

“Why neither the prefixes nor our arguments are empty”

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1. Introduction

I offer this response to Oscar Swan’s review of our book (Janda et al. 2013) on behalf of the CLEAR (Cognitive Linguistics: Empirical Approaches to Russian) research group, in particular those members who authored and co-authored relevant publications: Anna Endresen, Julia Kuznetsova, Olga Lyashevskaya, Anastasia Makarova, Tore Nessel, and Svetlana Sokolova.¹

I would like to thank Swan for the energy and expanse of his critique. We are gratified to receive the attention of a prominent US Slavist who has led a long career and authored numerous articles as well as important textbooks of Polish and Old Church Slavonic.

I would also like to thank the editors of *Russian Language Journal* for offering me the honor of publishing a response.

In his review, Swan raises a number of interesting points, most of which I will also comment on here. It is, however, my task in this response to address the issues in which our perspective differs from Swan’s, so I will focus mainly on those differences.

The most important difference involves our views on what language is. Swan’s view makes a number of assumptions that we do not share, such as that there are unitary underlying forms from which all specific items are generated, and that there are crisp criteria that yield perfect separation of categories according to absolute rules. We follow the framework of cognitive linguistics, which makes fewer assumptions and views language as a complexly nuanced system more often characterized by statistical tendencies than by absolute rules. As I will detail below, Swan consistently projects his assumptions onto our analysis, creating characterizations of our work in which we ourselves often cannot recognize it (see examples in Section 2).

We and Swan also differ in our specific understanding of the Russian aspect system. Swan has a vested interest in claiming that the prefixes present in Natural Perfectives are indeed empty and that simplex verbs are formed via “deprefixation” (cf. Section 5 of Swan’s article in this issue). I provide a rebuttal to deprefixation in Section 6 below.

Most importantly, Swan makes it clear that his own convictions are so strong that no amount of evidence or argumentation would change his mind. He himself states in his conclusion that “clarity of exposition, and a wealth of supportive

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data is not enough, for reasons mentioned, to persuade this reviewer that *Why's* description of Russian aspect formation, even if here and there it rings true, is an overall improvement over the traditional description and classroom presentation." I wonder what kind of case could be brought that Swan would find convincing.

2. Claims that we never made

Swan consistently refers to "natural prefixes" (i.e., those used to form perfective partner verbs, as in *на-писать* 'write') and "specialized prefixes" (i.e., those used to form perfectives with distinct meanings as in *пере-писать* 'rewrite') in reference to our work, but these terms never appear in our book and are incorrect. "Natural" and "Specialized" are terms that characterize types of perfective verbs in Russian, or more accurately different parts of the continuum of perfective verbs in Russian. Most prefixes can form both Natural and Specialized Perfectives, as we see with *раз-* which forms a Natural Perfective *раз-бить* from *бить*, both meaning 'break', but a Specialized Perfective *раз-нести* 'deliver to various places' from *нести* 'carry'. There is, for example, the prefix *до-* which only forms Specialized Perfectives such as *до-делать* 'finish up' from *делать* 'do', but no prefix that forms only Natural Perfectives. It is important to separate the results of prefixation (namely the types of perfective verbs that arise) from the morphological means for achieving these results (in this case prefixes).

In the opening of Swan's Section 3 we find the following passage supposedly characterizing our position: "Taking as axiomatic that a given aspectual prefix has to exhibit an underlying unitary meaning in all of its occurrences..." We do not take anything as axiomatic. On the contrary, we view the semantic structure of the prefixes as an empirical question for which we have endeavored to find empirical evidence. We also do not assume any underlying unitary meaning, but rather expect to find a structured network of related meanings since most linguistic units are indeed polysemous (Langacker 2008: 37). While Swan acknowledges that we do not claim to build our model on Jakobson's one-form, one-meaning hypothesis, he insists that "this venerable theory drives [our] undertaking from beginning to end." We did not cite Jakobson in this connection because our model is not Jakobson's model. Here Swan is projecting that model upon ours and then claiming that we "derive the particular meanings ... of ... prefixes" from "an imputed 'general meaning'." By contrast, we model prefixal semantics in terms of radially structured polysemous networks of related meanings (Lakoff 1987: Chapter 6). We are not generating specific meanings from a general one, but instead exploring the structure of relationships among meanings, which is a different enterprise altogether.

Swan's insistence on projecting a rule-based generation method upon our radial networks leads him to present further claims that we never made, for example that our "system hypothesizes uniformity of semantic associations across speakers and languages" and that our proposal is that learners should, based on "general meanings" of prefixes, be able to deduce "on logical-semantic-metaphorical reasoning which aspectual prefixes combine with them". We never made any such proposal. We are instead pointing out systematic patterns that

are supported by empirical evidence and can be useful in providing coherence to the task of learning the combinations of prefix + verb in Russian. There is no need to assume that language learners or users must rely on only the strategy of (abstracting and) following rules or only on the strategy of memorization. As Dąbrowska (2012, 2013) has shown, speakers can use both strategies, and can vary in how their internal grammars are structured. It is certainly the case that individual native speakers may differ in some details of their conceptualization of the semantics of prefixes, particularly in regard to peripheral uses. An advantage of our model is that it aims to capture tendencies and is flexible enough to accommodate variation as well.

Swan states that the “main claim” of our book is that our model for Russian aspect should be implemented in “beginning Russian classes.” This is not quite accurate since we do not mention beginning Russian anywhere, though we do mention advanced learners. We do suggest that textbooks might “organize the presentation of verbs according to the meanings of prefixes and verb stems” and that “[m]aterials for more advanced learners could guide them through the distinctions made among Natural Perfectives via prefix variation and explain the use of secondary imperfectives of Natural Perfectives” (Janda et al. 2013: 200). The presentation of verbs could highlight the semantic groupings in a consistent fashion in order to facilitate the memorization of prefix + verb combinations. If one has to memorize something, it is easier to do so when one has some patterns to follow.

Swan brings up the example of newly coined verbs such as *гуглить* ‘to Google’ and states correctly that such verbs often go through a period of years before the use of a perfectivizing prefix becomes stabilized. However, Swan then turns around and says that we suggest that this process is automatic and takes “just a moment of reflection,” a claim we never made.

Swan states that our book “is intended more for language teachers and pedagogical materials-developers than for linguists.” The only relevant statement that we make in our book appears in our Preface (p. xi): “The target audience includes Slavic linguists and general linguists, as well as teachers and advanced learners of Russian.” In other words, we wrote this book for linguists, but took care to make it accessible to teachers and learners as well.

The Verb Classifier Hypothesis is central to our book. Swan recasts this hypothesis as “a teaching method”, again a claim we never made. We focus on a systematic typological comparison between numeral classifiers (commonly found in Central American and East Asian languages) and Russian perfectivizing prefixes, as a useful parallel for linguists. The idea that linguists might benefit from this comparison was previously mentioned by Majsak (2005: 339–345) and Plungjan (2011: 413–416), but was first worked out in detail for Russian Natural Perfectives in our book. In Dickey & Janda 2015 we have further elaborated the Verb Classifier Hypothesis to account for the behavior of all perfectivizing prefixes in all Slavic languages, by making extensive comparisons with classifiers in a broad sample of languages. Here I will briefly paraphrase our findings and

invite the reader to consult Dickey & Janda 2015 for a comprehensive analysis and plentiful illustrative examples.

The parallels between Slavic aspectual prefixes and numeral classifiers are compelling, both in terms of grammatical function and meaning. Numeral classifiers function to form and classify units for the referents of nouns to which they contribute a meaning of discreteness, and Slavic aspectual prefixes perform the function of forming and classifying the referents of verbs, to which they also contribute a meaning of discreteness. Both numeral classifiers and Slavic perfectivizing prefixes are lexico-grammatical unitizers, whose domains are the verbal and nominal lexicons, respectively. We propose a unified account whereby all types of perfectivizing prefixes in Slavic find parallels in numeral classifiers. In telic perfectives, prefixes parallel sortal classifiers, exhibiting a range of semantic overlap between the classified (verb) and the classifier (prefix). Where overlap is greatest, we find Natural Perfectives that are analogous to default numeral classifiers that are most typical for given nouns. Where there is less or no overlap, we find Specialized Perfectives that create new lexical verbs, analogous to numeral classifiers that provide alternative construals for a noun. When used in atelic perfectives, prefixes parallel mensural classifiers, and both prefixes and classifiers can create units that are not inherent to the base. Slavic atelic perfectives place temporal boundaries on a situation (Complex Act Perfectives) or pluck out a single cycle of a repeatable series (Single Act Perfectives) and these types of perfectives are most prominent in the easternmost portion of Slavic territory, primarily Russian and Bulgarian.

In addition to the arguments in Janda et al. 2013, Dickey & Janda (2015) adduce six further types of evidence that extend the Verb Classifier Hypothesis, namely that both numeral classifiers and perfectivizing prefixes: 1) exhibit polysemous radial category structure, 2) produce choices of constructions that can be selected in accordance with speaker construal, 3) can involve a general unitizer with bleached meaning, 4) can serve to mark foregrounding in discourse, 5) can express definiteness, and 6) are associated with systems that do not obligatorily mark plurality (of objects in the case of numeral classifiers, but of events in the case of prefixes). We conclude that numeral classifiers and Slavic aspectual prefixes both belong to a category of lexico-grammatical unitizers and “[h]opefully positing such a category will contribute to a better understanding of both Slavic verbal prefixes and numeral classifiers, as both of these categories continue to generate debate, judging from the unabated appearance of analyses of both” (Dickey & Janda 2015: 82).

3. Martelle 2005 corroborates our results

Swan points out that we did not cite Martelle 2005 and claims that we and Martelle “arrive at opposing conclusions” and therefore our model is “weak on predictability and replicability.” While we can hardly be chided for overlooking an unpublished MA thesis, it is perhaps unsurprising that Swan is aware of Martelle 2005, since it was written by a student at the University of Pittsburgh where Swan has been employed since 1974. More importantly, however, is the fact that we and Martelle actually arrive at the same conclusion, namely that there is a statistically significant relationship between the distribution of

prefixes in Natural Perfectives and the semantics of verbs. The only difference is in the effect size associated with that significant relationship, where our results land in adjacent portions of the scale.

There are two relevant measures that need to be taken into account: the p-value, which tells us how likely it is that we would find a distribution as extreme as the one we observe given the overall dimensions of our data; and the Cramer's V, which measures the effect size of a statistically significant finding in a chi-square analysis. Both we and Martelle report a p-value less than 0.0001 for a chi-square analysis of prefixes and verb semantics. Table 1 presents the scale on which Cramer's V values are evaluated. For more about effect sizes and how they are evaluated, see: Cohen 1988: 215-271; Cohen et al. 2003: 182; King & Minium 2008: 327-330.

	The values in this column fall below the threshold for a reportable effect size	The values in these three columns all represent robust, reportable effect sizes		
Cramer's V value	from 0 to 0.099	from 0.1 to 0.299	from 0.3 to 0.499	from 0.5 to 1.0
Interpretation of Cramer's V	not robust	weak	medium	strong

Table 1: Cramer's V values and their standard interpretation

Cramer's V ranges from 0 (no effect size) to 1 (complementary distribution of variables). This scale is first broken down into two parts, one of which represents values (from 0 to 0.099) that fall below the traditional threshold for a reportable effect size, and the other of which represents values that are all robust enough to be reported as important findings. Among robust values, we can further distinguish those as "weak", "medium", or "strong".

Martelle's (2005: 46) effect size is 0.32, which is "medium" on this scale, whereas our effect size is greater than 0.5, which is "strong" on this scale. This is actually an excellent corroboration of our findings, an independent replication that further justifies our claims. This is particularly remarkable given the many differences between our study and Martelle's, which involved different subsets of prefixes and different semantic classes. Martelle's semantic classes were derived from Talmy's (1985) semantic categories, which turned out to be rather vague and not very well tailored to the task of semantically classifying Russian verbs. Martelle herself (2005: 48-49) remarks that with a more detailed and appropriate set of semantic classes she might have gotten a stronger effect size. This is indeed exactly what we did get when we used the semantic tags specifically designed for Russian verbs and independently assigned in the Russian National Corpus (which became available only after Martelle's study).

4. Critiques of methods

While Swan acknowledges that we have created "important reference sources with which everyone interested in the morphology of Russian aspect will want to

become familiar”, he takes issue with our methods for collecting and interpreting our data.

Swan criticizes the composition of our panel of native speakers who vetted the interpretation of dictionary entries for Natural Perfectives, stating that they “circularly, turn out to be four of *Why’s* own authors” and that this is “a major methodological shortcoming that permeates the entire book.” Claiming that this procedure is circular is tantamount to claiming that any study in which the same people both collect and interpret the data is also circular. Under these standards, there would be very few studies that past muster in any field.

Wherever possible, we relied on parameters assigned by external sources. For example, in our study of the semantic profiles of the prefixes *no-*, *c-*, *na-*, *za-*, and *npo-* (Chapter 3 of Janda et al. 2013), we based our analysis on the semantic tags listed in the Russian National Corpus, which were assigned by a different group of scholars.

Our panel of native speakers that Swan is referring to did not merely follow their intuitions, but consulted with authoritative reference works, applied various criteria, and performed searches in the Russian National Corpus and by means of search engines in order to resolve difficult cases. Our criteria included the Maslov criterion, but we used it as only one in a series of criteria, not as a necessary or sufficient criterion. Kuznetsova (2015: Chapter 5) has worked this argument out in more detail, so I will merely mention some highlights here. The Maslov criterion is at once too general and too narrow. It excludes pairs almost everyone would agree on, and includes “pairs” that no one would list in a dictionary (for example, *целовать* ‘kiss’ / *пере-целовать* ‘kiss all of’ passes the Maslov criterion, cf. Percov 2001). The various diagnostics suggested by the Maslov criterion (e.g., substitution of imperfective under negation in an imperative vs. in the use of the historical present vs. conative use, etc.) yield different sets of pairs (Maslov 1948, Čertkova 1996: 112). And even linguists who specialize in Russian aspectology do not agree on how to apply the Maslov criterion (Čertkova et al. 1997, Gorbova 2011). Furthermore, the Maslov criterion is fairly impoverished in the way it represents the imperfective aspect (focusing on historical present, habitual, imperative and conative uses, ignoring others such as durative, on-going, processual, gnomic, general-factual, etc.). The Maslov criterion also inherits all of the problems associated with the assumption of unidirectionality in the Russian aspect system (see Section 6 below), since it starts from a perfective verb and tests the possibility of replacing it with an imperfective verb.

Swan claims that we failed to understand that each verb “needs to be examined carefully and individually”, however, as described above, we undertook just such a laborious and comprehensive examination of each and every verb. Our combination of strategies yielded the best existing database of Russian Natural Perfectives, which we have made freely available on a public website with a user-friendly interface (the Exploring Emptiness database at <http://emptyprefixes.uit.no/index.php>). Importantly, the database was completed before the statistical analyses were undertaken, so it is not

reasonable to claim that the data was designed to support our model. Instead, it is the model that was built to account for the data.

We consider the list of 1981 pairs in our Exploring Emptiness database, each consisting of a simplex imperfective and a prefixed Natural Perfective, to be a representative sample from a dynamic population of verbs that can vary somewhat from speaker to speaker and is continuously evolving. Our sample can never be exhaustive since new pairs can enter the language, such as *домажить / раз-домажить* ‘destroy or damage a tank (usually in a computer game)’. However the patterns and statistical trends we have discovered are on the whole valid.

Swan claims that we have consistently manipulated the data to our own ends. In Section 2 he states that Janda et al. (2013) “do not address evidence ... when it seems to contradict their preferred interpretation of facts.” Later, in Section 5 he states: “Here as in other instances, the authors readily accept evidence from their dictionaries that supports their thesis, but no evidence that does not.” Our aim was to be as balanced and comprehensive as possible in the representation of facts, not to fudge the data, as Swan insinuates. If we were indeed guilty as charged, one would expect that we would have tried to cover our tracks in order to hide from such criticism. On the contrary, we have published all of our data on publicly-accessible websites. Perhaps our analysis is less than perfect in some ways, but at least we have made it as transparent and open as possible.

We are not in the habit of ignoring or burying findings that contradict the hypothesis that Russian aspectual prefixes bear meanings. In a large corpus study of approximately six million verb forms in the Russian National Corpus, Janda & Lyashevskaya 2011 examined the distributional properties of inflected forms of verbs, and one of the research questions in that study was whether there is a difference between aspectual pairs formed by prefixation as opposed to suffixation. If we had found a difference between prefixation and suffixation, that difference might have provided additional evidence that the purely aspectual prefixes are not empty. However, we did not find any difference. This finding was published in a prominent journal and cited in Janda et al. 2013 as well. Note also that since Janda & Lyashevskaya 2011 addresses the role of suffixes, Swan is not justified in claiming (in his footnote 1) that “the authors [of Janda et al. 2013] do not address the matter of purely suffixal aspect formation and what problems it might pose for their analysis and proposals.”

5. The case of *грузить* ‘load’

Swan returns repeatedly to the verb *грузить* ‘load’. Following Ožegov & Švedova (2001), we recognize three Natural Perfectives for this verb: *по-грузить*, *на-грузить*, and *за-грузить*. We undertake a logistic regression analysis of nearly two thousand attestations of these verbs in the Russian National Corpus, investigating their distribution across the “theme-object” (as in *грузить сено на телегу* ‘load the hay on the cart’) and “goal-object” (as in *грузить телегу сеном* ‘load the cart with hay’) constructions. We find that, despite considerable overlap, the verbs do in fact behave differently and the differences that can be attributed to the meanings of the prefixes are significant even when one takes

into account other factors such as the voice of the verb (active or passive) and whether both the theme and the goal are expressed or not.

Swan disagrees that the three prefixed verbs are Natural Perfectives to begin with. His solution is that *по-грузить* is a Complex Act Perfective (an atelic perfective that expresses temporal boundaries rather than completion), that *на-грузить* and *за-грузить* are Specialized Perfectives, and that *грузить* is an “aspectual orphan” of the “imperfectiva tantum” type that are incapable of forming Natural Perfectives. Since the Natural Perfectives and Specialized Perfectives form a continuum with no crisp dividing line between them, it will in some cases be possible to quibble about those designations. But the assertion that *грузить* should be classed among imperfectiva tantum verbs is peculiar because *грузить* is an unusual candidate for this class.

There is a semantic continuum of imperfective verbs that ranges from a) those that are strongly atelic and abstain from perfectivization, b) verbs that are atelic and can form atelic perfectives, c) verbs that can refer to both atelic and telic activities and form both atelic and telic perfectives, to d) verbs that are inherently telic. Let us consider the full range of telicity expressed by imperfective verbs and then locate *грузить* ‘load’ along that continuum.

The imperfectiva tantum verbs express either states (like *зависеть* ‘depend on’) or inherently undirected activities (like *здороваться* ‘thrive’). Verbs like these refer to strongly non-completable states and activities that lack a telos. Without a telos, these imperfectiva tantum verbs likewise lack a Natural Perfective and resist perfectivization altogether.

Some states like *сидеть* ‘sit’ and undirected activities like *кокетничать* ‘act like a coquette’, *стонать* ‘moan’ and *глупить* ‘act stupid’ can perfectivize, but when such verbs perfectivize, they tend to form atelic perfectives, known as Complex Act and Single Act Perfectives. Examples of Complex Act Perfectives are delimitatives like *по-сидеть* ‘sit for a while’ and *по-кокетничать* ‘act like a coquette for a while’, and ingressives like *за-стонать* ‘begin to moan’. Semelfactives like *с-глупить* ‘do one stupid thing’ illustrate Single Act Perfectives.

There are many imperfective verbs in Russian that are ambiguous as to completability and can refer both to undirected (atelic) and directed (telic) activities. An example is *писать* ‘write’, which can refer either to an undirected activity as in *Он пишет* ‘He is writing’ as the answer to the question *Что он делает?* or to a directed activity as in *Он пишет письмо* ‘He is writing a letter’. These verbs typically form both telic (Natural and Specialized) perfectives and atelic (Complex Act) perfectives.

There are also directed activities that are inherently telic like *блекнуть* ‘fade’ and *сохнуть* ‘dry’. Such verbs tend to prefer to form telic perfectives, either preserving the lexical meaning of the base in Natural Perfectives as in *по-блекнуть* ‘fade’, or modifying it as in the Specialized Perfective *у-сохнуть* ‘shrink from drying up’.

If *грузить* 'load' were indeed an imperfectiva tantum verb as claimed by Swan, we would expect it to be frequently used to describe an undirected generalized activity. For example, it should be common and natural to use this verb in response to a question as in: *Что он делает? ?Он грузит* 'What is he doing? He's loading'. However, both corpus data and consultation with native speakers show that this is not the case. There is a telos available in *грузить*, involving the end state of either the "theme" (the hay in our example above) or the "goal" (the cart). Therefore, this verb usually refers to a directed activity, so one can say *Он грузит сено* 'He is loading the hay' or *Он грузит телегу* 'He is loading the cart', but it is rather strange to say merely *?Он грузит* without enough context to fully support the interpretation of either a theme- or goal-directed activity.

In our study of nearly two thousand examples of *грузить* 'load' and its prefixed Natural Perfectives in the Russian National Corpus, we did find fourteen examples in which neither a theme nor a goal is overtly expressed in the same clause. However, none of these examples fully support an interpretation as an imperfectiva tantum verb. The closest we come are five examples where *грузить* 'load', with sufficient supporting context, can express something like "работать грузчиком" 'work as a loader' as in this example:

- (1) *Я подумывал о мелочевой работе в ближайшем гастрономе, грузить-разгрузить.* [Владимир Маканин. *Андеграунд, или герой нашего времени* (1996-1997)]
'I considered taking a trivial job in the nearest delicatessen, loading and unloading.'

This usage is largely restricted to the infinitive (as in this example) and the imperative, and the opposition *грузить-разгрузить* 'load-unload' is important to support this interpretation, which would be harder to achieve with just *грузить* 'load'.

Eight of our examples are metaphorical and assume that the theme is (excessive and boring) information while the goal is a person. See this definition for *грузить* 'load' as a slang term at <http://teenslang.su>: "долго рассказывать нечто неинтересное собеседнику" 'go on with a lengthy narration of something that is not interesting for an interlocutor'. Here is an example of this use from our data :

- (2) — *все, голова поворачивается в сторону, судорожно подавляется зевком, а в глазах отчетливо проступает: «Опять грузят!* [Дмитрий Медведев. *Экзамен в детской школе* (2004) // «Боевое искусство планеты», 2004.09.09]
'—that's it, his head turns away, he spastically tries to stifle a yawn, and you can read it clearly in his eyes: "They're boring me again!"'

Examples of *грузить* used to mean 'bore' illustrate a version of the goal-object construction in which both roles are filled, but there is null instantiation of theme (the excessive information) and the goal (the person who becomes bored)

has been omitted by ellipsis. These examples of a very specific metaphor do not support the suggestion that *грузить* 'load' can stand on its own as an imperfectiva tantum verb.

We find one example where neither the theme nor the goal are expressed in the same clause:

- (3) – *Это Гусев, – сказал он. – Клиент пытался бежать, обездвижен, сейчас грузим... – Не «грузим», а «грузят», – поправили его «медики». В данный момент двое из них, отдуваясь, проталкивали носилки с Юриным через узкую проходную, а третий, с фонендоскопом на шее, осуществлял руководство.* [Олег Дивов. Выбраковка (1999)]
 '--This is Gusev, he said. --The client tried to escape, he's immobilized, and now we will load [him]... --No, "we" won't load him, "they" will, -- the "medics" corrected him. At that moment two of them, huffing and puffing, pushed a stretcher with Jurin through the entryway and a third one with a stethoscope around his neck, led the way.'

In this example, the theme is available from the previous context: *клиент* 'client', and the goal is specified in the following sentence: *носилки* 'stretcher'. Thus even this example does not give evidence to support Swan's claim.

Semantically, *грузить* 'load' is similar to other verbs of placing, which are relatively more telic than the corresponding verbs of position, following the pattern in Table 2.

	Verbs of position	Verbs of placing	
Type of position	atelic imperfective state	telic imperfective directed activity	telic perfective
STAND	<i>стоять</i> 'stand'	<i>ставить</i> 'make stand'	<i>по-ставить</i> 'make stand'
SIT	<i>сидеть</i> 'sit'	<i>сажать</i> 'seat, plant'	<i>посадить</i> 'seat, plant'
LIE	<i>лежать</i> 'lie'	<i>класть</i> 'lay'	<i>положить</i> 'lay'
LOAD		<i>грузить</i> 'load'	<i>по-/на-/за-грузить</i> 'load'

Table 2: Verbs of position and placing compared with *грузить* 'load'

The first column in Table 2 specifies the position an object takes when placed somewhere. The second column contains verbs expressing the end state of the placed objects, which 'stand', 'sit', or 'lie' somewhere. While there is no correlate in this column for 'load', it can be expressed by using the copula *быть* 'be' with a participle *по-/на-/за-гружен* 'loaded'. The third and fourth columns contain aspectual partner verbs expressing the placement of objects in the corresponding positions. The imperfective partners in the third column are relatively telic directed activities. If we were to consider *грузить* 'load' to be an imperfective tantum verb, we would have to revise the notion of imperfectiva tantum in order to include verbs like *ставить* 'make stand', *сажать* 'seat, plant', and *класть* 'lay'.

Swan states that *по-грузить* 'load' is a Complex Act Perfective, putting it on a par with delimitative Complex Act Perfectives like *по-сидеть* 'sit for a while', *по-кокетничать* 'act like a coquette for a while' cited above. In that case, *по-грузить* would necessarily have the meaning 'load for a while, load a little'. However, this interpretation is clearly ruled out when the theme is a singular count noun, as in example (4).

- (4) ... замок сбили и ящик тоже погрузили в машину... [Анатолий Рыбаков. Тяжелый песок (1975-1977)]
'... they broke the lock and loaded the box as well into the car...'
- (5) Нам пора грузить ящик. [Галина Щербакова. Моление о Еве (2000)]
'It's time for us to load the box.'

Example (4) expresses the natural completion of *грузить ящик в машину* 'load the box into the car' with the same meaning, cf. the imperfective use in example (5). In examples like (4), it is not possible to interpret *по-грузить* 'load' as a delimitative since it cannot co-occur with adverbs like *немного* or in the reduplicative V-V construction **по-грузили--по-грузили и ушли* 'they spent some time loading and then left'. We do not find any evidence in our data for delimitative use of *по-грузить* 'load'.

Swan's assertion that *грузить* 'load' is an imperfectiva tantum verb does not find support in our data or among the native speakers in our research group. We stand by our argument that it is an imperfective verb that can express (and indeed most often does express) a directed activity and forms the Natural Perfectives *по-грузить*, *на-грузить*, and *за-грузить*.

6. The case against deprefixation and inflectional aspect

In his review, Swan states: "In both instances—imperfective deprefixation and imperfective suffixation—one is dealing with historically derivational processes which, in modern Russian, have become a means for producing not different verbs, but different inflectional forms of the same verb." This sentence seems to imply that imperfective simplex verbs are historically derived by means of deprefixation, a claim that is untenable given what is known about the history of verbs in the Slavic languages. I will presume that this could not have been the intended meaning of Swan's sentence and proceed to the other two claims in this sentence, namely that deprefixation is the means of derivation at work in relating Natural Perfectives to their partner verbs and that aspect is an inflectional category in modern Russian.

Swan is not alone in claiming that modern Russian takes the Perfective as the "base" form for verbs and derives simplex imperfectives by means of deprefixation. This is also the position taken by Zaliznjak & Mikaëljan (2012, 2014), and it is a position that I have argued against previously (Kuznetsova & Janda 2013, Janda 2015), so I will merely summarize the main points here.

The proposition that perfective aspect has a privileged status that extends to all (or nearly all) verbs amounts to a very strong and unnecessary assumption. As

Swan correctly observes “the Russian system of aspect in its formal dimension was cobbled together over time.” This is precisely the reason why it is inauspicious to assume a priori that there are unidirectional universal rules as regards Russian aspect and its morphology. There is no need to suppose a single direction in the relationship between perfective and imperfective verbs, and my aspectual cluster model (Janda 2007a) specifically avoids such an assumption: aspectually related verbs are just related to each other. Russian aspectual morphology works in both directions, deriving perfectives from imperfectives and imperfectives from perfectives. Psycholinguistic evidence (Rusakova & Saj 2008) shows no support for the notion of an aspectually more “basic” form, and they show that imperfectives tend to be more salient in the minds of speakers. A model of Russian aspect in which imperfective verbs are always derived from perfective verbs relies on a more general postulation of a source-oriented model of language, which Bybee & Slobin (1982, see also Bybee 2001: 126) have shown to be unnecessary, since languages rely on both source-oriented and product-oriented schemas, obviating any need for a uniform direction of derivation.

A host of logical problems arises if one insists on a single direction for aspectual derivation in Russian. Let’s assume for the sake of argument that Swan, Zaliznjak and Mikaèljan are correct that the imperfectives of Natural Perfectives are indeed formed via deprefixation: *на-писать* ‘write’ drops its prefix to form *писать* ‘write’. For the Natural Perfectives, then, the direction of semantic derivation (perfective > imperfective) is the opposite of the direction of (historical) morphological derivation (imperfective > perfective). When Specialized Perfectives are formed we get various modifications of the meaning of *писать* ‘write’, as in *в-писать* ‘insert’, *при-писать* ‘ascribe’, *о-писать* ‘describe’, *пере-писать* ‘rewrite’, so here the prefix is adding new meaning to the verbs and these verbs are formed from the imperfective (and of course subsequently form partner verbs via suffixation, as in *в-писывать*, *при-писывать*, *о-писывать*, *пере-писывать*). The Specialized Perfectives are formed by prefixation and semantic derivation follows the direction of morphological derivation. Similarly a Complex Act Perfective like *по-сидеть* ‘sit for a while’ is formed via prefixation. This means that some relationships between a simplex imperfective and a prefixed perfective involve deprefixation, whereas others involve prefixation.

How does a verb know which direction it should be going in? In some contexts, like (6), the meaning of *за-писать* ‘write (down)’ comes very close to the meaning of a Natural Perfective of *писать* ‘write (down)’, as the parallel example (7) attests.

(6) Запишите телефон. Вам я позвоню сам. [Андрей Волос. Недвижимость (2000) // «Новый Мир», 2001]
‘Write down the telephone number. I’ll call you myself.’

(7) Пишите телефон, — велела она. [Дарья Донцова. Доллары царя Гороха (2004)]
‘Write down the telephone number, she ordered.’

Does the verb *за-писать* ‘write (down)’ switch the direction of its semantics only in contexts where it behaves like a Natural Perfective? And how do the prefixes know when they should switch direction?

All of the prefixes that form Natural Perfectives also form other types of perfectives, and there is a zone of overlap with verbs like *по-думать* ‘think/think for a while’ that can perform as both Natural Perfectives and Complex Act Perfectives. In (8) *по-думать* ‘think’ is a Natural Perfective describing a discrete mental event, whereas in (9) *по-думать* ‘think for a while’ is a delimitative Complex Act Perfective describing a short duration filled with thinking. Does the direction of semantics reverse for these verbs when they are interpreted as Natural Perfectives, and what is the mechanism for this reversal?

- (8) *Губы моего сына дрожали. "Так больше нельзя, — подумала я.* [Екатерина Орлова. Такой же хороший, как ты // «Даша», 2004]
 ‘My son’s lips trembled. We can’t go on this way, I thought.’
- (9) *Тимофей недолго подумал. Он не любил с ходу сдаваться.* [Борис Екимов. На хуторе // «Новый Мир», 2002]
 ‘Timofej thought for a while. He didn’t like giving up all of a sudden.’

What happens when Natural Perfectives emerge? Colloquial Russian has a Natural Perfective *с-печь*² instead of *ис-печь* ‘bake’. How did this Natural Perfective develop if deprefixation is the only available relationship between a Natural Perfective and a simplex imperfective? Recently borrowed verbs can also form Natural Perfectives by adding prefixes, as in *за-планировать* ‘plan’. In such cases it is hard to justify deprefixation as the only process at work. Our alternative is to make fewer assumptions and recognize non-directional relationships among aspectually related verbs.

For Swan, Russian aspect is an inflectional category. I tend to see it as a derivational category, but this distinction is both hard to make and not essential to my other arguments. As Bybee (1985: 81, 87) has observed: “One of the most persistent undefinables in morphology is the distinction between derivational and inflectional morphology” and “the distinction between derivational and inflectional morphology is not discrete, but rather a gradient phenomenon”. It may not be possible to crisply resolve this issue with regard to Russian aspect to everyone’s satisfaction, so here we might have to agree to disagree. However, I will offer some arguments supporting the view that Russian aspect belongs to the derivational part of the continuum. For a more comprehensive discussion of the difference between inflectional and derivational morphology, I refer the reader to Janda 2007b.

Aside from formal considerations such as the boundedness of morphemes and their status as open- or closed-class, one must also take into account their

² The form *спечь* ‘bake’ has existed dialectally for a long time (cf. Dal’ 1882, v. IV, p. 289), but has recently moved into the role of a Natural Perfective in colloquial modern Russian.

meanings. A derivational morpheme relates more to the identity of a word itself, whereas an inflectional morpheme relates the word to the rest of the construction. Inflectional morphology involves concepts that are more relevant to how the word relates to other words in a construction than to the lexical item itself. The Russian perfectivizing prefixes arguably relate primarily to the meaning of the verbs they attach to (as detailed in Janda et al. 2013). Although perfective and imperfective verbs do differ somewhat as to the constructions they appear in, there are many contexts in which both a perfective and an imperfective verb can appear, and in such contexts the aspect depends only on the construal of the speaker. Reynolds (2016: 100-104) recently discovered that constructions that are unambiguously specific only to one aspect or the other are fairly rare for Russian verbs in corpus data (less than 5%). Further investigation of this finding is the topic of current research that we hope to publish soon.

Inflectional morphemes and the grammatical categories they express are productive: if a new lexical item enters a given syntactic class, it will inherit all the associated inflectional morphemes (Bybee 1985: 82). Inflectional morphemes are also regular: every (or nearly every) member of a paradigm is instantiated for every (or nearly every) word in a given class (Plungjan 2000: 125). This is less true for the derivation of aspectual partners for Russian verbs. Newly borrowed verbs sometimes start out as aspectually underspecified, or biaspectual verbs and then “grow” aspectual morphology by gaining association with suffixes and/or prefixes later. And there are many Complex Act and Single Act Perfectives that do not derive imperfective partner verbs with the same meaning. This is true for verbs like *по-кокетничать* ‘act like a coquette for a while’, *застонать* ‘begin to moan’ and the Single Act Perfective *с-глупить* ‘do one stupid thing’; it is difficult or impossible to form imperfectives that retain the delimitative, ingressive, and semelfactive meanings of such verbs.

An inflectional morpheme does not have the capacity to change the meaning of the words it is bound to, and will have a predictable meaning for all such words. This is definitely a problem for Russian aspectual morphology, since prefixes arguably always have some effect on the meaning, at the very least overlapping and/or narrowing the meaning in Natural Perfectives, and producing meaning adjustments in other perfectives. And a classic problem with Russian verbal prefixes is namely the fact that a given prefix does not have a single predictable meaning for all verbs. The assertion that Russian aspect is an inflectional category is therefore controversial.

7. Conclusion

The Russian “purely aspectual” prefixes are not semantically empty. In Janda et al. 2013 we presented abundant evidence that the behavior of prefixed Natural Perfective verbs is influenced by the meanings of their prefixes. This was the first large-scale attempt to quantify the relationship between Natural Perfectives and the prefixes that form them. Our findings matter because the patterns we adduce are robust and supported by statistical analyses, and are furthermore replicable. These patterns are valuable for descriptive and typological linguistics, and have implications for how Russian aspect may be modeled and taught.

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