуть

⁴¹ Es'kova (2011a) also notes *трепещать*, *ропцать* and *скрежещать* with the same status.

Abbreviations

1/2/3: first/second/third person, ADJ: adjectivizing suffix, AGR: agreement, ASP: aspect, AUG: augment, GEN: genitive, INF: infinitive, IPFV: imperfective, M/F/N: masculine/feminine/neuter, MUT: mutative, NMLZ: nominalizing suffix, NOM: nominative, PFV: perfective, PFX: prefix, PL: plural, PRES: present, SG: singular, SMLF: semelfactive, TH: thematic suffix or theme, VMLZ: verbalizing suffix.

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Competing interests

The author has no competing interests to declare.

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