Choice of Aspect in a Russian Modal Construction
The case of *приходиться/прийтись* + *infinitive*

Beatrice Bernasconi

1. Introduction

In this article, I present two quantitative studies of aspect in the Russian modal construction *приходиться/прийтись* + *infinitive* 'have to'. My goal is to corroborate the hypothesis that the choice of the infinitive in modal constructions is not entirely determined by the linguistic context but is relatively open to the individual choice of the speaker (Janda and Reynolds 2019 and Janda, Endresen, and Reynolds 2019). The work is couched within the theoretical framework of Cognitive Linguistics (Geeraerts and Cuyckens 2007) and, therefore, adopts a usage-based approach (Langacker 1991, 1999; Divjak 2019).

Russian aspect has been extensively studied by Slavic linguists for decades (Dickey 2000; Forsyth 1970; Jakobson 1984; Janda 2004, 2007; Maslov 1948; Padučeva 1996; Zaliznjak and Šmelev 2000). Despite that, this topic is still highly controversial, and many questions about verbal aspect in Russian, as well as in Slavic in general, have not been answered yet. In the last decade, the application of quantitative methods to authentic data has contributed to the field with a number of interesting insights (e.g., Bernasconi and Noseda, 2021; Eckhoff, Janda, and Lyashevskaya 2017; Janda *et al.* 2013).

Janda and colleagues have recently demonstrated that the choice of aspect in Russian is not always "redundant" but is to some extent "open to construal", and that this applies to modal constructions and imperatives as well (Janda and Reynolds 2019; Janda, Endresen, and Reynolds 2019). The present study provides further evidence for this result, focusing on a specific modal construction and analysing it by means of quantitative methods. My main research hypothesis is that the aspect of the infinitive in the construction with *приходиться/прийтись* is not fully determined by linguistic context, but is, to some extent, open to construal. The following research question will guide the analysis: is there any factor in the linguistic context that influences the choice of aspect in the infinitive? In other words, is the choice of aspect redundant or open to construal in this construction? Two studies were conducted to test the hypothesis and answer this question. First, a preliminary analysis of corpus data taken from the Russian National Corpus

(henceforth, RNC)[1] was carried out to test the influence of linguistic contextual factors on the choice of aspect. Second, an acceptability judgement experiment was submitted to Russian native speakers to verify to what extent choice of aspect is open to construal in the construction. In both cases, statistical methods were applied to analyse the data.

In Section 2, I address the notions of redundancy and construal in the work of Janda and her colleagues. Section 3 provides a description of the construction under scrutiny, with special focus on the interaction between aspect and modality. Section 4 presents the corpus study, while in Section 5 the experiment with native speakers will be outlined. Some conclusions will be drawn in Section 6.

2.   *Construal vs. Redundancy in Janda & colleagues' work*

Within the cognitive framework, construal is defined as "our ability to conceive and portray the same situation in alternate ways" (Langacker 2015, 120) or as "a way of viewing a situation" (Langacker 2008, 261). In other words, through language, speakers are able not only to describe reality but also to provide their own perspective – construal – on it. Take, for example, active vs. passive voice: the same conceptual content can be expressed in two different ways (from the agent's vs. the patient's perspectives) that do not differ in their basic meaning, but in the way they are looked at, i.e., in construal.

Redundancy is commonly interpreted as the coding of the same linguistic information by different means in a specific context. A systematic property of language, redundancy places restrictions at different levels of linguistic analysis (e.g., noun-verb agreement), and at the same time facilitates better communication between the speaker and the addressee (Chiari 2002; 2007). According to Chiari (2002, 150), "a text is redundant when, through specific constraints, […], it rules out a part of the theoretically possible combinations, making their possible occurrence null and allowing the addressee to exclude them when decoding the message". Given these premises, in Janda and Reynolds 2019, the concepts of construal and redundancy were operationalized with regard to Russian verbal aspect as follows: a context in which both perfective and imperfective aspects receive high acceptability ratings is said to be open to construal (469), i.e., open to the choice of the speaker on how to portray the situation; a context in which a rating of one aspect is highly acceptable while the opposite aspect is rated as unacceptable is redundant (471). Therefore, "redundancy is the situation of fixed (constrained) construal" (Janda and Reynolds 2019, 471). For further clarification, consider the following examples:

(1)   Ваня начал писать-ipf письмо/?написать-pf письмо.
       'Vanja started to write a letter.'
(2)   Существует такая легенда, что Ваня покупал-ipf/купил-pf это кольцо.
       'Legend has it that Vanja bought this ring.'

In (1), the choice of the infinitive *писать*-ipf is constrained by the phase verb *начать*, and is, therefore, redundant. *Написать*-pf in this context is not acceptable. In (2), instead, both *покупал*-ipf and *купил*-ipf are grammatically acceptable alternatives to describe the same situation. Choice of aspect, in this case, depends on the way the speaker wants to

---

portray the action – whether focusing on its result or the mere fact that it happened – and is, therefore, open to construal.

In Janda and Reynolds 2019, the authors surveyed 501 native speakers of Russian that rated the acceptability of both imperfective and perfective verbs in authentic texts. Results showed that 81% of the data consists of redundant contexts in which only one aspect was rated as acceptable, but 17% of the data involves "overlapping contexts" where both aspects are grammatically acceptable, and choice is not determined by the linguistic context, i.e., is not redundant, but open to construal. According to the authors, the two notions of construal and redundancy are not clear-cut categories but represent two ends of a continuum (Janda and Reynolds 2019, 471). In Janda, Endresen, and Reynolds 2019, additional evidence for this claim is provided, as no clear groups or natural boundaries emerged from a further quantitative analysis of the data (see Fig. 1 in Janda, Endresen, and Reynolds 2019, 257), meaning that the two possibilities can be perceived as acceptable to different extents. In addition, they discovered that the "open-to-construal" portion of data is not only populated by overlapping contexts predictable from previous scholarship (e.g., "bounded events", "repeated events", or "transitional examples" – like the general-factual use – in Maslov 1948) but also by modal contexts (modal verbs, adverbs, and adjectives, as well as constructions that express an attitude toward a situation) and contexts associated with the imperative mood (Janda, Endresen, and Reynolds 2019, 266–267).[2] As mentioned above, this result motivated the choice of further investigating aspect selection in the modal construction with *приходиться/прийтись + infinitive*, which will be described in detail in the next section.

3.   Modality and aspect interaction: the case of приходиться/прийтись + infinitive

The object of study is the impersonal construction with the modal verb *приходиться/прийтись*. In this construction, the verb is always conjugated in the third person singular, with the neuter marking in the past tense, and is followed by an infinitive; the experiencer, when overt, is in the dative case:

> (3)   Мне пришлось много работать.
> 'I-dat had to-pf work-ipf a lot.'

The construction expresses necessity and obligation but presents some peculiarities when compared to other deontic constructions such as *нужно*, *должно* etc. As pointed out by Poreau (2020), *приходиться/прийтись + infinitive* is the only modal predicate (i.e., a predicate formed by a modal word, carrying the modal meaning, and a verb in the infinitive, carrying the main lexical meaning) that expresses obligation and presents both a temporal (past *приходилось*, *пришлось* vs. non-past *приходится*, *придётся*) and an

---

[2] Here are two examples from Janda, Endresen, and Reynolds 2019, where native speakers rated both aspects as acceptable in modal (i) and imperative (ii) contexts:
(i) Василий умел стать-pf/становиться-ipf для начальника необходимым.
    'Vasilij knew how to make himself indispensable to his boss.'
(ii) Ну скажи-pf/говори-ipf.
    'Well, tell me.'

aspectual paradigm (imperfective *приходиться* vs. perfective *прийтись*).[3] Second, it is also the only modal construction of the kind that does not present a semantic link between its morphological composition and the modal meaning of obligation (Poreau 2020, 226), since the verb is formed by the motion verb *приходить/прийти* 'to arrive' and the reflexive particle *-ся/-сь*. It could be claimed that the modal meaning of the construction comes from a metaphorical interpretation: it is as if the action that someone has to do was seen as something unpleasant that comes to the experiencer, expressed in the dative case. S/he cannot avoid the closeness that ensues, and this encounter forces him/her to perform the action. An external situation obliges the subject to do something s/he would not do spontaneously. In Honselaar's words, "it is characteristic of *приходиться/прийтись* that the background situation takes place without the subject being able to choose: given the specific characteristics of the actual situation, the circumstances, the subject can only decide to perform the background situation" (Honselaar 1992, 129). Using the impersonal construction with *приходиться/прийтись*, therefore, allows the speaker to communicate and underline that there was no other alternative for the experiencer than to perform that action. In his paper, Honselaar (1992) also distinguishes seven typical situations in which this construction is used to underline the "speaker's non-commitment" to the situation, namely:

- The action goes against common sense.
- The action runs counter to the subject's personal wish(es) or intention(s).
- Imbalance between the problem and the action taken.
- The subject plays his trump card.[4]
- The action is beyond the subject's ability.
- The action is not expected in the general course of events.
- The action is unpleasant, undesirable, or even immoral.

In some cases, above all when the subject and the speaker coincide, the modal construction is also used with a pragmatic function to justify the subject's behaviour by denying responsibility for his/her action and blaming some external cause (Honselaar 1992, 134).

As far as the choice of aspect is concerned, Forsyth states that constructions of necessity and obligation do not show a clear tendency to use one aspect rather than the other, imperfective and perfective infinitives are of "roughly equal frequencies" (Forsyth 1970, 263). Starting from this premise, he provides additional explanations concerning the use of aspect in constructions with adverbials, adjectives or verbs, such as *надо*, *нужно*,

---

[3] Most of modal predicates that express obligation in Russian are non-verbal forms (either personal: *должен* 'have to', *обязан* '(be) obliged', or impersonal: *надо*, *нужно* 'need to') from which a past and a future form with the verb 'be' can be derived but which are not marked for the category of aspect. As for those with verbal forms, they present a defective aspectual paradigm: *следует*, 'it should be', is always imperfective in impersonal structures where it governs an infinitive and indicates a procedure to follow; *понадобиться*, 'need', only exists in the perfective (Poureau 2020, 226).

[4] Honselaar explains this situation as follows: "If someone plays his trump card, he makes use of his most valuable resource, and, has, consequently, no other resources left. This situation is clearly undesirable, and anybody would think twice before taking this risk". He also provides an example in which the subject felt obliged to play his trump card by showing a prestigious document in order to confound the guard who had stopped him – "a document which is probably more important than the situation requires" (Honselaar 1992, 132).

приходиться/прийтись etc. According to his analysis, the "stylistically neutral" aspect for expressing a single action in these constructions is perfective. In sentences that express an obligation or a necessity, the verb logically tends to emphasize the need for the action to be performed and therefore perfective is preferable. If the inherent meaning of perfective is inappropriate to the context, then imperfective is used, even in contexts with a single action. In these cases, a shift of emphasis occurs. The use of imperfective focuses the attention on "the circumstances of the performance", "the means by which the action is performed", "the nature of the action itself" (cfr. function of simple denotation of imperfective), or "emotional nuances", such as urgency (Forsyth 1970, 267– 271). When considering *приходиться/прийтись*, Forsyth states that in sentences like *мне часто приходилось*, 'I often had to-ipf', some kind of "linguistic inertia" or "contamination" operates so that the infinitive that follows the imperfective modal verb is also very often imperfective (Forsyth 1970, 229). This is not motivated by a need to express frequency, since the imperfective form of the modal verb already carries out this function. The choice of aspect in these cases "depends upon the speaker's desire either to express the action as a total singularised event, or simply to name it in an aspectually neutral way" (Forsyth 1970, 229).

A look at the distribution of data in the RNC regarding *приходиться/прийтись* and the aspect of the following infinitive is necessary to apply these theoretical considerations to the data that will be analysed in the following sections. Table 1 displays the outcome of four queries carried out in the new version of the RNC. The corpus was searched for both *приходиться* and *прийтись* in the past (praet) and non-past tense (fut/praes) at distance 1 from an imperfective (V, ipf) or perfective infinitive (V, pf).

	distance 1 from: a* V, ipf	distance 1 from: a* V, pf
приходиться * praet, sg, n, ipf	13749 (92,2%)	1176 (7,8%)
приходиться * praes, sg, ipf	12928 (83%)	2648 (17%)
прийтись * praet, sg, n, pf	10995 (38,5%)	17547 (61,5%)
прийтись * fut, sg, pf	8995 (51,3%)	8525 (48,7%)

Table 1: Distribution of data in the RNC for *приходиться/прийтись + infinitive*

The distribution of data in the corpus supports Forsyth's description of the aspectual behaviour of the infinitive verb. While it seems that both aspects are of "roughly equal frequencies" with *прийтись*, the distribution of infinitives with *приходиться* is much more skewed, with a strong tendency towards imperfective.

In his book, Forsyth did not specifically look at whether different types of modalities influence the choice of aspect. Divjak (2009) dedicated an article to this purpose, studying factors that could predict aspect in modal constructions. She used quantitative methods to find out which factor was the most influential among modality (deontic vs. dynamic), polarity (positive vs. negative), level of agent control (high, medium, low), and State of Affairs applicability (generic vs. specific) in a dataset of 541 sentences taken from the novel *Master i Margarita* by Bulgakov. Her findings demonstrate that the biggest role in the prediction of aspect is played by the generic vs. specific applicability of the State of Affairs. Divjak describes this factor in terms of "(non-)restrictedness of the expressed State of Affairs to a particular participant, condition or circumstance" (Divjak 2009, 251). By

generic applicability of the State of Affairs, the author defines various cases: a. when "details are given for actions that apply in general", b. when "reference to actions that are not specified any further" is contained, and c. when "generic actions can also be actions that need to be repeated" (Divjak 2009, 258). On the other hand, labelling a State of Affairs as specific means that it "is tied to one particular person and/or one particular condition or occurrence of the action" (Divjak 2009, 259).[5] Therefore, a specific State of Affairs is better expressed by perfective infinitives, while a generic one is by imperfective infinitives. Her second conclusion, based on the statistical analysis, is that modality type does not predict aspect to a relevant extent. The corpus analysis outlined in Section 4 will take into account this result (see 4.1, Modifier) and verify its validity for the construction under study.

3.1 The focus of analysis: *приходиться/прийтись делать/сделать*

Given the high number of examples of the construction available in the corpus (see Table 1) and the need to have a more manageable set of data, I decided to focus on one single verb pair in the infinitive, namely *делать/сделать* 'do'. The choice was motivated by various factors among which: frequency in the corpus, balanced distribution of infinitives within the construction, high rate of variation thanks to the wide range of possible direct objects, and no additional meaning differences between aspects due to prefixation.[6] Table 2 shows how the construction *приходиться/прийтись делать/сделать* is distributed in the RNC.

	distance 1 from: делать* V, ipf	distance 1 from: сделать'* V, pf
приходиться * praet, sg, n, ipf	318 (94,9%)	17 (5,1%)
приходиться * praes, sg, ipf	349 (85,7%)	58 (14,3%)
прийтись * praet, sg, n, pf	200 (39,8%)	302 (60,2%)
прийтись * fut, sg, pf	196 (49,6%)	199 (50,4%)

Table 2: Distribution of data in the RNC for *приходиться/прийтись делать/сделать*

The frequencies of *делать* and *сделать* in the construction are consistent with the overall distribution of *приходиться/прийтись + infinitive* in the whole corpus presented in Table 1. Even in this case, *прийтись* more easily admits both imperfective and perfective infinitives, while *приходиться* presents a strong preference for imperfective.

---

[5] Examples of generic (iii) vs, specific (iv) applicability of the State of Affairs as in (Divjak 2009: 259):
(iii) Аппараты были исправлены во время третьего отделения, надо было звонитьImpf.Inf, сообщить о происшедшем, просить помощи.
 'The phones were fixed during the third act, we had to make phone calls, inform about what had happened, ask for help.'
(iv) По тексту я понял, что план предназначен для Сарториуса, который должен был провестиPf.Inf эксперимент.
 'From the text I understood that the plan was intended for Sartorius, who had to conduct the experiment.'
[6] Using Janda's terminology (2007), сделать is the only Natural Perfective for делать, i.e., it does not present further semantic distinctions from its imperfective partner as Specialized Perfectives do (e.g., переделать 'redo'). Some verbs may have more than one Natural Perfective (cfr. заплатить-pf and уплатить-pf as Natural Perfectives of платить-ipf) and this could interfere in the study on the choice of aspect. Evidence about the number of Natural Perfectives for делать, платить and many other verbs can be found in the Exploring Emptiness database of UiT Arctic University of Norway, accessible at the following link: www.emptyprefixes.uit.no.

4. Corpus study

The first part of this work consists of a corpus study conducted on data extracted from the new version of the RNC. The aim is to identify factors in the linguistic context that influence the choice of one aspect over the other, in situations where the frequencies of both aspects in the infinitive are very similar in the corpus. At this first stage, only examples with the perfective modal verb *прийтись* were considered, since *приходиться* presents a more skewed distribution of infinitives in the corpus, as seen above. Statistical tests were run on the data, namely Classification And Regression Trees (CART) and random forests (Strobl, Malley, and Tutz 2009).

4.1 Methodology

The dataset for the corpus analysis was built following some specific criteria. Searches were defined considering past and non-past tenses for *прийтись* and the contiguous infinitive *делать/сделать*. Examples from the corpus that date back to before the 1950s were not included in the database, as they could present obsolete use of language. All documents from the same author were included. Table 3 reports the distribution of examples in the dataset, for a total of 447 occurrences.

	distance 1 from: делать* V, ipf	distance 1 from: сделать'* V, pf
прийтись * praet, sg, n, pf	119	125
прийтись * fut, sg, pf	112	91

Table 3: Distribution of examples in the dataset

After collecting the data, all examples were hand-annotated for seven factors: Aspect of the Infinitive, Tense of the modal verb *прийтись*, Direct Object, Dative, Modifier, Negation and Direct Object Position. Each variable is explained in the following commentary. The labels used for the analysis are specified and, where necessary, examples are also provided:

- Aspect of the infinitive: whether the infinitive comes in the imperfective (*делать*) or perfective (*сделать*) form. This is the focus of the research and will be the dependent variable in the statistical analysis. ASPINF: IPF/PF.
- Tense of the modal verb *прийтись*: whether it is past (*пришлось*) or non-past (*придётся*). TENSEPRI: NON-PAST/PAST.
- Direct object: whether it is singular, plural, a pronoun or absent. Some caveats regarding the values of this variable are needed. In peripheral cases where morphology and semantics do not necessarily match, grammatical number, singular or plural, was assigned according to a logical and semantic criterion. When the direct object is of the kind *сколько* 'how much', *столько чего-то* 'this/that much', or logically refers to a singular thing as in *самое сложное* 'the most difficult (thing)', it was labelled as singular. When the direct object contains numerals from two on, or quantifiers like *много* 'a lot of', *несколько* 'a few', *немало* 'a good few', *некоторые* 'some', they were labelled as plural. There were nineteen cases in which the direct object was omitted. In such cases, the label used was No. Finally, in 96 examples out of 447, the direct object was labelled as Pron, pronoun. The repertoire for this label is the following (with possible variations of case, number or gender): *что* 'that', *все* 'all', *который* 'who/that/which', *никакой* 'none', *ничего* 'nothing', *то же самое* 'the same', *многое* 'a great deal of', *то* 'that', *что-то* 'something', *это* 'this', *единственное*

что 'the only thing that', *всё что*, 'everything that', *ничего героического* 'nothing heroic', *всё это* 'all of this', *что-нибудь акробатическое* 'something acrobatic', *всё остальное* 'all the rest'. DO: NO/PL/PRON/SG.

- Dative: whether the subject in the dative case is overt or not. DATIVE: NO/YES.
- Modifier: whether there is an element that modifies or determines the context and the action in a way that might be relevant to the difference between imperfective and perfective. It may be adjectives, adverbs or adverbial phrases, adjuncts and even clauses. To better explain when such elements are considered to be relevant for the choice of aspect, some examples from the dataset are provided:

(4)   Ему тоже никогда не приходилось делать такое, хотя за эти дни пришлось делать в операционной то, о чем он прежде и помыслить не мог.
[Анна Берсенева. Возраст третьей любви, 2005]
'He has also never had to do that, although in the last few days (he) had to do things in the operating theatre that he couldn't even think about doing before.'

(5)   И скорее всего Касьянову придется сделать «ход конем» — передать коммерческие функции новой структуре.
[Светлана Офитова. Министров хотели сделать уголовниками // «Независимая газета», 2003.05.27]
'And Kas'janov will probably have to pull a trick move – to give the commercial functions to a new structure.'

(6)   И все бы закончилось благополучно, если бы у Салмана Багаева не случилось отторжения электрокардиостимулятора и операцию пришлось делать повторно.
[Владимир Емельяненко. Дорогая моя прописка. Легальный бизнес на нелегальной услуге // «Известия», 2002.05.12]
'Everything would have ended successfully, if Salman Bagaev hadn't rejected the pacemaker making it necessary to make the operation a second time.'

(7)   К сожалению, в наружной стене придется сделать небольшое сквозное отверстие.
[Алексей Антоновский, Сергей Бехтерев. Кондиционеры. Любовь к жаркой погоде // «Homes & Gardens», 2002.07.09]
'Unfortunately, it will be necessary to make a small hole in the exterior wall.'

(8)   Идет война между губернатором Михаилом Машковцевым и рыбными «генералами». Чтобы лучше понять ее суть, придется сделать небольшой экскурс в новейшую историю Камчатки.
[Олег Жунусов, Петр Яковлев. Как правильно разделать рыбу. Классовая борьба на Камчатке // «Известия», 2002.03.10]
'A war is going on between the governor Michail Maškovcevyj and fishing "generals". To better understand its essence, it will be necessary to make a short digression about the recent history of Kamčatka.'

In example (4), the direct object is a pronoun, *то*, that is elaborated by the following clause. Such cases are, therefore, identified as Clause. Other possibilities are included in the category Clause, such as clauses that specify an ambiguous direct object, like in example (5), where the direct object is the expression *ход конем* 'trick move' that needs to be contextualized and explained with an infinitive clause. In example (6), the adverb *повторно* 'a second time', is a clear clue for the imperfective, supporting the repetition of the action. In example (7), the adjective *небольшой* 'small', conveys the meaning of a physical quality of the direct object that would probably not influence aspect. In example (8), instead, *небольшой* means 'short in time', rather than 'small in space', and is more relevant to the aspectual choice. Therefore, in the annotation of example (7), the adjective is not considered to be a modifier while it is in (8). Divjak (2009)

claimed that the generic vs. specific applicability of the State of Affairs is an influential factor in the prediction of aspect in modal constructions. The factor "Modifier" highlights the presence of any element that could restrict the State of Affairs to a specific situation. This factor was introduced to verify Divjak's finding, according to which imperfective is used in contexts that express a generic State of Affairs, while perfective is used in contexts that delineate a State of Affairs restricted to a specific situation. MODIFIER: CLAUSE/NO/YES.

- Negation: whether the main verb *прийтись* is negated or not.
- NEGATION: NO/YES.
- Direct Object Position: whether the direct object comes before or after the verb. When the example lacks the direct object, the value for DO-POS is NA, not applicable. DO-POS: NA/POST/PRE.

4.2 Statistical analysis and results

After collecting and annotating the data, some statistical tests were run. First, the dataset was submitted to a CART test, considering ASPINF as the dependent variable and the other six factors as independent variables.[7] Results are shown in Figure 1.
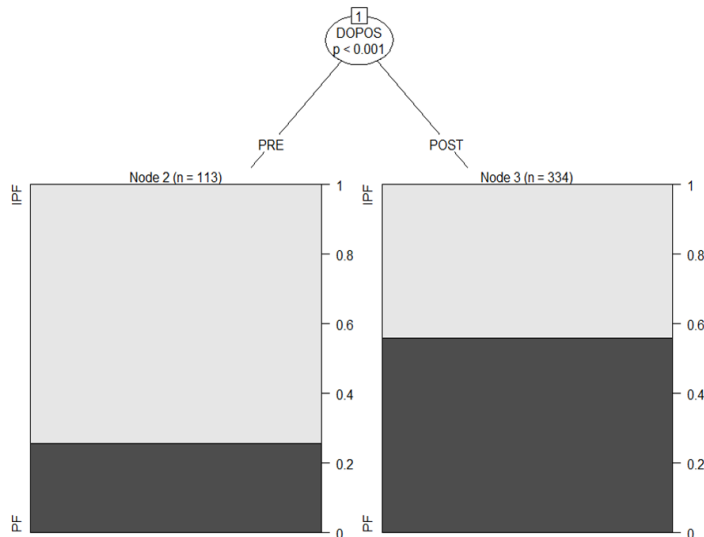

Figure 1: CART model for *прийтись делать* vs. *прийтись сделать*

As illustrated in the plot, the model split the data into two nodes according to the parameter DO-POS, which resulted to be the only influential factor in the choice of *делать* vs. *сделать* within the construction. The direct object is preposed in 113 examples (Node 2), and in 76.4% of them, the aspect of the infinitive is imperfective. On the other hand, when the direct object is postposed (Node 3, 334 examples), the distribution of imperfective and perfective aspects in the infinitive is 43.8% and 56.2%, respectively. The *p*-value (< 0.001) confirms the statistical significance of the split. This result would lead to the conclusion that when the direct object comes before the modal verb there is a tendency to

---

[7] Gries (2020; 2021) has recently pointed out that there are some limitations for the use of the CART and random forests models, such as lack of robustness and stability, or overfitting. In view of this, no strong conclusions will be drawn based on the CART analysis, which served as a preliminary investigation of the role of linguistic context in the choice of aspect.

choose imperfective over perfective, whereas when it follows the modal verb, the distribution is almost equal with a slight preference towards perfective. However, before making such a claim, it is worth taking a deeper look at what kind of examples populate Node 2.

In 66 out of the 113 examples contained in Node 2, the direct object is a pronoun that, as such, compulsorily comes before the construction for syntactic reasons.

(9)   Нет, ты представляешь, что мне пришлось делать?!
[Марина Палей. Дань саламандре, 2008]
'No, can you imagine what I had to do?'

(10)   Тебе ничего не придётся делать!
[Юлия Лавряшина. Улитка в тарелке, 2011]
'You won't have to do anything!'

In (9), the syntactic direct object *что* functions as an interrogative pronoun and, as such, its syntactic position is before the construction. The same goes for the negative pronoun in (10), which syntactically must precede the negative particle *не* and the verb. In the other 47 examples contained in Node 2, the direct object is a noun whose preposed position signals a more marked word order.

(11)   Два укола пришлось делать (…).
[Владислав Крапивин. Болтик, 1976]
'Two injections, I had to do.'

In (11), the position of the direct object *два укола*, 'two injections', is marked. The direct object would normally occur postposed, according to the "theme precedes rheme"-principle governing Russian information structure. However, here it is intentionally preposed and, therefore, focussed. It must be noted that, in such marked cases, prosody plays an important role in determining the shift of focus and, presumably, the preposed object carries a special intonation marking too. However, since the data analysed here come from written texts, it was not possible to collect this kind of information at this stage of research. In terms of aspect choice, such a shift of focus from the main action to the direct object could explain the tendency to choose the imperfective infinitive. As claimed by Forsyth (1970, cf. Section 3), when a shift of emphasis occurs and the focus of a sentence falls on an element that is not the predicate, the latter is backgrounded and, therefore, more likely to take the imperfective form.

The distribution of aspects in the infinitive according to the type of preposed direct object is illustrated in Figure 2.
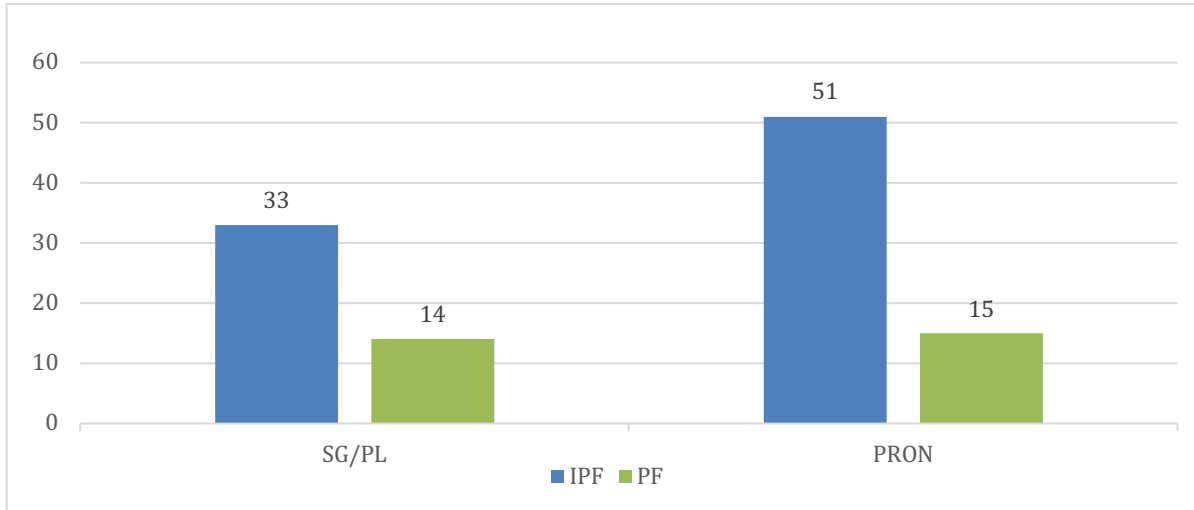
Figure 2: Distribution of Aspect of the Infinitive (IPF – imperfective; PF – perfective) according to Direct Object (SG/PL – singular/plural, PRON – pronoun) in examples with Direct Object Position = PRE (cfr. Node 2 from the CART model)

When the direct object is a preposed noun (SG/PL), the aspect in the infinitive is imperfective in 33 cases, and perfective only in 14. On the other hand, when the direct object is a pronoun, 51 examples have *делать* and 15 – *сделать*. Therefore, in both situations, imperfective is far more frequent than perfective. However, since pronouns are naturally preposed, the portion of data that should be considered to support the result of the CART test (Figure 1) is exclusively the one regarding preposed nouns followed by an imperfective, i.e., 33 examples, which equals 7.4% of the whole dataset. For this reason, no strong claims nor generalizations can be made about the interaction between the direct object position and the choice of aspect in the infinitive. Further investigations from the perspective of information structure, pragmatics, and prosody should be conducted to gather more evidence about the behavior of preposed direct objects, including pronominal ones.

For further validation of the CART model, another statistical test was run on the data, namely random forests. The dot chart in Figure 3 displays the conditional variable importance calculated by the model.
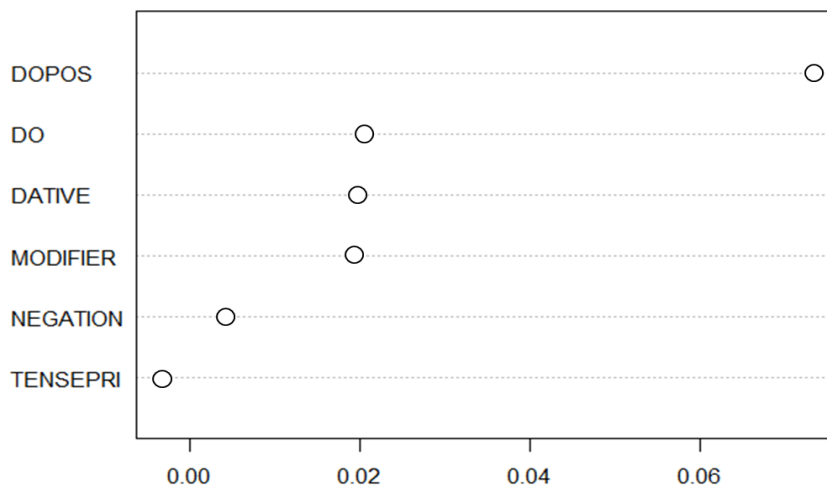

Figure 3: Conditional variable importance for *прийтись делать*-ipf vs. *прийтись сделать*-pf

The test confirmed the results from the CART analysis, with DO-POS as the most influential factor in the choice of aspect. Variable importance for DO, MODIFIER, and DATIVE is not significant enough to be taken into account. NEGATION and TENSEPRI are the least significant predictors. Table 4 reports the exact values.

DO-POS	DATIVE	DO	MODIFIER	NEGATION	TENSEPRI
0.073	0.020	0.020	0.019	0.004	-0.003

Table 4: Values of conditional variable importance

From the corpus analysis emerged that the only variable that significantly interacts with the choice of aspect in the infinitive (*делать* vs. *сделать*) is DO-POS. However, for the reasons explained above, this result holds for a small portion of the data (7.4%), which leads us to exclude the possibility of generalizing the outcome to the whole dataset at this stage of research. As far as the parameter Modifier is concerned, its influence on aspect choice in our dataset is not significant enough to support Divjak's claim about the generic vs. specific State of Affairs being a significant factor in determining aspect choice (Divjak 2009, cfr. Section 3). At this point, if not considering the variable Direct Object Position, it may be concluded that, in our dataset, the choice of aspect is independent of linguistic context, since no other factor significantly influences the choice towards *делать* or *сделать*.

5.   The experiment with native speakers: *"Что делать-что сделать?"*

For further investigation on the choice of aspect in the considered construction, an online survey was submitted to 110 native speakers of Russian. The main goal of the experiment was to collect evidence on the acceptability of both perfective and imperfective verb forms in authentic contexts with the construction *приходиться/прийтись делать/сделать*.

5.1 Stimuli and procedure

The survey consisted of 17 examples taken from our dataset. In contrast to the corpus study (Section 4), stimuli with both *прийтись* and *приходиться* were included at this stage of research. In order to further control the number of factors involved, examples with three particular direct objects were considered, namely *шаг* 'step', *выбор* 'choice', and *вид* 'appearance, form, type' that combined with *делать/сделать* means 'to pretend'. This choice was made based on the relatively high frequency of these direct objects within our dataset. Stimuli were selected to include as many combinations of factors for the direct object, aspect and tense as possible, as shown in Table 5.

Direct object		Modal verb + infinitive	
Шаг	1.	PF.PAST + IPF	пришлось делать
	2.	PF.NON-PAST + PF	придётся сделать
	3.	IPF.NON-PAST + IPF	приходится делать
	4.	IPF.NON-PAST + PF	приходится сделать
	5.	PF.PAST + IPF	пришлось делать
Вид	6.	PF.PAST + PF	пришлось сделать
	7.	PF.NON-PAST + IPF	придётся делать
	8.	PF.NON-PAST + PF	придётся сделать
	9.	IPF.PAST + IPF	приходилось делать
	10.	PF.PAST + IPF	пришлось делать
Выбор	11.	PF.PAST + PF	пришлось сделать
	13./14.	PF.NON-PAST + IPF	придётся делать (x2)
	15.	PF.NON-PAST + PF	придётся сделать
	16.	IPF.NON-PAST + IPF	приходится делать
	17.	IPF.PAST + IPF	приходилось делать

Table 5: Characteristics of the stimuli according to the possible combinations of aspect and tense of the modal verb and aspect of the infinitive

Each example came with a context of 40-50 words and was submitted in two versions: the original version from the corpus and the edited version with the opposite aspect in the infinitive. Native speakers were required to rate the acceptability of aspect in the two versions of each example (*делать* vs. *сделать*) by choosing among three possibilities: *Невозможно* 'Impossible', *Допустимо* 'Acceptable', *Отлично* 'Excellent'. Information about the original aspect was not provided to the participants. For each pair of stimuli, a facultative open question on the difference between the two examples was also asked (*В чём разница?* 'What's the difference?'). To avoid priming effects, the ordering of the questions was randomized. The survey was designed on the platform Survio.[8] Participants were recruited by sharing the link to the survey on social networks and with individuals in Russia. Participation was anonymous and voluntary. Only adult (>18 years old) native speakers that grew up in Russia and had reached a high-school educational level could take part in the survey. No IP addresses or other identifying information was collected. By starting the survey, people gave their consent and accepted the conditions. The task was completed by 110 participants. Figure 4 illustrates what the task looked like.

---

[8] Survio platform is available here: www.survio.com.

Figure 4: Example 1 from the survey

5.2 *Analysis and results*

After collecting the answers, the data obtained were annotated for six variables, namely:

- Answer: the participants' answer on the acceptability of the example, namely *Невозможно* (N) 'Impossible', *Допустимо* (D) 'Acceptable', or *Отлично* (O) 'Excellent'. ANSWER: N/D/O.
- Person ID: each of the 110 participants was assigned a unique ID. PERSONID: A, B, C, D, […], AA, AB, AC, […], DD.
- Direct Object: whether the direct object in the example is *шаг* 'step', *вид* 'pretend' or *выбор* 'choice'. DO: S/V/VB.
- Original Aspect: whether the aspect of the infinitive in the original version of the example is imperfective (*делать*) or perfective (*сделать*). ORASP: IPF/PF.
- Matches Original: whether the infinitive being rated is of the same aspect as in the original text or not. It is worth considering how values for Original Aspect and Matches Original combine in four possibilities: a. the original aspect is делать but the participant is rating *сделать*; b. the original aspect is *делать* and the participant is rating *делать*; c. the original aspect is *сделать*, but the participant is rating *делать*; d. the original aspect is *сделать* and the participant is rating *сделать*. MATCHOR: YES/NO.
- Aspect of *приходиться/прийтись*: whether the modal verb is in the imperfective or perfective aspect. ASPPRI: IPF/PF.

From a first look at the annotated dataset, it emerges that, overall, most of the examples were rated as either acceptable or excellent, independently from the original aspect and their matching with the original. However, Excellent ratings significantly increase when the example matches the original, in correspondence with a low frequency of Impossible responses, suggesting participants' consistency with the choice of the author. When the example does not match the original, Impossible responses increase instead, but

Acceptable and Excellent ratings are still predominant, showing that native speakers do perceive a difference in the change of aspect and are less consistent in rating the acceptability of the non-original aspect.
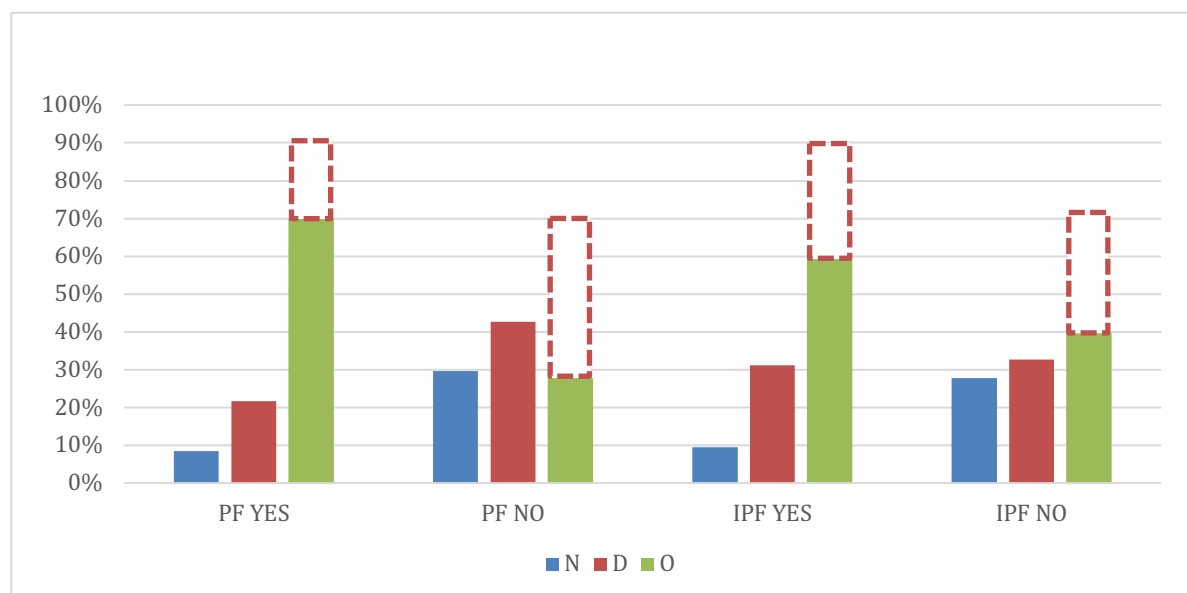

Figure 5: Percentage distribution of results according to factors Answer (N – *Невозможно*, D – *Допустимо*, O – *Отлично*), Original Aspect (IPF – imperfective, PF – perfective) and Matches Original (YES, NO)

The graph in Figure 5 shows the percentile distribution of answers (N – *Невозможно*, D – *Допустимо*, O – *Отлично*), according to the variables Original Aspect and Matches Original. As far as original aspects are concerned (first and third section of the graph), they were mostly rated as excellent in both cases. However, original perfectives (first section of data from the left) received more Excellent responses than original imperfectives (third group of data), which in turn collected 9% of Acceptable ratings more than original perfectives. Data on non-original aspects (second and fourth sections of the graph) show an increase in Impossible and Acceptable responses. In particular, non-original perfectives received only 28% of Excellent responses, but 43% of Acceptable responses. Non-original imperfectives were rated as mostly Excellent (40%) but with a considerable amount of Acceptable (33%) and Impossible (28%) responses. Overall, by considering both *Допустимо* and *Отлично* responses as indicators of grammatical acceptability, i.e., by summing the D responses to the O responses, as represented in the graph by the dashed red rectangles, aspect was evaluated as grammatically acceptable by the majority of native speakers in all the four scenarios.

A statistical test, namely a Logistic Regression with Mixed Effects, was run on the data to single out tendencies on how answers change according to the variables for which the survey data were annotated. The variable Answer represents the dependent variable of the model. Since Logistic Regression is binomial and the variable Answer has three outcomes, the values for Acceptable and Excellent responses, namely D and O, were merged. The outcomes of Answer for the test are, therefore, N for negative responses and O for positive responses (*Допустимо* and *Отлично* altogether). The variables Direct Object, Original Aspect, Matches Original and Aspect of *приходиться/прийтись*

represent the independent variables, while PersonID is included in the test as a random variable to account for participants' subjectivity. The model was run five times with different configurations of independent variables, keeping constant the response and the random variable. An ANOVA test was then carried out to define which model best fitted the data. The best model (χ2 (1) = 267.7, *p*-value < 2.2e-16) resulted to be the one that combines the dependent variable Answer and the random variable PersonID with the independent variables Matches Original, Direct Object and Aspect of *приходиться/прийтись*. Table 6 displays its outcome.

Fixed effects	Estimates	Std. error	p-value
(Intercept)	-0.11593	0.11690	0.32134
MATCHOR YES	1.55078	0.10150	< 2e-16
ASPPRI PF	1.16035	0.09588	< 2e-16
DO VB	0.62481	0.10850	8.48e-9
DO V	0.37136	0.11729	0.00154
Random effects	Variance	Std. deviation	
PERSONID (Intercept) 0.4281		0.6543	

Table 6: Results of Logistic Regression with Mixed Effects

The reference level of the dependent variable is N, and the algorithm compares the second level O, with the reference level. The intercept is defined by the reference values No for Matches Original, S (*шаг*) for Direct Object and Imperfective for Aspect of *приходиться/прийтись*. Results show that when the example matches the original (MATCHOR-YES), the probability of a positive response (D/O) increases in comparison with the reference value (MATCHOR-NO). This result confirms the tendency that was already outlined above, when discussing Figure 5. Then, when the aspect of the modal verb is perfective (ASPPRI-PF, namely *прийтись*), the chances of D/O responses are higher than with the imperfective *приходиться*. This means that the modal perfective is less restrictive, and examples receive more positive ratings independently from the aspect of the infinitive, while *приходиться* seems to be less flexible and prefers imperfective, as also the distribution of data in the RNC shows (see Table 1 and Table 2). In other words, the imperfective infinitive is more prototypical for *приходиться*. This conclusion provides further evidence for what Forsyth (1970) called the "linguistic inertia" that takes over in examples with *приходиться* (see Section 3). He stated that, when using *приходиться*, the choice of the infinitive is open to the speaker's desire to express the action as a single event or to simply name it in an aspectually neutral way. As a matter of fact, in our case, Acceptable and Excellent responses are attested also for examples with *приходиться сделать*. However, in the majority of cases, imperfective prevails, as if the modal verb "contaminated" the infinitive.

As far as Direct Object is concerned, the model outcome leads us to conclude that examples with *вид* (DO-V) and *выбор* (DO-VB) are more likely to receive positive responses than examples with *шаг* (DO-S), which is instead more restrictive and is better evaluated when it occurs with the perfective *сделать*. Such a difference may be due to the intrinsic semantic characteristics of the three nouns. Taking a step, even if in a metaphorical context, is an instant action per se, that physically takes a short time to complete. While actions like making a choice or pretending can extend over a duration and

be seen both as processes and results, taking a step is a resultative action in most cases. In terms of Janda's metaphorical explanation of aspect (Janda 2004), pretending and deciding on a choice may be considered both as fluid, ongoing actions and as actions occupying a defined portion of the timeline. Taking a step, on the other hand, is preferably perceived only as an instantaneous action, based on an embodied human experience.

Participants' answers to the facultative question about the difference between the two aspects in each example were not analysed quantitatively but were only taken into consideration as further validation for the main findings of the statistical analysis. For example, some of the answers to this question support the explanation that *шаг* is inherently an instantaneous action and is, therefore, more acceptable with perfective. After rating examples with *делать/сделать шаг* 'take a step', a few native speakers commented as follows:

(12) Шаг - короткое действие, его нельзя «делать» долго, его надо сделать быстро.
'A step is a short action, it can't be "taken-ipf" for a long time, it has to be taken-pf quickly.'

(13) Шаг - по смыслу - однократное действие.
'A step – by meaning – is a one-time action.'

In addition, in several cases, participants stated that both aspects were admittable in the same context and that there was no difference between the two options:

(14) Разницы нет.
'There is no difference.'

(15) Тут оба варианта вполне равнозначны.
'Here both options are completely equivalent.'

(16) Оба варианта не нарушают смысл.
'Neither of the two options violates the meaning.'

(17) Возможны оба варианта, но в разных ситуациях.
'Both options are possible, but in different situations.'

The experiment with native speakers showed that, in most cases, both aspects in the same contexts are grammatically acceptable (see Figure 5), which means that the choice of aspect is to some extent open to construal, i.e., to the meaning that the speaker wants to convey. The statistical analysis identified some tendencies in the evaluation of examples by participants: the example was more likely to receive better ratings if it matched the original in the corpus; *прийтись* is more flexible, as far as the choice of the infinitive is concerned, while *приходиться* is more restrictive and strongly prefers imperfective; responses significantly vary also depending on the direct object (examples with *выбор* and *вид* were more likely to be rated positively both with imperfective and perfective, while *шаг* appears to be most often acceptable with perfective).

6. Conclusion

The main goal of the present work was to test Janda and Reynold's hypothesis that the choice of aspect in modal constructions is not redundant, but relatively open to construal (Janda and Reynolds 2019). To do so, I conducted two studies, focusing on aspect selection in the construction *приходиться/прийтись делать/сделать*. I verified whether there

is any factor in the linguistic context that influences the choice of the infinitive and, therefore, whether the choice of aspect is redundant or open to construal.

First, a statistical analysis of corpus data was carried out. The CART test showed that only the position of the direct object significantly interacts with the aspect of the infinitive. However, this result only holds for a minimal portion of the data (7.4%) and, therefore, cannot be generalized to the whole dataset. If not considering DO-POS, there is no other factor in the linguistic context that significantly influences aspect choice. Second, an acceptability judgement experiment with native speakers was conducted. The Logistic Regression with Mixed Effects model singled out some tendencies and some restrictions in aspect acceptability evaluation. Overall, however, answers to the survey demonstrated that in most cases both aspects are grammatically acceptable in the same linguistic context, forasmuch as Acceptable and Excellent responses were always more frequent than Impossible responses. Participants' answers to the metalinguistic question on the difference between aspects also corroborated this conclusion. This would lead us to the claim that in the construction with *приходиться/прийтись* the choice of aspect in the infinitive is open to construal. Further research on this and other modal constructions should be conducted to provide additional evidence to the findings presented in this article.

7.   References

Bernasconi, Beatrice, and Valentina Noseda. 2021. "Examining the role of linguistic context in aspectual competition: a statistical study." Komp'juternaja Lingvistika I Intellektual'nye Technologii 20: 110–118.
https://dx.doi.org/10.28995/2075-7182-2021-20-110-118

Chiari, Isabella. 2002. Ridondanza e linguaggio: un principio costitutivo delle lingue [Redundancy and language: A constitutive principle of languages]. Roma: Carocci.

Chiari, Isabella. 2007. "Redundancy elimination: The case of artificial languages." Journal of Universal Language 8: 7–38.
https://doi.org/10.22425/jul.2007.8.2.7

Dickey, Stephen M. 2000. Parameters of Slavic Aspect: A Cognitive Approach. Stanford: CSLI Publications.

Divjak, Dagmar. 2009. "Mapping between domains. The aspect–modality interaction in Russian." Russian Linguistics 33 (3): 249–69.
https://doi.org/10.1007/s11185-009-9045-8

Divjak, Dagmar. 2019. Frequency in Language: Memory, Attention and Learning. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781316084410

Eckhoff, Hanne M., Laura A. Janda, and Olga N. Lyashevskaya. 2017. "Predicting Russian Aspect by Frequency Across Genres." Slavic and East European Journal 61 (4): 844–75.

Forsyth, John. 1970. A Grammar of Aspect: Usage and Meaning in the Russian Verb. Cambridge: Cambridge University Press.

Geeraerts, Dirk, and Hubert Cuyckens, eds. 2007. The Oxford Handbook of Cognitive Linguistics. Cary, USA: Oxford University Press.

Gries, Stefan Th. 2020. "On Classification Trees and Random Forests in Corpus Linguistics: Some Words of Caution and Suggestions for Improvement." Corpus

Linguistics and Linguistic Theory 16 (3): 617–47.
https://doi.org/10.1515/cllt-2018-0078

Gries, Stefan Th. 2021. Statistics for Linguistics with R: A Practical Introduction. Berlin, Boston: Mouton De Gruyter.

Grønn, Atle. 2004. "The Semantics and Pragmatics of the Russian Factual Imperfective." PhD diss., University of Oslo.

Honselaar, Wim. 1992. "The Russian modals приходиться/прийтись, нужно and надо: semantics and pragmatics." Studies in Slavic and General Linguistics 17: 125–49.

Jakobson, Roman. 1984. "Shifters, Verbal Categories, and the Russian Verb." In Russian and Slavic Grammar, 106: 41–58. Berlin, New York: De Gruyter Mouton. https://doi.org/10.1515/9783110822885

Janda, Laura A. 2004. "A metaphor in search of a source domain: The categories of Slavic aspect." Cognitive Linguistics 15 (4): 471–527. https://doi.org/10.1515/cogl.2004.15.4.471

Janda, Laura A. 2007. "Aspectual Clusters of Russian Verbs." Studies in Language 31 (3): 607–48. https://doi.org/10.1075/sl.31.3.04jan

Janda, Laura A., Anna Endresen, Julija Kuznetsova, Olga N. Lyashevskaya, Anna Makarova, Tore Nesset, and Svetlana Sokolova. 2013. Why Russian Aspectual Prefixes Aren't Empty: Prefixes as verb classifiers. Bloomington: Slavica Publishers.

Janda, Laura A., Anna Endresen, and Robert J. Reynolds. 2019. "Aspectual Opposition and Rivalry in Russian Are Not Discrete: New Evidence from Experimental Data." Russian Linguistics 43 (3): 249–71. https://doi.org/10.1007/s11185-019-09217-7

Janda, Laura A., and Robert J. Reynolds. 2019. "Construal vs. redundancy: Russian aspect in context." Cognitive Linguistics 30 (3): 467–97. https://doi.org/10.1515/cog-2017-0084

Langacker, Ronald W. 1991. "A usage-based model". In Concept, Image, and Symbol. The Cognitive Basis of Grammar, 261–288. Berlin: Mouton De Gruyter. https://doi.org/10.1515/9783110857733.261

Langacker, Ronald W. 1999. "A dynamic usage-based model". In Grammar and Conceptualization, 91–146. Berlin: Mouton De Gruyter. https://doi.org/10.1515/9783110800524.91

Langacker, Ronald W. 2008. Cognitive grammar. Oxford: Oxford University Press.

Langacker, Ronald W. 2015. "Construal". In Cognitive Linguistics - Foundations of Language edited by Ewa Dąbrowska and Dagmar Divjak, 120–143. Berlin, Boston: Mouton De Gruyter. https://doi.org/10.1515/9783110292022-007

Maslov, Jurij S. 1948. "Vid i leksičeskoe značenie glagola v sovremennom russkom jazyke. [Aspect and the lexical meaning of the verb in contemporary Russian]" Izvestija AN SSSR, otdelenie literatury i jazyka 7 (4): 303–16.

Padučeva, Elena V. (1996). Semanticeskie issledovanija [Semantic investigations]. Moskva: Jazyki russkoj kul'tury.

Poreau, Bastien. 2020. "Modalité, énonciation et aspect: analyse de prédicats et structures exprimant l'obligation et régissant un datif en russe contemporain. [Modality, enunciation and aspect: analysis of predicates and structures expressing

obligation and governing a dative in contemporary Russian.]" PhD diss., Institut National des Langues et Civilisations Orientales.

Strobl, Carolin, James Malley, and Gerhard Tutz. 2009. "An Introduction to Recursive Partitioning: Rationale, Application, and Characteristics of Classification and Regression Trees, Bagging, and Random Forests." Psychological Methods 14 (4): 323–48. https://doi.org/10.1037/a0016973

Zaliznjak, Anna A., and Aleksej D. Šmelev. 2000. Vvedenie v russkuju aspektologiju [An introduction to Russian aspectology]. Jazyki russkoj kul'tury. Moskva.

author: Beatrice Bernasconi
affiliation: Roma Tre University - Sapienza University of Rome, Rome
email: beatrice.bernasconi@uniroma3.it