The Formation of Aspectual Pairs of Borrowed *ova*-verbs in Russian

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1. Introduction

The question that this paper sets out to answer is how new aspectual pairs are formed from loan verbs with the suffix **-ova-** from languages that lack a Russian-style aspectual system. The question how borrowed verbs form aspectual pairs has been discussed in works about biaspectual verbs and/or prefixation (Avilova 1968, Čertkova and Čang 1998, Gjervold 2013, L'Hermitte 1968, Potechina 2007, Šeljakin 1979, Sokolova 2009). However, the formation of aspectual pairs of borrowed verbs that have become established in Russian has not been the focal point of any of these articles.

One of the most common ways to form aspectual pairs in Russian is prefixation. When a prefix is added to an imperfective, non-prefixed verb stem, the verb as a rule becomes perfective. The prefix also alters the meaning (for example, compare *rasfokusirovat'* 'to defocus' with *fokusirovat'* 'to focus'), but so-called 'purely aspectual prefixes' (Russian: *čistovidovye pristavki*[1]) change only the aspect of the verb and not the meaning. Classical examples of purely aspectual prefixes are *s-* in *delat'–sdelat'* 'to do, make' or *na-* in *pisat'–napisat'* 'to write'. In recent years, Russian verbal prefixes have been the focus for a number of studies by the Exploring Emptiness research group[2] at the University of Tromsø, Norway (Endresen et al. 2012, Janda et al. 2013). Their hypothesis is that the choice of perfectivizing prefix depends on the meaning of the verb, which suggests that there is an overlap in meaning between the prefix and the verb. The hypothesis is therefore called "the overlap hypothesis" and it is explained in more detail in Section 2.2.

New verbs – neologisms and loanwords – offer a chance to test this hypothesis. If the overlap hypothesis is an adequate explanation, then we would expect that for new verbs, native speakers would prefer an aspectual prefix that shares some semantic element with the base verb when they form a corresponding perfective verb (also called "natural perfective"[3] (Janda 2007)). If, on the other hand, prefixes are semantically 'empty', in the strongest sense of the term, then we would expect either that the choice of prefix is random and chaotic, due

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[1] Another term for the same phenomenon is English: empty prefixes, Russian: *pustye pristavki*, or French: *préverbes vides*.
[2] Homepage: http://emptyprefixes.uit.no/.
[3] Here, "natural perfective" will be used alongside with and in the same meaning as "corresponding perfective verb."

to the large number of possible prefixes, or that one prefix is perceived as "regular" and therefore dominates the formation of new perfectives, as new verbs are inflected regularly in, for example, English.

The verbs in this study were borrowed during the 20th century (or slightly earlier, because it is not always possible to date with precision when a word entered a language) and end in *-ovat'* or *-evat',* which are in a class of verbs mostly borrowed from other languages. The reason for choosing verbs from the 20th century is to analyze the formation of aspectual pairs that are quite new in the Russian language but still old enough so that they can be found in printed, authoritative dictionaries.

2. Verbal aspect in Russian

2.1. What is an aspectual pair?

A central concept in the Russian verb system is the *aspectual pair* (Zaliznjak et al 2015). An aspectual pair is one imperfective and one perfective verb that have the same meaning, differing only in aspect. A classic example of an aspectual pair is *delat'–sdelat'* 'to do, make', in which *delat'*, roughly speaking, refers to the action itself but *sdelat'* to the result or completion of the action. The relationship between the verbs in an aspectual pair can be of many kinds, see Forsyth (1970) and Zaliznjak and Šmelëv (2000). The goal of this article is not to carry out a thorough investigation of all the different kinds of aspectual pairs, so "aspectual pair" is for this reason defined simply as what a dictionary suggests as an aspectual pair.

2.2. Prefixation and aspect

The word "empty" in "empty prefixes," which was mentioned in the introduction, would suggest that such prefixes lack meaning, and that their only task is to serve as a marker for the perfective aspect (Tichonov 1964, Forsyth 1970, Švedova et al. 1980). Grammar textbooks written for foreigners tend to approach these prefixes this way claiming that prefixes sometimes change the meaning of the verb, but "empty prefixes" serve as pure aspect markers (for example, see Mathiasen 1996, 360–61; Wikland 1974, 114; Wade 2011, 272–274; Berneker and Vasmer 1971, 117; Daum and Schenk 1954, 43). Unfortunately, this approach does not explain *why* a prefix can be an "empty" aspect marker for one verb but not for another.

Some scholars, for example Isačenko (1968, 362), have rejected the view that aspectual pairs formed by prefixation are true aspectual pairs and claim that the prefix always

adds some meaning to the imperfective base verb, and that only suffixed pairs like
pokazyvat'–pokazat' 'to show' are true aspectual pairs. Most scholars, however, do not share
this view. Janda and Lyashevskaya (2011a) have investigated this hypothesis and conclude
that the grammatical profile [i.e. the distribution of forms (present, past, imperative etc.) for a
given verb in a corpus] of prefixed aspectual pairs is similar to that of suffixed pairs, and that
prefixed pairs therefore ought to be considered valid aspectual pairs.

In the grammar rules according to the Russian Academy (Švedova et al. 1980, §
1394–95), it is stated that the following prefixes can have a "purely aspectual" meaning (i.e.,
"bring an activity to a result"): *vz-, voz-, vy-, za-, iz-, na-, o-, ob-, ot-, po-, pod-, pri-, pro-,
raz-, s-* and *u-*. The Academy grammar rules note that some prefixes, such as *o-, po-,* and *s-,*
combine with a large number of verbs, whereas others combine only with a few verbs, the
meanings of which share some semantic element with the prefix in question. The Academy
grammar illustrates this effect with the perfective verb *vspachat'* 'to plow' (imp. *pachat'*),
where both the prefix *vs-* and the base verb share the element 'movement upwards'.

For the latter observation, the Exploring Emptiness research group (see Section 1)
coined the term "overlap hypothesis" (Endresen et al. 2012, Janda et al. 2013). The overlap
hypothesis says that the semantic "emptiness" of perfectivizing prefixes discussed above is an
illusion caused by an overlap in meaning between the verb and the prefix. The prefix is never
empty, according to this hypothesis. Its meaning is neutralized but not gone when it is used to
form a natural perfective, because the prefix duplicates at least one of the semantic elements
of the verb. This hypothesis can be traced back to Marc Vey (1952) and Cornelius van
Schooneveld who came up with the same idea for Czech and Russian verbs respectively (a
Russian translation of van Schooneveld's summary can be found in Krongauz (1998, 81)).

The connection between the meaning of the prefix and the verb in prefixed aspectual
pairs has been noted by a number of Russian scholars (Švedova et al. 1980, § 1394; Zaliznjak
and Šmelëv 2000, 81–82; Šeljakin 1979, 10–13; Čertkova and Čang 1998, 18–20), but they
have not made this observation as central as the Exploring Emptiness research group.

2.3. Biaspectual verbs

Most of the borrowed verbs analyzed in this study are biaspectual, which means that they can
be used in both aspects. Biaspectual verbs do not lack aspect; whether the verb is
imperfective or perfective depends on the context.

Around 40 of all biaspectual verbs in Russian are of Slavic origin (Čertkova and Čang
1998, 13). Such verbs are for example *kaznit'* 'to execute' and *ženit'* 'to marry'. These verbs

are inherited from Old Church Slavic in which the verbal aspect system was not as developed as in modern Russian (Eckhoff and Haug 2015). In modern Russian, though, the vast majority of biaspectual verbs are borrowed. The largest as well as the most productive group of biaspectual verbs are the *ova*-verbs (conjugation 2 in Andrej Zaliznjak's (1977) system), which end on *-ovat'* or *-evat'* in the infinitive. Examples of borrowed biaspectual verbs from this group are *okkupirovat'* 'to occupy' and *destabilizirovat'* 'to destabilize'. A third, not too numerous group of biaspectual verbs consists of verbs with two or more prefixes, e.g., *doperepisyvat'* 'to finish rewriting' (Zinova and Filip 2013).

Bunčić (2013) notes the existence of an *α*-aspect (the main aspect of a biaspectual verb) and *β*-aspect (secondary aspect) in biaspectual verbs [Tichonov (1964, 48) has a similar idea, albeit with different wording]. Biaspectual verbs, whose *α*-aspect is perfective, can form a corresponding imperfective verb via the suffix *-yva-* if the stress is on the final *a* (e.g., *atakovát'–atakóvyvat* 'to attack'). Biaspectual verbs, whose *α*-aspect is imperfective, can use prefixation to create a natural perfective. In the following sections, I describe which verbs form a corresponding imperfective or perfective verb, and, for the prefixed verbs, discuss which prefixes they take and why.

3. Method and material

The verbs for this study were gathered from the Russian version of the online dictionary Wiktionary. They belong to conjugation 2a[4] of which there are 2230 entries[5] in Wiktionary (including prefixed verbs). Wiktionary is a very large dictionary, and it is updated continuously, which means that new verbs are entered quickly. However, it has many editors, who are self-appointed and for this reason some caution is well-advised when one sees an aspectual pair in Wiktionary. Nonetheless, I use their aspectual pairs because in Wiktionary many more verbs are found than in other dictionaries. Another reason has already been mentioned above: that Wiktionary is regularly updated so that not only new verbs, but also new aspectual partner verbs are added quickly, whereas a printed dictionary, once printed, cannot change to reflect new usage norms. Wiktionary, therefore, is most likely to show *current* usage.

The verbs were chosen according to the following criteria:

1: They are of foreign origin; borrowed either directly as a verb (e.g., *muchlevat'* 'to

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[4] Full list: https://ru.wiktionary.org/wiki/Категория:Глаголы,_спряжение_2a.
[5] May 10th 2017.

cheat', from the German verb *mogeln* 'to cheat') or formed from a borrowed noun (like *licenzirovat'* 'to license', formed from the borrowed noun *licenzija* 'license'[6]). Verbs of Slavic origin in this conjugation (e.g., *prazdnovat'* 'to celebrate' and *issledovat'* 'to investigate') were thus excluded from the study.

2: The first occurrence for each verb in the RNC main corpus is between 1900 and 1999. Some verbs might of course have been borrowed already before 1900, but this addition is compensated for by the loss of more recent verbs whose first occurrence in the corpus is later than 1999, even though they might have been in use already in 1999 or earlier.

3: The verb occurs at least 10 times in the RNC main corpus, including passive and reflexive forms. The reason for choosing a minimum of 10 verbs is to analyze verbs which are (or have been) in use and to exclude nonce verbs.

I have not excluded any corresponding prefixed perfective verbs that occurred before 1900 in the RNC main corpus. An example is the imperfective *konstruirovat'* 'to construct', whose first occurrence in RNC is from 1901. Its corresponding perfective verb *skonstruirovat'* is attested already in 1849. The reason for not excluding such verbs from the analysis is firstly that it is seldom possible to know exactly when a verb was used for the first time in a language, and secondly that the results and arguments put forward in this article are not dependent on the fact that the verbs were borrowed into Russian exactly in the 20th century.

After the selection process, 248 unprefixed *ova*-verbs remained of the 2230 verbs Wiktionary has in this conjugation. In the next step, I checked eight big dictionaries published or edited between 1935 and 2017 to find out what they said about the aspectual status of each verb, with a focus on aspectual partner verbs.

4. Results

In the following sections, the results of the dictionary search are analyzed from different points of view. First, I present a table of all aspectual pairs found in this study followed by a discussion on verbs with a spatial meaning, what they tell us about the overlap hypothesis, and how the dictionaries show aspectual status. Next, verbs with more than one possible prefix and questionable aspectual pairs are examined. Lastly, I present verbs that are found in the RNC main corpus but not in the dictionaries.

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[6] From Latin *licentia* 'license'.

4.1. The prefixed verbs

Table 1 shows a list of all prefixed paired verbs in the study.[7] They are organized with regard to which prefix they take to form a natural perfective. Some verbs occur in more than one table, because they have more than one natural perfective according to the dictionaries (these verbs are discussed in section 4.5.). Each dictionary in Table 1 is given a number from 1 (newest) to 8 (oldest) and after each verb the number in brackets says in which dictionary, or dictionaries, this verb is listed. (See the literature list for complete references.)

These dictionaries were chosen because they contain a large number of verbs, they are from different times (the oldest volume was published in 1935, the newest in 2017), and they contain information about aspectual pairs unlike some dictionaries which do not give such information or exclude prefixed aspectual pairs. To ensure a variety of dictionaries, the analysis contains bilingual dictionaries (1b, 2, 7) as well as monolingual Russian (1a, 3, 4, 5, 6, 8).

Dictionaries
1a: http://ru.wiktionary.org
1b: https://en.wiktionary.org
2: Sharapova Marklund, E., ed. *Norstedts stora ryska ordbok*. 2012.
3: Švedova, N. Ju. *Tolkovyj slovar' russkogo jazyka s vključeniem svedenij o proischoždenii slov*. 2007.
4: Kuznecov, S. A., ed. *Bol'šoj tolkovyj slovar' russkogo jazyka*. 1998.
5: Evgen′eva, A. P., ed. *Malyj akademicheskij slovar'*. 1981–1984.
6: Ožegov, S. I. *Slovar' russkogo jazyka*. 1960.
7: Daum, E., and W. Schenk. *Die russischen Verben*. 1954.
8: Ušakov, D. N. and B. M. Volin, eds. *Tolkovyj slovar' russkogo jazyka*. 1935–1940.

Perfectives with *za-:*	**Perfectives with *pro-:***
archivirovat' 'archive' (found in dictionary 1ab)	*anketirovat'* 'questionnaire, survey' (5)
asfal'tirovat' 'asphalt, pave with asphalt' (1b, 2, 3, 4, 5, 6, 7)	*buksovat'* 'skid, spin (of wheels)' (3) (*za-:* 1ab, 2)
betonirovat' 'concrete, cover with concrete' (1ab, 2, 3, 4, 5, 6, 7)	*dublirovat'* 'duplicate; dub (film)' (2, 3) (*s-:* 2, 3)
buksovat' 'skid, spin (of wheels)' (1ab, 2) (*pro-:* 3)	*indeksirovat'* 'index' (1ab)
germetizirovat' 'seal' (1a, 4, 5)	*kompostirovat'* 'punch (a ticket)' (2, 3, 4, 5, 6, 7, 8) (*za-:* 2, 3, 4, 5)
kamuflirovat' 'camouflage' (1a, 2, 3, 6)	*lobbirovat'* 'lobby' (1b, 3)
kodirovat' 'code, encode' (1b, 2, 3, 4, 5)	*skanirovat'* 'scan' (1a) (*ot-:* 1a) (*s-:* 1a)
kompostirovat' 'punch (a ticket)' (2, 3, 4, 5) (*pro-:* 2, 3, 4, 5, 6, 7, 8)	*testirovat'* 'test' (1b)
	transkribirovat' 'transcribe' (4, 5, 6)
	chronometrirovat' 'time, measure time' (5)

[7] The verbs in Wiktionary, as of May 8th 2017.

programmirovat' 'program' (1ab, 2, 3, 5) *rezervirovat'* 'reserve' (1a, 2, 3, 4, 5, 7) *fontanirovat'* 'gush' (3) *frachtovat'* 'charter, transport' (1a, 2, 3, 4, 5, 6, 7) *chronometrirovat'* 'time, measure time' (5) (*pro-*: 5) *švartovat'* 'moor' (4) (*o-*: 1a, 3, 5) (*ot-*: 4) (*pri-*: 1a, 2, 3, 4, 6, 7) *špaklevat'* 'spackle' (1a, 2, 3, 4, 5, 6) *štrichovat'* 'hatch, cross-hatch' (1a, 2, 3, 4, 5, 6, 7, 8) *šuntirovat'* 'shunt' (1a) **Perfectives with *s-*** *blefovat'* 'bluff' (1a) *generirovat* 'generate' (1ab, 2) *dublirovat'* 'duplicate' (2, 3) (*pro-*: 2, 3) *kal'kirovat'* 'calque' (1a, 2, 3, 4, 5, 6, 7, 8) *konstruirovat'* 'construct' (1ab, 2, 3, 4, 5, 6, 7, 8) *kooperirovat'sja* 'cooperate' (3) *muchlevat'* 'cheat' (1ab, 3, 4) (*na-*: 4) *prognozirovat'* 'forecast' (1ab) *prodjusirovat'* 'produce (sponsor and market album, motion picture et c)' (1a) *skanirovat'* 'scan' (1a) (*ot-*: 1a) (*pro-*: 1a) *fokusirovat'* 'focus' (1a, 2, 3, 4, 5) *centrirovat'* 'center' (5) (*ot-*: 5)	(*za-*: 5) **Perfectives with *ot-*:** *kserokopirovat* 'photocopy' (1a, 3) *richtovat'* 'flatten, straighten' (4) *skanirovat'* 'scan' (1a) (*pro-*: 1a) (*s-*: 1a) *formatirovat'* 'format' (2, 3) *chromirovat'* 'chrome (plate with chrome)' (2) *centrirovat'* 'center' (5) (*s-*: 5) *švartovat'* 'moor' (4) (*za-*: 4) (*o-*: 1a, 3, 5) (*pri-*: 1a, 2, 3, 4, 6, 7) **Perfectives with *po-*:** *žonglirovat'* 'juggle' (1b) *massažirovat'* 'massage' (1b) **Perfectives with *pri-*:** *švartovat'* 'moor' (1a, 2, 3, 4, 6, 7) (*za-*: 4) (*o-*: 1a, 3, 5) (*ot-*: 4) *parkovat'* 'park' (1b) **Perfectives with *na-*:** *muchlevat'* 'cheat' (4) (*s-*: 1ab, 3, 4) **Perfectives with *o-*:** *švartovat'* 'moor' (1a*, 3, 5) (*za-*: 4) (*ot-*: 4) (*pri-*: 1a, 2, 3, 4, 6, 7) **Perfectives with *raz-*:** *tiražirovat'* 'circulate, spread (a newspaper etc.)' (1a) *from *švartovat'sja*

Table 1. All verbs in the study

Of the 248 unprefixed *ova*-verbs, 44 had an aspectual partner according to at least one dictionary. Apart from the 42 prefixed pairs, one verb had a listed imperfective partner verb with the suffix *-yva*: *avtorizovyvat'–avtorizovat'* 'to authorize'. One verb used the suffix *-nu*: *gazovat'–gazanut'* 'to gas'.

4.2. Imperfective pair verbs

Table 1 shows all prefixed perfective verbs in this study. Aspectual pairs, however, can also be formed via imperfectivization with the suffix *-yva-*. This is a less common method to form aspectual pairs of *ova*-verbs than prefixation. In the Russian version of Wiktionary, we find the suffixed verb *avtorizovyvat'* 'to authorize'. No other dictionaries have a suffixed imperfective partner verb for any of the studied verbs. A corpus search (using the RNC main corpus) shows that three more verbs in the study form a corresponding imperfective verb (which are not listed in any dictionary). These verbs are *kontratakovyvat'* 'to counter-attack', *liberalizovyvat'* 'to liberalize', *formalizovyvat'* 'to formalize'. None of these imperfective verbs are common: *kontratakovyvat'* occurs twice in the corpus, *liberalizovyvat'* and *formalizovyvat'* one time each. *Avtoryzovyvat'* does not occur even once in the main corpus.[8]

Apart from the non-prefixed imperfective verbs, the following prefixed imperfectives (secondary imperfectives) with the suffix *-yva-* are found in the dictionaries: *priparkovyvat* 'to park' (in *Norstedts ryska ordbok*, from *priparkovat'), zaštrichovyvat'* 'to cross-hatch' (in Russian Wiktionary, from *zaštrichovat*), *probuksovyvat'* 'to skid' (in *Tol'kovyj slovar' russkogo jazyka s vključeniem svedenij o proischoždenii slov*, from *probuksovat').* According to Petruchina (2014, 260), secondary imperfectivization is more common in verbs in which the prefix carries a clear spatial meaning. However, the small number of verbs with secondary perfectivization in this particular study does not allow us to either confirm or nuance this claim.

4.3. Verbs with spatial meaning

Does the choice of prefix depend on the meaning of the verb? In verbs with a spatial meaning, the answer is yes, there is a clear overlap in meaning, just as the Academy grammar rules claim (Švedova et al. 1980, § 1394). The spatial verbs in this study are:

pri- parkovat' 'to park', *švartovat'* 'to moor'. Both the verbs and *pri-* express the notion of getting close to something.

s- fokusirovat' 'to focus', *centrirovat'* 'to center'. 'Center in the middle' is the common meaning of both *s-* and the verbs.

raz- tiražirovat' 'to spread'. *Raz-* and the verb mean 'spreading something out in many different directions'.

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[8] May 17th, 2017

za- *asfal'tirovat'* 'to asphalt', *betonirovat'* 'to concrete', *kamuflirovat'* 'to camouflage', *špaklevat'* 'to spackle', *štrichovat'* 'to cross-hatch' all one way or another mean 'to cover a surface',[9] which is one of the submeanings of *za-* (Švedova et al 1980, § 861).

4.4. Aspectual status

Table 2 is a list of the number of biaspectual verbs, imperfectiva tantum, paired verbs, and combinations of these groups in the study.

Biaspectual verbs	142
Imperfectiva tantum	36
Paired verbs	2
Biasp. or impf/pf tantum	25
Biasp. or paired	21
Impf./pf. tantum or paired	14
Biasp. or impf./pf. tantum or paired	7
Unclear	1

Table 2. Aspectual status in the dictionaries

Only two verbs are paired according to all dictionaries in which they are listed and have no other possible reading (biaspectual or (im)perfectiva tantum): *(za)archivirovat'* 'to archive' and *(za)špaklevat'* 'to spackle'.

Most of the studied verbs (31 of 44) that form aspectual pairs end in the infinitive in *-irovat'*. The endings *-izirovat'* and *-izovat'* appeared later than other endings (*-ovat', -irovat', -ificirocat'*) in the Russian language (Avilova 1968, 76), and such verbs are less likely to form aspectual pairs due to their relatively higher degree of foreignness. However, one verb can be found in this group: (*za-*)*germetizirovat'* 'to seal'. There are 12 pairs for verbs ending in *-ovat'* or *-evat'*. In this study, no verb ending in *-ificirovat'* formed an aspectual pair.

Out of all 248 verbs, 195 can, according to at least one dictionary, be biaspectual.

Interestingly, the prefix that is the most common in the Exploring Emptiness database, *po-*, is used only with two verbs: *požonglirovat'* 'to juggle' and *pomassažirovat'* 'to massage'.

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[9] Note that the prefix *na-* can have a similar meaning as *za-*: 'apply to a surface' e.g., *napudrit'* (perfective aspect of *pudrit'* 'powder'), which according to dictionaries is the perfective pair verb to *pudrit'*. *Zapudrit'* means "to cover something (e.g., a pimple) with powder."

For a discussion on these particular pairs, see section 4.6. Only the English version of Wiktionary[10] lists them as aspectual pairs.

The verb marked as "unclear" in Table 2 is *kadrirovat'* 'to crop (remove the outer parts of a photograph or an image)'. It is listed only in the Russian version of Wiktionary,[11] without any information about its aspectual status.

4.5. Prefix variation

Some verbs have more than one natural perfective formed from different prefixes. "Prefix variation," as Janda and Lyashevskaya (2011b) call this phenomenon, is attested for eight verbs, almost a fifth of all paired verbs in this study.

The most common combination of variant prefixes is *za-/pro-* having three verbs: *buksovat'* 'to skid, spin around'[12]; *kompostirovat'* 'to punch, clip;' *chronometrirovat'* 'to time, to measure time'. No other combination of perfectivizing prefixes is used for more than one verb. The other combinations are: *pro-/s-*: *dublirovat'* 'to duplicate, double; dub'; *na-/s-*: *muxlevat'*[13] 'to cheat; *ot-/s-*: *centrirovat'* 'to center'; *ot-/pro-/s-*: *skanirovat'* 'to scan;' *za-/o-/pri-*[14]: *švartovat'* 'to moor'.

The existence of prefix variation is an indication (not a proof in itself) that perfectivizing prefixes are not semantically empty as it is not clear why more than one prefix to express the feature [+perfective aspect] would be necessary. A study by Janda and Lyashevskaya (2011b, 166) showed that around 27% of all non-prefixed imperfective verbs have more than one natural perfective. The choice of prefix in these cases can depend on semantic and/or stylistic factors as the two verbs seldom are 100% synonymous, but exactly how the prefix influences the semantics of the verb must be studied from case to case.

4.6. Questionable aspectual pairs

Forsyth (1970, 37) points out that some dictionaries, especially those targeted at a foreign audience, wish to arrange all, or almost all, verbs in aspectual pairs, even if the verbs in the pair mean different things. Such pairs, in which the two verbs have a different meaning, are *(za/pro)buksovat'* 'to skid', *(za)fontanirovat'* 'to gush', *(s)blefovat'* 'to bluff', *(s/na)muchlevat'* 'to cheat', *(po)žonglirovat'* 'to juggle', and *(po)massažirovat'* 'to massage'.

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[10] See https://en.wiktionary.org/wiki/жонглировать and https://en.wiktionary.org/wiki/массажировать.
[11] See https://ru.wiktionary.org/wiki/кадрировать.
[12] This verb is also discussed in section 4.6.
[13] This verb is also discussed in section 4.6.
[14] *Otšvartovat'* is discussed in section 4.6.

In these verbs, the prefix adds a temporal or, in the case with *na-*, a cumulative meaning that is not present in the unprefixed base verb. *Po-* expresses a delimitative action (a short time), *s-*: semelfactive (a one-time act), *za-*: inchoative (the start of an action), *pro-*: perdurative (a longer time), and *na-*: cumulative (a relatively high intensity). As the prefixes in these cases add a meaning which the base verbs lack, they should not be regarded as aspectual pairs, but they were listed in at least one dictionary and are therefore on the list.

Some verbs can be considered an aspectual pair in some contexts and in other contexts not (Gorbova 2011). *Lobbirovat'* 'to lobby' is a good example: it might form an aspectual pair with *prolobbirovat'* in the reading where there is a concrete result as 'lobby through an act of legislation', but not in the more general reading such as 'to work or act as a lobbyist; to try to influence legislators', which is better thought of as an imperfectivum tantum.

Lastly, a description of a typo found in *Bol'šoj tol'kovyj slovar' russkogo jazyka* (1998). In this dictionary, *otšvartovat'* is listed as a perfective partner verb to *švartovat'* (together with *za-* and *prišvartovat'*). This is, however, most likely a misspelling for *ošvartovat'* (found in other dictionaries), because in the dictionary's entry for *otšvartovat'* the explanation is the opposite to *švartovat'*: 'unmoor'.

4.7. Rare verbs and verbs not in dictionaries

Do the dictionaries give us all aspectual pairs, or have they missed some verbs? As we see in Table 2, dictionaries mostly agree on the aspectual status for each verb. Sometimes they disagree on the aspectual status, such that one dictionary notes 'biaspectual' when another notes 'imperfectivum tantum' or something similar. However, given the great number of Russian perfectivizing prefixes, it is possible that the dictionaries have missed some verbs that are actually in use. To investigate this, I took every one of the 42 verbs from Table 1 and checked them with all the prefixes from the Exploring Emptiness database[15] in the RNC main corpus to see whether any other verbs were used in real life.

The verbs from Table 1, i.e., the prefixed verbs listed as perfective partner verbs to an unprefixed base verb, form the majority of all prefixed verbs found in the RNC main corpus: in total 93.9% or 4620 of 4920.

The most common prefixed verbs in the RNC main corpus not listed as natural perfectives in any dictionaries were: *zaparkovat'* (58 occurrences) 'to park',

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[15] *v-, vz-, voz-, vy-, za-, iz-, na-, o-, ob-, obo-, ot-, pere-, po-, pod-, pri-, pro-, raz-, s-, u-*

pereprogrammirovat' 'to reprogram' (37), *rasfokusirovat'* 'to defocus' (32), *pereformatirovat'* 'to reformat' (29), *perekonstruirovat'* 'to redesign' (20), *perekodirovat'* 'to recode' (19), *perefokusirovat'* 'to refocus' (7) and *raskodirovat'* 'to decipher, decode' (7). The seven latter are specialized perfectives, i.e., they do not express the same meaning as their unprefixed base verbs. The prefix *pere-* means 're-' and *raz-* 'de-'. *Zaparkovat'*, on the other hand, seems to function as an alternative perfective partner verb to *parkovat'* (*priparkovat'* being the standard choice). One can note the similarity between *parkovat'* and *švartovat'*, the only other verb with the prefix *pri-,* which also has a possible perfective form with the prefix *za-*.

The following prefixed perfectives from the dictionaries are attested in the RNC main corpus but are rare, occurring fewer than five times in the main corpus: *proanketirovat'* 'to survey', *sblefovat'* 'to bluff', *otchromirovat'* 'to plate with chrome', *prochronometrirovat'* 'to time', *zašvartovat'* 'to moor'. The verbs *protranskribirovat'* 'to transcribe' and *namuchlevat'* 'to cheat' are not attested at all in the main corpus. *Namuchlevat'* is only attested in one dictionary, whereas *protranskribirovat'* exists in four dictionaries (see Table 1).

5. The semantics of the most frequent prefixes

As we can see in Table 1, the most common perfectivizing prefixes are *za-*, *s-*, *pro-* and *ot-*. Avilova (1968, 75) presented a similar finding for for verbs ending in *-irovat'*.

As to why these prefixes are more frequent than others in the formation of natural perfectives, I argue that each of these prefixes has one meaning that resonates with one or another meaning of the perfective aspect as such. The information about the meaning of the prefixes comes from the Academy Grammar (Švedova et al. 1980) and, when possible, other works.

The most common perfectivizing prefix in the studied material is *za-* with 17 natural perfectives. Gjervold (2013) reports a similar result from a study of borrowed Russian occasional verbs. According to the Russian Academy grammar*, za-* has no less than ten different meanings (Švedova et al. 1980, § 861). The plurality of meanings for the prefix *za-* is a sign of its semantic width and, according to the overlap hypothesis, a prefix with these characteristics should make it a good prefix to form natural perfectives for a large number of different verbs (Janda et al 2013, 16). One of the meanings associated with *za-* is 'a change of state' (Zaliznjak 2006, 306). Take the activity in the verb *germetizirovat'* 'to seal (to place in a sealed container)'. Its corresponding perfective verb *zagermetizirovat'* expresses that something goes from the state of being non-sealed to the state of being sealed. The 'change of

state' meaning of *za-* harmonizes well with the resultative meaning central to the perfective
aspect.

The spatial meaning of *s-* is 'movement downwards' or 'gathering many things
together from different places' (Švedova et al. 1980, § 879). The latter meaning is present in
a number of verbs with this prefix, both verbs with a spatial meaning (see section 4.3.) but
also in verbs as *skonstruirovat'* 'to construct', *sprodjusirovat'* 'to produce (sponsor and
market an album, movie picture etc.)', and in older verbs, e.g., *sdelat'* 'to do, make'. *S-* can
also express 'to remove something from something' (Švedova et al. 1980, § 879), which can
be seen in the verbs *skal'kirovat'* 'to calque' and *soskanirovat'* 'to scan'.

One can also note that *s-* combines with a large number of verbs with different
meanings, and in some cases replaces other prefixes, e.g., the colloquial *sgotovit'* 'to cook',
instead of the standard form *prigotovit'* (Dickey and Janda 2015, 75). In this sense *s-* can be
seen as a 'default' perfectivizing prefix, which can be used when no other prefix would do
[Note that the most common interpretation is to regard *po-* as the default perfectivizer in
Russian (Dickey 2005, 35–36; Janda et al. 2013, 16); another interpretation is that *po-*
historically has been the default perfectivizer, but presently it is not (Dickey and Janda 2015,
75)].

Pro- is used as a perfectivizing prefix for verbs expressing either a physical
movement through space or metaphorical movement through time (Šeljakin 1979, 12). Its
spatial meaning is 'to direct something through something' as given by the Academy
Grammar (Švedova et al. 1980, § 876). An example of physical movement is
prokompostirovat' 'to punch'. A movement through time is clearly visible in the verb
prochronometrirovat' 'to measure time'. In the verbs *proanketirovat'* 'to survey' and
protestirovat' 'to test', we can also see a metaphorical movement through time: surveying
respectively testing something from the first member to the last.

The prototypical meaning of *ot-* is 'departure', according to Endresen et al. (2012,
259), and 'to move away a short distance', according to the Academy Grammar (Švedova et
al. 1980, § 869). This meaning is found in verbs like *otkserokopirovat'* 'to photocopy' and
otskanirovat' 'to scan'. The original paper is a source from which you make a copy or a
scanned file. *Ot-*, as a perfectivizing prefix, can also be used for verbs whose activity one
does not expect to repeat (Zaliznjak and Šmelëv 2000, 113–114). *Otformatirovat'* 'to format'
thus belongs to this group, as formatting a hard drive is as a rule done only once.

6. Concluding remarks

This article aimed at testing whether the "overlap hypothesis" (Janda et al 2013) could predict the choice of prefix for new verbs in Russian. The overlap in meaning is very clear in spatial verbs, for example, *scentrirovat', rastiražirovat', priparkovat',* and *zaasfal'tirovat*. For other types of verbs, the overlap in meaning is less salient. Nine different prefixes are used to form natural perfectives.

The prefixes most commonly used to form natural perfectives of borrowed verbs are *za-, pro-* and *s-* and *ot-*. The plurality of meanings of these prefixes, and the fact that their prototypical meanings harmonize with one or more features of the perfective aspect, can help us understand why they are so productive. The resultativeness of the perfective aspect is close to the meaning of *za-* 'change of state', and the notion 'from start to finish' of the perfective aspect harmonizes with the meaning 'movement through time and/or space' in the prefix *pro-*.

There is considerable variation in how different dictionaries show the aspectual status of new verbs. About a quarter of all verbs in the study have a different aspectual status in different dictionaries – a verb can be listed as biaspectual in one dictionary but imperfectivum tantum in another. This tells us that the aspectual status of Russian verbs can be a fluid concept, and that dictionaries do not necessarily show the most adequate or actual aspectual status.

For future research, prefix variation is a large and prospective field: more detailed analysis of the usage of verbs with prefix variation will help us understand better how the choice of prefix can modify the meaning of the verb.

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