

Prefix variation as a challenge to Russian aspectual pairs: are *завязнуть* and *увязнуть* ‘get stuck’ the same or different?

Вариативность приставок как вызов русским видовым парам: означают ли *завязнуть* и *увязнуть* одно и то же?

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Abstract Two key issues in Russian linguistics are the traditional assumptions that (a) the aspect system presents ‘pairs’ of verbs that are perfective vs. imperfective, and that (b) since the lexical meanings of the two verbs that form a pair are identical, the affix that marks aspect has no semantic content. In relation to prefixed perfectives, this approach can be called the Empty Prefix Hypothesis. The alternative approach, which can be called the Overlap Hypothesis, suggests that semantic emptiness is an illusion created by an overlap in the meanings of the base verb and the prefix. A long-standing debate over these two hypotheses remains unresolved. We address this debate via a phenomenon that has not previously been investigated in a thorough manner, namely prefix variation. Prefix variation is present when an imperfective base verb forms two or more aspectual partner verbs with the same lexical meaning, as illustrated by the two verbs *завязнуть* and *увязнуть* in our title. We present a detailed empirical analysis, showing that prefix variation is both frequent and systematic in Russian, and that our results support the Overlap Hypothesis.

Аннотация Русская аспектуальная система традиционно описывается через видовые пары глаголов. Поскольку предполагается, что лексические значения глаголов совершенного и несовершенного вида в паре тождественны, аффикс, который маркирует вид, не несет иного значения, кроме аспектуального. В отношении к приставочным парам этот подход может быть назван гипотезой о пустых приставках. Альтернативный подход, который можно назвать гипотезой о наложении значений, предполагает, что семантическая пустота является иллюзией, возникающей из-за того, что значения мотивирующего глагола и приставки перекрываются. Длительный спор по поводу этих двух гипотез остается неразрешенным. Обращаясь к этой проблеме, мы анализируем феномен, который до сих пор не получил полного и системного рассмотрения, а именно, вариативность приставок в видовых парах. Такая вариативность имеет место, если бесприставочный глагол несовершенного

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вида образует с помощью различных приставок две или более видовых пар с близким лексическим значением, ср. *завязнуть* и *увязнуть*. Представляя детальный эмпирический анализ, мы показываем, что приставочная вариативность—частотное и системное явление в русском языке, и что наши результаты подтверждают гипотезу о наложении значений.

1 Introduction

One feature of the Russian aspectual system is the prefixation of imperfective base verbs to create perfective aspectual partners with the same lexical meaning. The resulting perfectives are variously referred to as ‘purely aspectual’ correlates (*чистовидовые корреляты*) or ‘paired’ perfectives. This “core strategy” (Timberlake 2004, 401) can be illustrated by the imperfective *писать*, which adds the prefix *на-* to yield the perfective *написать*, both of which mean ‘write’.¹ This derivational pattern is commonly referred to as aspectual ‘pairedness’ (Švedova 1980; Čertkova 1996; Zaliznjak and Šmelev 2000), on the assumption that verbs exist as pairs, with one imperfective and one perfective partner. Under this assumption, the purely aspectual prefix is supposedly semantically ‘empty’ (Šaxmatov 1952; Avilova 1959, 1976; Tixonov 1964, 1998; Forsyth 1970; Vinogradov 1972; Švedova 1980; Čertkova 1996; Zaliznjak and Šmelev 2000; Mironova 2004). We can refer to this as the Empty Prefix Hypothesis. This traditional assumption obscures the fact that approximately 27% of Russian verbs that form such perfectives actually form not just one, but two or more of them. For example, *вязнуть* ‘get stuck’ forms two such perfective partners: *завязнуть* and *увязнуть*, both of which serve as aspectual correlates. *Грузить* ‘load’ has three perfective partners, again all with the status of aspectual correlates: *загрузить*, *нагрузить* and *погрузить*. There are even some verbs with four (e.g., *марать* ‘soil’, with perfectives *вымарать*, *замарать*, *измарать* and *намарать*), five (e.g., *мотать* ‘wind’, with perfectives *замотать*, *намотать*, *промотать*, *помотать* and *умотать*), and up to six such perfectives (e.g., *мазать* ‘smear; miss; soil; annoy’, with perfectives *вымазать*, *замазать*, *измазать*, *намазать*, *помазать* and *промазать*). An alternative, which we call the Overlap Hypothesis (Vey 1952; van Schooneveld 1958; Isačenko 1960, 159–172; Timberlake 2004, 410f.), suggests that semantic overlap between the prefix and the verb camouflages the meaning of the prefix, causing the illusion that it is empty when in fact it is not.

We use the term ‘prefix variation’ for this proliferation of prefixed perfective aspectual partners of imperfective base verbs. Despite the fact that this phenomenon is well attested in standard dictionaries (Evgen’eva 1999; Ožegov and Švedova 2001), it has been largely overlooked in the scholarly literature, which does not explore the extent of prefix variation. A few scholars have acknowledged that there are some ‘exceptions’ to the pair model of this type and they have even suggested that there may be semantic differences between alternate perfectives (Vinogradov 1972; Isačenko 1960, 159–172; Švedova 1980, §1396), but there has been no systematic study of this phenomenon. This article is a first attempt to take stock of prefix variation, by mapping out where it does and does not occur and investigating possible motives.

¹Another ‘core strategy’ involves the use of suffixes to derive secondary imperfectives with the same lexical meaning, as illustrated by perfective *развязать* and its suffixed imperfective *развязывать*, both of which mean ‘untie’. However, this part of the system is beyond the scope of the present article.

Note that the perfective partners examined in this article are exclusively those that share the same lexical meaning as their imperfective base verbs. This type of perfective, termed Natural Perfective in Janda's (2007) cluster model of Russian verbs, is distinguished from Specialized Perfectives that involve a distinct shift in meaning (such as *развязать* 'untie'), Complex Act Perfectives which combine an activity with a (usually temporal) boundary (such as *почихать* 'sneeze for a while'), and Single Act Perfectives with a semelfactive meaning (such as *чихнуть* 'sneeze once'). Prefix variation as defined above pertains only to Natural Perfectives; the use of prefixes with other types of perfectives is peripheral to the present discussion.²

In addition to addressing a gap in our factual knowledge of the Russian aspect system, this article engages relevant theoretical issues, such as synonymy, 'empty' prefixes, and allomorphy. For example, words such as *завязнуть* and *увязнуть* 'get stuck' can be interchanged in many contexts, so are they exact synonyms? What does the phenomenon of prefix variation tell us about the meanings of prefixes? Are the prefixes that form Natural Perfectives a set of semantically empty allomorphs that merely mark '+ perfective' as has been traditionally assumed? If so, why would any verb use more than one prefix to form its Natural Perfective?

In Sect. 2 we present an empirical study of prefix variation in Russian, describing how our database was constructed and what kinds of prefix variation we found. This database gives us some perspective on how common prefix variation is and which prefixes are most involved in the phenomenon. The fact that prefix variation is systematic and widespread suggests that prefixes cannot be 'empty', as it would make no sense for a single base verb to form multiple prefixed perfective partner verbs that would supposedly be semantically identical. We therefore proceed under the assumption that prefixes retain their meanings even when forming 'purely aspectual' partner verbs. The Specialized Perfectives indicate the range of meanings associated with a given prefix, and we argue that at least some of these meanings are apparent in the Natural Perfectives formed by the same prefix. As we show in the case studies presented in Sect. 3, even combinations of prefixes involving strong similarity provide semantic contrast as well, and this can be motivated by the different meanings of the prefixes. Given that prefix variation most commonly involves two prefixes, we focus our case studies on various types of binary prefix combinations. More specifically, we examine prefix variation where the meanings of the prefixes are very similar (3.1), prefix variation where the meanings of the prefixes are very different (3.2), and prefix variation that is rare (3.3) or unattested (3.4). The case studies reveal important patterns involving the meanings of base verbs and how they interact with prefixes, as well as the impact of contextual and stylistic factors. Section 4 connects our findings with larger theoretical questions, namely prefixal semantics, synonymy, and allomorphy. We argue that the phenomenon of prefix variation presents a serious challenge to the traditional 'pair' model of Russian aspect, according to which 'purely aspectual' prefixes are semantically 'empty'. Given this phenomenon, it is more reasonable to postulate overlap between verbal and prefixal meaning. Synonymy is revealed as scalar, always including some amount of contrast. Furthermore, due to its complex semantic and distributional behavior, prefix variation calls into question the definition of allomorphy. We offer conclusions in Sect. 5.

²The presence of multiple prefixes associated with the formation of Specialized Perfectives and Complex Act Perfectives from a given imperfective base verb is expected, and each resulting prefixed verb is uncontroversially distinct. Examples are *привязать* 'tie onto' in addition to *развязать* 'untie', and *зачихать* 'begin to sneeze' in addition to *почихать* 'sneeze for a while'. Such verbs do not pertain to prefix variation, since we have separate verbs rather than variation for a given aspectual correlate, for which we would expect only one prefix.

2 Empirical study

The Exploring Emptiness research group at the University of Tromsø has developed a database of aspectual pairs formed via prefixation in Russian. This database represents an aggregate of prefixal pairs culled from three sources: Evgen'eva (1999), Ožegov and Švedova (2001) and Cubberly (1982).³ This data has been further verified by a panel of native speakers (Olga Lyashevskaya, Julia Kuznetsova, Svetlana Sokolova, and Anastasia Makarova). This yields 1,426 base verbs, plus their perfective partners formed by the addition of one or more of the following sixteen prefixes: *в-*, *вз-/воз-*, *вы-*, *за-*, *из-*, *на-*, *о-/об-/обо-*, *от-*, *пере-*, *по-*, *под-*, *при-*, *про-*, *раз-*, *с-*, *у-*.⁴ Of these, 1,040 base verbs select just one prefix for their perfective partner. The remaining 386 base verbs select between two to six prefixes to form perfective partners, thus exhibiting prefix variation.⁵ All of the prefixes that form perfective partners also engage in prefix variation.

Prefix variation involves various combinations of prefixes. We use the term 'prefix combination' to describe the specific choice of prefixes made by verbs that engage in prefix variation. Thus, for example, *вязнуть* 'get stuck' cited above selects the prefix combination [*за*]/[*у*] since it forms perfective partners with those two prefixes, while *грузить* 'load' selects the prefix combination [*за*]/[*на*]/[*по*], and *марать* 'soil' selects the prefix combination [*вы*]/[*за*]/[*из*]/[*на*], etc.⁶

Several parameters yield basic information on the dimensions of prefix variation. We examine the behavior of individual prefixes, their frequency in prefix combinations, and variations in strength of association between prefixes. Table 1 takes the perspective of individual prefixes, comparing a prefix's overall frequency among perfective partner verbs with both the number of imperfective base verbs that use that prefix in prefix variation and the number of other prefixes that the prefix appears in combination with. The prefix *по-*, for example, forms 414 perfective partner verbs. 164 of the base verbs involved also engage in prefix variation (the remaining 250 do not). Furthermore, *по-* is found in combination with fourteen other prefixes (all prefixes except *в-*). Table 1 presents the prefixes in descending order in terms of their total number of perfective partners, as listed in the second column.

Table 1 gives a rough measure of the extent of prefix variation, showing that it is a very common phenomenon that involves all prefixes. There are two prefixes, *с-* and *за-*, that combine with all other prefixes, and even the rarest of the 'purely perfectivizing' prefixes, *в-*, is strongly engaged in prefix variation. All three verbs that use the prefix *в-* do so in the

³If any of these sources lists an aspectual pair for any submeaning of a verb, it is included in this database.

⁴Note that we collapse the allomorphs *вз-/воз-* into one prefix, and do the same for *о-/об-/обо-*. The relationships among these allomorphs is very complex and goes beyond the scope of this article; cf. Krongauz (1998), Roberts (1976, 1981), Baydimirova (2010). Note also that the prefix *до-* does not form Natural Perfective partners for imperfective base verbs.

⁵In these calculations, verbs with the postfix *-ся* are treated as separate items when they are listed as such in the dictionaries our database is aggregated from. There are seven instances of homonyms such as *сжать* 'press; harvest'; each such case of homonymy is treated together as a single verb. Verbs with alternate forms involving either the root, as in *прочесть/прочитать* 'read' (there are three such examples in the database), or the prefix, as in *оледенеть/обледенеть* 'freeze, grow numb' (there are eleven such examples in the database) are also treated as a single item.

⁶Prefix combination is distinct from prefix stacking. Prefix combination involves the use of two or more prefixes to form two or more Natural Perfective verbs, as in *завязнуть* and *увязнуть* 'get stuck'. Prefix stacking is the use of two or more prefixes simultaneously in a single verb, such as *повыбрасывать* 'throw out one by one', where the prefixes *по-* and *вы-* cooccur (Svenonius 2004). Prefix stacking is beyond the scope of this article.

Table 1 Prefix variation from the perspective of individual prefixes

Prefix	Total number of perfective partners with that prefix	Number of base verbs that use this prefix in prefix combinations	Number of prefixes this prefix combines with
<i>по-</i>	414	164	14
<i>с-</i>	277	123	15
<i>за-</i>	234	115	15
<i>о/об/обо-</i>	213	83	13
<i>на-</i>	177	81	12
<i>про-</i>	141	44	12
<i>вы-</i>	122	87	13
<i>раз-</i>	87	56	13
<i>из-</i>	68	48	12
<i>у-</i>	63	38	13
<i>вз/воз</i>	57	19	9
<i>от-</i>	54	25	10
<i>при-</i>	30	18	11
<i>пере-</i>	9	7	6
<i>под-</i>	6	4	5
<i>в-</i>	3	3	5

context of prefix variation: *колоть* ‘stab’ with the prefix combination $[в][за][раз][y]$, *путать* and *путаться* ‘tangle’, both with the prefix combination $[в][за][пере][с]$. We see an overall tendency for prefixes that are more involved in the formation of perfective partner verbs to be more involved in prefix variation, both in terms of the number of base verbs that engage with the prefix and the number of other prefixes that are found in combination. Thus frequent prefixes are more frequently attested in combination, which is quite logical. *Про-* and *вы-* show noticeable deviation from this pattern, since *вы-* is involved in nearly twice as much prefix variation as *про-* despite the fact that it is an overall less common prefix in the formation of perfective partners. We also note that *вз-/воз-* is somewhat more resistant to prefix variation than other prefixes with a similar total frequency of perfective partners.

However, Table 1 does not tell us much about the distribution of prefix combinations. Of the 386 base verbs that show prefix variation, 283 select two prefixes, seventy-five select three prefixes, twenty-one select four prefixes, four select five prefixes, and three select six prefixes. Figure 1 visualizes this distribution. Among verbs that engage in prefix variation, it appears that the vast majority have two perfective partners.

The distribution of prefix combinations shows that some combinations are fairly common, while others are uncommon or unattested. Table 2 presents all prefix combinations attested for three or more base verbs, arranged in descending order of type frequency. The first column in Table 2 lists prefix combinations, and an example base verb for each combination is cited in the second column. The third column lists the number of imperfective base verbs that engage in prefix variation with the given prefix combination. The number of prefixes in the combination is shown in the fourth column. For example, the first row

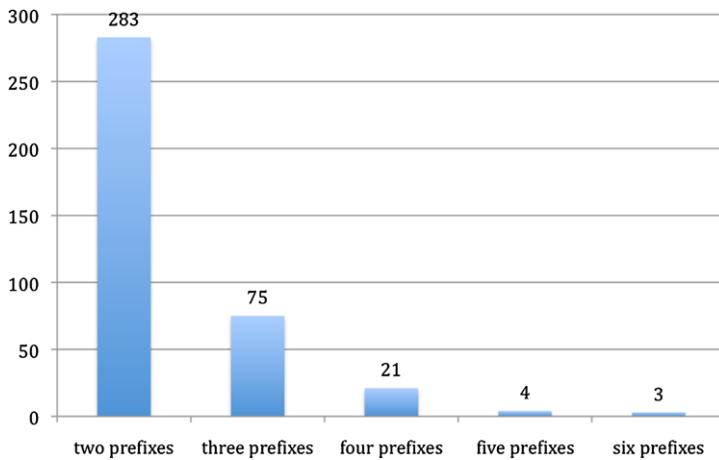


Fig. 1 Distribution of prefix combinations

of Table 2 tells us that there are thirty-four verbs like *валить* ‘topple’ that form perfective partners with both *no-* and *c-*, a prefix combination involving two prefixes.

Of the prefix combinations listed in Table 2, only five involve three prefixes: *[уз][но][с]*, *[за][но][с]*, *[вы][за][на]*, *[вы][раз][с]*, and *[ом][про][с]*; note that all of these combinations are relatively rare, involving six or fewer base verbs. The remaining thirty-two combinations in Table 2 involve two prefixes, and none involve four or more prefixes. Binary combinations clearly predominate in prefix variation, and for this reason we are going to focus the remainder of the article on binary prefix combinations.

Theoretically there are 120 possible binary combinations of sixteen prefixes. As we see in Table 2, thirty-two binary prefix combinations are well attested. An additional thirty-one binary combinations are not attested, and the remaining fifty-seven binary combinations are rare, involving only one or two base imperfective verbs. The case studies in Sect. 3 will address the rare and unattested combinations in addition to those that are robust.

Another parameter that is important for exploring prefix variation is the strength of association between prefixes. In other words, given a prefix X, which other prefixes are strongly attracted to forming a binary combination and which prefixes avoid this relationship? Table 2 indicates that some prefix combinations are more common than others, but this parameter requires closer inspection.

Table 3 presents more detailed data on the binary prefix combinations found in Table 2. Because binary combinations can be present within larger prefix combinations, we have aggregated all the binary combinations here, whether found in isolation or in the context of larger combinations. In other words, if we want to find all examples of the binary combination *[за][на]*, we need to look not only at base verbs that form perfective partners exclusively from these two prefixes, such as *гримировать* ‘apply makeup’, but also at all base verbs that include these two prefixes in their prefix variation. Thus we also need to include base verbs here like *грузить* ‘load’ with the prefix combination *[за][на][но]*, *марать* ‘soil’ with the prefix combination *[вы][за][уз][на]*, *мотать* ‘wind’ with the prefix combination *[за][на][но][про][у]*, and *мазать* ‘smear’ with the prefix combination *[вы][за][уз][на][но][про]*, since all these base verbs combine with *[за][на]*. Table 3 aggregates all data on binary combinations involving five or more base verbs, both

Table 2 Type frequencies of well-attested prefix combinations

Prefix combination	Example base verb	Number of base verbs with this combination
[по][с]	<i>валить</i> 'topple'	34
[за][о/об/обо]	<i>глохнуть</i> 'become deaf; subside'	23
[о/об/обо][по]	<i>беспокоить</i> 'upset'	18
[на][по]	<i>вредить</i> 'harm'	12
[по][у]	<i>терять</i> 'lose'	11
[вы][по]	<i>браниться</i> 'quarrel'	10
[на][с]	<i>врать</i> 'lie'	10
[за][на]	<i>бальзамировать</i> 'embalm'	9
[по][раз]	<i>веселить</i> 'cheer'	9
[за][из]	<i>мучить</i> 'torture'	8
[за][с]	<i>планировать</i> 'plan'	8
[вы][с]	<i>жать</i> 'press; harvest'	7
[за][про]	<i>компостировать</i> 'compost'	7
[по][при]	<i>грозить</i> 'threaten'	7
[вз/воз][раз]	<i>кипятиться</i> 'boil'	6
[из][по]	<i>калечить</i> 'cripple'	6
[из][по][с]	<i>дохнуть</i> 'die'	6
[вы][про]	<i>полоть</i> 'weed'	5
[за][у]	<i>вязнуть</i> 'get stuck'	5
[на][раз]	<i>мякнуть</i> 'soften'	5
[вы][из]	<i>купать</i> 'bathe'	4
[вы][на]	<i>драить</i> 'polish'	4
[вы][о/об/обо]	<i>зябнуть</i> 'feel cold'	4
[за][по]	<i>деваться</i> 'get to'	4
[за][по][с]	<i>вечереть</i> 'grow dark'	4
[из][раз]	<i>кромсать</i> 'cut up'	4
[о/об/обо][раз]	<i>жиреть</i> 'grow fat'	4
[о/об/обо][с]	<i>валать</i> 'roll; drag'	4
[про][с]	<i>вертеть</i> 'twirl'	4
[вы][за]	<i>желтить</i> 'make yellow'	3
[вы][за][на]	<i>зубрить</i> 'cram'	3
[вы][раз][с]	<i>кроить</i> 'cut'	3
[на][от]	<i>волгнуть</i> 'become damp'	3
[о/об/обо][пере]	<i>крестить</i> 'christen'	3
[от][про]	<i>рецензировать</i> 'review, criticize'	3
[от][про][с]	<i>корректировать</i> 'correct'	3
[про][раз]	<i>будить</i> 'waken'	3

those found in isolation and those embedded in combinations of three, four, five, or six prefixes.

Table 3 Binary prefix combinations with actual and expected frequencies (Boldface indicates combinations analyzed in detail in Sect. 3)

Binary prefix combination	Actual number of base verbs	Expected number of base verbs	Binary prefix combination	Actual number of base verbs	Expected number of base verbs
<i>[no][c]</i>	55	52.3	<i>[uz][c]</i>	12	15.3
<i>[за][о/об/обо]</i>	31	24.7	<i>[вы][раз]</i>	10	12.6
<i>[о/об/обо][no]</i>	31	35.3	<i>[uz][на]</i>	10	10.1
<i>[вы][no]</i>	25	37.0	<i>[уз][раз]</i>	10	7.0
<i>[за][на]</i>	25	24.1	<i>[о/об/обо][c]</i>	10	26.4
<i>[вы][на]</i>	24	18.3	<i>[no][при]</i>	10	7.6
<i>[на][no]</i>	23	34.4	<i>[про][c]</i>	10	14.0
<i>[за][c]</i>	22	36.6	<i>[вы][от]</i>	9	5.6
<i>[за][no]</i>	21	48.9	<i>[на][раз]</i>	9	11.8
<i>[uz][no]</i>	20	20.4	<i>[от][про]</i>	9	2.8
<i>[вы][за]</i>	19	25.9	<i>[no][про]</i>	9	18.7
<i>[вы][c]</i>	19	27.7	<i>[вз/воз][раз]</i>	7	2.8
<i>[no][y]</i>	19	16.1	<i>[c][y]</i>	7	12.1
<i>[на][c]</i>	18	25.8	<i>[на][о/об/обо]</i>	6	17.4
<i>[no][раз]</i>	16	23.8	<i>[на][про]</i>	6	9.2
<i>[за][uz]</i>	15	14.3	<i>[о/об/обо][раз]</i>	6	12.0
<i>[за][y]</i>	15	11.3	<i>[от][cз]</i>	6	8.0
<i>[вы][о/об/обо]</i>	14	18.7	<i>[за][раз]</i>	5	16.7
<i>[вы][про]</i>	13	9.9	<i>[на][от]</i>	5	5.2
<i>[раз][c]</i>	13	17.8	<i>[о/об/обо][y]</i>	5	8.2
<i>[вы][uz]</i>	12	10.8	<i>[при][c]</i>	5	5.7
<i>[за][про]</i>	12	13.1	<i>[про][раз]</i>	5	6.4

The data in Table 3 is arranged according to the figures in the second (and the fifth) column, which indicate the number of base verbs that take the given binary prefix combination, whether in isolation or in the context of a larger combination. The figures in the third (and sixth) column list the number of base verbs that would be expected given the overall frequencies of the two prefixes (calculated via marginal means). Comparison of the actual and expected numbers of base verbs gives us a measure of whether the prefixes in a combination are attracted to each other or repulsed from each other. If they are attracted, the actual number of base verbs exceeds the expected number, whereas if they are repulsed the actual number of base verbs is less than the expected number. Of the first two binary combinations listed in Table 3, *[no][c]* shows approximately the attraction that we would expect (the actual number of 55 is very close to the expected 52.3), while the attraction of *[за][о/об/обо]* clearly exceeds what is expected (with 31 base verbs as opposed to the expected 24.7). By contrast, the third combination, *[о/об/обо][no]*, shows mild repulsion since there are fewer base verbs than actually expected.

We have used the data in Table 3 to identify the prefix combinations that are most strategic for further examination in case studies in Sect. 3. Overall, it makes most sense to invest in-depth analysis in prefix combinations that are most frequent, since they will

yield the most data, and in prefix combinations where the association is most robust, since they are the strongest examples of the phenomenon. However, a caveat to this strategy needs to be observed. There are two prefixes, namely *no-* and *c-*, that are on their way to becoming ‘default’ perfectivizing prefixes (Dickey 2007, 2008). As a result, they are more semantically diffuse in this role than the remaining prefixes and the data they yield is considerably more difficult to interpret. It may well be possible to analyze the *[no]/[c]* combination and other combinations containing these prefixes in a way that parallels what is presented in Sect. 3, but this would be an ambitious project that goes beyond the scope of the present article. For this reason we set aside *no-* and *c-* for future research. We have selected four prefix combinations, boldfaced in Table 3, that represent disparities where there are more base verbs than expected, while avoiding combinations involving *no-* and *c-*. The case studies in Sect. 3 examine possible semantic motives for the distribution of prefix variation that we have observed.

3 Case studies

Based on the data in Table 3, we have selected four prefix combinations for in-depth study due to high type frequency and strong association: *[za]/[o/ob/obo]*, *[za]/[y]*, *[uz]/[pas]*, and *[om]/[npo]*. Of these four combinations, we will show that the first three are motivated primarily by similarities in the meanings of the prefixes (Sect. 3.1), and we will see that each prefix combination is associated with a semantically coherent group of base verbs. This finding militates against the Empty Prefix Hypothesis, which cannot predict an alignment of verb meanings with prefixes. The *[om]/[npo]* combination is more likely motivated by complementary meanings of the prefixes (Sect. 3.2). However, semantic coherence vs. complementarity appears to be a scalar phenomenon, since we see some evidence of complementarity even among the verbs that suggest semantic overlap. In addition to well attested combinations, we explore the periphery of prefix variation by examining the rare combination *[o/ob/obo]/[npo]*, where there is a strong negative association despite high frequency of individual prefixes (Sect. 3.3), as well as the combinations that are not attested (Sect. 3.4). In each subsection we address the meanings of both the prefixes and the base verbs.

3.1 Prefix variation motivated primarily by similar meanings

A characteristic of the three prefix combinations examined here is that the base verbs that select these combinations form fairly homogeneous semantic groups. Also, in many contexts it is possible to substitute one prefix for the other. Still, it appears that the semantic motivations, while similar, are not identical. We investigate each combination in turn.

[za]/[o/ob/obo]

Table 4 presents the base verbs that select this prefix combination, organized into semantic groups according to the meanings of the base verbs. Table 4 also indicates whether the binary prefix combination occurs in isolation or in a larger combination for each given base verb.

The majority of base verbs that can form perfective partners with both *za-* and *o/ob/obo-* can be gathered into two semantic groups labeled here as CHANGE OF STATE and COVER. Verbs in the first group refer to a specific type of CHANGE OF STATE, which involves reduced mobility and/or negative effects, yielding a state that is often permanent or hard to rapidly reverse. Most of the CHANGE OF STATE verbs are intransitive verbs meaning

Table 4 Base verbs that select the prefix combination [за][о/об/обо] (boldfaced)

Semantic group	Base verb	Prefix combination
CHANGE OF STATE	<i>вшиветь</i> ‘become lice-ridden’	[за][о/об/обо]
	<i>шелудиветь</i> ‘become scabby’	[за][о/об/обо]
	<i>паришветь</i> ‘become mangy’	[за][о/об/обо]
	<i>червиветь</i> ‘become wormy’	[за][о/об/обо]
	<i>деревенеть</i> ‘stiffen’	[за][о/об/обо]
	<i>неметь</i> ‘grow dumb, numb’	[за][о/об/обо]
	<i>костенеть</i> ‘stiffen, grow numb’	[за][о/об/обо]
	<i>коченеть</i> ‘grow numb (cold)’	[за][о/об/обо]
	<i>леденеть</i> ‘freeze, grow numb’	[за][о/об/обо]
	<i>леденить</i> ‘chill’	[за][о/об/обо]
	<i>стынуть</i> ‘cool, freeze’	[за][о/об/обо]
	<i>стыть</i> ‘cool, freeze’	[за][о/об/обо]
	<i>грубеть</i> ‘grow coarse’	[за][о/об/обо][но]
	<i>черстветь</i> ‘harden’	[за][о/об/обо][но]
	<i>пьянеть</i> ‘get inebriated’	[за][о/об/обо]
	<i>хмелеть</i> ‘get inebriated’	[за][о/об/обо]
	<i>глохнуть</i> ‘grow deaf’	[за][о/об/обо]
	<i>глушить</i> ‘stun’	[за][о/об/обо]
	<i>чернить</i> ‘blacken’	[вы][за][о/об/обо]
	<i>туманить(ся)</i> ‘darken, obscure’	[за][о/об/обо]
<i>морочить</i> ‘fool, pull wool over one’s eyes’	[за][о/об/обо]	
<i>травить</i> ‘poison’	[вы][на][за][о/об/обо][но][с]	
COVER/SURROUND	<i>кольцевать</i> ‘place a ring on’	[за][о/об/обо]
	<i>кутать</i> ‘wrap’	[за][о/об/обо][у]
	<i>стеклить</i> ‘cover with glass’	[за][о/об/обо]
	<i>пломбировать</i> ‘fill, seal’	[за][о/об/обо]
OTHER	<i>чинить</i> ‘fix’	[за][о/об/обо][но][у]
	<i>швартовать(ся)</i> ‘moor’	[за][о/об/обо][при]
	<i>свидетельствовать</i> ‘testify’	[за][о/об/обо]
	<i>приходовать</i> ‘debit’	[за][о/об/обо]

‘become X’, and the majority of these are formed via the historical *-*ě-t’* or *-*nq-t’* suffix (with the exception of *стыть* ‘cool, freeze’); the remainder are factitive verbs meaning ‘make sth. X’ and are formed via *-i-t’*. Note also that the two groups are not strictly discrete since some of the CHANGE OF STATE verbs also involve COVERING, as in *чернить* ‘blacken’ and *туманить(ся)* ‘darken, obscure’. Conversely, all of the verbs in the COVER group and the first two verbs in the OTHER group arguably overlap semantically with the CHANGE OF STATE verbs in that they denote changes that make something more fixed or permanent. Overall we can see an intersection here between the ‘fix’, ‘change of state’ and ‘cover’ meanings of *за-* on the one hand (cf. Janda 1986, 78–133), and the ‘surround’, ‘wrap’ and ‘factitive’ meanings of *о-/об-/обо-* on the other hand (cf. Baydimirova 2010).

Many of the verbs in Table 4, particularly those in the first two groups, can be used interchangeably in some contexts. However, some distinctions must be noted. In the CHANGE OF STATE group, we sometimes see that *за-* refers to physical actions, whereas *о-/об-/обо-* operates in other dimensions. Compare for example *занемела рука* '(I) can't move (my) hand' vs. *онемел от страха* '(he) became frozen with fear', where *за-* describes physical inability, while *о-* describes a psychological state that also involves a physiological dimension. Similarly *застыть (на месте)* 'freeze (in place)' which means 'stop moving' vs. *остыть* which can only refer to temperature, as in *чай остыл* 'the tea got cold'. *Зачернить (картинку)* 'blacken (a picture)' likewise describes a physical act of applying something black, whereas *очернить (коллегу)* 'slander (a colleague)' is a metaphorical expression. A somewhat different kind of distinction exists between *затравить* 'persecute, hunt' and *отравить* 'poison'.

In the COVER group, we see some differences in the distribution of subjects and objects according to the prefixes. Thus in a phrase like *мать закутала ребенка (в платок)* 'the mother wrapped up the child (in a scarf)' the subject is an agent and the actual wrapping is an adverbial that can be omitted. However, in *туман окутал город* 'fog enveloped the city', the subject is the wrapping and there is no external agent. The distribution of direct objects is distinct for *запломбировать зуб* 'fill a tooth' vs. *опломбировать вагон* 'seal up a car (of a train)', where the use of *за-* refers to the filling of a three-dimensional space (cf. *заткнуть* 'fill, block', *защипаклевать* 'spackle'; Janda 1986, 131–133), as opposed to *о-* which relates to 'surrounding' an object (here, placing seals on the doors and windows).

In the OTHER group we find evidence of complementary meanings, as in *зачинить (ботинки)* 'fix (shoes)' vs. *очинить (карандаш)* 'sharpen (a pencil from all sides)'. Likewise we see different submeanings of the base verb *свидетельствовать* involved in *засвидетельствовать (почтении)* 'express (respect)' vs. *освидетельствовать (больного)* 'examine (a patient)'.⁷

The [*за*]/[*о/об/обо*] prefix combination is dominated by verbs that show a consistent semantic and morphological profile, involving transitive or intransitive CHANGE OF STATE. This group overlaps with a smaller group termed COVER/SURROUND, which also involves transitive changes of state. It appears that base verbs with the [*за*]/[*о/об/обо*] prefix combination capitalize on the fact that both *за-* and *о-/об-/обо-* can refer to covering and change of state. Differences can be attributed to the tendency of *за-* to focus on fixed states with reduced mobility or filling potential, as opposed to the surrounding meanings of *о-/об-/обо-*.

[*за*]/[*у*]

Table 5 presents the base verbs that combine with both *за-* and *у-*, using the same format as in Table 4. This prefix combination highlights the meanings of *за-* that involve irreversible negative change of state (interpreted as damage), covering, and getting stuck (cf. Janda 1986, 78–133) on the one hand; and the meanings of *у-* that involve harm and reduced mobility (cf. Nessel 2010) on the other hand.

The semantic groups in Table 5 overlap. All types of DAMAGE and WRAPPING result in a CHANGE OF STATE, and all but one of the CHANGE OF STATE verbs (*чинить* 'fix') also involve loss of perceptual availability or mobility, and are thus akin to some kind of DAMAGE. All of the WRAPPING verbs entail loss of mobility, as well as an increase in control, the latter of which is shared by *чинить* 'fix' since it involves bringing something

⁷Note that the base imperfective *свидетельствовать* is of low frequency and marked as archaic in Evgen'eva (1999).

Table 5 Base verbs that select the prefix combination [за]/[у] (boldfaced)

Semantic group	Base verb	Prefix combination
DAMAGE	<i>давить</i> 'press, crush'	[за]/[но]/[у]
	<i>душить</i> 'strangle'	[за]/[но]/[у]
	<i>морить</i> 'exterminate'	[вы]/[за]/[но]/[у]
	<i>колоть</i> 'stab'	[в]/[за]/[раз]/[у]
	<i>трамбовать</i> 'ram'	[вы]/[за]/[у]
WRAP	<i>кутаться</i> 'wrap'	[за]/[о/об/обо]/[у]
	<i>мотать</i> 'wind, reel'	[за]/[на]/[но]/[про]/[у]
	<i>паковать</i> 'pack'	[за]/[у]
CHANGE OF STATE	<i>вязнуть</i> 'get stuck'	[за]/[у]
	<i>вянуть</i> 'wilt'	[за]/[у]
	<i>гасить</i> 'extinguish'	[за]/[но]/[у]
	<i>молкнуть</i> 'fall silent'	[за]/[с]/[у]
	<i>чинить</i> 'fix'	[за]/[о/об/обо]/[но]/[у]
OTHER	<i>платить</i> 'pay'	[за]/[у]

into a controlled (corrected) state. Thus the intersection of DAMAGE, WRAP, and CHANGE OF STATE define nearly the whole group of verbs with the [за]/[у] combination, with the exception of *платить* 'pay'.

The relationships between the *за-* and *у-* prefixed Natural Perfectives involve both items that are clearly distinct and items that are closely synonymous. Among the verbs where the prefixes yield distinguishable Natural Perfectives are:

- *колоть* 'stab': The *за-* prefixed Natural Perfective references the kind of stabbing involved in the slaughter of animals, as in *заколоть барана* 'slaughter a ram', and the *у-* prefixed Natural Perfective refers to an action on a smaller scale such as *уколоть палец* 'prick one's finger'.
- *кутать* 'wrap': Both *закутать* and *укутать* can be translated as 'wrap', but the former verb is more neutral, whereas the latter verb usually refers to an excessive action that smothers someone in clothing.
- *мотать* 'wind': Whereas *замотать* yields a fairly neutral Natural Perfective, *умотать* is used primarily in a metaphorical meaning 'leave'.
- *чинить* 'fix': When referring to the repair of damaged objects (such as clothing and shoes) we use *зачинить*, but with *учинить* the meaning is closer to 'start, set in motion', as in *учинить насилие* 'commit violence'.

For the remaining verbs in Table 5, the meanings of the Natural Perfectives in *за-* and *у-* are very similar in meaning and in many contexts can be substituted for each other. For example, for *платить* 'pay' the *за-* prefixed version is more versatile in metaphorical use (*дорого заплатить за свободу* 'pay dearly for one's freedom'), whereas *уплатить* has bureaucratic connotations. Only *уплатить* can be used for regularly scheduled payments; one cannot **уплатить зарплату/пенсию/стипендию* 'pay a salary/pension/stipend'. In all other uses the two perfectives are quite interchangeable, though *уплатить* has much lower frequency.

We present a closer study of this kind of near-synonymy for *завязнуть* and *увязнуть* 'get stuck' based on examples found in the Russian National Corpus (henceforth RNC).

These two verbs are both well represented in the RNC, and in approximately equal numbers, with 310 attestations of *завязнуть* and 416 attestations of *увязнуть*. Examples (1) and (2) illustrate the use of the two verbs in nearly equivalent concrete situations.

- (1) Идет заяц мимо болота, вдруг видит—лось в трясине *завяз*.
 ‘A hare walks by a swamp and suddenly sees that a moose *has gotten stuck* in the mire.’
 (Коллекция анекдотов: звери (1970–2000))
- (2) Представляешь, я сегодня на берегу в глине *увяз*, а она меня выволокла.
 ‘Just imagine, today I *got stuck* in the clay on the riverbank, and she pulled me out.’
 (В. Крапивин. Болтик (1976))

The two verbs, *завязнуть* and *увязнуть*, are interchangeable in both example (1) and (2), however, this is not always the case. Examples (3) and (4) illustrate concrete uses where only *завязнуть* is acceptable.

- (3) Тут этот, около окна, опять как закричит. Рука-то у него *завязла*, он так на ней и повис.
 ‘Here that guy by the window begins yelling again. It seems his hand *got stuck* and he is hanging on it.’ (Ю. О. Домбровский. Обезьяна приходит за своим черепом, часть 1 (1943–1958))
- (4) Прыжки, скачки, кто-то мешок упустил, у кого-то в проходе санки *завязли*.
 ‘Leaps, and hops, somebody dropped a bag, somebody’s sled *got stuck* in the passageway.’
 (М. И. Цветаева. Мои службы (1918–1919))

The event of getting stuck in examples (3) and (4) is caused by something that is too narrow to allow free passage, and it is this situation that excludes *увязнуть*, which seems limited to situations that involve sinking into something sticky, as in example (5) (where *завязнуть* can also be substituted).

- (5) Подполз он и ахнул, когда разглядел, что я по пояс *увяз*.
 ‘He crawled closer and groaned when he saw that I *was stuck* up to my waist.’
 (И. Ф. Стаднюк. Максим Перепелица (1956))

Note that the difference we see between *завязнуть* and *увязнуть* parallels an overall difference between the meanings of the prefixes. Whereas the prefix *за-* is associated with getting caught on things or in tight places, as in *зацепиться* ‘get caught on’ and *застрясть* ‘get stuck in’, the prefix *у-* has an association with downward movement, as in *утонуть* ‘drown’ and *упасть* ‘fall’.

Both *завязнуть* and *увязнуть* can be used metaphorically, but *завязнуть* is more appropriate in contexts that involve getting stuck while trying to solve a problem, as in (6). Becoming engrossed with activities is compatible with both verbs, as in (7) and (8).

- (6) Вчера бились, бились над одной задачей... ну никак! И Степа *завяз*. А я сегодня утром сел и решил.
 ‘Yesterday we struggled and struggled over a problem... it was impossible! Even Степа *got stuck*. But this morning I sat down and solved it.’
 (А. И. Мусатов. Стожары (1948))
- (7) Но потом он понял, что Дмитриева спасти нельзя, что он отравлен театром, в котором безнадежно *завяз*.
 ‘But later he realized that there was no saving Dmitriev, who had been smitten by the theater, in which he *had gotten hopelessly stuck*.’ (Н. Н. Чушкин,

В. В. Дмитриев. Творческий путь. (Записи бесед, выписки, наброски и др. материалы) (1948))

- (8) Недавно стала перечитывать «Анну Каренину»—чуть не *увязла*.
 ‘I started rereading Anna Karenina recently—and almost *got stuck*.’
 (Владимир Нузов, Виктория Токарева: Я воспринимаю только писателей,
 пишущих с юмором... (2003) // «Вестник США», 2003.09.17)

Whereas getting stuck while trying to solve a problem appears to be the metaphorical equivalent of getting stuck in a narrow spot in Russian, activities and interests can be understood either in this sense (the theater had trapped Dmitriev and wouldn't let go of him) or in the sense of metaphorical substances that one can become mired in (either the theater or reading Tolstoy). Note here again that uses with *увязнуть* tend to emphasize (metaphorical) depth, as in (9) which is the metaphorical parallel of (5) above.

- (9) Но Москва по горло *увязла* в афганских делах и ей было не до ирако-иранских распрей.
 ‘But Moscow *was stuck* up to its neck in Afghan affairs and wasn't interested in Iraqi-Iranian quarrels.’ (Олег Гриневский. Восток—дело тонкое (1998))

People can also get stuck at places in their careers, and this situation is compatible with both verbs, as we see in (10) and (11).

- (10) У меня один свет в очах—Конон Иванович, да он сей год в Кеми *завяз*...
 ‘The light of my life is Konon Ivanovič, but he *has gotten stuck* in Kemi this year...’
 (Б. В. Шергин. Отцово знание (1930–1960))
- (11) Все приелось, все—беспросветно до необычайности. *Увяз* я в этом Чистополе. Но теперь поздно.
 ‘I was all fed up, everything was extraordinarily gloomy. I *had gotten stuck* in Čistopol'. And now it was too late.’ (Г. С. Эфрон. Дневники. Т. 2 (1941–1943))

The verbs that can form Natural Perfectives with both *за-* and *у-* reveal patterns of both overlapping and complementary semantics. The case study of *завязнуть* and *увязнуть* ‘get stuck’ shows that even verbs that overlap to the point of being largely interchangeable may be motivated by different semantics. *Завязнуть* is based on the experience of going through something narrow and getting stuck (which may or may not involve downward motion). *Увязнуть* is motivated by the experience of sinking down into something and getting stuck.

[из]/[раз]

Table 6 presents the base verbs that form Natural Perfectives with both *из-* and *раз-*. With one exception, the verbs in this table represent the various meanings of exhaustiveness, often entailing intensity or negative consequences, associated with *из-* (Nesset, Baydymirova and Janda).⁸ The one exception is *менять* ‘change’, which is motivated by *из-* in referring to (metaphorical) movement out of a container. The dominant meanings of *раз-* involved here are ‘apart’ and ‘crush’ (cf. Janda and Nesset 2010), which account for all of the verbs in the DAMAGE group; *менять* ‘change’ expresses the ‘spread’ submeaning of *раз-*, while *тонить* ‘heat’ represents the ‘soften, dissolve’ submeaning. Overall one can identify

⁸Nesset, T., Baydymirova, A., and Janda, L. A., ms., Two ways to get out: radial category profiling and the Russian prefixes *у-* and *из-*.

a common semantic denominator that links the two prefixes, namely the disruption of an even surface.

Eight of the base verbs in Table 6 describe DAMAGE, and for most of them this is a fairly specific type of damage, involving reducing an object into small pieces or particles. *Мять* ‘crumple’, though it does not result in pieces, shares actions associated with crushing and crumbling in that it involves exertion of pressure to produce DAMAGE. For the verbs describing DAMAGE, the use of *из-* is motivated by the ‘negative exhaustiveness’ meaning of that prefix (described in detail in Nessel, Baydimirova and Janda, cf. fn. 8), while the use of *раз-* is motivated by the ‘apart’ and ‘crush’ meanings of that prefix (see Janda and Nessel 2010). Thus the *из-*-prefixed Natural Perfectives emphasize the intensity and the undesirability of the result, while the *раз-*-prefixed Natural Perfectives emphasize the fact that the object has come apart or been crushed.

Table 6 Base verbs that select the prefix combination [*из*]/[*раз*] (boldfaced)

Semantic group	Base verb	Prefix combination
DAMAGE	<i>кромсать</i> ‘cut up’	[из]/[раз]
	<i>крошить</i> ‘crumble’	[из]/[на]/[раз]
	<i>крошиться</i> ‘crumble’	[из]/[раз]
	<i>мельчить</i> ‘crush’	[из]/[раз]
	<i>мять</i> ‘crumple’	[из]/[на]/[раз]/[с]
	<i>полосовать</i> ‘flog’	[из]/[раз]
	<i>толочь</i> ‘crush’	[из]/[раз]/[с]
	<i>трепать</i> ‘beat, fray’	[из]/[от]/[но]/[раз]
OTHER	<i>менять</i> ‘change’	[из]/[о/об/обо]/[но]/[раз]/[с]
	<i>топить</i> ‘heat’	[вы]/[из]/[но]/[раз]/[с]/[у]

Many of the verbs in the DAMAGE group can be used interchangeably with *из-* and *раз-*, at least in some contexts. This is often the case for *крошить* ‘crumble’, *кромсать* ‘cut up’, and *толочь* ‘crush’. However, subtle differences can still be detected. While *искрошить* and *раскрошить* can both describe breaking something down into small pieces as in (12) and (13), the *из-*-prefixed variant involves a degree of intensity that makes it inappropriate for use in neutral settings such as recipes, where only *раз-* appears, as in (14). Only *искрошить* can be used to mean ‘kill’, as in (15), and only *раскрошить* can be used when the result is something broken into two pieces, as in (16). *Кромсать* ‘cut up’ and *толочь* ‘crush’ show rather parallel similarities and differences.

- (12) Я пошарил по ее телесам и, когда она выпялилась на меня, сердито поддернул на ней юбку и откусил от кисти сразу горсть винограда и захрустел косточками: мне сейчас камень дай—*искрошу* зубами.
‘I fondled her body and when she reacted, I gave her skirt a sharp tug and bit off a whole handful of grapes from the bunch and crunched on the pits: if you were to give me a stone now, I *would crush* it with my teeth.’ (В. Астафьев. Обертон (1995–1996))
- (13) Галя развернула вафельку, *раскрошила* ее и на ладошке протянула воробью.
‘Galja opened the waffle, *crushed* it and held it out on her palm for the sparrow.’
(Г. Николаев. Вещие сны тихого психа // «Звезда», 2002)

- (14) *Раскрошить* овечий сыр, посыпать омлет за 5 мин до готовности и прикрыть крышкой.
 ‘Crush the sheep cheese, sprinkle it on the omelette 5 minutes before serving and cover it with a lid.’ (Жаркое с выдумкой // «Лиза», 2005)
- (15) В город пришли казаки и *искрошили* 300 человек наших.
 ‘The Cossacks came to the city and *killed* 300 of our men.’ (В. Кин. Записные книжки (1921–1937))
- (16) – Ты уедешь на край земли, возьмёшь молоток и *раскрошишь* себе череп...
 ‘You will go to the end of the earth, take a hammer and *split open* your skull...’
 (О. Гладов. Любовь стратенического назначения (2000–2003))

Also in the DAMAGE group, *мять* ‘crumple’ and *полосовать* ‘flog’ implement the prefixes in complementary meanings. When the direct object is a substance, the meaning of *мять* is closer to ‘knead’ and the only Natural Perfective is *размять* (*глину*) ‘knead (clay) until soft’. *Измять* (*листок*) ‘crumple (a piece of paper)’ is used for items that can be crushed or wrinkled. The verb *полосовать* ‘flog’ has two meanings motivated by its derivation from the noun *полоса* ‘stripe’. The first meaning references the stripe shaped welts that result when someone is struck with a whip or other implement, and the Natural Perfective for this meaning can only be *исполосовать* ‘flog’ (again the ‘negative exhaustiveness’ associated with *из-* is apparent). The second meaning involves breaking something down into stripe-shaped pieces, and can be used, e.g., as a technical term from metallurgy that references the stripe-shaped bars made when metals are processed. The only Natural Perfective for this second meaning is *располосовать* ‘make into bars, stripes’ (where the ‘apart’ meaning of *раз-* is consistent with the action of separating the metal into smaller pieces).

Both verbs in the OTHER category are differentiated by the direct objects they occur with. While *изменить* denotes ‘change’ in a wide range of senses, *разменять* (*квартиру, сторубливку*) ‘(ex)change (one’s apartment, a 100-ruble note)’ is limited to use with direct objects that are exchangeable items (living-space, denominations of money). Compare also *истопить* (*печь*) ‘heat up (a stove)’ with *растопить* (*лед*) ‘melt (ice)’. While the collocation *растопить печь* is possible, it means ‘start heating up a stove’ and here the verb is a Complex Act rather than a Natural Perfective (cf. Janda 2007) and therefore does not pertain to the phenomenon of prefix variation as defined in this study.

To sum up, the [*из*]/[*раз*] prefix combination yields one coherent group of base verbs referring to the disruption of a surface, thus integrating both the ‘(negative) exhaustion’ of *из-* and the ‘apart’ and ‘crush’ meanings of *раз-*. There is a residue of two verbs where the prefix combination is motivated by distinct rather than similar meanings of the two prefixes, and yield clearly non-synonymous Natural Perfectives.

3.2 Prefix variation motivated primarily by complementary meanings

The prefixes *ом-* and *про-* give a clear example of a binary combination with a fairly high frequency and strength of association that is primarily motivated by complementary meanings rather than overlapping ones. While *ом-* focuses only on the concluding phase of an action, *про-* emphasizes a process. Unsurprisingly, it is harder to characterize the verbs that combine with *ом-* and *про-* according to semantic groups. In Sect. 3.1 it was logical that the verbs themselves often had similar meanings, since shared characteristics could motivate overlapping meanings for their Natural Perfectives. Since the meanings of *ом-* and *про-* are more complementary than overlapping, there could be many different

motives for selecting this prefix combination. Overall, this group of verbs behaves more heterogeneously, like the OTHER groups in Tables 4, 5, and 6. Rather than forming a clear semantic class, these verbs identify a variety of activities that can take time to go through (*про-*) and produce results only at the end (*ом-*) (see Table 7).

Table 7 Base verbs that select the prefix combination [*ом*]/[*про*] (boldfaced)

Base verb	Prefix combination
<i>рецензировать</i> ‘review’	[ом] /[<i>про</i>]
<i>корректировать</i> ‘correct, proof-read’	[ом] /[<i>про</i>]/[<i>с</i>]
<i>репетировать</i> ‘rehearse’	[ом] /[<i>про</i>]/[<i>с</i>]
<i>фильтровать</i> ‘filter’	[ом] /[<i>про</i>]
<i>трубить</i> ‘trumpet’	[ом] /[<i>про</i>]
<i>реагировать</i> ‘react’	[ом] /[<i>про</i>]/[<i>с</i>]
<i>стегать</i> ‘whip, baste’	[<i>вы</i>]/ [ом] /[<i>про</i>]
<i>чеканить</i> ‘stamp (metal)’	[<i>вы</i>]/[<i>ом</i>]/[<i>про</i>]/[<i>раз</i>]
<i>штамповать</i> ‘stamp’	[<i>вы</i>]/[<i>за</i>]/[<i>на</i>]/ [ом] /[<i>про</i>]

Here we see that the two prefixes yield semantically distinct Natural Perfectives that usually cannot be substituted for each other. We examine two verbs from this diverse group more closely, namely *стегать* ‘whip, baste’ and *репетировать* ‘rehearse’. The first verb reveals a complementary distribution of the prefixes. *Отстегать* ‘whip’ is used exclusively in reference to either physical punishment or verbal abuse, in a metaphorical extension parallel to the English ‘give someone a tongue lashing’. By contrast, *простегать* means ‘go through many times’ and can be used primarily to describe sewing. The verb that shows the most possible overlap in this group is probably *репетировать* ‘rehearse’, and in many examples such as (17), both prefixes could be used.

- (17) Впрочем, она заставила его *отрепетировать* несколько раз свою речь и назвать ее по-другому—не новая теория, а как-то скромнее—«К вопросу о ...»
 ‘However, she forced him to *rehearse* his speech several times and to give it a different title, not as a new theory, but more modestly as “Concerning the issue of ...”’
 (Д. Гранин. Иду на грозу (1962))

Yet there are discernable differences even here since there are contexts where only one prefix is appropriate, such as *отрепетированные движения* ‘practiced movements’ and (18):

- (18) *Прорепетировал* в уме вопрос по-английски и спросил: [...]
 ‘He *rehearsed* the question in English in his mind and then asked: [...]’
 (В. Голяховский. Русский доктор в Америке (1984–2001))

The prefix *ом-* presents the action as having produced a product, some kind of outcome that can be presented. The focus of *про-* is on one complete rehearsal and on going through all the steps involved instead. Overlap is possible in ambiguous situations where it is not necessary to make this distinction.

The case studies presented in this subsection demonstrate that the degree of overlap and complementarity in meanings of binary prefix combinations is a scalar phenomenon. Overlap and complementarity can co-occur in various ratios. The [*за*]/[*о/об/обо*], [*за*]/[*у*], and [*из*]/[*раз*] combinations are dominated by overlap, though complementary meanings

are also present, most notably among verbs in the OTHER groups. For the *[om]/[npo]* combination complementarity is very strong, but some overlap can be found as well.

3.3 Prefix variation that is rare

Whereas the four case studies in the previous subsection focused on prefix combinations that were more frequent than predicted by prefix frequency alone, indicating attraction, this subsection examines combinations that indicate repulsion either because they are less frequent than predicted or because they do not occur at all.

The data in Table 1 indicates that both *o-/ob-/obo-* and *npo-* are very frequent prefixes that associate with most other prefixes. However, despite the fact that their frequency would lead us to expect this prefix combination to be used by 9.5 base verbs (calculated via the same method used for expected values in Table 3), there are actually only two base verbs that use this combination, and they are furthermore a semantic pair consisting of the transitive *трезвить* ‘make sober’ and the intransitive *трезветь* ‘become sober’. Note also that for both of these verbs the base is arguably ambiguous, since it could either be a verb or the adjective *трезвый* ‘sober’. If we examine *отрезветь* vs. *протрезветь*, we find some overlap since both verbs can describe sobering up after consuming alcohol, although *npo-* is more productive in this meaning (93 and 276 examples respectively in the RNC). However, only *отрезветь* can be used metaphorically to describe a change in psychological state, often involving recognizing one’s error, as in (19):

- (19) Ну ладно,—подумал я, *отрезвев* от страха,—с литературой и языком-то я как-нибудь справлюсь.
 ‘OK, I thought, *having become sober* from fear, somehow I will manage with the literature and the language.’ (А. Гордничкий. «И жить еще надежде» (2001))

This distinction may be explained by the fact that *npo-* emphasizes going through a process, which cannot be achieved rapidly in the case of physical sobering up, whereas *o-* lacks this connotation, merely referencing the imposition of a new attribute, which can happen suddenly in the case of psychological states. *Про-* requires duration and thus cannot be point-like, whereas *o-/ob-/obo-* can refer to a punctual achievement. Again, as in the case studies in 3.2, we see both overlap and complementarity at work with *[o/ob/obo]/[npo]*.

3.4 Prefix variation that is not attested

Table 8 presents the 31 binary prefix combinations that are theoretically possible but not attested in our database of Russian.

Table 8 The 31 unattested prefix combinations

<i>[в]/[вз/воз]</i>	<i>[в]/[нпу]</i>	<i>[уз]/[нод]</i>	<i>[пере]/[нпу]</i>
<i>[в]/[вы]</i>	<i>[в]/[нпо]</i>	<i>[на]/[пере]</i>	<i>[пере]/[нпо]</i>
<i>[в]/[уз]</i>	<i>[вз/воз]/[уз]</i>	<i>[на]/[нод]</i>	<i>[пере]/[раз]</i>
<i>[в]/[на]</i>	<i>[вз/воз]/[от]</i>	<i>[o/ob/obo]/[нод]</i>	<i>[пере]/[у]</i>
<i>[в]/[o/ob/obo]</i>	<i>[вз/воз]/[пере]</i>	<i>[от]/[пере]</i>	<i>[нод]/[нпо]</i>
<i>[в]/[от]</i>	<i>[вз/воз]/[нод]</i>	<i>[от]/[нод]</i>	<i>[нод]/[раз]</i>
<i>[в]/[но]</i>	<i>[вз/воз]/[нпу]</i>	<i>[от]/[нпу]</i>	<i>[нод]/[у]</i>
<i>[в]/[нод]</i>	<i>[вы]/[пере]</i>	<i>[пере]/[нод]</i>	

Twenty-seven of the combinations in Table 8 involve the three prefixes with the lowest overall frequency (cf. Table 1): *непе-* (nine aspectual partners), *нод-* (six aspectual partners), and *в-* (three aspectual partners). Given their very low frequency (the next least frequent prefix is *нпу-*, with thirty partners), the expected frequency for all of these combinations is less than one, so their absence from the database is not surprising. Only four other combinations are unattested: $[вз/воз][уз]$, $[вз/воз][ом]$, $[вз/воз][нпу]$, and $[ом][нпу]$. It seems likely that the prefix combinations listed in Table 8 are so strongly complementary that they don't offer enough semantic common ground to support prefix variation. For example, it is probably no accident that no verbs use both *ом-* and *нпу-* to form Natural Perfectives since *ом-* signals 'away from', while *нпу-* signals 'arrival at'—two meanings that can hardly be accommodated in a single semantic model. Specialized Perfectives such as *отойти* 'step away from' and *нпуйти* 'arrive on foot' give a clear indication of these strong differences. This topic warrants further investigation.

4 Implications for aspectual prefixes, synonymy, and allomorphy

This study documents the range and factors involved in prefix variation in Russian. Prefix variation is a frequent phenomenon that reveals both overlap and complementarity in the meanings of prefixes. In addition to probing a significant subsystem of Russian, this study has theoretical implications for our understanding of aspectual prefixes, synonymy, and allomorphy.

The traditional 'pair' model assumes that Russian verbs exist in aspectual pairs consisting of one imperfective and one perfective verb with the same lexical meaning. The assumption of the pair model is that when prefixes are used to form perfective partners in Russian, they are 'purely aspectual', void of semantic content. Under this assumption, prefix variation should not exist, since if one prefix can serve to form the perfective partner of an imperfective verb, why would another perfective partner (with supposedly the same content) be needed?

It is likely that the dominance of the pair model of Russian aspect has caused researchers to overlook prefix variation, disregarding attestations of multiple aspectual partners as 'exceptions' to aspectual pairedness. When, however, prefix variation is evaluated in its overall dimensions, we see a subsystem with a clear logic. Two or more prefixes can provide alternate ways of focusing the meanings of a base verb. The relationships among the prefixed perfectives can range from outright contrast to various degrees of overlap although it is usually possible to identify subtle differences even when verbs are interchangeable. These findings are incompatible with the assumption that prefixes are semantically 'empty' when they form aspectual partners. Clearly the prefixes must have meaning since otherwise there is no way to explain the patterns of differentiation observed. Sometimes the various prefixed perfectives of a verb can be strongly semantically distinct, as in the case of *отстегать* 'whip' vs. *простегать* 'baste, go through many times'; perfectives can be distinct in the referents of nouns they collocate with, as in the case of *размять* 'knead' (which collocates with masses such as *глина* 'clay') vs. *измять* 'crumple' (which collocates with damageable surfaces such as *листок* 'sheet of paper'); or perfectives can reveal different preferences for grammatical constructions, as in *мать закутала ребенка в платок* 'the mother wrapped the child in a scarf' vs. *туман окутал город* 'the fog enveloped the city'. Often there is an interaction among two or three of these factors.

Detailed statistical study shows that even alternate perfectives that are highly interchangeable such as *загрузить*, *нагрузить*, and *погрузить* 'load' can be shown to have

significantly different preferences for grammatical constructions (Sokolova, Janda and Lyashevskaya [forthcoming](#)). Examples like these beg the question of whether any perfect synonyms exist, either in the context of aspectual pairs or in language in general. Prefix variation suggests that synonymy presents a dynamic balance between compatible and therefore overlapping meanings, as opposed to incompatible and therefore complementary meanings.

Under the pair model, the aspectual partners are lexically identical to the base imperfectives, which means that the prefixes merely mark ‘+ perfective’, and they all have an identical function. In this case, the prefixes are a set of allomorphs, such that each base verb provides the environment for selecting an allomorph to mark ‘+ perfective’. However, allomorphy also entails complementary distribution, which is severely compromised by prefix variation. Prefix variation presents a form–meaning relationship that is highly complicated, challenging an analysis in terms of allomorphy.

5 Conclusions

This study shows that 27% of all imperfective base verbs that form a Natural Perfective via prefixation form multiple aspectual partner verbs, using from two to six prefixes. All prefixes that can be used to form Natural Perfectives engage in prefix variation, though by far the majority of such combinations involve only two prefixes, and there are also many combinations that are unattested. When we examine the verbs associated with attested prefix combinations, we see an interaction between the meanings of the prefixes and the meanings of the base verbs. We also see that both similar and contrastive meanings can motivate prefix variation. Where a binary combination of prefixes exhibits similar meanings, the majority of associated base verbs form a coherent semantic group, as in the case of the verbs meaning ‘make or become X’ associated with [за][о/об/обо]. However, even in combinations that indicate strong similarity, there are contrasting meanings. Some combinations are motivated largely by contrasting meanings, as in the case of [ом][нпо], and unattested combinations may involve prefixal meanings that are altogether incompatible.

As is often the case in science, the scope of inquiry is constrained by the theoretical model we use. The prevailing pair model of Russian aspect cannot readily accommodate aspectual relationships involving multiple perfective partners. As a result, prefix variation has gone largely unnoticed. However, prefix variation constitutes a significant subsystem of Russian aspect in its own right, and challenges some traditional assumptions. Prefix variation provides strong evidence that prefixes are not semantically ‘empty’ when they form aspectual partners, since we observe contrasting alternates. The data in our study supports the Overlap Hypothesis, according to which prefixes retain their meaning even when they form aspectual partner verbs. The presence of semantic contrast in alternate prefixed Natural Perfectives is motivated by differences in the meanings of the prefixes. And where the meanings of the prefixes are close, this also motivates the selection of semantically coherent verbs associated with a given prefix combination. Moreover, prefix variation presents a multitude of opportunities for further research into synonymy and allomorphy.

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Sources

RNC: Russian National Corpus: <http://ruscorpora.ru/>.

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