

Disentangling путать

An empirical analysis of one verb with prefix variation

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Transliteration and abbreviations

Note on transliteration

Examples from the Russian National Corpus (RNC) will be given in Cyrillic letters. Russian names, book titles, etc. in the thesis will be transliterated using the International Scholarly System. The names listed in the acknowledgements are transliterated according to the standard (Library of Congress) system of transliteration.

List of abbreviations

ADV – adverb

CL – clause

Conj – conjunction

NPacc – noun phrase in accusative

NPdat – noun phrase in dative

NPgen – noun phrase in genitive

NPins – noun phrase in instrumental

NPloc – noun phrase in locative

NPnom – noun phrase in nominative

V – verb

Vinf – verb in infinitive

1. Introduction

This thesis explores prefix variation in *пытать*^{ipf}. *Prefix variation* is the term used by Janda et al. (2013) to describe the situation when a simplex verb “can use more than one prefix to form Natural Perfectives” (Janda et al.: 139). In Janda’s terminology, Natural Perfectives are those perfective verbs that constitute aspectual pairs with simplex verbs. In most cases of prefix variation, the simplex verb uses two prefixes to form Natural Perfectives, but, as shown by Janda et al. (2013: 142), the prefix variation of one verb can involve up to six prefixes. In the case of *пытать*^{ipf}, the simplex verb uses four prefixes to form Natural Perfectives: *с-*, *пере-*, *за-* and *в-*, and thus *пытать*^{ipf} has a relatively high degree of prefix variation.

In 2013, Janda et al. carried out a large-scale study of 1429 simplex verbs, and they discovered that prefix variation is a robust phenomenon that applies to 27% of the simplex verbs in Russian. However, little research has been done to follow up on the findings of these scholars. My thesis is intended to complement their large-scale study with a detailed investigation of the prefix variation in one verb.

There are three reasons why I selected *пытать*^{ipf} as “my verb”. First, as mentioned, *пытать*^{ipf} uses four prefixes to form Natural Perfectives and is therefore a good example of a verb with extensive prefix variation. Second, most of the “*пытать* verbs” are used frequently, which is important in a corpus-based study. Third, *пытать*^{ipf} has several abstract meanings, which makes it interesting from a pedagogical perspective simply because experience shows that abstract meanings are challenging to learn for second language learners.

My thesis consists of three case studies, which will occupy one chapter each. In this introductory chapter, I will present each case study with special focus on research questions, hypotheses, methodology and important findings.

1.1 Case study I: The choice of prefix under prefix variation

My first case study seeks to shed light on two questions that are particularly relevant in second language learning: *Can the choice of prefix be predicted when there is prefix variation?* And, if yes: *How?* I will hypothesize that the choice of prefix can be largely predicted on the basis of two factors, namely (1) the type of construction in which the verb appears and (2) the semantics of the internal argument (the object in active sentences and the subject in passive sentences). This hypothesis will be tested by examining the constructions and internal arguments of 630 randomly selected examples of спутать^{pf}, перепутать^{pf}, запутать^{pf} and впутать^{pf} from the Russian National Corpus (RNC).¹ I will also carry out a Classification Tree (cTree) analysis to describe the interaction between the two relevant factors.

Based on my findings, I will argue that both type of construction and the semantics of the internal argument are important for the choice of prefix. My statistical analysis shows that the two factors interact in non-trivial ways, and based on this interaction I will propose six specific generalizations that motivate the choice of prefix. Importantly, my results lend further support to the findings of Janda et al. (2013) who observe a relationship between the meaning of the verb and the meaning of the prefix. In my discussion of путать^{ipf}, I will demonstrate how this relationship manifests itself in the prototypical contexts of спутать^{pf}, перепутать^{pf}, запутать^{pf} and впутать^{pf}.

Towards the end of Chapter 2, I will suggest two specific ways that corpus-based case studies, like my own, can be implemented in second language learning. These methods are inspired by the ideas of Nessel and Janda (2014), but focus specifically on the use of small-scale studies of verbs with prefix variation. Using my own analysis as an example, I will argue that such case studies can help second language learners to discover the relationship between verb and prefix for themselves and that this, in turn, can give them a deeper understanding of the language they are working on. The methods will be exemplified with specific assignments.

¹ The Russian National Corpus (RNC) is available at www.ruscorpora.ru

1.2 Case study II: “Aspectual strength” and the aspectual relations of *пытать*

Are all Natural Perfectives Natural Perfectives to the same degree? In Chapter 3, I will explore this question by examining the four aspectual relations of *пытать*^{ipf}. My data will include the database from Chapter 2 in addition to 200 randomly selected examples of *пытать*^{ipf} from the RNC. To measure the “strength” of the four relevant aspectual relations I will employ the method proposed by Kuznetsova (2012). My hypothesis is that Natural Perfectives can be closely, or less closely, connected to the simplex verb, and that the “aspectual strength” of this relation is motivated by the semantic overlap of verb and prefix. This hypothesis has already been tested by Kuznetsova (2012) for a number of verb pairs with *npo-*, but has not yet been tested on a verb that has prefix variation.

Based on my findings, I will show that the four aspectual relations of *пытать*^{ipf} have different strengths and that there is a relationship between aspectual strength and the semantic overlap of verb and prefix. This yields support to my own hypothesis as well as the hypothesis of Kuznetsova (2012), on which my hypothesis is based. My findings also yield support to the hypothesis of Janda et al. (2013), who, as mentioned above, observe a strong relationship between the meaning of the verb and the meaning of the prefix in Natural Perfectives.

Traditionally, Natural and Specialized Perfectives have been understood as two clearly distinct types of perfectives and a given perfective verb has been classified as either 100% Natural or 100% Specialized. My findings suggest that the relationship between Natural and Specialized Perfectives is gradual, rather than clear-cut, and I will show that none of the 21 Natural Perfectives analyzed by Kuznetsova (2012) or me are “ideal” (100%) Natural Perfectives. Like some other researchers (e.g. Janda et al. 2013: 177), I will propose that Natural and Specialized Perfectives form a continuum with two centers of gravity: One center of gravity is occupied by perfective verbs that are close to ideal Natural Perfectives, while the other center of gravity is occupied by perfective verbs that are close to ideal Specialized Perfectives. I will show that the two centers of gravity are distinct enough to speak of two different types of perfectives, but that they represent too much inner diversity to be understood as classical Aristotelian categories. Instead, I will propose that Natural and Specialized Perfectives constitute two radial categories with prototypical and non-prototypical members, fuzzy edges and overlap in the peripheral zones. This finding nuances the way we understand Natural and Specialized Perfectives.

An important methodological question arises from my case study. The idea of Kuznetsova (2012) is that aspectual strength can be measured by comparing the constructions in which the imperfective and perfective verbs frequently appear. However, since constructions can be considered on very different levels of granularity, it is important to find out which level gives more accurate results. I will measure the aspectual strength of the four relations based on two levels of granularity and compare the results. I will show that both levels of granularity give valuable information and that they yield the same relative order of the pairs under scrutiny. Nevertheless, I will argue that the high level of granularity gives most accurate results, a conclusion that coincides with the findings of Berdičevskis and Eckhoff (2014).

1.3 Case study III: Путать and aspectual triplets

Although aspectual triplets consisting of a simplex imperfective, a Natural Perfective and a Secondary Imperfective have received some attention in recent years (Zaliznjak and Mikaëljan 2010, Janda et al. 2013, Kuznetsova and Sokolova forthcoming), triplets represent an understudied area in Russian aspectology. In my last case study, I will use the four triplets involving *путать*^{ipf} to investigate some of the questions that can be asked. I will base my analysis on 200 examples of *путать*^{ipf} and 438 examples of *спутывать*^{ipf}, *перепутывать*^{ipf}, *запутывать*^{ipf} and *впутывать*^{ipf} from the RNC. I consider three hypotheses:

“The Semantic Differentiation Hypothesis” claims that the Primary and Secondary Imperfective in a triplet appear in different prototypical constructions. Comparing the Constructional Profiles of *путать*^{ipf} and the four Secondary Imperfectives in question, I will show that this hypothesis gives correct predictions for each of the *путать*^{ipf} triplets.

“The Telicity Hypothesis” builds directly on the hypotheses set forth by several other scholars (e.g. Veyrenc 1980 and Kuznetsova and Sokolova forthcoming) and claims that Primary Imperfectives focus on the process of the verbal event itself (“atelic events”), while Secondary Imperfectives focus on a goal or a result, i.e. are goal-oriented (“telic events”). Several predictions can be made from this hypothesis, and based on the statistical analyses of the examples in my database I will show that all of these predictions are correct for the *путать*^{ipf} triplets.

“The Aspectual Strength Hypothesis” follows from my own findings in Chapter 3 and claims that there is a relationship between aspectual strength and the distribution of the Primary and Secondary Imperfective in a triplet. Since the four triplets in question involve three levels of aspectual strength, I will hypothesize that each level involves a different distribution of the imperfective verbs: High aspectual strength involves frequent use of *пытать^{ipf}*, while low aspectual strength involves frequent use of the relevant Secondary Imperfective. At intermediate strength, the triplet is expected to be “balanced” with frequent use of both imperfective verbs. These predictions are confirmed.

In addition to providing new insights about *пытать^{ipf}* and Russian aspect, my analysis of aspectual triplets has implications for a foundational question in linguistic theory. Does complete synonymy exist? Do the two imperfective verbs in a triplet display exactly the same meaning? While the answer to this question hypothetically could be yes, my case study shows that *пытать^{ipf}* clearly differs semantically from the four Secondary Imperfectives. Thus, the data for the *пытать^{ipf}* triplets yield support to Goldberg’s “Principle of No Synonymy”, according to which no (morphological or syntactic) constructions are expected to display the same meaning (Goldberg 1995).

1.4 Conclusion: A “microperspective” on Russian aspect

This thesis consists of three separate, yet related case studies. They are different insofar as they concern three separate questions of aspect in Russian – the choice of prefix, aspectual strength and aspectual triplets. At the same time, they are clearly united by their focus on *пытать^{ipf}*, prefix variation and the semantic overlap between verb and prefix. As opposed to most “macroperspective” studies of Russian aspect, which explore a large number of verbs, my case studies offer a “microperspective” on Russian aspect, since I provide in-depth studies of a small number of verbs. It is my hope that “microperspective” case studies of the type I present in this thesis can bring valuable insights into our understanding of prefix variation, as well as the Russian verb system in general.

2. Prefix variation and the choice of prefix

2.0 Introduction

This chapter deals with a very practical question: *Is it possible to predict the choice of prefix when there is prefix variation?* And, if yes: *How?* According to Janda et al. (2013: 162) prefix variation exists because “different prefixes can focus the meanings of a simplex verb in different ways”. If this is correct, the choice of prefix should proceed quite logically from the meaning that we want to express. For second language learners, however, it is often unclear which prefix to combine with a given verb, and more research is needed in order to gain insight about how to make this choice. This is exactly the goal of the present chapter. On the basis of the prefix variation of *путать*^{ipf2}, I will examine the frequent constructions and internal arguments of the Natural Perfectives in question - *спутать*^{pf}, *перепутать*^{pf}, *запутать*^{pf} and *впутать*^{pf}. My hypothesis is that the choice of prefix largely depends on two factors, i.e. the construction of the verb and the verb’s internal argument. My findings indicate that both factors are important and that the choice of prefix for this verb to a large extent can be predicted by six tendencies that I will discuss in detail. Moreover, I observe a clear relation between these factors and the meanings of the prefixes, and this lends support to the hypothesis of Janda et al. (2013) mentioned above. Although my analysis does not attempt to shed light on the choice of prefix for all verbs with prefix variation, my findings still have practical value for second language learning, since they indicate that Natural Perfectives can be learned as part of specific constructions. The high degree of overlap between meaning of prefix and meaning of construction moreover suggests that in-depth case studies of verbs with prefix variation can help second language learners to gain a better understanding of verb-prefix overlap and the choice of prefix when there is prefix variation.

The chapter is structured as follows. In Section 2.1, I discuss the place of aspect and prefix variation in the Russian verb system. In Section 2.2, I describe my methodology, data and the two relevant factors. In Section 2.3, I present a Classification Tree (cTree) of my results and discuss each tendency in depth. In Section 2.4, I explore some implications that my findings,

² For the convenience of the reader, aspect will be given in uppercase letters behind each verb in the English text.

as well as similar research, can have in second language learning of Russian. In Section 2.5, I summarize my findings and suggest some possible venues for further research.

2.1 Aspect and prefix variation in Russian

Aspect can be described as “different ways of viewing the internal temporal constituency of a situation” (Comrie 1976: 3). Some languages, like Norwegian, do not have morphological aspect, but, in Russian, aspect is obligatory in every verb form. Imperfective aspect typically describes states or activities that cannot, or are not yet, completed. Activities, such as Я писал^{ipf} ‘I was writing’, implies a situation with no natural endpoint (completion), while Я писал^{ipf} письмо ‘I was writing a letter’, implies that the endpoint has not yet been reached. Perfective aspect typically focuses on the completion of the verbal event, and, consequently, Я написал^{pf} письмо ‘I wrote a letter’ implies that the letter has been finished. Although писал^{ipf} ‘was writing’ and написал^{pf} ‘wrote’ may refer to identical situations, different aspects involve different ways of viewing these situations.

The idea of “aspectual pairs” has been prevalent in Russian aspectology. According to this idea, an aspectual pair consists of two verbs, one imperfective and one perfective, which have the same lexical meaning, but different aspects. The verbs above, писать^{ipf}/написать^{pf} ‘write’, exemplify pairs where the perfective is made from adding a prefix to the stem. Other aspectual pairs are formed via suffixation, such as переписать^{ipf}/переписывать^{pf} ‘rewrite’.

The most famous criterion for determining aspectual pairs is called “Maslov’s criterion”. This criterion makes use of a context where the perfective is prohibited, namely *praesens historicum* in which past events are described as if they happen in the present (Kuznetsova 2012: 96, Zaliznjak and Šmelev 2000: 47, Maslov 1984: 48-65). The man behind this criterion, the Russian linguist J. S. Maslov, reasoned that if we describe something that happened in the past as something that happens as we speak, the lexical semantics of the verb “не должна подвергаться при этом ни малейшему изменению” (Maslov 1984: 53). Therefore we can be sure that the two verbs, the perfective verb used in the past tense and the imperfective verb used in the *praesens historicum*, are aspectual correlates. In the following examples from Zaliznjak and Šmelev (2000: 48), this is illustrated with the verbs открыть^{pf} ‘open’ and открывать^{ipf} ‘open’. The situation is the same, but the first sentence uses the

perfective verb and past tense, while the second sentence uses the imperfective verb and *praesens historicum*.

- (1) Придя домой, я **открыл**^{pf} окно.
- (2) Прихожу я вчера домой, **открываю**^{ipf} окно.

Two other contexts have also been employed as criteria for establishing aspectual pairs: habituality and negative imperative. These criteria make use of the same logic as the criterion above. Thus the imperfective and perfective verbs are established as an aspectual pair if they can replace each other in two parallel syntactic contexts. Kuznetsova (2012: 97) offers the following illustrations:

- (3) Каждый день, приходя домой, я **открываю**^{ipf} окно.
- (4) **Открой**^{pf} окно.
- (5) Не **открывай**^{ipf} окно.

In all of these sentences, the choice of aspect is decided by the verb's grammatical context. In (2) and (3) perfective aspect is prohibited and the verb *открыть*^{pf} 'open' is replaced by its imperfective correlate *открывать*^{ipf} 'open'. Likewise, perfective aspect is expected in positive imperative (4), but hardly used in negated imperative forms like (5).

Janda (2007: 609) terms the aspectual partner of a simplex verb, e.g. *написать*^{pf} 'write', a Natural Perfective, and only this type of perfective has the same lexical meaning as the verb. She further recognizes three other types of perfectives (ibid):

- (6) Specialized Perfectives: The prefix adds a new meaning to the verb, e.g. *пере + писать*^{ipf} 'write' = *переписать*^{pf} 'rewrite'. This perfective is thus related to the simplex verb, but is not an aspectual partner according to Maslov's criterion.
- (7) Complex Act Perfectives: The prefix imposes temporal boundaries on atelic activities, e.g. *по + писать*^{ipf} 'write' = *пописать*^{pf} 'write for some time'. The concept of telicity will become central in Chapter 4, but for now it is enough to say that verbs are atelic if they lack an inherent "telos", i.e. goal or endpoint (Dickey 2008: 331). As mentioned above, the activity of writing has no natural endpoint and is therefore atelic in nature. When, however, it is followed by a direct object, such as *письмо* 'letter', the activity becomes telic and is completed when the letter has been written.
- (8) Single Act Perfectives: The prefix *с-* or suffix *-ну-* points to one instance of a serial event, e.g. *махать* 'wave' + *-ну-* = *махнуть* 'wave once'.

In Specialized, Complex Act and Single Act Perfectives the prefix changes both aspect and meaning of the simplex verb, which it is added to. In Natural Perfectives, on the other hand, they only change aspect. Two hypotheses have been proposed to explain the function of prefixes in Natural Perfectives, “The Emptiness Hypothesis” and “The Overlap Hypothesis” (Janda et al. 2013: 6), and, as we will see, the predictions made from these hypotheses have much relevance for the present and the following case studies.

According to the Emptiness Hypothesis the prefix “makes no contribution to the Natural Perfective” (Janda et al.: 6). Thus на- in написать is “empty” of lexical meaning and only changes aspect. This has been the most widespread theory in Russian aspectology, although it has been criticized for more than half a century (Kuznetsova 2012: 108).

The Overlap Hypothesis explains the apparent emptiness as overlap, i.e. prefixes combine systematically with verbs with which they share semantic content. The result is an illusion of emptiness; the meaning of the prefix coincides with the meaning of the verb. In the verb написать^{pf}, the meaning of на-, which is SURFACE (Janda et al. 2013: 100), overlaps with the meaning of писать^{ipf}, since writing requires a surface. In other Natural Perfectives, the overlap can be understood via metaphorical mappings, as we will soon see with пытаться^{ipf}. In 2013 the CLEAR group from UiT The Arctic University of Norway presented substantial empirical evidence in support of The Overlap Hypothesis (Janda et al. 2013).³

If the prefixes in Natural Perfectives were empty, like the Emptiness Hypothesis insists, there would be no need to have more than one Natural Perfective for any given verb. However, as mentioned in Chapter 1, 27% of Russian verbs have between two and six Natural Perfectives (Janda et al. 2013: 162), a phenomenon called “prefix variation” (ibid: 139). The “macroperspective” analysis of the CLEAR group covered a large number of Russian verbs and showed a consistent overlap between the meanings of verb and prefix in Natural Perfectives. They concluded that prefix variation is possible because the prefixes retain their lexical meanings in Natural Perfectives and can focus the meaning of the verb in different ways (ibid: 162).

³ CLEAR (Cognitive Linguistics: Empirical Approaches to Russian) is a research group at the faculty of Humanities, Social Sciences and Education at UiT The Arctic University of Norway.

The present chapter offers a “microperspective” analysis of the four Natural Perfectives of *путать*^{ipf} and seeks to shed more light on the interaction between verb and prefix when there is prefix variation. Although much has been found in support of the Overlap Hypothesis, there are still many things to learn about semantic overlap. As suggested in the introduction of the chapter, one thing we need to learn more about is how to make the choice of prefix when the simplex verb has more than one Natural Perfective: The choice of prefix might be natural to native speakers, but remains challenging for second language learners, even with the meanings of each prefix “spelled out”. The analysis I propose suggests that the choice of prefix can be determined on the basis of construction and the semantics of the internal argument. Moreover, the analysis yields support to the Overlap Hypothesis by showing that the meanings of the prefixes harmonize with the syntactic and semantic environments in which they appear.

As already mentioned, *путать*^{ipf} uses four prefixes to form Natural Perfectives: *c-*, *пере-*, *за-* and *в-*. According to Janda et al. (2013: 41) the prefix *в-* has only one meaning, INTO, while the three remaining prefixes involve networks of related meanings: *c-* has three meanings (ibid: 97), *за-* has eight meanings (ibid: 102-103), and *пере-* has 11 different meanings (ibid: 66-67). For the purposes of my analysis, it is not necessary to discuss each of these networks. Instead I will mention those meanings that overlap with meanings in *путать*^{ipf}: TOGETHER (*c-*), COVER (*за-*) and MIX (*пере-*). Like Janda et al. (2013), I will give the meanings of the prefixes in small caps.⁴

2.2 Methodology

In order to examine the Natural Perfectives in question, I created a database with randomly selected examples from the modern subcorpus (1950-2014) of the RNC. In the remaining part of the thesis, I will refer to this corpus sample as the “modern” subcorpus. In the case of *запутать*^{pf}, *перепутать*^{pf} and *спутать*^{pf}, I examined the first 200 randomly shown sentences. For *впутать*^{pf} there were only 30 examples available in the subcorpus and these were all included in my database. Thus, my database contains a total of 630 examples.⁵ The examples

⁴ The meanings of the Russian prefixes are accessible at emptyprefixes.uit.no and in the book *Why Russian aspectual prefixes aren't empty: prefixes as verb classifiers* (Janda et al. 2013).

⁵ All data reported on in this thesis are available at: <http://hdl.handle.net/10037.1/10196>

pertaining to a given verb were all from different documents in order to exclude author as a relevant factor for my results.⁶

Each example was coded with prefix (в-, с-, пере-, за-), type of construction and semantic category of the internal argument, and my classification of constructions and semantic categories is presented below. Finally, I carried out a cTree analysis of my data in the statistical program R. This cTree revealed six clear tendencies in the choice of prefix, which will be discussed in Section 2.3.

2.2.1 Factor 1: Constructions

Goldberg (2011: 17) defines constructions as “conventional, learned form-function pairings at varying levels of complexity and abstraction”, which means that even words and morphemes can be understood as constructions. In this case study, however, I will only consider syntactic constructions, i.e. syntactic contexts, in which one of the four relevant verbs appears. I will use the terms “active/non-passive constructions” about constructions with an active verb form, and “passive constructions” about constructions with past passive participles.

As Kuznetsova (2012: 107) points out, most verbs are used in a variety of argument structures, i.e. constructions. In order to discover statistically robust tendencies, I identified the four most basic constructional patterns in my database:

- (9) ***V acc*** (verb + internal argument in accusative)
Example: — По-моему, я **перепутал стаканы**. [Владимир Войнович. Москва 2042 (1986)]
- (10) ***V acc s ins*** (construction a. + prepositional phrase *с чем* ‘with something’)
Example: **Спутали вы меня с кем-то!** [Н. Леонов, А. Макеев. Гроссмейстер сыска (2003)]
- (11) ***V acc v acc*** (construction a. + prepositional phrase *во что* ‘into something’)
Example: Блин, зачем я **Грома впутал в это?** [Алексей Грачев. Ярый против видеопиратов (1999)]

⁶ As pointed out in a footnote in Section 3.3, I later became aware that the RNC often offers several examples from the same document even when the “1 example from each document” setting has been switched on. The examples of путать^{ipf} and the Secondary Imperfectives in Chapters 2 and 3 were therefore checked manually to exclude cases of several examples from one document.

(12) **Passive** (past passive participle)

Example: Всё в её жизни ужасно **запутано**. [Вячеслав Солдатенко (Слава Сэ). Ева (2010)]

I will use *internal argument* as a cover term for objects in active sentences and subjects in passive sentences. The three non-passive constructions involve a verb (V) and an internal argument in accusative. Constructions (10) and (11) involve prepositional phrases. All three constructions involve a subject, but type of subject did not appear relevant for the choice of prefix for *путать*^{ipf} and was not considered in the analysis.

Table 1 shows the distribution of prefixes among the constructions.

	в-		с-		пере-		за-	
V acc	8	26,7%	54	27%	120	60%	61	30,5%
V acc s ins	0	0%	91	45,5%	52	26%	0	0%
V acc v acc	19	63,3%	0	0%	0	0%	0	0%
Passive	3	10%	55	27,5%	28	14%	139	69,5%
Total	30	100%	200	100%	200	100%	200	100%

Table 1. Raw and relative frequency distribution of prefixes in constructions. Shaded cells represent the most frequent construction for each prefix.

Table 1 reveals that each of the four prefixes is favored in a different construction. The three prefixes *в-*, *пере-* and *за-* have a frequency of 60% or more in their prototypical constructions. The frequency of *с-* in its prototypical construction is slightly lower, but still much higher than in any other construction, with 45,5%. Thus, each prefix interacts with type of construction in a unique way.

2.2.2 Factor 2: Semantics of the Internal Argument

In order to discover clear tendencies in my material, I chose to consider only three semantic categories: (1) animate beings, (2) abstract things and (3) concrete objects. The particular content of each semantic category was scrutinized in the analysis of each tendency (see Section 2.3). I also made a category called *no object* for sentences with ellipsis, i.e. an internal argument that is understood from context. Thus, I considered only the sentences in which the relevant verbs appear. By way of example, the following sentence was regarded as having no object although the assumed object, a conveyed message, is abstract.

(13) Короче, он смутился, он сказал, что **перепутал**, что не камнем я буду, а травинкой. [Нина Садур. Немец (1996)]

Table 2 shows the distribution of prefixes among the semantic categories.

	в-		с-		пере-		за-	
animate	24	80%	41	20,5%	26	13%	40	20%
concrete	0	0%	68	34%	39	19,5%	14	7%
abstract	5	16,7%	74	37%	101	50,5%	144	72%
no object	1	3,3%	17	8,5%	34	17%	2	1%
Total	30	100%	200	100%	200	100%	200	100%

Table 2. Raw and relative frequency distribution of prefixes in semantic categories. Shaded cells represent the most frequent semantic category for each prefix.

While в- mostly appears with animate beings, the other three prefixes most often appear in contexts with abstract things. What Table 2 does not show, however, is whether the prefixes are used about the same type of animate/concrete/abstract objects or whether they have their own “domains” within these semantic categories. Furthermore, neither Table 1 nor Table 2 shows how the two factors interact with one another. This is what the cTree is designed to do. In the remaining part of the chapter, I will present my cTree and discuss my findings. By using examples from the database I hope to demonstrate how each prefix focuses the meaning of the verb in unique ways and thus, by and large, can be predicted.

2.3 Classification Tree Analysis

The goal of a Classification Tree (cTree) is to provide optimal sorting of data according to the relevant factors. Its ability to work with few factor levels and show how these interact (Baayen et al. 2013: 264, 267) makes it ideal for the present analysis, which involves 630 examples and two factors. My cTree is presented in Figure 1.

A cTree resembles a tree upside-down. The “root” is on the top while the “leaves” are on the bottom. To make sense of the model, we begin at the top with Node 1, the “root node”, which contains all the examples in my database. The node itself is labeled *Construction*, which explains that the examples in Node 1 can be divided in two groups based on type of construction. Often, but not necessarily, the first split is provided by the most important factor (Baayen et al. 2013: 265). In my analysis, *Construction* provides the first three splits in the tree, which indicates that this factor is at least very, if not most, important. According to

Node 2 at the bottom, 19 examples belong to the *V acc v acc* construction and all of them involve the prefix в-. This strongly indicates that впутать^{pf} can be learned as a construction: впутать^{pf} что/кого во что. The remaining 611 examples are sent further to Node 3, where the cTree once again predicts that the sentences can be classified in two groups based on construction, *passive* and *non-passive*. This classification process continues until the cTree has made all the “splits” it can, based on the two given factors. At the bottom of the tree, there are six histograms that each displays a tendency in the choice of prefix. I will now discuss these main tendencies and also seek to explain exceptions from the main pattern. The first two tendencies are based solely on type of construction, while the remaining four takes the semantic factor into account.

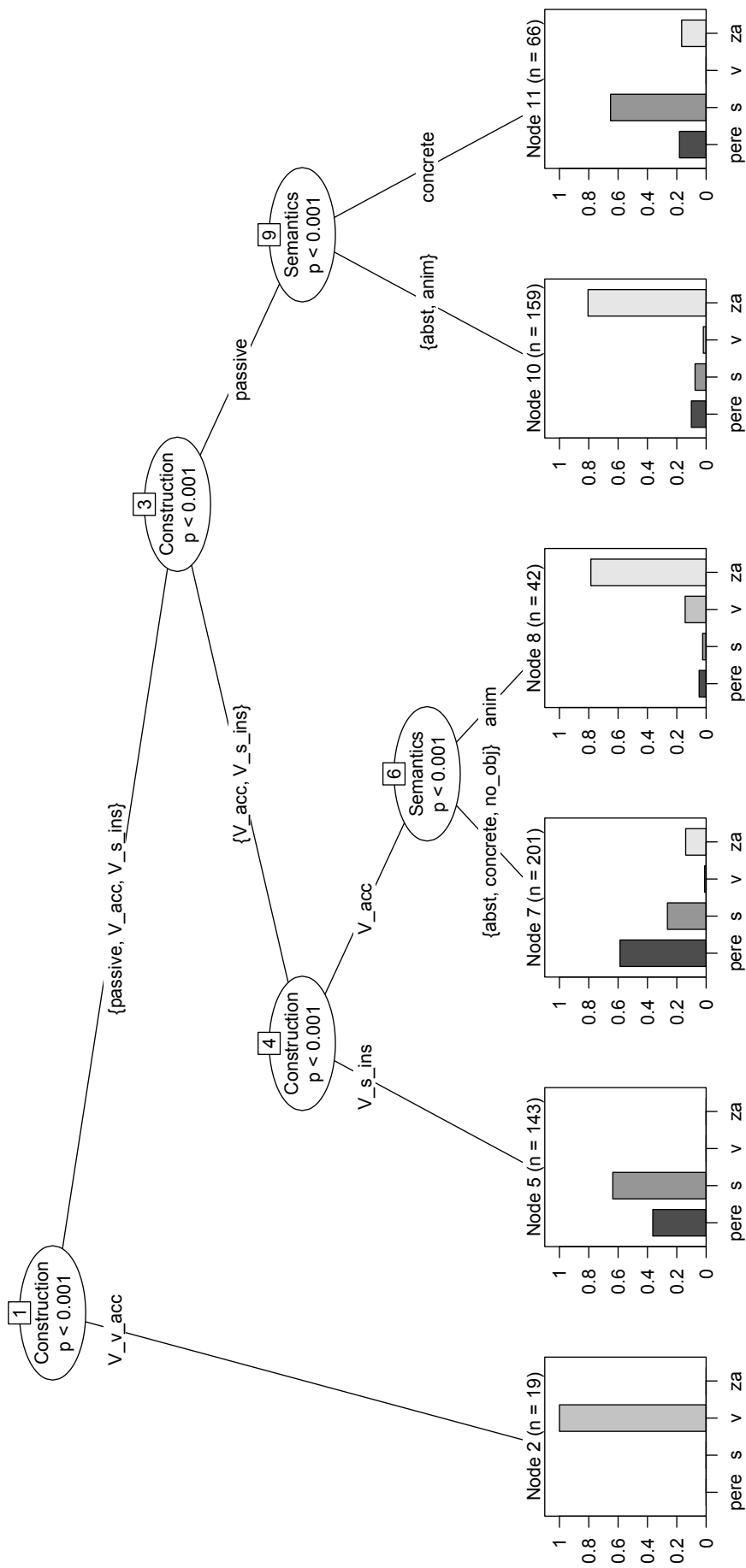


Figure 1. Classification Tree for the Natural Perfectives of печь^{ipf} based on two factors: type of construction and semantics of the internal argument.

2.3.1 Active Constructions

Tendency 1: The *V acc v acc* construction favors B- (Node 2 = 19 examples)

The strongest tendency in my material is found with the *V acc v acc* construction, which, regardless of the semantic features of the internal argument, prefers only one prefix: в-. An example of this prototypical usage is offered in (14).

- (14) Но ведь этим самым я **впутую Тетерина в весьма неприятную историю**.
[Владимир Тендряков. Суд (1960)]

The strong preference for в- seems logical. According to Janda et al. (2013: 41) the prefix в- displays only one meaning, INTO, and we often see the prefix combined with the preposition в ‘in(to)’ when used with other verbs: войти в комнату ‘walk into a room’, впрыгнуть в машину ‘jump into a car’. The examples in my database do not provide an opportunity to explore instances of other prefixes in this construction, although specific searches in the RNC reveal that they occur. There is one example of this in (15).

- (15) Они оплетут меня, **запутают в свои дела**, я никогда от них не отделаюсь, потому что не умею отказывать людям, если вижу в них хоть какую-то слабость. [Юрий Нагибин. Другая жизнь (1990-1995)]

Tendency 2 (Node 5 = 143 examples) The *V acc s ins* construction favors C-

The second construction allows for two prefixes, namely с- and пере-. The cTree shows that с- is prototypical in the construction, while пере- is common, but not quite as frequent. Can the choice between с- and пере- be predicted?

Table 3 indicates that both prefixes are possible and frequent in all the relevant semantic categories and the examples in my database do not reveal any clear domains for either prefix. The prefix с- is, however, more common. It is probable, but beyond the scope of this study to examine, that a larger number of examples from the corpus and/or more factors would make it possible to identify some clearer tendencies for the choice between с- and пере- in the *V acc s ins* construction.

	c-		пере-	
animate	39	42,8%	24	46,1%
concrete	19	20,9%	9	17,3%
abstract	26	28,6%	19	36,6%
no object ⁷	7	7,7%	0	0%
Total	91	100%	52	100%

Table 3. Raw and relative frequency distribution of prefixes in semantic categories in the *V acc s ins* construction (Node 5). Shaded cells represent the most frequent semantic category for each prefix

The *V acc s ins* construction is used in contexts where one thing, or person, is confused with another. Both c- and пере- have meanings that overlap with this idea, while за- and в- do not. Thus we see a systematic overlap between meaning in verb and prefix. The prefix c- is associated with the meaning TOGETHER, which involves a closeness between two or more things. The prefix пере- has the meaning MIX, which involves the idea of two or more things changing place. The unfortunate case in (16) illustrates how two things can be confused with one another if they are not distinct enough, i.e. far enough apart.

- (16) А врач **спутал гонорею с уретритом**. [Сергей Шерстенников. Доктор твоего (2002) // «Автопилот», 2002.01.15]

Tendency 3 (Node 7 = 201 examples)

Abstract and concrete internal arguments in the *V acc* construction favor ПЕРЕ-, C- and ЗА-

Node 7 involves both concrete and abstract internal arguments, and three prefixes appear relevant, пере- c- and за-. Is the choice of prefix arbitrary or can it be predicted?

I propose that the choice of prefix can be predicted with a fair level of confidence based on semantic criteria. According to Table 4, abstract objects are more common with all three prefixes and their relative frequencies for concrete objects are quite similar. An analysis of the 199 relevant sentences, however, indicates that the three prefixes have their own domains within each semantic category. I will now discuss these domains. I will begin with the most frequent prefix, пере-, and then move on to c- and за-.

⁷ In the *V acc s ins* construction, “no object” refers to sentences where the internal argument in accusative is understood from context (ellipsis), e.g. — Может, **спутал с «Диалектикой природы» Энгельса**, — небрежно ответил я, — но это маловероятно. [Фазиль Искандер. Поэт // «Новый Мир», 1998]

	с-		пере-		за-	
concrete	6	11,3%	18	15,3%	3	10,8%
abstract	37	69,8%	66	55,9%	23	82,1%
no object	10	18,9%	34	28,8%	2	7,1%
Total	53	100%	118	100%	28	100%

Table 4. Raw and relative frequency distribution of prefixes in semantic categories in the *V acc* construction (Node 7). Shaded cells represent the most frequent semantic category for each prefix

The prefix *пере-* is particularly frequent in two contexts, both of which are connected with the meaning MIX. In the first context two or more things have been mixed up, i.e. mistaken for the other. These things may be concrete or abstract, as examples (17) and (18) illustrate.

(17) В темноте Каштанов **перепутал корпус**. Номер дома он разглядел, но не знал, что под одной цифрой числилось несколько корпусов: «А», «Б», «В» и «Г». [Эльдар Рязанов, Эмиль Брагинский. Тихие омуты (1998)]

(18) — Я просто **день перепутал**. Я думал, сегодня воскресенье. [Сергей Болмат. Сами по себе (1999)]

The second context for *пере-* is found only with abstract internal arguments and I will call this context “lack of order”. In this context, the focus is not on one thing being mistaken for another, but on one thing forcing something out of its normal order. Very often (48,9%) the internal argument in these sentences is *что/что-то/что-нибудь* ‘something’, *ничего* ‘nothing’ and *всё* ‘everything’. By way of example, consider the example in (19).

(19) **Особенная атмосфера бесконечных споров, влюбленности, смеха все перепутала** в нашем и без того беспорядочном доме. [В. А. Каверин. Освещенные окна (1974-1976)]

The prefix *с-* is also used in two contexts. In the first context, of which there are only a few examples in my database, something is mistaken for something else (like in the *V acc s ins* construction, and also like *пере-* above). An example of this is given in (20).

(20) Вроде свойский парень, и все равно... Хочешь анекдот про него? **Спутал** по рассеянности **квартиру**, поднялся на другой этаж. [Роман Солнцев. Полураспад. Из жизни А. А. Левушкина-Александрова, а также анекдоты о нем (2000-2002) // «Октябрь», 2002]

In the second context, something is tangled together. Thus, the choice of prefix is clearly motivated by the TOGETHER meaning of *с-*. The only concrete object found in this context in

my database is ноги ‘feet’. The fixed expression спутать^{pf} ноги кому ‘bind someone’s feet’ is frequently used about hobbling horses, but it can also be used about human feet, as in (21).

- (21) Эти веревочки и **спутали мне** намертво **ноги**, когда я перевернулся. [О. М. Куваев. Дом для бродяг (1970)]

Abstract objects cannot be tangled physically and can be understood as tangled only via cross-domain mapping, i.e. metaphor. A metaphor, as it is understood today in cognitive linguistics, can be defined as “a cross-domain mapping in the conceptual system” (Lakoff 1993: 203) and often involves conceptualizing the non-physical, i.e. abstract, in terms of the physical (Lakoff and Johnson 1980: 59). In my material, all of the abstract objects with c- pertain to our “inner reality”, i.e. our mind, and I will refer to them as “internal matters”. Some examples are планы ‘plans’, мысли ‘thoughts’, впечатление ‘impression’ and расчёты ‘estimation’. Here then, an abstract mental “tangle”, i.e. confusion, is understood in terms of a physical tangle. I call this metaphor CONFUSION IS A TANGLE.⁸

- (22) Творцы политики США оскорбляли Советский Союз, так как было ясно, что советские предложения эффективно **спутали планы западной «дипломатии» окружения**. [Д. Вобликов. Рецензия на книгу. Иоганнес Стил. «В защиту мира». Издательство иностранной литературы. Москва, 1949. // «Наука и жизнь», 1950]

The same metaphor motivates the use of c- in the fixed phrase спутать^{pf} карты кому ‘to spoil someone’s game/plans’.

- (23) Однако **все карты ему спутал Митчелл**, который, нарочито не замечая неудачи, не стал покидать вице-президентское кресло. [Денис Быстров. Третий лишний. Президенту Кузину не нашлось места в руководстве ФИФА (2001) // «Известия», 2001.07.09]

The prefix за- is also found in two contexts and in both the choice of prefix appears motivated by the COVER meaning of за-. The first context involves concrete objects and is very rare in my database. I have a total of three examples. In this context, something is tangled around something else, thus covering the object. Thus, the kids in (24) find their faces all covered in spiderweb as they play around in the forest.

⁸ Following the practice that has been common in cognitive linguistics since Lakoff and Johnson (1980) I will refer to metaphors in small caps throughout the thesis.

- (24) Знакомая брату тропинка поднималась по обрыву, уводила в бор, взбираться было нелегко, но очень весело... **Лицо** уже **запутала** паутина, и мы взбирались, цепляясь за можжевельник. [Л. Ф. Зуров. Иван-да-марья (1956-1969) // «Звезда», 2005]

The second context with *за-* is much more frequent and involves abstract objects. Again, abstract objects cannot be covered physically and this calls for a metaphorical interpretation. All the abstract objects with *за-* pertain to our “outer reality”, e.g. ситуация ‘situation’, проблемы ‘problems’, дело ‘affair’, etc. I will refer to them as “external matters”. Thus, it seems that *с-* and *за-* are used in complementary distribution in this construction. The prefix *с-* is used about internal matters, while the prefix *за-* is used about external matters. The source domain of the metaphor for external matters involves something that covers physically, while the target domain involves something that causes lack of clarity on an abstract level. I propose the metaphor CONFUSION IS REDUCED VISIBILITY. By way of example, consider (25) where measures are taken in order to confuse an enemy.

- (25) Там в них вносились необходимые изменения, чтобы максимально **запутать управление войсками противника**, после чего радисты передавали их адресатам... [Сергей Тарасов. Морские разведчики (2004) // «Солдат удачи», 2004.06.09]

The COVER meaning of *за-* also motivates the choice of prefix in the fixed phrase *запутать*^{pf} следы ‘cover one’s tracks’.

- (26) Поэтому нельзя, наверно, чтобы писатель-рассказчик отвлекался от своего житейского опыта в сторону чисто профессиональную. В стороне чисто профессиональной легче **запутать следы**, скрыть, что тебе, собственно, нечего рассказать. [Василий Шукшин. Как я понимаю рассказ (1964)]

Tendency 4 (Node 8 = 42 examples)

Animate internal arguments in the V acc construction favor ЗА-

Node 8 shows a clear tendency to use *за-* when the internal argument of the *V acc* construction is an animate being, but *с-*, *пере-* and *в-* are also employed. Why is *за-* preferred? And in which contexts are the other prefixes used?

I propose that the choice of prefix is motivated by an understanding of confusion as a lack of clarity. Again, this corresponds with the COVER meaning of *за-*. If CONFUSION IS REDUCED

VISIBILITY, confusion arises because something hinders us from seeing, or distorts our view. In the following example, politics is responsible for making someone confused. In accordance with my discussion of Tendency 3 (Node 7) above, the choice of за- appears logical. People get confused not from being tangled together, but from a lack of clarity.

(27) Но мы люди искусства, и политическая игра постепенно **запутала многих из нас**. [Вениамин Смехов. Театр моей памяти (2001)]

In my material с- and пере- appear only rarely when the internal argument is animate, but they are possible. Due to their meanings TOGETHER and MIX they are used in contexts where one person is mistaken for another. Thus, the *V acc s ins* construction is clearly favored (Node 5) to convey that someone has been mistaken for someone else.

(28) И тут не в первый раз (но впервые в подобной ситуации) в уме ее возник образ Бориса. Он, кстати, хоть и старше вдвое этого парня, но строен, тренирован и немногим ему уступит. В темноте **их** можно даже **спутать**. [Елена Белкина. От любви до ненависти (2002)]

The few occurrences of в- in Nodes 7 and 8 seem to involve ellipsis of the prepositional phrase во что 'in(to) something', e.g. (29). After all, it is hard to imagine getting tangled into something that is not. However, it is beyond the scope of this study to examine the greater context of these sentences to see if they too are examples of the *V acc v acc* construction.

(29) — Неужели вы сами не понимаете, что натворили? ! Это же нехорошо, нечестно. Против воли! Вы **впутали совершенно постороннего человека...** [Михаил Елизаров. Библиотекарь (2007)]

2.3.2 Passive Constructions

Tendency 5 (Node 10 = 159 examples)

Abstract and animate internal arguments in passive constructions favor ЗА-

Node 10 displays a very strong tendency to choose за- when the internal argument of the passive construction is abstract or animate. The other three prefixes are used at a minimal level. In my discussion of the *V acc* construction above (Tendency 3, Node 7), I pointed out that за- and с- appear to be used in complementary distribution when the internal argument of

an active construction is abstract. Based on this observation, two questions must be asked. First, is the same pattern repeated in passive constructions? And second, why is *c-* so infrequent?

In answer to the first question, it appears that this pattern is also observed in passive constructions. The vast majority of the internal arguments with *за-* in Node 10 refer to external matters and *за-* is used consistently. Frequent internal arguments include обстоятельства ‘circumstances’, отношения ‘relations’ and жизнь ‘life’. This immediately answers the second question, as well. The prefix *c-* is infrequent because most of the abstract internal arguments are external matters and belong to the domain of *за-*. In (30) the internal argument is the ruling system in Chechnya, an external matter.

- (30) Существующая **система управления** в Чечне довольно **запутанная**. [Анастасия Шведова. Прокуратор. Ахмад Кадыров будет управлять Чечней единолично (2001) // «Известия», 2001.11.08]

The only example in my database of an internal matter with the prefix *c-* is the fixed expression спутанное сознание ‘mental confusion’.⁹ The choice of prefix is motivated by the metaphor CONFUSION IS A TANGLE.

- (31) Судорожный синдром отмечался у 10,5% больных, нарушения сознания — у 36,85%, **спутанное сознание** продолжительностью от 1 до 8 сут — у 3,5%, полная утрата сознания — у 0,2%. [Клиника и эпидемиология лихорадки Западного Нила в Волгоградской области (1999 и 2000 гг.) (2001) // «Вопросы вирусологии», 2001.07.23]

A few examples with *c-* involve abstract tangles, which are not mental. By way of example, consider the sentence in (32) where the speaker recalls the sensation of growing taller as a child, further and further away “от зелёной, густой, спутанной жизни растений”. While human жизнь ‘life’ is often запутана, the life of plants, with their many interwoven branches and leaves, may truthfully be described as спутана.

- (32) Я подымалась все выше и выше над землей, навсегда покидая травы, однажды летом вдруг переросла куст смородины и ощутила жуть собственного роста,

⁹ *Mental confusion* is the corresponding medical term in English. The literal translation is *confused conscience*.

уносящего меня прочь от зеленой, густой, **спутанной жизни** растений. [Ирина Полянская. Прохождение тени (1996)]

The few examples with пере- are consistent with the MIX meaning of the prefix. In (33) two abstract things, letters, have deliberately been put in the wrong order, while in (34) the speaker uses a PART FOR WHOLE¹⁰ metonymy to convey that she feels tossed around emotionally. Metonymy is traditionally defined as a “cognitive process in which one conceptual entity, the vehicle, provides mental access to another cognitive entity, the target, within the same domain” (Peirsman and Geeraerts 2006: 270). Although nerves are physical and feelings are abstract, they are inseparable parts of our human being and thus close at our conceptual level too. Consequently, the нервы ‘nerves’ in (34) are automatically understood as a reference to strong feelings, and not to a physical disorder in the neural system.

(33) Здесь написаны названия животных. Только **буквы** в словах **перепутаны**.
Поставь их на место и ответь на вопросы. [Марина Дружинина. Загадочные животные // «Мурзилка», 2000]

(34) Хочется думать жалобную мысль, что другая бы дочь не бросила мать в состоянии криза, но как ни **перепутаны мои нервы**, они не сделали из меня полную дуру.
[Галина Щербакова. Моление о Еве (2000)]

Tendency 6 (Node 11 = 66 examples)

Concrete internal arguments in passive constructions favor C-

Node 11 in the cTree indicates a strong preference for c- when the internal argument is a concrete object, but пере- and за- are also possible. Why is c- so frequent? And can the choice between c-, пере- and за- be predicted?

The answer to the first question lies in the TOGETHER meaning of c-. All of the internal arguments in my database involve long, thin things that can easily get tangled up and this idea of entanglement clearly fits well with the idea of TOGETHER. One such thing is hair, and спутанные волосы ‘tangled hair’ is responsible for 22 of the 55 examples with c- in Node 11.

¹⁰ In scholarly literature, metonymies are, like metaphors, typically given in small caps, and I will follow this practise.

- (35) Тела их расписаны красными и белыми красками, ожерелья сделаны из зубов убитых животных, в длинные **спутанные волосы** вплетены перья райских птиц. [Александр Морозов. Прежние слова (1985-2001) // «Знамя», 2002]

Other examples in my database involve more specific forms of hair, e.g. борода ‘beard’, ресницы ‘eyelashes’ and the metonymy кудрявая голова ‘curly head’. The remaining examples refer to long, thin things that are used for binding items together, e.g. верёвки ‘strings’, нить ‘thread’, ремни ‘straps, belts’ and упряжь ‘harness (for horses)’.

In answer to the second question, it appears that both пере- and за- have clear domains, which can help to predict the choice of prefix with a fair level of confidence.

The prefix пере- once again appears in two contexts, both of which are connected with the meaning MIX. In the first context something has been mixed up, i.e. mistaken for something else. This is the case with the goods in (36).

- (36) «... с ним нельзя иметь дело: нарушение сроков доставки, **перепутанные** или вообще недоставленные **товары**, полное неуважение к покупателям в части обратной связи... [Василий Аузан. В2С: Back to College (2001) // «Эксперт-Интернет», 2001.03.12]

The second context involves lack of order. To the untrained eye, a network of train rails can seem chaotic and this motivates the choice of пере- in (37).

- (37) Прогромыхал тяжёлый товарняк. Заметались, точно отскакивая в разные стороны, **перепутанные рельсы**. [Екатерина Маркова. Тайная вечеря (1990-2000)]

The prefix за- is used in two contexts as well. The first context involves roads and hallways that form an intricate network of connections. These places involve lack of sight, since only parts of the network can be seen. I propose that this motivates the choice of за-.

- (38) Навигатор провёл нас по **запутанным римским кварталам** и без приключений доставил по адресу. [В. Хорт, С. Тишина. Ведомые свьше // «Наука и жизнь», 2008]

The second context that is relevant for за- is the use of concrete internal arguments in an abstract way, like клубок ‘tangle’, in (39). I propose that the metaphor CONFUSION IS

REDUCED VISIBILITY is relevant for these examples and that this motivates the choice of за-. By way of example, compare the two sentences in (39) and (40). The tangle in (39) is abstract. It is a confusing puzzle (an unsolved crime) where some of the pieces are still missing. The tangle in (40) is a physical tangle of worms. The focus on entanglement calls for the prefix с-.

(39) — Так, — сказал не спавший четвертые сутки Елифанов, — **запутанный клубок** получается... [Михаил Мишин. Страшное дело (1978)]

(40) Нет конца и не найдешь начала. **Спутанный клубок** упругой, живой, кровящей нити. Клубок червей... [Галина Щербакова. Год Алены (1996)]

The remaining two examples with за-, involving волосы ‘hair’ and заросли ‘thicket’, seem less typical for за-. According to my analysis and discussion above, с- should be predicted. Thus, as a concluding remark in this section, I must emphasize that the six generalizations discussed above are tendencies, not absolute rules.

2.4 Pedagogical implications

The six generalizations discussed in the previous section are clearly relevant for second language learners and their teachers. But how can these findings be used in such a way that the second language learners not only become aware of the tendencies, but get their “own” understanding of the prefixes and how to choose between them? I suggest that one way of achieving this goal is to let the second language learners discover the patterns for themselves, and, inspired by Nessel and Janda (2014) I will propose two concrete ways to do this. In my discussion, I will use *students* as a cover term for second language learners at all educational levels.

2.4.1 Discovering patterns in handpicked examples

Here, the teacher uses the present analysis, or other analyses like it, to single out questions, which the students must study on their own by considering authentic examples from the corpus. These examples are handpicked in advance by the teacher and can be simplified in order to match the level of the students, if needed. I propose that the teacher should

concentrate on those “problems” which the students will be likely to encounter frequently when speaking Russian. By way of example, consider the following question: *What is the difference in meaning between запутать^{pf} человека and спутать^{pf} человека?* The question is concrete and is not necessarily answered by a dictionary. Berkov’s Russian-Norwegian dictionary (2007), for example, suggests *forvirre* ‘confuse’ as a relevant translation for both verbs. Furthermore, the teacher knows that the students will find a pattern in the corpus examples they examine since запутать^{pf} человека and спутать^{pf} человека generally point to different situations, a discovery which can guide the students in the choice of prefix in many real-life situations.

2.4.2 Discovering patterns in the corpus

The students can be engaged at an even greater level by using the corpus themselves. In their article, Nettet and Janda (2014) argue that corpus-linguistic methods can be used as part of assignments at all educational levels and that even small-scale experiments can give meaningful results. The question above can be suited for such a project. In addition to being concrete and important for the students, the question limits the type of examples that needs to be considered to sentences with animate internal objects. This makes the assignment more manageable and less time-consuming.

A quick search in the RNC for indicative forms of запутать^{pf} + animate being and спутать^{pf} + animate being yield at present 49 and 30 examples respectively.¹¹ They reveal the following, expected pattern. The examples with c- involve a situation when someone has been mistaken for someone else and frequently contain the prepositional phrase с кем ‘with someone’. The prefix за- is on the other hand used about confusing someone. To take the students one step further, the teacher can now ask *why* the two prefixes are used for these two different semantic functions. By reflecting on this, the students can gain insight not only about how to predict prefixes for путать^{ipf} but also for other verbs with prefix variation.

In their discussion of how three corpus-linguistic methods can be integrated into the classroom, Nettet and Janda (2014) suggest how students and teachers, as well as authors of teaching materials, can use the tools of corpus linguistics for their benefit. I propose that

¹¹ Numbers from the “modern” subcorpus, spring 2015.

using the simple corpus-linguistic method, which I have discussed in this chapter, can be valuable for the same categories of people. In the case of prefix variation, the students can discover the prototypical contexts for a Natural Perfective by considering examples that are, as opposed to sentences in search engines such as Google, guaranteed to be correct Russian. Teachers and textbook authors can gain the same insight and this insight can help them to explain the differences between Natural Perfectives and choose prototypical examples of verbs in their teaching or books (Nesset and Janda 2014).

2.5 Conclusions

In the beginning of this chapter I set out to answer the questions of whether it is possible to predict the choice of prefix when there is prefix variation, and if yes, how. I pointed out that prefix variation poses a challenge for second language learners of Russian and that answers to these questions can make language learning easier.

In order to shed light on these questions I created a database with examples of the four Natural Perfectives of *путать*^{ipf}. My database contained 630 randomly selected examples from the “modern” subcorpus (RNC), which were manually coded for the type of construction and the semantic category of the internal argument. My hypothesis was that choice of prefix can be largely predicted by these two factors.

The results of my analysis were displayed in a cTree and can be summarized in the six following generalizations:

- (41) a. The *V acc v acc* construction favors the prefix *в-*;
b. The *V acc s ins* construction favors the prefix *с-*;
c. Abstract or concrete internal arguments in non-passive constructions favor *неп-*, *с-* or *за-* depending on the semantic context;
d. Animate internal arguments in non-passive constructions favor *за-*;
e. Abstract or animate internal arguments in passive constructions favor *за-*;
f. Concrete internal arguments in passive constructions favor *с-*.

This list answers my questions: 1) The choice of prefix can, to a large extent, be predicted when there is prefix variation, and 2) the choice of prefix can largely be predicted by type of construction and the semantic category of the internal argument. Furthermore, my results give support to the Overlap Hypothesis by showing that prefix variation is a systematic

phenomenon and that the prefixes do focus the meaning of the verb in different ways (Janda et al. 2013: 162). From the perspective of second language learning, my results indicate that it can be helpful to learn the four Natural Perfectives of *пытать*^{ipf} as part of a construction and/or with a prototypical internal argument (see the list in (41) above). Furthermore, similar corpus-based studies of other verbs with prefix variation may help (1) authors of textbooks to present Natural Perfectives in their most prototypical contexts and thus help second language learners to keep them apart, (2) teachers to explain in which context a given Natural Perfective should be chosen, and (3) second language learners to predict the choice of prefix themselves.

What this analysis does not answer, however, is whether the same factors are decisive for other verbs and how the overlapping looks with other verbs. This is a question that represents an interesting opportunity for future research.

3. Prefix variation and aspectual strength

3.0 Introduction

In the previous chapter, I examined the four Natural Perfectives of *пытать*^{ipf}. In the present chapter, I will expand on this analysis and consider the aspectual relations between the Natural Perfectives and the simplex verb. Several questions are relevant. Does prefix variation imply that Natural Perfectives are Natural Perfectives to the same degree? If not, why are they different? What does it mean that they are Natural Perfectives to a high, or low, degree? How much do perfective verbs that are Natural Perfectives to a low degree differ from Specialized Perfectives? What can the answer to this question tell us about the relationship between Natural and Specialized Perfectives? This case study gives the opportunity to investigate these questions for *пытать*^{ipf}.

In her dissertation, Julia Kuznetsova (2012) introduced a method for how to measure the strength of aspectual relations. According to her hypothesis, different verb pairs have different levels of interchangeability and the strength in their aspectual relation can be calculated by comparing the constructions in which the alleged verb partners appear. She also presented a study of 17 aspectual relations, which provided confirming evidence for her hypothesis. In addition, she hypothesized that aspectual strength correlates with the degree of semantic overlap between simplex verb and prefix, and, for these 17 verb relations, this was correct. In the present chapter, I use *пытать*^{ipf} to test Kuznetsova's method on a verb that has prefix variation. My study complements Kuznetsova's: while Kuznetsova considered one prefix (*по-*) and many verbs, I analyze several prefixes in combination with one verb. My hypothesis is that the aspectual relations of a verb with prefix variation displays the same relationship between aspectual strength and semantic overlap, and my findings confirm that this is true for *пытать*^{ipf}. I furthermore argue that Natural and Specialized Perfectives form a continuum, rather than two clearly distinct categories, and, expanding on this, that their categories can be seen as radial categories, rather than Aristotelian. Finally, I compare two ways of employing Kuznetsova's method: by looking at simple constructional patterns, and by considering detailed constructional patterns. I suggest that both levels of granularity can be beneficial, but that the detailed level yields most accurate results.

I open up the chapter by comparing the ideas of aspectual pairs and aspectual relations (Section 3.1). Then I move on to describe Kuznetsova's method (Section 3.2) and the modifications I made in order to apply the method to my data (Section 3.3). In the subsections of 3.4, I discuss the strength in each of the four aspectual relations of *путать*^{ipf}, while in Section 3.5 I specifically discuss the relationship between aspectual strength and semantic overlap in these relations. Section 3.6 presents the hypothesis of Natural and Specialized Perfectives as two radial categories forming a continuum, while Section 3.7 addresses the methodological question of granularity. Conclusions and avenues for future research are suggested in Section 3.8.

3.1 Aspectual pairs vs. aspectual relations

Essential for the understanding of this chapter are the concepts of “aspectual pairs” and “aspectual relations”. Since the first concept was discussed at some length in Chapter 2, in the following I will only briefly summarize a few of its main points. Then I will move on to describe a problem with the traditional criterion for establishing aspectual pairs (“Maslov’s criterion”) and the alternative approach that has been proposed as a solution to this problem – the idea of aspectual relations (Kuznetsova 2012).

An aspectual pair consists of two verbs, an imperfective and a perfective, that have the same meaning, but different aspects. In Chapter 1, I illustrated this idea with the verbs *писать*^{ipf}/*написать*^{pf} ‘write’ and *переписать*^{pf}/*переписывать*^{ipf} ‘rewrite’. These pairs are formed in different ways (*написать*^{pf} is derived from the simplex verb by prefixation, while *переписывать*^{ipf} is derived from the Natural Perfective by suffixation), but both of them involve one imperfective and one perfective that express the same meaning and can replace each other in contexts where the use of imperfective aspect is compulsory: *praesens historicum* (Maslov’s criterion), contexts of habituality and negated imperative.

Kuznetsova (2012: 98) discusses the use of syntactic criteria as a way of establishing aspectual pairs and suggests that the most famous criterion, Maslov’s criterion, can be formulated in two ways, neither one of which gives satisfactory results.

According to the “universal” version of the criterion, an imperfective verb and a perfective verb form an aspectual pair “if for every example a perfective in past tense can be replaced

with an imperfective in the praesens historicum” (Kuznetsova 2012: 98). The problem with this interpretation is that few verbs, if any, are restricted to the exact same argument structures. In Kuznetsova’s experiment, most of the perfective verbs were found in at least one context where it could not be replaced by the corresponding imperfective. Here is one of Kuznetsova’s (2012: 99) examples:

(42) Ну на день жизнь моя точно **продлилась**^{pf}...

(43) Ну на день жизнь моя точно ??**длится**^{ipf} ...

The “existential” version of Maslov’s criterion states that an imperfective verb and a perfective verb form an aspectual pair “if there exists one example where a perfective in past tense is interchangeable with an imperfective in the praesens historicum” (Kuznetsova 2012: 98). According to this version, the verbs *целовать*^{ipf} ‘kiss’ and *перещеловать*^{pf} ‘kiss all (seriatim)’ can be called a pair on the basis of their interchangeability in (44) and (45). Yet, we hardly want to call them an aspectual pair because of their different meanings in other contexts (Kuznetsova 2012: 99).

(44) Он вчера пришёл и всех наших девушек смело **перещеловал**^{pf}.

(45) Он вчера приходит и всех наших девушек смело **целует**^{ipf}.

As we can see, both variants of Maslov’s criterion pose a problem for establishing aspectual pairs. One of them, the universal version, hardly yields any pairs at all, while the existential version includes too many. Thus there is reason to believe that most pairs have a level of interchangeability that lies somewhere between “all contexts” and “one context”. This, in turn, gives reason to redefine our understanding of aspectual pairhood, which is often assumed to involve a fixed relation between two verbs (Kuznetsova 2012: 100).

As a solution to the problem, Kuznetsova (2012) introduces a method of establishing aspectual pairs based on the Constructional Profiles of the imperfective and perfective verbs, and their intersection rate.¹² Through an analysis of 17 aspectual pairs in Russian, all consisting of a simplex verb and a Natural Perfective prefixed in *про-*, Kuznetsova shows that verbs generally participate in several different constructions and that the “strength” of an aspectual relation can be measured by the number of shared constructions for the

¹² The concept of Constructional Profiles will be defined in Section 3.2 below (Janda and Solovyev 2009).

imperfective and perfective verbs. Thus the verbs *длиться*^{ipf}/*продлиться*^{pf} ‘last’ share three frequent constructions. Since these constructions account for almost all examples with the verbs, *длиться*^{ipf}/*продлиться*^{pf} ‘last’ have a high intersection rate and a strong aspectual relation. At the other end of the scale, we find the verbs *бить*^{ipf}/*пробить*^{pf} ‘beat’, which correlate in only one construction. This construction is very infrequent and accordingly *бить*^{ipf}/*пробить*^{pf} ‘beat’ have a low intersection rate and a weak aspectual relation (Kuznetsova 2012: 122, 138). Kuznetsova furthermore shows that aspectual strength correlates with the degree of semantic overlap between the verb and the prefix. This is clearly the case with the two pairs above. The idea of lasting (*длиться*^{ipf}/*продлиться*^{pf}) implies the idea of THROUGH A QUANTUM, the meaning of *про-*.¹³ By way of example, consider sentences (46) and (47), which both involve metaphorical movement all the way to the end of a time quantum.

(46) Бой **длился**^{ipf} до полуночи.

(47) Проверка **продлится**^{pf} до апреля.

Beating, on the contrary, does not in itself involve THROUGH A QUANTUM and thus *бить*^{ipf} ‘beat’ does not usually correlate with *пробить*^{pf} ‘beat’, as shown in (48) and (49).

(48) Мастер часто **бил** учеников.

(49) Мастер ***пробил** учеников/ученика.

3.2. Kuznetsova’s method: How to measure the strength of aspectual relations

Seeing constructions as the primary criterion for establishing aspectual pairs, Kuznetsova measures aspectual strength based on the Constructional Profiles of the two relevant verbs. Constructional profiling is one member of a larger family of linguistic profiling methods, and can be defined as “the relative frequency distribution of constructions that a given word appears in” (Janda and Solovyev 2009: 376). Other profiling methods include behavioral profiling (Divjak and Gries 2006), grammatical profiling (Janda and Lyashevskaya 2011) and radial category profiling (Neset, Endresen and Janda 2011). Kuznetsova offers an analysis of 17 verb pairs (34 verbs) and argues that two verbs have a strong aspectual relation if they are frequent in the same constructions, but a weak relation if their frequent constructions are

¹³ As mentioned in Section 2.1, the meanings of the prefixes will be given in small caps throughout this thesis. The meanings of *про-* are discussed in Janda et al. (2013: 106-111). See also Kuznetsova 2012: 109.

different. Her database consists of 3400 randomly selected sentences from the RNC (17x2x100), which are coded according to type of construction. If a construction is attested in at least five examples of a given verb, it is referred to as “frequent” and is included in the verb’s Constructional Profile. If a construction is used less than five times with a verb, it is regarded as “infrequent” and is left out of the verb’s Constructional Profile. In this way, Kuznetsova focuses on the typical uses of the verbs.

Table 5 shows how Kuznetsova measured the aspectual relation of *контролировать*^{ipf}/*проконтролировать*^{pf} ‘control’. The first column shows the constructions in which one, or both, of the verbs are frequent. The second and third columns present the number of times the given verb is found in the given construction. In the fourth column we see the minimum number of times, which the verbs intersect in each construction. When these numbers are added together, we receive the total intersection rate of the verbs: 86.

ConstrPattern	<i>контролировать</i> ^{ipf}	<i>проконтролировать</i> ^{pf}	Min. att. ex.
NPnom V NPacc	89	80	80
NPnom V	6	7	6
NPnom V {Conj + CL/CL}	0	10	0
Intersection rate			86

Table 5. Intersection of the Constructional Profiles of *контролировать*^{ipf}/*проконтролировать*^{pf} ‘control’ (Kuznetsova 2012: 117, 225).

The intersection rate of *контролировать*^{ipf} and *проконтролировать*^{pf} tells us that the verbs have an aspectual relation (are interchangeable) in at least 86 out of 100 contexts. An intersection rate of 100 would imply complete interchangeability for the two verbs, while an intersection rate of 0 would imply that they are not interchangeable in any of their frequent contexts. In Kuznetsova’s analysis, 86 was the highest observed intersection rate. Three pairs had an intersection rate of 0, while the results of the remaining pairs were found somewhere inbetween.

3.3 Methodology

In order to use Kuznetsova's method of measuring aspectual relations, I had to carry out some adjustments of the database I used in the previous chapter.

First, my database was expanded to include 200 examples of the simplex verb *путать*^{ipf}. These examples were randomly selected from the “modern” subcorpus¹⁴ in the same way as the examples of the four Natural Perfectives (Section 2.2).

Second, all past passive participles were removed from the database. Since imperfective verbs normally do not form past passive participles, it was necessary to exclude such forms in order to measure aspectual strength based on constructions that are available for both aspects. This reduced the number of sentences in my database from 627 to 401. The last column of Table 6 shows the number of sentences that were removed for each verb.

Verb	Total	Active forms	Passive forms
<i>спутать</i> ^{pf}	200	147	53
<i>перепутать</i> ^{pf}	200	170	30
<i>запутать</i> ^{pf}	200	60	140
<i>впутать</i> ^{pf}	27	24	3
Total	627	401	226

Table 6. Distribution of active and passive verb forms in the database for Chapter 2.

In order to work on as equal numbers as possible for each verb, I replaced the 226 passive constructions with active verb forms from the corpus. When the data was gathered in November 2014, there were 1172 instances of *запутать*^{pf} in the “modern” subcorpus. Of these, 379 contained active forms, but only 143 of them were from different documents.¹⁵ The number of examples with *впутать*^{pf} remained the same as in May 2014: 24. Thus I received a database of 767 examples in total (Table 7).

¹⁴ Texts in the RNC that are created in the years 1950-2015 (see Section 2.2).

¹⁵ According to the RNC, 305 of the sentences with *запутать*^{pf} were from different documents. A manual examination of these sentences showed that 162 of them came from already attested documents. These sentences were removed from the database and a similar examination was made of the data for the other verbs. The given inconsistency in the RNC search monitor has been reported to the RNC developing team.

Verb	#Exx
путать ^{ipf}	200
спутать ^{pf}	200
перепутать ^{pf}	200
запутать ^{pf}	143
впутать ^{pf}	24
Total	767

Table 7. Distribution of verbs in the database with active verb forms.

The fact that I had fewer examples with запутать^{pf} and впутать^{pf}, made it reasonable to calculate intersection rates based on percentages of their total number of examples, rather than raw figures. By way of example, consider the distribution of перепутать^{pf} and запутать^{pf} in the *V acc* construction. Перепутать^{pf} appears in this construction a total of 142 times, while the number for запутать^{pf} is 136. If we look at raw numbers, перепутать^{pf} seems slightly more typical than запутать^{pf} in the given construction, but when we turn these numbers into percentages, запутать^{pf} has a much higher frequency.

Verb	Frequency (raw)	Frequency (%)
перепутать ^{pf}	142	71
запутать ^{pf}	136	95

Table 8. Distribution of перепутать^{pf} and запутать^{pf} in the *V acc* construction.

In the present chapter, I will discuss the four aspectual relations presenting both types of frequencies. When the intersection rates of two verbs are compared, I will use the intersection rates that are based on percentages.

Finally, I modified the names of my constructions. In Chapter 2, I needed a database that would be suitable for a cTree-analysis. Since this statistical model works best with few factors, I had to work on the most basic types of constructional patterns that were attested in my database: the active constructions *V acc*, *V acc sins* and *V acc v acc*, and past passive participles, which I referred to as *passive*. Thus, I was not able to distinguish between such sentences as the two offered in (50) and (51). In the first one, the verb is followed by a direct object in the accusative, while the second sentence in addition involves an indirect object in the dative.

- (50) **Молодые артисты** начали нервничать, дважды **спутали мизансцены**. [Юрий Никулин. День клоуна (1979)]

- (51) Рыбак-кормщик стоял у стерна, **ветер спутал ему волосы**, рыбак смотрел вдаль, в непогоду, ждал удара разъяренной бешеной стихии. [Ю. П. Герман. Россия молодая. Часть вторая (1952)]

In the updated database, I decided to code the sentences according to Kuznetsova's model (Kuznetsova 2012: 110-111), which is more detailed and considers such arguments as subject, indirect object and conjunction.¹⁶ In this system, the two sentences above are referred to as *NPnom V NPacc* and *NPnom V NPacc NPdat*, respectively. Moreover, Kuznetsova recognizes that polysemous verbs, and their aspectual correlates, can have different meanings in the same construction. By way of example, consider the *NPnom V NPacc* construction, which is frequent with all five verbs in this study. In (49) above, the verb *спутать*^{pf} describes a situation where two things, *мизансцены* 'stage settings', are mixed up, while in (52) the same verb is used in the same construction to describe the act of spoiling (confusing)¹⁷ something, *карты* 'here: plans'. When the other verbs are used in this construction, they can mean the same thing as *спутать*^{pf}, e.g. mixing up two things (53), or something different, like making a tangle (54).

- (52) Буквально за несколько дней до срока возврата первой суммы произошло несколько **событий**, враз **спутавших карты**. [Андрей Ростовский. По законам волчьей стаи (2000)]
- (53) — Там проходной подъезд, еще один двор, тоже сквозной, потом арка... выйдешь прямо к ювелирному, направо, я буду там, в машине. Все, пошел! **Не перепутай двор!** [Сергей Осипов. Страсти по Фоме. Книга третья. Книга Перемен (1998)]
- (54) Вот и рыбу ловить, все ловят, а **я** дак **сеть запутаю**, порву, и все толку нет. [Юрий Казаков. Белые ночи (1963)]

When encountering this type of polysemy, Kuznetsova adds the meaning of the verb in parentheses after the name of the construction. Let us look at the three sentences above. Following Kuznetsova's model, we can label the first sentence *NPnom V NPacc (confuse)*. The second sentence can be called *NPnom V NPacc (mix up)*, while the third sentence can be given the name *NPnom V NPacc (tangle)*. Due to the high polysemy of *путать*^{ipf} and its Natural Perfectives, the constructions in this analysis are labeled according to both syntactic

¹⁶ Kuznetsova's system of naming constructions is largely based on the methodology of Apresjan and Pall (1982). Since Apresjan and Pall in their entries for *путать*^{ipf} appear to name both *Конюх путал коня* and *Жеребят можно не путать* as examples of the construction *NPnom V NPacc*, I have used the label *NPnom* in some constructions without an overt subject in the nominative.

¹⁷ In my database, the meaning 'spoil' is included in the semantic category 'confuse'. This is explained below.

arguments and meaning of the verb. Note that in the case of *путать*^{ipf}, this way of labeling involves a certain degree of subjectivity. First, I have had to limit the number of potential meanings in the verbs to a few broad categories. Based on the observed tendencies in my database and Berkov's dictionary entries for *путать*^{ipf} (Berkov 2007), I selected six broad categories of verb meaning: 'mix up', 'confuse', 'cover', 'tangle', 'stammer' and 'tangle into'. This means that some of the categories involve a network of related meanings. By way of example, the category 'confuse' refers to verb events where someone is made confused, something (e.g. a story) is made complicated, something (e.g. a situation) is made unclear or something is spoiled (e.g. plans). Second, native speakers sometimes suggested more than one way of understanding the verb meaning in a given example. In these cases, I had to choose. However, most examples could be associated with one of the mentioned categories, and the six categories should be distinct enough to reveal tendencies in the verbs' behavior.

As the reader will see, the databases in Chapters 2 and 3 were tagged according to very different levels of granularity. Since most of my data already existed with simple construction tags, I decided to calculate two intersection rates for each aspectual relation – one based on Constructional Profiles with simple constructions (low level of granularity), and the other one based on Constructional Profiles with fine-grained constructions (high level of granularity). This dual approach facilitated testing Kuznetsova's method on both levels of granularity to see if the results would be considerably different. The 366 new active constructions were thus coded with both simple and detailed types of construction. In Section 3.7 I use my findings to discuss the choice of granularity for constructions when employing Kuznetsova's method.

3.4 The aspectual relations of *путать*

The two levels of granularity produced very different intersection rates for each pair, but the "pair hierarchy" remained the same. Regardless of granularity, the relations involving *c-непе-* received the highest intersection rates. The relation involving *за-* received much lower numbers, while the relation with *в-* had the weakest relation of all on both levels of granularity. In 3.4.1-3.4.3 I will discuss each aspectual relation. The two strongest relations, *путать*^{ipf}/*спутать*^{pf} and *путать*^{ipf}/*перепутать*^{pf}, have almost similar strengths and will be discussed together. I then move on to *путать*^{ipf}/*запутать*^{pf}, and finally *путать*^{ipf}/*впутать*^{pf}.

3.4.1 Путать/спутать and путать/перепутать

The two pairs *путать^{ipf}/спутать^{pf}* and *путать^{ipf}/перепутать^{pf}* have remarkably similar intersection rates on both levels of granularity. Simple constructions yield a difference of between 86 and 87 (in favor of *путать^{ipf}/перепутать^{pf}*), while detailed constructions give a difference of between 59 and 57,5 (in favor of *путать^{ipf}/спутать^{pf}*). These are the highest intersection rates in my analysis. In Tables 9 and 10, I present the intersection rates based on simple constructions.

Construction	путать ^{ipf}		спутать ^{pf}		Min. attested exx.	
	Raw	%	Raw	%	Raw	%
V acc	116	58	88	44	88	44
V acc s ins	84	42	112	56	84	42
Intersection rate					172	86

Table 9. Intersection rates for *путать^{ipf}/спутать^{pf}*, simple constructions.

Construction	путать ^{ipf}		перепутать ^{pf}		Min. attested exx.	
	Raw	%	Raw	%	Raw	%
V acc	116	58	142	71	116	58
V acc s ins	84	42	58	29	58	29
Intersection rate					174	87

Table 10. Intersection rates for *путать^{ipf}/перепутать^{pf}*, simple constructions.

As the reader will notice, *путать^{ipf}* and *перепутать^{pf}* are most frequent in the *V acc* construction, while *спутать^{pf}* is preferred with the preposition *с* ‘with’. Despite these differences, we see is that both pairs have high intersection rates and that they are typical in the two attested simple constructions of *путать^{ipf}*.

When the constructions are broken down into several more specific constructions, *спутать^{pf}* shares four frequent constructions with *путать^{ipf}*, while *перепутать^{pf}* shares three (Tables 11 and 12). Notice that the numbers are different for the *V acc s ins* construction above and the *NPnom V NPacc c NPins (mix up)* construction below. This difference is caused by the presence of sentences such as (55) in which *путать^{ipf}* follows another verb and is used in the infinitive. I have labeled this construction *NPnom V Vinf NPacc c NPins (mix up)*. The *NPnom V (mix up)* construction refers to sentences where the object is omitted, but the meaning of the verb is ‘mix up’. An example of this is offered in (56) where the object, чай ‘tea’, can be understood from context and the speaker wants to make sure that he gets the

right kind. Other examples of the *NPnom V* construction have other meanings, for example ‘tangle (together)’, and must therefore be distinguished as another type of construction. ‘Tangle’ is the meaning in (57), which comments on the birth of an unanticipated child.

(55) **Я попросил не путать лучший отель Петербурга с прибрежным ресторанчиком** в мертвый сезон. [Дмитрий Каралис. Роман с героиней // «Звезда», 2001]

(56) — Вот тебе червонец. Купишь двести грамм колбасы, батон и пачку чая. Смотри, не **перепутай** — бери «Краснодарский» чай. [Юрий Азаров. Подозреваемый (2000)]

(57) Как говорят, не любовь сведет, так **дите спутает**. [Борис Екимов. В степи (1998)]

In Tables 11 and 12, I present the intersection rates of *путать^{ipf}/спутать^{pf}* and *путать^{ipf}/перепутать^{pf}* based on fine-grained constructions. Although the intersection rates are lower than in Tables 9 and 10 above, the slight supremacy of *путать^{ipf}/спутать^{pf}* over *путать^{ipf}/перепутать^{pf}* is so small that it is not likely to represent a robust tendency.¹⁸

Construction	путать ^{ipf}		спутать ^{pf}		Min. attested exx.	
	Raw	%	Raw	%	Raw	%
NPnom V NPacc с NPins (mix up)	71	35,5	106	53	71	35,5
NPnom V NPacc (mix up)	39	19,5	14	7	14	7
NPnom V NPacc (confuse)	18	9	21	10,5	18	9
NPnom V (mix up)	18	9	15	7,5	15	7,5
Intersection rate					118	59

Table 11. Intersection rates for *путать^{ipf}/спутать^{pf}*, detailed constructions.

Construction	путать ^{ipf}		перепутать ^{pf}		Min. attested exx.	
	Raw	%	Raw	%	Raw	%
NPnom V NPacc с NPins (mix up)	71	39,5	58	29	58	29
NPnom V NPacc (mix up)	39	19,5	96	48	39	19,5
NPnom V (mix up)	18	9	33	16,5	18	9
Intersection rate					115	57,5

Table 12. Intersection rates for *путать^{ipf}/перепутать^{pf}*, detailed constructions.

¹⁸ This is confirmed by a simple chi-squared test. When the intersecting and non-intersecting constructions on a high level of granularity (118 vs. 82 and 115 vs. 85) are compared, Pearson’s chi-squared test with Yates’ continuity correction (X-squared = 0.0411, df = 1) yields a p-value of 0.8393. When the intersecting and non-intersecting constructions on a low level of granularity (172 vs. 28 and 174 vs. 26) are compared, Pearson’s chi-squared test with Yates’ continuity correction (X-squared = 0.0214, df = 1) yields a p-value of 0.8837.

3.4.2 Путать/запутать

Table 13 shows that *путать*^{ipf} and *запутать*^{pf} only have one frequent construction in common, *V acc*, but this construction is by far the most frequent construction for both of them. Although its intersection rate of 58 is considerably lower than for the two pairs above, *путать*^{ipf}/*запутать*^{pf} appear to have a relatively high level of interchangeability.

Construction	<i>путать</i> ^{ipf}		<i>запутать</i> ^{pf}		Min. attested exx.	
	Raw	%	Raw	%	Raw	%
<i>V acc</i>	116	58	136	95	116	58
Intersection rate					116	58

Table 13. Intersection rates for *путать*^{ipf}/*запутать*^{pf}, simple constructions.

When the constructional patterns are broken down into a larger set of more specific constructions the intersection rate of *путать*^{ipf}/*запутать*^{pf} is reduced drastically from 58 to 9. This difference in numbers is due to the heterogeneous nature of the *V acc* construction, which I already commented on above. The aspectual relation of *путать*^{ipf}/*запутать*^{pf} is thus sharply limited to contexts of confusing, the *NPnom V NPacc (confuse)* construction.

Construction	<i>путать</i> ^{ipf}		<i>запутать</i> ^{pf}		Min. attested exx.	
	Raw	%	Raw	%	Raw	%
<i>NPnom V NPacc (confuse)</i>	18	9	82	41	18	9
Intersection rate					18	9

Table 14. Intersection rates for *путать*^{ipf}/*запутать*^{pf}, detailed constructions.

In reality there is one more context in which both verbs are attested, the construction *NPnom V NPacc (cover)* (58 and 59 below), but this construction is too infrequent to be included in their Constructional Profiles (4 examples with *путать*^{ipf}, 3 examples with *запутать*^{pf}).

(58) **Серый хищник** куда хитрее **путает свои следы**, кроме того, он обладает поразительной выносливостью — способен в течение дня пробежать более ста километров. [Алексей Угаров. За серыми гнались на «Буранах» (2003) // «Вечерняя Казань», 2003.01.11]

(59) Это она говорила для того, чтобы **запутать следы**, оберечь сына от кинров — от злых духов. [Чингиз Айтматов. Пегий пес, бегущий краем моря (1977)]

3.4.3 Путать/впутать

Table 15 shows that *путать*^{ipf}/*впутать*^{pf} have the weakest aspectual relation of the four pairs. According to the intersection rate based on a low level of granularity, they have an aspectual relation when the accusative object is not followed by a preposition, such as *с* ‘with’ or *в* ‘into’.

Construction	<i>путать</i> ^{ipf}		<i>впутать</i> ^{pf}		Min. attested exx.	
	Raw	%	Raw	%	Raw	%
<i>V acc</i>	116	58	8	27	8	27
Intersection rate						27

Table 15. Intersection rates for *путать*^{ipf}/*впутать*^{pf}, simple constructions.

The more granular way of representing constructions makes it possible to consider the meaning of the verb as it is understood in context, and we have already seen that this is particularly important with the semantically diverse construction *V acc*. The eight examples with *впутать*^{pf} in this construction all resemble the *NPnom V NPacc* (*tangle into*) construction where the preposition *в* ‘into’ is understood from context. By way of example, consider the situation in (60) where the Russian authorities are accused of involving the army in the election of the new St. Petersburg governor.

- (60) По действующему законодательству военнослужащие голосуют по месту своей постоянной дислокации. ... все прибывшие на учения военнослужащие получают право голосовать на выборах губернатора Петербурга... ожидается прибытие до 200 тыс. военнослужащих».... Новость ... помутила разум многих горожан. Лично мне звонили четверо коллег, возмущенно сообщая одно и то же: «Нет, ты представляешь, до чего Они докатились, сатрапы! **Армию впутали!**!...» [Евгений Зубарев. Вы слышите: грохочут чудачки? (2003) // «Петербургский Час пик», 2003.09.24]

The examples with *путать*^{ipf} in the *V acc* construction are on the other hand attested with the meanings ‘mix up’, ‘confuse’, ‘spoil’, ‘stammer’ and ‘tangle’, and, accordingly, a high level of granularity yields an intersection rate of 0 for *путать*^{ipf}/*впутать*^{pf}.

It is important to keep in mind that Kuznetsova’s method is based on the relationship of the verbs in their frequent constructions and thus 0 does not imply that the verbs are not aspectual partners at all. In the following example from the RNC, the simplex verb *путать*^{ipf} is used in the prototypical construction of *впутать*^{pf}, *NPnom V NPacc в NPacc* (*tangle into*).

- (61) Как дико было **путать в наши [с мужем] отношения его любовь, его культ** (ты страшно верно заметила) *к семье*. [Геннадий Горелик. Андрей Сахаров. Наука и свобода (2004)]

3.5 The relationship between aspectual strength and semantic overlap for **путать**

In the beginning of this chapter, I pointed out that Kuznetsova observed a relationship between the strength of a given aspectual relation and the degree of semantic overlap between verb and prefix. The past section showed that **путать**^{ipf} has two relatively strong aspectual relations and two much weaker aspectual relations. It is now time to ask if the intersection rate values of these relations are motivated by semantic overlap. In order to discuss this question, I will first present the meanings of the simplex verb in terms of their frequency in the database. Since Chapter 2 explored the contextual domains of the four Natural Perfectives, this survey of **путать**^{ipf} makes it possible to explain the strength of each aspectual relation based on the frequencies of the contexts in which the imperfective and the given perfective verbs concur. I then compare these frequencies with the intersection rate of the given aspectual relation and show that aspectual strength is motivated by semantic overlap for **путать**^{ipf}, as well. Since different pairs exhibit differences in aspectual strength, it may appear tempting to consider some pairs “better” than others. However, at the end of the section, I will argue that we should resist this temptation. I will argue that it is not the pairs, but rather the contexts that are “good” and “bad”.

In order to measure the distribution of meanings for the unprefixated verb **путать**^{ipf}, I tagged each sentence in the database with one of the following semantic categories: ‘mix up’, ‘confuse’, ‘cover’, ‘stammer’, ‘tangle’ and ‘tangle into’. Five of these meanings are listed in the entry for **путать**^{ipf} in Berkov’s Russian-Norwegian dictionary (Berkov 2007).¹⁹ The meaning ‘cover’ was included based on its relevance for **запутать**^{pf} and thus possibly for **путать**^{ipf} too. The distribution of lexical meanings for the verb is presented in Figure 2. The raw numbers are given above each frequency.

¹⁹ Berkov’s Norwegian translation of these meanings: ‘forveksle’, ‘forvirre’, ‘samme usammenhengende’, ‘filtre [floke] sammen’ and ‘blande noen opp i’ (Berkov 2007: 776).

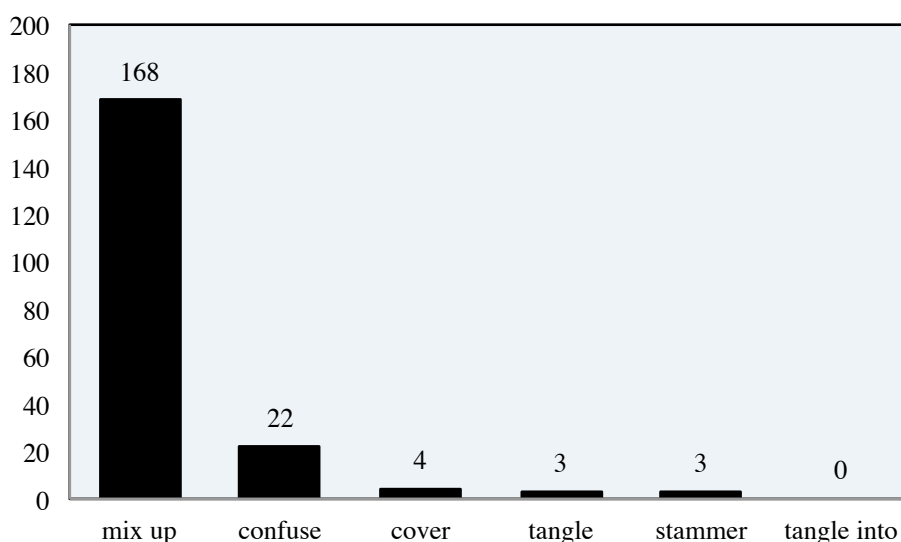


Figure 2. Distribution of meanings for the simplex verb *путать*^{ipf}.

As we can see, there is one dominant meaning for *путать*^{ipf}, namely ‘mix up’. The meaning ‘confuse’ is dramatically less frequent, yet its frequency is considerably higher than the frequency of ‘cover’, ‘stammer’ and ‘tangle’. ‘Tangle into’ is not attested at all in my database, but (61) above has already illustrated that *путать*^{ipf} appears with this meaning. If Kuznetsova’s hypothesis is correct and aspectual strength in fact correlates with the degree of semantic overlap between verb and prefix, we can expect a high intersection rate if the given prefix overlaps with the idea of mixing up, and a much lower intersection rate if the prefix does not. As we will see in the following, these expectations are met remarkably well for *путать*^{ipf}.

In Figure 3 each aspectual relation is “attached” to its appropriate meaning(s). Ovals represent prefixes. The figure shows that two prefixes, *не-* and *в-*, are restricted to one meaning – the most frequent meaning and the least frequent meaning, respectively, while *с-* and *за-* are used in three contexts each. The meaning ‘stammer’ involves an activity (atelic situation), which can only be expressed by the imperfective verb, as explained in Section 2.1. Intersection rates are provided in the top right corner.

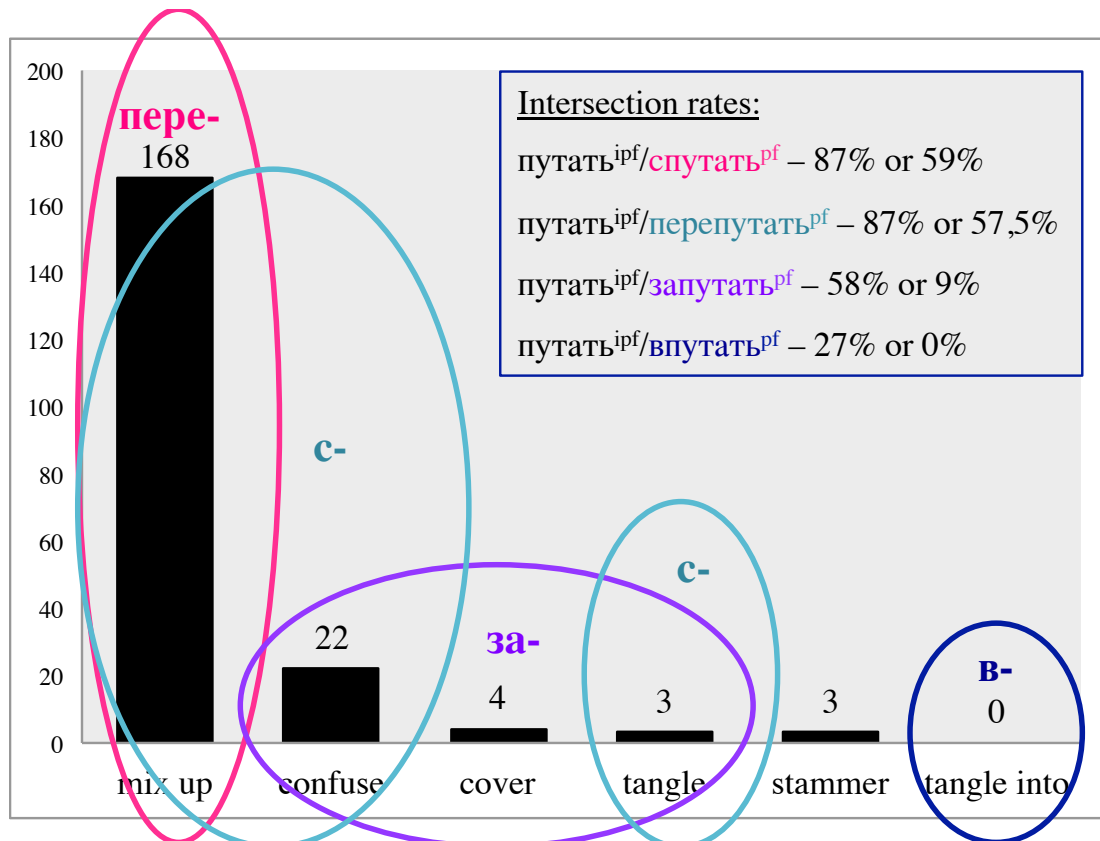


Figure 3. Intersection rates and semantic overlap of meanings between simplex verb and prefixes.

Figure 3 shows that there is a clear relationship between aspectual strength and semantic overlap in the aspectual relations of *путать*^{ipf}. Recall from Chapter 2 that the meaning of *пере-* is MIX. Although *пере-* only overlaps with one of the meanings of *путать*^{ipf}, ‘mix up’, the aspectual relation of *путать*^{ipf}/*перепутать*^{pf} is very strong, since ‘mix up’ is so much more frequent than the remaining five verb meanings. The prefix *в-* is, on the other hand, associated with the least frequent meaning of *путать*^{ipf}; *в-* has only one meaning in the Russian verb system, INTO, and thus overlaps with the specific situation of tangling (involving) someone into something. The meaning of *с-* is TOGETHER. Just like MIX, TOGETHER is compatible with the idea of mixing up. The prefix *с-* can also overlap with ‘confuse’ and ‘tangle’ since tangles, both physical and mental ones, involve bringing things together in an unorderedly sort of way. Thus the intersection rate of *путать*^{ipf}/*спутать*^{pf} is high because the prefix is compatible with the most frequent meaning of the verb and additionally overlaps with two less frequent meanings. Finally, *за-* is attested with the meaning COVER. This meaning overlaps with *путать*^{ipf} in the contexts of confusing (recall the metaphor CONFUSION IS REDUCED VISIBILITY), covering tracks and tangling in the sense of *entangling* (surface is covered). Although *за-* can overlap with more meanings of *путать*^{ipf} than the

prefix пере-, none of these meanings are frequent, and this produces a low intersection rate for путать^{ipf}/запутать^{pf}.

Summing up, then, all of these four prefixes form aspectual relations that exhibit a relationship between aspectual strength and semantic overlap of verb and prefix. They all perfectly overlap with the verb in their appropriate contexts, but these contexts have very different frequencies, which, in turn, yield different intersection rates. This lends support to Kuznetsova's hypothesis.

Before closing this section, I will address the question of whether this discussion gives reason to speak of "good" and "bad" pairs; a "best" pair and a "worst" pair. Is it reasonable to submit that a strong aspectual relation equals a "good" pair, and a weak aspectual relation entails a "bad" pair? Can second language learners benefit from focusing on the "best" pairs and avoid the "bad" ones (especially when encountering prefix variation)? This case study of one verb can hardly yield a single answer, yet it reveals at least one problem with the idea of good and bad pairs.

The discussions in the previous and present chapters show that (1) the prefixes overlap with, and thus are used in, different contexts, and consequently (2) the prefixes can in general not be replaced by each other. This implies that each pair is "good" (even "best") in their appropriate contexts. Just like пере- cannot be replaced by за- in the sentence Он перепутал стаканы 'He took the wrong glass', за- cannot be replaced by пере- in the sentence Он запутал полицейского 'He confused the policeman'; each context requires the use of one particular prefix. Based on this, then, it seems more appropriate to speak of "good" and "bad" *contexts* for a given pair, rather than rating the pairs themselves. For second language learners, the most efficient (and least confusing) might be to focus on the meanings that they encounter most frequently, i.e. on the most frequent contexts and constructions.

3.6 Natural Perfectives vs. Specialized Perfectives: Separate categories or continuum?

As mentioned in Section 2.1, “Natural Perfectives” and “Specialized Perfectives” are the terms that Janda uses to distinguish between perfectives that are the natural equivalents of the simplex verb, such as написать^{pf} ‘write’, and perfectives that have a different meaning than the simplex verb, such as переписать^{pf} ‘rewrite’ (Janda 2007). Although Janda’s terms are fairly new, Russian aspectology has always paid attention to the difference between these two types of perfectives and has assumed that a given perfective is either Natural or Specialized. Natural Perfectives form pairs with simplex verbs, while Specialized Perfectives do not. In traditional terms, a given perfective cannot be both Natural and Specialized at the same time, and a given prefixed perfective either forms an aspectual pair with the corresponding simplex imperfective, or it doesn’t. In the present section, I will use the four intersection rates for путать^{ipf}, as well as the 17 intersection rates from Kuznetsova’s study, to argue that the boundary between Natural Perfectives and Specialized Perfectives is less clear than what has often been assumed. I will also propose that Natural and Specialized Perfectives can be either prototypical or non-prototypical, which, in turn, indicates that they can be seen as two radial categories, rather than two Aristotelian categories. Each of these points bring in important nuances to the way we understand Russian perfectives.

Figure 4 shows the intersection rates for the 21 relevant pairs on a scale from 100% (left) to 0% (right). An intersection rate of 100% indicates full overlap between simplex verb and Natural Perfective, and thus the Natural Perfective is ideal. An intersection rate of 0% means that the imperfective and perfective verbs do not share any frequent constructions. This criterion yields an ideal Specialized Perfective. The white circles represent the intersection rates of Kuznetsova’s verb pairs, while the four black circles denote the four aspectual relations of путать^{ipf}.

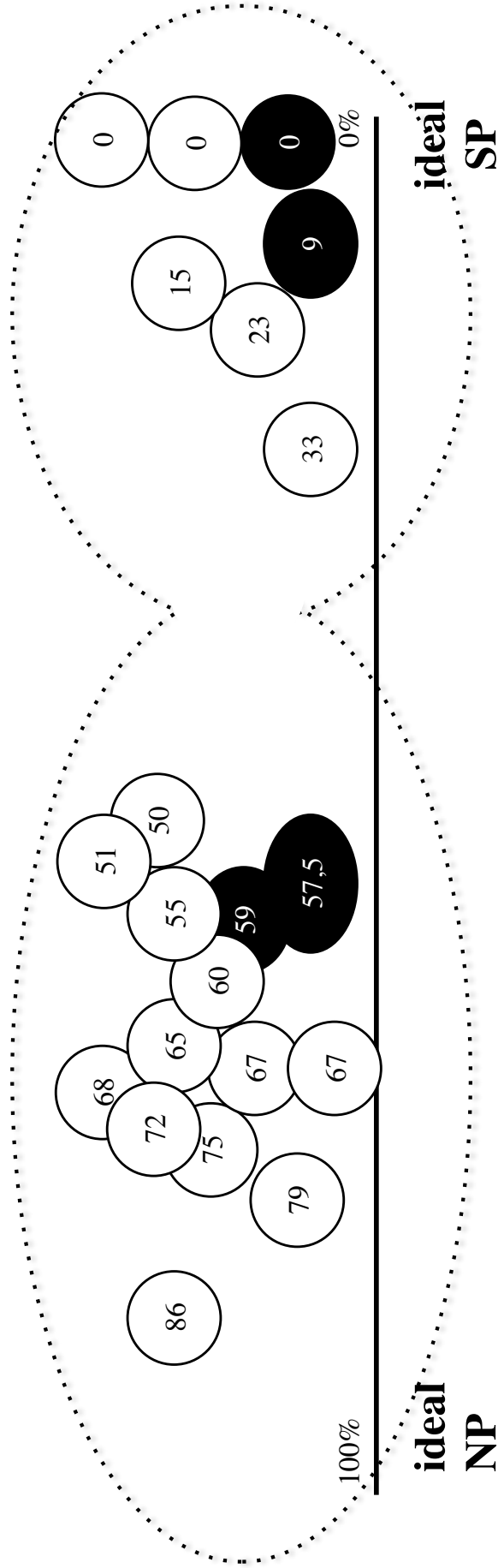


Figure 4. Intersection rates of Kuznetsova's 17 verb pairs and the four aspectual relations of *пусть* ^{pf}.

The scale above suggests several things about the relationship between Natural and Specialized Perfectives in Russian. Let me comment on four important issues.

1. Natural and Specialized Perfectives are different types of perfectives

The scale in Figure 4 has two centers of gravity: one between 86% and 50%, and one between 33% and 0%²⁰. The first center of gravity involves Natural Perfectives that overlap with the simplex verb in the majority of contexts, while the second center of gravity involves perfectives that can be used as Natural Perfectives to a very limited extent. Most of them belong to simplex verbs that have prefix variation, and, according to Kuznetsova (2012), many of them function primarily as Specialized Perfectives, and only exceptionally as Natural Perfectives. Thus it makes sense to distinguish between perfective verbs that are mostly-100% Natural and perfectives that are mostly-100% Specialized.

2. Natural and Specialized Perfectives are not classical categories

Figure 4 challenges the traditional understanding of Natural and Specialized perfectives as two classical Aristotelian categories. In the words of Rosch and Mervis (Lewandowska-Tomaszczyk 2007: 144), membership of a classical category is an “all-or-none phenomenon”; membership depends on the presence of a given set of features and is only factual if *all* of these features are in place. Thus there are no degrees of membership. As we can see from Figure 4, the two categories of Natural and Specialized Perfectives in Russian do not conform to this strict category definition. Although some of the verbs exhibit more similarity than others, they are rarely Natural or Specialized to the exact same degree.

3. Natural and Specialized Perfectives form a continuum

In the figure we observe a gradual relationship between the two types of perfectives, and, interestingly, the “distance” between the lowest number in the first group (50) and the highest number in the second group (33) is smaller than the distances between the highest and lowest numbers within the groups (86-50 and 33-0). In recent years, several researchers (e.g. Janda et al. 2013: 177, Kuznetsova and Sokolova forthcoming, Dickey and Janda forthcoming) have argued that Natural Perfectives and Specialized Perfectives form a continuum, and my findings lend support to this hypothesis.

²⁰ The intersection rate of 33 belongs to the verb pair вести^{ipf}/провести^{pf} ‘lead’. In Kuznetsova’s database, the two verbs only appeared in the same contexts when used as light verbs, and Kuznetsova argues that their real intersection rate is 0 (Kuznetsova 2012: 132-133).

4. Natural and Specialized Perfectives as radial categories

Given the strong emphasis on radial categories in cognitive linguistics, it may seem very likely that Natural and Specialized Perfectives constitute two radial categories in Russian and my analysis gives empirical support to this idea. As opposed to classical categories, radial categories involve fuzzy edges and degrees of membership (Taylor 2003: 53). The members of the category are united by “family resemblance” (ibid: 42), but while some members share many attributes (features), other members share few (ibid: 53). Their place in the category depends on their level of similarity with the most typical representative of the category, the prototype. By comparison, the categories of Natural and Specialized Perfectives also have fuzzy edges and the “distance” between them appears gradual. The members have different degrees of membership, some being closer to the “ideal” category representative than others, yet all members of the categories are united by their tendency to function primarily as Natural or primarily as Specialized perfectives. A prospective and interesting avenue for further research is the question of prototypicality in these categories; what is the prototypical intersection rate of Natural Perfectives and the simplex verbs? And also: what is the structure and prototype of Specialized Perfectives? The current study involves verbs that are known to function as Natural Perfectives, but what happens to the category of Specialized Perfectives if we include so-called Specialized Perfectives as well? Will the category still involve a great level of variation? These and other questions can be answered by surveying a larger number of verbs.

3.7 The choice of granularity level when measuring aspectual strength

As the reader will remember, “aspectual relations” and “aspectual strength” are fairly new terms in Russian aspectology and little research has been carried out to follow up on Kuznetsova’s experiment in 2012. Since Kuznetsova’s point is that aspectual strength correlates with the degree to which two verbs, a simplex verb and a Natural Perfective, appear in the same constructions, one of the important questions to address is the choice of granularity level for the constructions. In the present chapter, I have measured aspectual strength based on two levels of granularity: a low level of granularity with simple constructional patterns, and a high level of granularity with fine-grained constructional patterns according to Kuznetsova’s model. I am now in a position to discuss the pros and cons of these two approaches.

The major advantage of using simple constructional patterns is that we receive a small number of frequent constructions, which apply to most of the sentences with a given verb. By way of example, consider the pair *путать*^{ipf}/*спутать*^{pf}. These verbs are attested in two constructions, *V acc* and *V acc s ins*, both of which are frequent. Among their sentences we certainly find a lot of inner diversity, but we do not find other prepositions than *с* ‘with’. Neither do we find many syntactic arguments that seem important enough to consider them part of a different type of construction. Most of them, such as the conjunction *чтобы* ‘in order to’ (62) or the presence of an auxiliary verb (63), can be expected with any of the five verbs in question.

- (62) А Виржинчик сидела рядом, читала под фонарем Альтенберга или Штирнера и только просила заранее ей сказать, где мы нынче находимся, **чтобы** уже наверное **не спутать** на сегодняшний вечер **Шотландию с Эгейским морем**. [Н. Н. Берберова. Курсив мой (1960-1966)]
- (63) Мы уже упоминали о том, что **он мог спутать вещи, очевидные для любого школьника**. [Александр Ласкин. Ангел, летящий на велосипеде // «Звезда», 2001]

The first drawback of this method is that potentially significant differences in meaning within one single construction are hidden. Let us once more consider the two examples above. As we can see, the constructions are different, *V acc s ins* vs. *V acc*, but the situation is the same: one thing is mistaken for another. Now, let us look at the sentences below. In the first example, the *V acc* construction involves the same verb, *спутать*^{pf}, but describes a different situation, namely that of spoiling something.²¹ In the second sentence, *путать*^{ipf} is used in the fixed phrase *путать*^{ipf} следы ‘cover one’s tracks’. While the contexts of mixing up and confusing are possible for both *путать*^{ipf} and *спутать*^{pf}, *путать*^{ipf} only correlates with *запутать*^{pf} in the context of covering tracks. This important observation cannot be made if we work with very simple constructional patterns (a low level of granularity).

- (64) К счастью, этого я не видал; **зрелище такого грубого насилия**, вероятно, меня возмутило бы и **спутало бы все впечатление**. [В.А. Маклаков. Из воспоминаний (1954)]

²¹ In my database, examples of the verb meaning ‘spoil’ are included in the category ‘confuse’. Many of these examples involve the fixed phrase *спутать*^{pf} планы/карты кому ‘spoil someone’s plans’. In other examples, the direct object is an “internal matter”, like *впечатление* ‘impression’ in (64), which can be spoiled, or distorted, via confusion.

- (65) а. **Серый хищник** куда хитрее **путает свои следы**... [Алексей Угаров. За серыми гнались на «Буранах» (2003) // «Вечерняя Казань», 2003.01.11]
б. Серый хищник куда хитрее запутал свои следы...
с. Серый хищник куда хитрее ”спутал свои следы...

The second drawback of this method becomes particularly clear when we look at verbs with prefix variation. As we have already seen, prefix variation exists when different prefixes can be used to focus on different meanings in a polysemous verb and thus the choice of prefix is not arbitrary. If several of the verb's aspectual relations have high intersection rates, however, it must be inferred that the prefixes (Natural Perfectives) in many contexts can be used interchangeably. In the case of *путать*^{ipf}, a low level of granularity yields 87, 86, 58 and 27. The highest intersection rates involve *перепутать*^{pf} and *спутать*^{pf}, which in fact can be used in the same contexts to a certain extent. *Запутать*^{pf} and *впутать*^{pf}, on the other hand, are not interchangeable with these two verbs, or each other, but the intersection rates of 58 and 29 indicate that they often occur in the same constructions, a result that is misleading.

The fine-grained approach used by Kuznetsova, enables us to detect important syntactic and semantic variations within one constructional pattern. Its downside is that we risk finding each verb scattered across a high number of infrequent constructions which do not make it into the verb's Constructional Profile. This risk is particularly high with strongly polysemous verbs, such as verbs with prefix variation (Kuznetsova 2012: 120, 138), and can make statistical analysis infeasible. Due to the number of infrequent constructions we can also get the impression that an aspectual relation is weaker than it actually is. Consider, for example, the verbs *путать*^{ipf}/*впутать*^{pf}. While *впутать*^{pf} does function as a Natural Perfective of *путать*^{ipf} in certain constructions, none of these constructions are frequent enough to be part of the simplex verb's Constructional Profile, if we assume a high level of granularity. The intersection rate of 0 can easily be understood as no aspectual relation at all, in which case *впутать*^{pf} must be treated exclusively as a Specialized Perfective. This danger shrinks if we consider more inclusive (less granular) constructions, which can often “include” several more fine-grained constructional patterns.

In their recently published article, Berdičevskis and Eckhoff (2014) test the reliability of verbal Constructional Profiles and their conclusions about granularity largely agree with those above. Their goal was to find out if randomly chosen Constructional Profiles for one verb (1) match (receive a high intersection rate), and (2) are able to distinguish each other

from the profiles of other verbs. In order to shed light on these questions, Berdičevskis and Eckhoff made a large number of Constructional Profiles for a selected number of verbs. Each profile involved a certain level of granularity: simple constructions, partly enriched constructions or fully enriched constructions. When the intersection rates of two non-intersecting, but otherwise randomly chosen Constructional Profiles of one verb were calculated, the experiment showed that a low level of granularity produced the highest intersection rates. This corresponds with my results for *путать*^{ipf} where, as we have seen, each aspectual relation likewise appeared much stronger when the constructional patterns were simple. When Berdičevskis and Eckhoff calculated the intersection rates of profiles across the verbs, they observed that fine-grained constructions most accurately could detect which two profiles belonged to the same verb, and which profiles belonged to different verbs. This also corresponds with my findings for *путать*^{ipf}: the fine-grained constructions could more accurately describe the syntactic (and semantic) environment of a given verb and were consequently better suited to detect when, and to which degree two verbs are partners. Thus, my study of *путать*^{ipf} and the analysis proposed by Berdičevskis and Eckhoff both indicate that all levels of granularity can be useful, but that a high level of granularity provides most accurate results.

To recapitulate, the present study gives us the following insights in the question of granularity. First, the two levels of granularity yield the same aspectual “hierarchy”:

1. *путать*^{ipf}/*спутать*^{pf} and *путать*^{ipf}/*перепутать*^{pf};
2. *путать*^{ipf}/*запутать*^{pf};
3. *путать*^{ipf}/*впутать*^{pf}.

Second, my study shows that finer constructional patterns can be needed in order to detect the specific contexts in which two verbs have an aspectual relation. Thus, simple constructions reveal the “order” of the pairs, while more fine-grained constructions let us measure their relations more accurately. This shows that Kuznetsova’s method gives valuable insights on both levels of granularity, but that relatively fine-grained constructions give more precise results. However, it must be emphasized that these conclusions are based on limited evidence, so more research is necessary in order to conclude with more confidence.

3.8 Conclusions

This chapter makes use of Kuznetsova's recently introduced method for measuring the strength of aspectual relations. While Kuznetsova herself measures the aspectual strength of 17 verb relations, all from different verb clusters, my analysis examines the aspectual relations within one such cluster, shedding light on the nature of overlap and aspectual pairhood when a verb has prefix variation.

My study shows that strength in the aspectual relations of a verb with prefix variation can vary, and that it is governed by the degree of overlap between verb and prefix. This conforms with the findings of Kuznetsova. The verb *путать*^{ipf} has two relatively strong aspectual relations and two very weak aspectual relations. The prefixes in the two strong relations, *с-* and *пер-*, both have contents that overlap with the prototypical meaning of the simplex verb, 'mix up'. *С-* has the meaning TOGETHER and goes well with the meaning 'mix up' when followed by the preposition *с* '(together) with'. *Пер-*, with the meaning MIX, overlaps precisely with the verb and produces a strong aspectual relation. The meanings of *за-* and *в-*, COVER and INTO, are compatible with the least frequent meanings of the verb, 'confuse', 'cover tracks', 'tangle' and 'tangle into'.

When presented together, the intersection rates of *путать*^{ipf} and Kuznetsova's 17 pairs indicate that Natural Perfectives and Specialized Perfectives are two radial categories, which form a continuum. Traditionally, Natural Perfectives and Specialized Perfectives have been presented as two classical categories in the Russian aspectual system, indicating that perfectives are either "fully" Natural, or "fully" Specialized. Together with Kuznetsova's study, this chapter suggests that Natural Perfectives are "Natural" to varying degrees and that this variation can be found in the category of Specialized Perfectives as well. The 21 relevant intersection rates suggest that there is no clear boundary between Natural Perfectives and Specialized Perfectives and that the peripheral examples of each category intersect. A greater survey of the structure and prototypes of these categories presents an interesting array for future research.

Kuznetsova's method makes it crucial to code the constructions according to the "right" level of granularity. In this chapter, I have used two levels of granularity in order to compare the results. The two levels produced very different intersection rates, but the same relative

“order” of aspectual strength. Thus, simple constructional patterns were equally able to reveal the strongest and weakest aspectual relations for *пытать*^{ipf}. Simple constructions also make statistical analysis easier since we receive few frequent constructions instead of many infrequent. Nevertheless, a high level of granularity appeared crucial in order to accurately detect the contexts where the simplex verb intersected with a given Natural Perfective. The most problematic of the simple constructions was *v acc*, which contained all the meanings available for *пытать*^{ipf}, while the *v acc s ins* and *v acc v acc* always expressed one meaning, namely ‘mistake A for B’ and ‘involve someone into something’.

4. Prefix variation and aspectual triplets

4.0 Introduction

This chapter explores the relation between Primary and Secondary Imperfectives in the four aspectual triplets involving *пытать*^{ipf}. Over the past years, aspectual triplets have been studied by several scholars, who have expressed different views on the phenomenon. In the present chapter, I will focus on the hypotheses set forth by the CLEAR group in Tromsø (Janda et al. 2013: 163-177, Kuznetsova and Sokolova forthcoming), but I will also comment on the hypotheses of Zaliznjak and Mikaeljan (2010). What all these researchers seem to agree on is that aspectual triplets are a regular and systematic phenomenon in Russian and that aspectual triplets involve considerable diversity. However, it remains unclear in what sense triplets are regular and systematic and what kind of diversity we observe. If these questions can be illuminated by case studies of individual triplets, then triplets with the same simplex verb is a good place to begin, since here one factor remains constant – the verb. Using the “пытать triplets” as my case study, I will test three hypotheses concerning the relation between Primary and Secondary Imperfectives: (1) the Primary and Secondary Imperfectives in a triplet appear in different constructions, (2) the Primary and Secondary Imperfectives differ with regard to telicity, and (3) the distribution of Primary and Secondary Imperfectives in a triplet depends on the aspectual strength of the Primary Imperfective and Natural Perfective. Although my data set is too small to facilitate strong conclusions, I will show that the predictions of the hypotheses match my results for the “пытать triplets”. Finally, since my data for Secondary Imperfectives are not restricted to the RNC “modern” subcorpus (1950-2015), I will discuss a few diachronic changes that appear to have taken place for some of these verbs. Seen together, my analysis shows that each of the five imperfective verbs under scrutiny has a unique meaning and role in the Russian verb system.

The chapter is structured as follows. In Section 4.1, I summarize some main points in the scholarly literature on triplets and state my hypotheses. In section 4.2, I discuss my methodology, while in Sections 4.3-4.6 I describe my findings. In Section 4.7, I share some observations that I have made by comparing the “old” and “modern” uses of the four Secondary Imperfectives. The last section, 4.8, gives a summary of the chapter and some ideas for future research.

4.1 Theory and hypotheses

An “aspectual triplet” involves a set of three verbs – a simplex verb, a Natural Perfective and a Secondary Imperfective – where both imperfective verbs function as aspectual correlates of the Natural Perfective, e.g. *множиться^{ipf}/умножиться^{pf}/умножаться^{ipf}* ‘multiply’. As explained in Section 2.1, Russian verbs have traditionally been presented as “pairs” consisting of one imperfective verb and one perfective verb that can replace each other in “contexts of compulsory imperfectivization” (Zaliznjak and Mikaëljan 2010: 130).²² However, a few verbs have been known to form triplets instead of pairs. Usually, this phenomenon has been assumed to involve a very limited number of verbs, but recent studies have shown that triplets, on the contrary, are very frequent (Janda et al. 2013).²³ As pointed out by Janda et al. (2013: 163), the existence of triplets poses a challenge to the traditional “pair model” of Russian verbs, and, since the opinions about pairs are strong and varied in scholarly literature, so are the views on triplets. As promised in the introduction above, I will concentrate on two approaches that have been argued for in recent years. First, I will summarize the main points in Zaliznjak and Mikaëljan’s article from 2010. Then, I will move on to the hypotheses of the CLEAR group in Tromsø.

According to Zaliznjak and Mikaëljan, two factors are relevant for aspectual triplets. First, in Russian it is in principle possible to derive a Secondary Imperfective from nearly any perfective by means of the productive suffix *-ыва-/-ива-*. For Natural Perfectives that do not correlate with a simplex verb, e.g. *опоздать^{pf}* ‘be late’, this mechanism creates a “pair”, e.g. *опоздать^{pf}/опоздывать^{ipf}* ‘be late’. For Natural Perfectives that already correlate with the simplex verb, e.g. *намазать^{pf}* ‘smear’, this mechanism creates a triplet, e.g. *мазать^{ipf}/намазать^{pf}/намазывать^{ipf}* ‘smear’. In the view of Zaliznjak and Mikaëljan (2010: 131), aspectual triplets are just as regular and systematic as the mechanism by which they are created.²⁴ Thus, triplets can be expected, since Russian offers a way of forming Secondary Imperfective of nearly any perfective.

²² “контексты обязательной имперфективизации” (Zaliznjak and Mikaëljan 2010: 130).

²³ In the large-scale study of Janda et al. (2013), 37% of all hypothetical Secondary Imperfectives were attested in the RNC and 77% of the same Secondary Imperfectives were attested in Google.

²⁴ “...видовые тройки представляют собой не периферийное, а в высшей степени регулярное явление, определяющее облик русской аспектуальной системы, поскольку они возникают в результате действия того же механизма, который обеспечивает наличие имперфективного коррелята почти для любого глагола сов.вида...” (Zaliznjak and Mikaëljan 2010: 130-131).

The second factor is the problem of synonymy, which Zaliznjak and Mikaëljan describe as quite extensive in Russian. They note the existence of triplets where the two imperfective verbs are synonymous, e.g. множиться^{ipf}/умножиться^{pf}/умножаться^{ipf} ‘multiply’, but, according to the two researchers, such “biimperfective” triplets are rare. In most triplets, the Primary Imperfective and Natural Perfective are used in one context, e.g. шить^{ipf}/сшить^{pf} <платье> ‘sow a dress’, while the Secondary Imperfective and Natural Perfective are used in a different context, e.g. сшить^{pf}/сшивать^{ipf} <два куска материи> ‘sow together two pieces’. Thus, triplets involve considerable diversity, and they form what Zaliznjak and Mikaëljan (2010: 133) refer to as a “неоднородный класс”.

The CLEAR group (Janda et al. 2013, Kuznetsova and Sokolova: forthcoming) argues that triplets are systematic and regular because Secondary Imperfectives have a special function in the Russian verb system; while the Primary Imperfective is focused on the process of the action and the Natural Perfective is focused on its result/goal, the Secondary Imperfectives supplement the system by expressing a “process regarded with a consideration of its result” (Veyrenc 1980: 176).²⁵ This hypothesis was set forth by Veyrenc as early as 1980, but the CLEAR group has given it substantial empirical support. In their forthcoming article, Kuznetsova and Sokolova remark the following asymmetries in the use of Primary and Secondary Imperfective. The Secondary Imperfective is preferred in goal-oriented contexts, such as *praesens historicum*, iterative contexts and habitual contexts. Here, the event has been completed once, or several times, in the past, and the focus on a goal is natural. Secondary Imperfectives are furthermore argued to be favored in contexts that involve one specific object. The idea is that one object makes the sentence more goal-oriented than if there are several objects involved. The Primary Imperfective is, on the other hand, preferred when the object is in the plural, when the object is left unmentioned, or when the construction is negated. These contexts will be further commented on in Section 4.4.

The CLEAR group observes much diversity in aspectual triplets with regard to the frequency of the Primary and the Secondary Imperfective. By surveying all possible Secondary Imperfectives²⁶ they find that the distribution of the two imperfective verbs depends on

²⁵ This is Kuznetsova and Sokolova’s translation of Veyrenc’s text: “S [imperfectif second] s’applique au procès comme croissant en considération de son terme” (Kuznetsova and Sokolova forthcoming, Veyrenc 1980: 176).

²⁶ As described in Janda et al. (2013: 169-170), the CLEAR-group formed hypothetical Secondary Imperfectives for all Natural Perfectives in the Exploring Emptiness database and looked them up in the RNC and Google.

whether the meanings of the relevant verb and prefix are compatible with the resultative meaning of the Secondary Imperfective: if the verb and prefix are goal-oriented, the Secondary Imperfective is preferred over the Primary Imperfective, and if the meanings of verb and prefix are less, or not at all, concerned with a goal, the Primary Imperfective is preferred over the Secondary Imperfective. If the result of the verb event is uncontrollable, like in the case of *баюкать*^{ipf}/*убаюкать*^{pf}/*убаюкивать*^{ipf} ‘lull’, the choice of imperfective verb depends on whether the given context is concerned with the process itself (66) or the achievement of a result (67). The illustrations below are taken from Janda et al. (2013: 173-174).

(66) Девочка капризничала и требовала, чтобы вместо бабушки её **баюкал** Димка.

(67) Днем Гуся **убаюкивала** дочь под одну и ту же песенку:...

To summarize these two approaches, Zaliznjak and Mikaëljan (2010) consider triplets to be a natural consequence of the fact that Secondary Imperfectives can be derived from almost any perfective verb: in the few cases where this process creates “biimperfective” triplets, speakers must choose between two synonymous verbs. Janda et al. (2013) explain the existence of triplets with the ability of the Secondary Imperfective to express a goal-oriented process, and they find Secondary Imperfectives to be frequent if the meanings of their verb and prefix involve a focus on result.

While in-depth discussion of previous accounts of triplets is beyond the scope of my study, I will test two hypotheses that can be directly connected with the hypotheses in earlier research.

(68) **“The Semantic Differentiation Hypothesis”**: Primary and Secondary Imperfectives have different functions, which can be distinguished by comparing their Constructional Profiles.

(69) **“The Telicity Hypothesis”**: Primary and Secondary Imperfectives differ in terms of telicity: a Secondary Imperfective is directed at a goal (“telic”), while a Primary Imperfective is focused on the process itself (“atelic”).

In addition, I will test a third hypothesis emerging from my own work on aspectual strength in Chapter 3. As the reader will remember from Chapter 3, *спутать*^{pf} and *перепутать*^{pf} intersect with *путать*^{ipf} in most of their frequent constructions, and, as a result, it is

reasonable to assume that these verbs have little need of a Secondary Imperfective. For *запутать*^{pf} and *впутать*^{pf} the situation can be assumed to be the opposite: since these verbs rarely intersect with the Primary Imperfective, they can be expected to intersect with their Secondary Imperfective in most contexts. My hypothesis is therefore as follows:

- (70) **“The Aspectual Strength Hypothesis”**: Primary Imperfective is preferred in triplets where the relation between Primary Imperfective and Natural Perfective is strong, while Secondary Imperfective is preferred when this relation is weak.

Although the main focus of my analysis is empirical, my findings are also relevant for an important theoretical question, namely the status of synonymy in language. Do complete synonyms exist? In her influential monograph on Construction Grammar, Adele Goldberg (1995: 3) states the “Principle of No Synonymy”, according to which two constructions do not involve synonymous meanings. While Goldberg (1995) focuses on syntactic constructions, it has recently become customary to analyze words as “morphological constructions” (Booij 2010: 16). According to this view, Goldberg’s principle is also relevant for words. The present study of the “путать triplets” gives me the opportunity to test this hypothesis empirically. If Goldberg is right, we expect Primary and Secondary Imperfectives in triplets to display different meanings. Conversely, if Primary and Secondary Imperfectives in triplets display identical meanings, this would be at variance with Goldberg’s Principle of No Synonymy.

4.2 Methodology

The study of the Primary and Secondary Imperfectives in the four “путать triplets” was done on the basis of 638 examples that were taken from the RNC. Of these, 200 examples involved *путать*^{ipf} and were gathered from the “modern” subcorpus, as explained in Section 3.3.²⁷ The remaining 438 examples involved the four Secondary Imperfectives in question and were excerpted in the following manner.

First, I extracted all examples of *спутывать*^{ipf}, *перепутывать*^{ipf}, *запутывать*^{ipf} and *впутывать*^{ipf} that were available in the “modern” subcorpus”. The “modern” subcorpus was chosen because it contains modern uses of the verbs and because it would make the data

²⁷ The sentences with *путать*^{ipf} are the same 200 sentences that were analyzed in Chapter 3.

more comparable to my data for путать^{ipf}. Since the number of examples for each verb was very low in this subcorpus (between four and 125), I expanded my search by including two other subcorpora: (1) the remaining part of the “main” RNC, i.e. sentences that are created before 1950, and (2) the RNC Newspaper corpus (texts from Russian media that are created after the year 2000). From now on, I will refer to these three subcorpora as the “old” subcorpus, the “modern” subcorpus and the Newspaper corpus. As shown in Table 16, using three subcorpora greatly increased the number of available examples for each verb.

Secondary Imperfective	“Old” subcorpus	“Modern” subcorpus	Newspaper corpus	Total
спутывать ^{ipf}	30	16	1	35
перепутывать ^{ipf}	55	4	4	75
запутывать ^{ipf}	130	125	118	373
впутывать ^{ipf}	42	60	26	128

Table 16. Distribution of Secondary Imperfectives in the three employed subcorpora. As explained above, the “old” subcorpus involves texts that are created before 1950, while the “modern” subcorpus involves texts that are created in the years 1950-2015.

Since a maximum of 200 examples was included for each verb in the database for Natural Perfectives and путать^{ipf} (Chapters 2 and 3), it seemed reasonable to use the same sample size in the database for Secondary Imperfectives. Thus, the number of examples with запутывать^{ipf} had to be reduced from 373 to 200. The total frequency of спутывать^{ipf}, перепутывать^{ipf} and впутывать^{ipf} was below 200, and I therefore included all examples with these verbs in my sample. In total, my database includes 438 examples of the Secondary Imperfectives.

The 200 examples with запутывать^{ipf} were selected from the three subcorpora as shown in Table 17. First, the subcorpora were compared in size: in total, the subcorpora involved 406281258 words of which 26,9% belonged to the “old” subcorpus, 30,4% belonged to the “modern” subcorpus, and 42,7% belonged to the Newspaper corpus. Next, these percentages were applied to my data: 54 (26,9%) of the 200 examples with запутывать^{ipf} were selected from the “old” subcorpus, 61 (30,4%) were taken from the “modern” subcorpus, and 85 (42,7%) were gathered from the Newspaper corpus.

	Size of subcorpus		Examples in the database	
	#words	%	Calculation	#words
“Old” subcorpus	109350690	26,9%	26,9/100*200	54
“Modern” subcorpus	123411770	30,4 %	30,4/100*200	61
Newspaper corpus	173518798	42,7 %	42,7/100*200	85
Total	406281258	100 %		200

Table 17. The number of examples of *запутывать*^{ipf} from each corpus sample, calculations.

In order to compare the use of *путать*^{ipf} and Secondary Imperfective, each example in the database was coded with (1) type of construction,²⁸ (2) number of direct objects, (3) use of negation, (4) use of intensifiers, and, finally, (5) source (name of subcorpus).

As the reader will remember from Chapter 3, *путать*^{ipf} and the Natural Perfectives were coded with constructions on two levels of granularity: a low level of granularity with simple constructions (e.g. *v acc*), and a high level of granularity where both syntactic elements and semantic meaning of the constructions were considered (e.g. *NPnom V NPacc (confuse)*). Since the high level of granularity was found to give most accurate results (Section 3.7), the examples with Secondary Imperfectives were coded with high-granular constructions only. While number of objects, negation and use of intensifiers were included because of their relevance for telicity, the coding of source was important to distinguish between old and modern uses of the verbs. As mentioned above, observations with regard to diachronic changes are commented on in Section 4.7.

4.3 The Semantic Differentiation Hypothesis: The same constructions, or different?

In the previous chapter, I employed constructional profiling in order to identify the constructions in which *путать*^{ipf} and its four Natural Perfectives intersect. As the reader will remember, Constructional Profiles include the constructions in which a given word appears and the relative frequency with which it occurs in each of these constructions (Janda and Solovyev 2009: 376). Since I followed Kuznetsova’s method for calculating aspectual strength I included only “frequent constructions” into the verbs’ Constructional Profiles (constructions that were attested in at least 5% of the examples with a given verb). In the present section, I will use Constructional Profiles to identify the frequent constructions of

²⁸ The examples with *путать*^{ipf} were already coded with type of construction, as shown in Section 3.3.

путать^{ipf} and the four Secondary Imperfectives. My hypothesis, which I have called the Semantic Differentiation Hypothesis, is that the Primary and Secondary Imperfective of a triplet have different functions - functions that can be identified by examining the constructions in which they frequently appear.

4.3.1. The Primary Imperfective *путать*

The reader is already quite familiar with the behavior of *путать*^{ipf}: Section 3.4 examined the constructions in which the verb frequently intersects with one of its Natural Perfectives, and Section 3.6 showed how often the verb is used in six semantic contexts. However, since the full Constructional Profile of *путать*^{ipf} has not been presented earlier, it must be included here in order to compare the frequent constructions of *путать*^{ipf} with the frequent constructions of the four Secondary Imperfectives.

The Constructional Profile of *путать*^{ipf} is shown in Table 18 and is organized as follows. In the first column, I list the six relevant constructions in descending order according to frequency. In the second column, I offer a typical example of the construction from the database. The last two columns give the raw and relative frequencies of each construction. The total number at the bottom shows how many times the verb appears in one of its frequent constructions. The Constructional Profiles of the Secondary Imperfectives to be discussed below will be organized in the same way.

Путать ^{ipf} , 200 examples (18 constructions, 6 frequent constructions)			
ConstrPattern	Example	Raw#	%
NPnom V NPacc c	Надеюсь, <i>вы не путаете кино с жизнью!</i>	68	34%
NPins (mix up)			
NPnom V NPacc (mix up)	<i>Лосиные мухи, что-то путая, и без лося кусаются!</i>	41	20,5%
NPnom V (mix up)	Министерство внешней торговли все-таки не Министерство внутренних дел, <i>не путай!</i>	18	9%
NPnom V NPacc (confuse)	Тогда я стал сердито стирать с доски, как будто <i>написанное Шуриком путало меня и мешало сосредоточиться.</i>	17	8,5%
NPnom V NPacc и NPacc (mix up)	<i>Выводной [...] был пьяный и путал русские и мордовские слова.</i>	17	8,5%
NPnom V Vinf NPacc c NPins (mix up)	<i>Изабель Юппер [...] еще не научилась путать искусство с физиологическим отпращиванием.</i>	15	7,5%
Total		176	88%

Table 18. The Constructional Profile of *путать*^{ipf}.

The most frequent construction of *путать*^{ipf} is the construction *NPnom V NPacc c NPins* (*mix up*). This construction appears in 34% of the verb’s examples and involves a situation when two explicit objects are mistaken for each other. Most of the verb’s remaining constructions express the meaning ‘mix up’, with or without the use of *c* ‘with’. The only exception to this is the construction *NPnom V NPacc* (*confuse*), which is attested in 17 examples (8,5%). Here, the objects are people (6 ex.), “internal matters” (7 ex.) or “external matters” (4 ex.).²⁹

4.3.2 Путать – спутывать

The Constructional Profile of *спутывать*^{ipf} involves four frequent constructions, which are distributed in the following way:

Спутывать ^{ipf} , 75 examples (20 constructions, 4 frequent constructions)			
ConstrPattern	Example	Raw#	%
NPnom V NPacc (confuse)	Вот <i>вопрос</i> , который и занимает, и <i>спутывает</i> меня!	27	36%
NPnom V NPacc (tangle)	— Смотри, <i>молодого серого меринка</i> не <i>спутывай</i> : он не сильно боек, не уйдет от табуна...	15	20%
NPnom V NPacc (mix up)	<i>Ангел Пери</i> неизменно <i>спутывал</i> те слова.	10	13,3%
NPnom V NPacc c NPins (mix up)	<i>Кропоткин</i> готов идеализировать обычное право, совершенно не закономерно <i>спутывая</i> идею будущего «свободного договора» с обычным правом.	4	5,3%
Total		57	76%

Table 19. The Constructional Profile of *спутывать*^{ipf}.

As we can see, *спутывать*^{ipf} is primarily used without prepositions, and the verb’s most frequent context involves the idea of making someone or something confused. In this context, the direct object tends to be an “internal matter”, the most frequent of which is карты ‘here: plans’ (3 examples). The second construction involves the situation where two things are bound together. Since both mental confusion and physical knots involve a tangle (recall the metaphor from Chapter 2 CONFUSION IS A TANGLE), it appears that *спутывать*^{ipf} most often is used about creating physical or abstract tangles, a meaning that overlaps with the meaning of *c-*, TOGETHER. The Primary Imperfective *путать*^{ipf} is, by comparison, mostly concerned with the context ‘mix up’. To summarize, we see that the Constructional Profiles of *путать*^{ipf} and

²⁹ The terms “internal” matter and “external” matter were introduced in Section 2.3.1. “Internal matter” refers to abstract matters within a person. Typical examples are thoughts, impressions, plans and feelings. “External matter” refers to abstract matters outside a person, such as situations, atmospheres, problems and relations.

спутывать^{ipf} involve some of the same constructions, but that their profiles are significantly different.³⁰ This brings support to the Semantic Differentiation Hypothesis.

4.3.3 Путать – перепутывать

Among the 35 examples with перепутывать^{ipf} in my database, four constructions were attested frequently. These are shown according to descending frequency in Table 20.

Перепутывать ^{ipf} , 35 examples (13 constructions, 4 frequent constructions)			
ConstrPattern	Example	Raw#	%
NPnom V NPacc (mix up)	Со страха <i>он перепутывал все гласы</i> и должен был петь, когда задыхался от слез.	15	42,8%
NPnom V NPacc (confuse)	[...] в это время <i>какая-нибудь лихая голова</i> вдруг ударяет неприятеля в лоб, спугивает, <i>перепутывает весь план действий...</i>	6	17,2%
NPnom V NPacc с NPins (mix up)	Приск сообщает об одном шуте, что <i>тот</i> [...] насмешил всех своими словами, в которых <i>перепутывал язык латинский с готским и унским.</i>	3	8,6%
NPnom V NPacc NPins (tangle)	— Ты скажи, Никифор рассказывает, такое надумал удивительное приключение, такую выискал <i>веревочку, какой никакой черт никогда никого не перепутывал.</i>	2	5,7%
Total		26	74,3%

Table 20. The Constructional Profile of перепутывать^{ipf}.

For перепутывать^{ipf} the most frequent context involves mistaking one thing for another, while the meanings ‘confuse’ and ‘tangle’ are more peripheral. Thus, we see that перепутывать, the prefix of which means MIX, mainly concerns the meaning ‘mix up’. ‘Mix up’ is also the prototypical meaning of путать^{ipf}, but the Primary and Secondary Imperfective are preferred in different constructional patterns: for путать^{ipf} the most frequent construction involves the prepositional phrase с чем/кем ‘with something/someone’, while перепутывать^{ipf} is most frequent in the construction *NPnom V NPacc (mix up)*. The difference between the profiles is significant.³¹ Since the Primary and Secondary Imperfective prefer different constructions, I find support for the Semantic Differentiation Hypothesis.

³⁰ When the frequencies of the two imperfective verbs in the prototypical construction of путать^{ipf} (68, 4) and the prototypical construction of спутывать^{ipf} (17, 28) are compared, Pearson’s chi-squared test with Yates’ continuity correction yields a p-value of 9.383e-11 (X-squared = 41.9461, df = 1). The effect size is large (Cramer’s V: 0.5).

³¹ When the frequencies of the two imperfective verbs in the prototypical construction of путать^{ipf} (68, 3) and the prototypical construction of перепутывать^{ipf} (41, 15) are compared, Pearson’s chi-squared test with Yates’

4.3.4 Путать – запутывать

The following table shows the Constructional Profile of запутывать^{ipf}. This verb is attested in three frequent constructions.

Запутывать ^{ipf} , 200 examples (20 constructions, 3 frequent constructions)			
ConstrPattern	Example	Raw#	%
NPnom V NPacc (confuse)	<i>Все это чрезвычайно запутывает суждения о современном положении русского общества.</i>	130	65%
NPnom V NPacc NPins (confuse)	<i>Вот и запутываю всех галстуками: надену новый – а уже думают, костюм сменил...</i>	12	6%
NPnom V Vinf NPacc (confuse)	<i>Они не хотят запутывать читателя.</i>	11	5,5%
NPnom V NPacc (cover)	<i>Думаю, наши "опекуны" запутывали следы.</i>	10	5%
Total		163	82%

Table 21. The Constructional Profile of запутывать^{ipf}.

Запутывать^{ipf} is primarily used in one meaning, ‘confuse’. Here, the object is usually someone or an “external matter”, the most frequent of which is ситуация ‘situation’ (17 examples). The ten uses of the construction *NPnom V NPacc (cover)* involve the fixed expression запутывать^{ipf} следы ‘cover tracks’ (either physical or metaphorical). Since covering tracks is a specific way of confusing others, the construction *NPnom V NPacc (cover)* is closely related to the three remaining constructions of the verb. The prototypical construction of запутывать^{ipf}, *NPnom V NPacc (confuse)*, is frequent for the Primary Imperfective as well. However, by comparison, the frequency of путать^{ipf} in this construction is relatively low – 9%, and the difference between the profiles of путать^{ipf} and запутывать^{ipf} is significant.³² This yields support to the Semantic Differentiation Hypothesis.

4.3.5 Путать – впутывать

The last Secondary Imperfective, впутывать^{ipf}, is used in four frequent constructions, all of which are variants of the construction *NPnom V NPacc в NPacc (tangle into)*. The meaning of the prefix в- is INTO, and this explains the choice of context. None of these constructions

continuity correction yields a p-value of 0.0007708 (X-squared = 11.3102, df = 1). The effect size is moderate (Cramer’s V: 0.3).

³² When the frequencies of the two imperfective verbs in the prototypical construction of путать^{ipf} (68, 0) and the prototypical construction of запутывать^{ipf} (17, 130) are compared, Pearson’s chi-squared test with Yates’ continuity correction yields a p-value of < 2.2e-16 (X-squared = 148.4319, df = 1). The effect size is large (Cramer’s V: 0.8).

are frequent for путать^{ipf}, and thus the Semantic Differentiation Hypothesis is confirmed for the relation between путать^{ipf} and впутывать^{ipf} as well.

Впутывать^{ipf}, 128 examples (9 constructions, 4 frequent constructions)

ConstrPattern	Example	Raw#	%
NPnom V NPacc в NPacc (tangle into)	Не надо <i>впутывать</i> в наши отношения отца.	63	49,25%
NPnom V NPacc (tangle into)	Это вопрос грузино-российских отношений и пусть <i>осетин</i> здесь не <i>впутывают</i> ", —заявил президент Грузии.	31	24,25%
NPnom V Vinf NPacc в NPacc (tangle into)	Я не люблю <i>впутывать</i> государство в свои личные дела.	18	14%
NPnom V Vinf NPacc (tangle into)	Полояров готов уже был <i>начать</i> плести и <i>впутывать</i> всех своих знакомых.	7	5,5%
Total		119	93%

Table 22. The Constructional Profile of впутывать^{ipf}.

4.3.6 Summary

The present section has lent support to the Semantic Differentiation Hypothesis, since we have seen that the Primary and Secondary Imperfectives of an aspectual triplet have different centers of gravity. In the triplets involving путать^{ipf}, it was discovered that each Secondary Imperfective has one prototypical construction. The prototypical construction is unique for each verb and is motivated by the meaning of the verb prefix. Путать^{ipf}, which does not have a prefix, is most frequent when two things are mixed up. However, unlike перепутывать^{ipf}, which also tends to mean ‘mix up’, путать^{ipf} most frequently appears with the prepositional phrase с чем/кем ‘with something/someone’, while перепутывать^{ipf} does not.

путать ^{ipf}	<i>NPnom V NPacc с NPins (mix up)</i>
спутывать ^{ipf}	<i>NPnom V NPacc (confuse, internal matters)</i>
перепутывать ^{ipf}	<i>NPnom V NPacc (mix up)</i>
запутывать ^{ipf}	<i>NPnom V NPacc (confuse, external matters)</i>
впутывать ^{ipf}	<i>NPnom V NPacc в NPacc (tangle into)</i>

Figure 5 below shows the distribution of the verbs in five given constructions. In the construction *NPnom V NPacc (confuse)*, спутывать^{ipf} is concerned with internal matters, while запутывать^{ipf} is concerned with external matters. The fact that each verb is associated with a different construction corroborates the Semantic Differentiation Hypothesis.

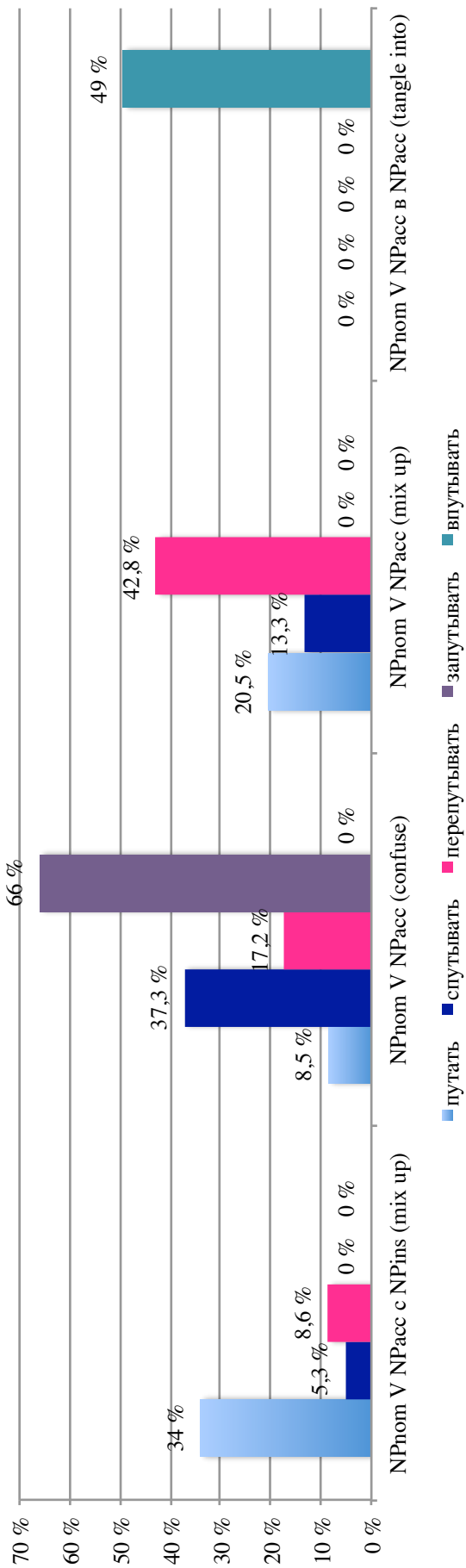


Figure 5. Prototypical constructions of the Primary and Secondary Imperfectives, relative frequency.

4.4 The Telicity Hypothesis (I): Путать vs. the Secondary Imperfectives

As mentioned in Section 4.1, Primary and Secondary Imperfectives have been claimed to differ in terms of telicity (e.g. Kuznetsova and Sokolova forthcoming, Janda et al. 2013: 171), a hypothesis that I refer to as the “Telicity Hypothesis”. In the present section, I will test the Telicity Hypothesis with the imperfective verbs in the four “путать triplets”. Before doing that, however, it is necessary to define the way I will use the term telicity.

Telicity is derived from the Greek word *telos*, which means ‘goal’. In linguistics, the concept of telicity is used in many different ways and to explore all of them is beyond the scope of this study. However, in my analysis, I will use “telicity”, or the adjective “telic”, to describe a situation where the focus is on the result or goal of the verbal event or action (Dickey 2008: 331). “Atelic” will be used about situations where the focus is on the process rather than its goal (ibid). The hypothesis is that the Secondary Imperfective involves telic meaning, while the meaning of the Primary Imperfective is atelic. The following example was observed by Janda et al. (2013: 167) in an online forum, and it illustrates the expected use of the two imperfective verbs in a triplet. Here, the Primary Imperfective *делать*^{ipf} ‘do’ implies doing in general (process), while *сделывать*^{ipf} ‘do’ means to get something done (result).

(71) И всё равно можно **делать** и **сделывать**, важно **делать**.

To test whether the results of my analysis are compatible with the Telicity Hypothesis, I will use three contexts that are mentioned by Kuznetsova and Sokolova and one context suggested by Sokolova (personal communication).³³ The first three contexts were mentioned in Section 4.1 and will be discussed individually later in the section: (1) expressed vs. implied direct object, (2) number of objects and (3) negation. The fourth context involves the use of intensifiers, such as *ещё больше* ‘even more’, *окончательно* ‘once and for all’ etc. Some of these words, such as *ещё больше*, bring emphasis to the gradual unfolding of the process towards its goal (*telos*), while other words, such as *окончательно*, intensify the focus on completion. Thus, the political situation described in (72) is progressing towards chaos, while the verbal event in (73) is iterative and the result of the event is achieved repeatedly.

³³ I would like to thank Svetlana Sokolova for taking time to look at my database and give advice about how to study telicity in the “путать verbs”.

- (72) Ситуацию **еще больше** запутывает то, что сам Путин до сих пор не выразил ни малейшего желания полностью ассоциироваться только с «Единой Россией». [Александр Будберг. Депутаты хотят как «Тату» (2003) // «Московский комсомолец», 2003.01.14]
- (73) Справедливой критике подвергается содержание школьной литературы, особенно учебников по отечественной истории, в которых очевидные исторические факты нередко излагаются и трактуются столь противоречиво, что это **окончательно** запутывает учащихся. [Анохин Павел. ПОЛУЧКУ ПО ОСЕНИ ПОСЧИТАЕМ // Труд-7, 2003.02.01]

I will now discuss these four contexts on the basis of my corpus data.

4.4.1 Context 1: Expressed vs. implied direct objects

In the previous chapters, I have made a distinction between sentences in which the direct object is expressed overtly (e.g. я перепутал ваши имена ‘I mixed up your names’) and sentences in which the direct object is understood from context (e.g. я перепутал ‘I mixed up (something)’). In their forthcoming article, Kuznetsova and Sokolova mention that Secondary Imperfectives are more probable in constructions with an expressed object than in constructions where the object is only implied. When the object is expressed, the goal (*telos*) of the action is specific, and the movement towards a result is clear. Kuznetsova and Sokolova illustrate this point with the following example from the RNC. Here, the two verbs *выкраивать* ‘cut out’ and *сшивать* ‘sow together’ signify a process, which will lead to a result, namely some sort of garment.

- (74) **Выкраиваем два полотна** размером 60х32 см, **сшиваем их** вместе. [Не выбросим, а свяжем и сошьем // «Работница», 1989]

In my database, the following distribution of objects was attested (Table 23). The first row shows the distribution for the Primary Imperfective: 89,5% of the examples involves an explicitly mentioned object, while 10,5% leaves out the object (implied). For the Secondary Imperfectives the situation is slightly more polarized: the object is expressed in 95,2% of the examples and implied in only 4,8%. The remaining tables in the present section follow the same structure.

	+ Direct object		- Direct object		Total	
	Raw#	%	Raw#	%	Raw#	%
Путать ^{ipf}	179 ³⁴	89,5%	21	10,5%	200	100%
Secondary Imperfectives	417	95,2%	21	4,8%	438	100%

Table 23. Путать^{ipf} vs. Secondary Imperfectives, frequency of expressed direct objects.

As we can see, both types of imperfectives are typically followed by an expressed object, but, as expected from the Telicity Hypothesis, contexts without an expressed object are more typical of путать^{ipf} than of the four Secondary Imperfectives. According to Pearson's chi-squared test, the difference is significant (p-value: 0.01161), and the Cramer's V of 0.1 tells us that the effect size is small, but reportable.³⁵ To summarize, we see that the presence of an explicitly mentioned object has an impact on the choice of imperfective form, but that the effect is not very strong.

4.4.2 Context 2: Number of direct objects (singular vs. plural)

As mentioned in Section 4.1, it is customary to assume that constructions with one single object display a higher level of telicity than sentences with objects in the plural. The idea is that a verb, when followed by one object, is directed towards this one goal, while the goal of the action is more "general" when several objects are included. This difference can be illustrated by the two sentences Я читаю Анну Каренину 'I read Anna Karenina' and Я читаю книги 'I read books'. In the first sentence, the object is a specific book and the process described by the verb is goal-oriented: I, the reader, will read through the entire book. In the second sentence, the object is in the plural and refers to books in general. Here, the verb describes the activity of book reading rather than a process with a specific a goal. Thus, we expect Secondary Imperfectives to be preferred in contexts with one specific object, while Primary Imperfectives are expected when the object is in the plural (general).

In Table 24, I show the distribution of singular and plural objects in my database. The numbers and percentages in the last column are based on the total numbers of sentences involving an expressed direct object.

³⁴In four of these sentences, the direct object is a clause, e.g. И вроде бы они уже сами путают, где чей ребенок. [Фазиль Искандер. Сандро из Чегема (Книга 1) (1989)]. The objects of the other sentences are pronouns, names and noun phrases.

³⁵The p-value of 0.01161 is based on Pearson's chi-squared test with Yates' continuity correction of the raw numbers in Table 23 (X-squared 6.3698, df = 1).

	Singular		Plural		Total	
	Raw#	%	Raw#	%	Raw#	%
Путать ^{ipf}	31	17,3%	144	80,4%	175 ³⁶	100%
Secondary Imperfectives	241	58%	176	42%	417	100%

Table 24. Путать^{ipf} vs. Secondary Imperfectives, number of direct objects.

The percentages in Table 24 give clear support to the Telicity Hypothesis: while most examples with *путать*^{ipf} involve an object in the plural (80,4%), the Secondary Imperfectives prefer objects in the singular. This is further supported by Pearson’s chi-squared test, which yields a p-value of $< 2.2e-16$.³⁷ The effect size is moderate (Cramer’s V: 0.3).

4.4.3 Context 3: Negation

We will now turn to a construction that can be assumed to prefer the Primary Imperfective, namely negation. As opposed to the goal-oriented contexts described above negation implies that a given action does not, or should not, take place. By way of example, *Он не читал Анну Каренину* ‘He has not read Anna Karenina’ communicates that the action of reading has not been performed at all. In other words, the whole process of reading is negated. Since negated imperfectives focus on the process itself rather than its goal, we expect the Primary Imperfective to be used.

In the forthcoming article of Kuznetsova and Sokolova, one construction, negated imperative, is specifically pointed out as a context that favors the use of Primary Imperfective, and other types of negation are left without comment. In the present study, I will therefore do two surveys of my data. First, I will restrict my analysis to imperative constructions and, in this way, make my data comparable to the findings of these two researchers.³⁸ Then, I will expand my view and include all types of negation. This gives me the opportunity to explore more data and, perhaps, receive more robust results.

³⁶ In addition to these 175 sentences, four sentences with *путать*^{ipf} involves a direct object in the form of a clause sentence (see footnote to Table 23). These are excluded, since clauses do not reflect a difference between singular and plural.

³⁷ The p-value of $< 2.2e-16$ is based on Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers in Table 24 (X-squared 78.1242, df = 1).

³⁸ By “negated imperative” I mean imperative verb forms of the relevant verb, e.g. *не путай*. The construction *не + infinitive*, e.g. *не путать* is not included although infinitive form sometimes expresses imperative meaning, e.g. *сидеть!* ‘sit’. I also do not include constructions involving *давай/те не + infinitive* ‘let us not’ + infinitive, since the imperative form in these cases apply to the verb *давать*, ‘give’ and not the verb under scrutiny, e.g. *Давайте не путать капитализм с социализмом...* [коллективный. Социализм vs Капитализм (2011)]

In my database, the following types of negation were attested: не должен ‘should not, must not’, нельзя ‘it is not allowed to/it is impossible to’, не надо ‘must not, it is not necessary to’, не нужно ‘must not, it is not necessary to’, нечего ‘it is no use’, не следует ‘should not, ought not to’, не стоит ‘it is not worth to’ and the simple negation не ‘not’ in front of the verb, such as in example (75).

(75) Её предмет называется «страноведение» (**не путать** со «странноведением»)
 [Михаил Гиголашвили. Типун в зипуне (2007) // «Зарубежные записки», 2008]

I also include the phrases нет надобности ‘there is no need to’ and не имеет смысла ‘there is no sense in’ as well as the expression запрещается ‘is forbidden’, which also imply that the event will not take place.

Negated imperative

The 41 uses of negated imperative in my database are distributed as follows between путать^{ipf} and the Secondary Imperfectives:

	Negated imperative		Other contexts	
	Raw#	%	Raw#	%
Путать ^{ipf}	15	7,5%	175	92,5%
Secondary Imperfectives	26	5,94%	412	94,06%

Table 25. Путать^{ipf} vs. Secondary Imperfectives, frequency of negated imperative.

Table 25 gives unexpected results: although imperative with negation is slightly more frequent for путать^{ipf} than the Secondary Imperfectives, the difference between the two rows is insignificant (p-value: 0.4612).³⁹ Thus, in this limited sample, I do not find support of the hypothesis that negated imperative prefers the Primary Imperfective.

Negated constructions in general

Let us now consider negation in general. The distribution of negated constructions is shown in Table 26.

³⁹ The p-value of 0.4612 is based on Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers in Table 25 (X-squared 0.543, df=1).

	Negation		No negation		Total	
	Raw#	%	Raw#	%	Raw#	%
Путать ^{ipf}	85	42,5%	115	57,5%	200	100%
Secondary Imperfectives	115	26,3%	323	73,7%	438	100%

Table 26. Путать^{ipf} vs. Secondary Imperfectives, frequency of negation in general.

Now the situation changes dramatically. Although the Secondary Imperfectives are relatively frequent with negation, Pearson's chi-squared test shows that the Primary Imperfective is negated significantly more often (p-value: 6.043e-05).⁴⁰ The effect size is small, but reportable (Cramer's V: 0.1). This brings support to the Telicity Hypothesis.

In light of the hypothesis advanced in previous studies (e.g. Kuznetsova and Sokolova forthcoming), it is remarkable that путать^{ipf} and the Secondary Imperfectives seem to be equally favored in negated imperative. It is furthermore interesting that Secondary Imperfective clearly is possible in negated sentences. However, as shown in Table 26, negation generally favors the Primary Imperfective, as predicted by the Telicity Hypothesis.

4.4.4 Context 4: Intensifiers

The last context I will consider involves the use of intensifiers. As pointed out earlier, intensifiers can either emphasize the gradual unfolding of the process towards its goal (“ситуацию *ещё больше* запутывает то, что...”) or point to its full completion (the learning material “*окончательно* запутывает учащихся”). If the choice between imperfective forms is motivated by telicity, Secondary Imperfectives should be expected with both kinds of intensifiers, since telicity is communicated in both. In my database, 17 intensifiers were attested: больше ‘more’, вконец ‘completely’, всё более/больше ‘more and more’, до крайности ‘to the extreme’, до состояния, когда... ‘to the state of’, до того... что ‘until’, ещё более (больше) ‘even more’, ещё сильнее ‘even stronger’, настолько, что... ‘so much so that’, не настолько, чтобы... ‘not so much so that’ окончательно ‘once and for all’, сильнее ‘stronger’, сильно ‘strongly’, совершенно ‘completely’, совсем ‘totally’, так ‘so’, and чрезвычайно ‘extremely’. These intensifiers were distributed among 60 sentences, as shown in Table 27.

⁴⁰ The p-value of 6.043e-05 is based on Pearson's chi-squared test with Yates' continuity correction of the raw numbers in Table 26 (X-squared 16.089, df = 1).

	+ Intensifier		- Intensifier		Total	
	Raw#	%	Raw#	%	Raw#	%
Путать ^{ipf}	0	N.A.	200	100%	200	100%
Secondary Imperfectives	60	13,7%	378	86,3%	438	100%

Table 27. Путать^{ipf} vs. Secondary Imperfectives, frequency of intensifiers.

As we can see, all 60 sentences with an intensifying word involve a Secondary Imperfective: in the 200 sentences with путать^{ipf}, intensifiers are not attested. Although the effect size is small (Cramer's V: 0.2), the result is significant (p-value: 8.023e-08)⁴¹ and this brings support to the Telicity Hypothesis.

4.4.5 Summary

To recapitulate, my finding, by and large conform to the Telicity Hypothesis. In general, спутывать^{ipf}, перепутывать^{ipf}, запутывать^{ipf} and впутывать^{ipf} are preferred in goal-oriented contexts, such as constructions involving one specific object or an intensifier that stresses a telic meaning. The Primary Imperfective путать^{ipf} is most frequent when the object is less specific (either because there are multiple objects or because the object is not expressed overtly) and when the verb is negated and the goal will not be reached. However, although Tables 23-27 give us a good overview of the situation, they do not take into account differences among individual verbs. In the next section, we will see that these differences are considerable.

4.5 The Telicity Hypothesis: The Secondary Imperfectives and telic meaning

Let us now take a closer look at the four Secondary Imperfectives. Since путать^{ipf} and the four Secondary Imperfectives in general seem to differ with regard to telicity, it seems reasonable to assume that the Secondary Imperfectives all prefer telic constructions. In the present section, I will test this by reexamining the four contexts in Section 4.4. The contexts will be considered in the same order as they were discussed above, but instead of comparing путать^{ipf} and Secondary Imperfective in general, I will compare the individual results of спутывать^{ipf}, перепутывать^{ipf}, запутывать^{ipf} and впутывать^{ipf}. I will show that the results for запутывать^{ipf} clearly match the predictions from the Telicity Hypothesis. For спутывать^{ipf} and перепутывать^{ipf} there are more objects in the plural than in the singular, but I will argue

⁴¹ The p-value of 8.023e-08 is based on Pearson's chi-squared test with Yates' continuity correction of the raw numbers in Table 27 (X-squared 28.8006, df = 1).

that these results, which on the face of it may seem unexpected, in fact, lend support to the hypothesis. As mentioned in Section 4.1, some prefixes are more compatible with the telic meaning of the Secondary Imperfective than others, and when the prefix of a given Secondary Imperfective does not favor telic interpretation, the Secondary Imperfective tends to be infrequent. In the cases of спутывать^{ipf} and перепутывать^{ipf}, с- and пере- are not compatible with the idea of one specific (singular) goal and can be expected to be infrequent. This expectation is confirmed by their very low frequency in the RNC. For впутывать^{ipf} the situation is different. Since the intersection rate of путать^{ipf}/впутать^{pf} is 0 (Section 3.4.2), впутать^{pf} can be expected to behave much like a Specialized Perfective, and, as a result, впутывать^{ipf} can be expected to resemble a Primary Imperfective. These expectations are borne out by the results of my analysis, since впутывать^{ipf} is most frequent in an atelic environment, namely constructions with negation.

4.5.1 Context 1: Expressed vs. implied direct objects

As argued in Section 4.4, the focus on a goal is stronger in sentences where the object is expressed than in sentences where the object is only implied. Since the hypothesis is that Secondary Imperfectives are favored in goal-oriented constructions, the –путывать verbs can be expected to equally favor the mentioning of a direct object.

The following table shows the frequency of expressed vs. implied objects for the four Secondary Imperfectives. The structure of the table resembles the structure of the tables in Section 4.4, but instead of having two rows, one for each imperfective form, the table has four rows, one for each Secondary Imperfective. The same table structure will be applied throughout this section.

	+ Direct object		- Direct object		Total	
	Raw#	%	Raw#	%	Raw#	%
спутывать ^{ipf}	73	97,3%	2	2,7%	75	100%
перепутывать ^{ipf}	31	88,6%	4	11,4%	35	100%
запутывать ^{ipf}	187	93,5%	13	6,5%	200	100%
впутывать ^{ipf}	126	98,4%	2	1,6%	128	100%

Table 28. The distribution of expressed vs. implied objects among the Secondary Imperfectives.

As we can see in Table 28, the four Secondary Imperfectives all prefer contexts where the object is expressed. However, перепутывать^{ipf} is somewhat more frequent than the other

verbs in contexts where the object is only implied. This observation is not as expected, but Pearson’s chi-squared test shows that the difference between *перепутывать*^{ipf} and the other Secondary Imperfectives is insignificant (p-value: 0.1329).⁴² This lends support to the Telicity Hypothesis.

4.5.2 Context 2: Number of direct objects (singular vs. plural)

Recall from Table 24 that most examples with Secondary Imperfectives (58%) involved objects in the singular. This was expected, since contexts with singular objects tend to display a higher level of telicity than contexts in which the objects are in the plural. When the Secondary Imperfectives are examined individually, we find that two of them (*запутывать*^{ipf} and *впутывать*^{ipf}) prefer objects in the singular, while the two other verbs (*спутывать*^{ipf} and *перепутывать*^{ipf}) are most frequent with objects in the plural (Table 29). This result is unexpected and calls for further investigation.

	Singular		Plural		Total	
	Raw#	%	Raw#	%	Raw#	%
<i>спутывать</i> ^{ipf}	24	32,9%	49	67,1%	73	100%
<i>перепутывать</i> ^{ipf}	9	29%	22	71%	31	100%
<i>запутывать</i> ^{ipf}	118	63,1%	69	36,9%	187	100%
<i>впутывать</i> ^{ipf}	90	71,4%	36	28,6%	126	100%

Table 29. The distribution of objects in the singular and plural among the Secondary Imperfectives.

The low p-value of 7.014e-09⁴³ shows that there is a significant difference between *спутывать*^{ipf} and *перепутывать*^{ipf} on the one hand, and *запутывать*^{ipf} and *впутывать*^{ipf} on the other. The effect size of the result is moderate (Cramer’s V: 0.3). Since the expectation is that all the four verbs will be attracted to constructions with singular objects, the questions we need to ask are (1) why two of the verbs, *спутывать*^{ipf} and *перепутывать*^{ipf}, prefer objects in the plural, and (2) whether or not this contradicts the Telicity Hypothesis.

As mentioned in the beginning of the section, it is likely that the meanings of *c-* and *nepe-* offer the key to the first problem. While the meanings of *за-* and *в-*, COVER and INTO, are

⁴² The p-value of 0.1329 is based on Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers of *спутывать*^{ipf}, *запутывать*^{ipf} and *впутывать*^{ipf} (386, 17) vs. the raw numbers of *перепутывать*^{ipf} (31, 4) (X-squared 2.2581, df = 1).

⁴³ The p-value of 7.014e-09 is based on Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers in Table 29 (X-squared 40.8565, df = 3).

neutral with regard to the number of direct objects in the sentence, the meanings of *c-* and *пере-*, TOGETHER and MIX, presuppose at least two: the idea of TOGETHER implies that two things are brought together (e.g. *спутывать*^{ipf} *ноги* ‘bind legs together’), while the meaning MIX implies that two or more things change place on a physical or mental level (e.g. *перепутывать*^{ipf} *время* ‘get the time wrong’). This explains why about 70% of the examples with *спутывать*^{ipf} and *перепутывать*^{ipf} involve objects in the plural. In the modern uses of the verbs, plural is attested even more frequently (see more in Section 4.7).⁴⁴

In order to answer the second question, let us reconsider the hypothesis. The hypothesis states that Secondary Imperfectives have telic meaning, and thus they are expected to be favored in goal-oriented constructions. However, since the meanings of *c-* and *пере-* are in conflict with the idea of one specific goal, we can expect the use of *спутывать*^{ipf} and *перепутывать*^{ipf} to be quite limited. This expectation is confirmed by the low frequency of these verbs in the RNC (see Section 4.2). Next, since *спутывать*^{ipf} and *перепутывать*^{ipf} are so infrequent, we can expect *спутать*^{pf} and *перепутать*^{pf} to be very similar to the Primary Imperfective *путать*^{ipf}. This expectation is confirmed by the frequent constructions of these verbs, which, as shown in Section 3.4.1, are very similar.

To summarize, we see that the results of *спутывать*^{ipf} and *перепутывать*^{ipf} in Table 29 do not contradict the Telicity Hypothesis. These verbs involve prefix meanings that are incompatible with the telic focus of Secondary Imperfectives, and, as a result, *спутывать*^{ipf} and *перепутывать*^{ipf} are rare imperfectives, while *путать*^{ipf}, which does not express telicity, is very frequent.⁴⁵ For *запутывать*^{ipf} and *впутывать*^{ipf} the results are as expected from the hypothesis, since both verbs favor contexts with objects in the singular.

4.5.3 Context 3: Negation

In the previous section, negated constructions were discovered to be relatively frequent among the four Secondary Imperfectives. This was unexpected, since negation involves atelic meaning. In the present section, I will show that the high frequency of negation was caused by the results of *впутывать*^{ipf}, and that *спутывать*^{ipf}, *перепутывать*^{ipf} and *запутывать*^{ipf}

⁴⁴ In the “modern” subcorpus and the Newspaper corpus of the RNC, *спутывать*^{ipf} is attested with objects in the singular only five times. In the same corpus samples, *перепутывать*^{ipf} is only attested with objects in the plural.

⁴⁵ Similar observations made by the CLEAR-group are discussed in Janda et al. 2013: 74ff.

behave as predicted. Moreover, I will suggest that *впутывать*^{ipf} can be expected in negated constructions, since *впутать*^{pf}/*впутывать*^{ipf} is very close to being a traditional aspectual “pair” in which the perfective verb (*впутать*^{pf}) is telic, and the imperfective verb is atelic.

Negated imperative

In the same way as in Section 4.4, let us begin by looking at the use of negated imperative for the four Secondary Imperfectives. An overview of this is given in Table 30.

	Negated imperative		Other contexts		Total	
	Raw#	%	Raw#	%	Raw#	%
<i>спутывать</i> ^{ipf}	1	1,3%	74	98,7%	75	100%
<i>перепутывать</i> ^{ipf}	0	0%	35	100%	35	100%
<i>запутывать</i> ^{ipf}	2	1%	198	99%	200	100%
<i>впутывать</i> ^{ipf}	23	18%	105	82%	128	100%

Table 30. The distribution of negated imperative among the Secondary Imperfectives.

The table indicates a significant difference between *впутывать*^{ipf} and the remaining verbs. The p-value is low (3.457e-11), and the effect size is moderate (Cramer’s V: 0.3).⁴⁶

Negated constructions in general

When all types of negation are considered, the following distribution is found in my database:

	Negation		No negation		Total	
	Raw#	%	Raw#	%	Raw#	%
<i>спутывать</i> ^{ipf}	9	12%	66	88%	75	100%
<i>перепутывать</i> ^{ipf}	3	8,6%	32	91,4%	35	100%
<i>запутывать</i> ^{ipf}	19	9,5%	181	90,5%	200	100%
<i>впутывать</i> ^{ipf}	84	65,6%	44	34,4%	128	100%

Table 31. The distribution of negated constructions among the Secondary Imperfectives.

Here, *впутывать*^{ipf} continues to be negated significantly more often than the three remaining verbs (p-value: 2.2e-16)⁴⁷, and the effect size is large (Cramer’s V: 0.5). At first glance, the results of *впутывать*^{ipf} seem to be at variance with the hypothesis that Secondary

⁴⁶ The p-value of 3.457e-11 is based Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers of *спутывать*^{ipf}, *перепутывать*^{ipf} and *запутывать*^{ipf} (3, 307) vs. the raw numbers of *впутывать*^{ipf} (23, 105) (X-squared 43.8995, df = 1).

⁴⁷ The p-value of < 2.2e-16 is based Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers of *спутывать*^{ipf}, *перепутывать*^{ipf} and *запутывать*^{ipf} (31, 279) vs. the raw numbers of *впутывать*^{ipf} (84, 44) (X-squared 141.9137, df = 1).

Imperfectives involve telicity and therefore avoid contexts with negation. However, since *впутать*^{pf}, as shown in Chapter 3, is clearly a less typical Natural Perfective than *спутать*^{pf}, *перепутать*^{pf} and *запутать*^{pf}, and, in fact, seems to be very close to a Specialized Perfective, *путать*^{ipf}/*впутать*^{pf}/*впутывать*^{ipf} do not form a balanced verb triplet. Since *путать*^{ipf}/*впутать*^{pf} are only distantly related it seems that *впутать*^{pf}/*впутывать*^{ipf} are very close to a traditional aspectual “pair”. Given this, it seems reasonable that *путать*^{ipf} and *впутывать*^{ipf} do not compete in the same way as the other verbs, and the preference of *впутывать*^{ipf} in contexts of negation can be expected on the basis that *впутывать*^{ipf}, in general, functions as the only imperfective aspectual “partner” of *впутать*^{pf}. In the remaining triplets, there is a stronger relation between the Natural Perfective and Primary Imperfective, and the choice between *путать*^{ipf} and Secondary Imperfective can likely be made on the basis of the distinction between telic and atelic meaning. Table 31 confirms that, in these triplets, the Secondary Imperfective is not preferred in the atelic context of negation.

4.5.4 Context 4: Intensifiers

In the previous section, I showed that intensifiers were attested in the constructions of Secondary Imperfectives only, and, since intensifiers bring focus to the achievement of a goal, this was expected. When studied in more detail, we find that intensifiers only are frequent for *запутывать*^{ipf}. For the other verbs intensifiers are rare (Table 32).

	+ Intensifier		- Intensifier		Total	
	Raw#	%	Raw#	%	Raw#	%
<i>спутывать</i> ^{ipf}	6	8%	69	92%	75	100%
<i>перепутывать</i> ^{ipf}	0	0%	35	100%	35	100%
<i>запутывать</i> ^{ipf}	53	26,5%	147	73,5%	200	100%
<i>впутывать</i> ^{ipf}	1	0,8%	127	99,2%	128	100%

Table 32. The distribution of intensifiers among the Secondary Imperfectives.

The p-value of 2.499e-12 shows that the result of *запутывать*^{ipf} significantly differs from the results of the three remaining verbs, and the effect size is moderate (Cramer’s V: 0.3).⁴⁸ Moreover, it can be noted that the six examples with *спутывать*^{ipf} and one example with *впутывать*^{ipf} are from the “old” subcorpus, while 47 of the 53 examples with *запутывать*^{ipf}

⁴⁸ The p-value of 2.499e-12 is based Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers of *спутывать*^{ipf}, *перепутывать*^{ipf} and *впутывать*^{ipf} (7, 231) vs. the raw numbers of *запутывать*^{ipf} (53, 147) (X-squared: 49.0472, df = 1).

involve modern uses of the verb (created after 1950). Thus, in modern Russian, it seems that *запутывать* is the only “-путывать verb” that occurs with intensifiers. Although this result, at first, seems surprising, I suggest that it can be expected on the basis of my findings above. First, since *спутывать*^{ipf} and *перепутывать*^{ipf} usually involve objects in the plural these verbs are less goal-oriented, and, as a result, the use of intensifiers should be marginal. This conforms to their behavior in Table 32. Second, since *запутывать*^{ipf} most frequently appears with objects in the singular and no negation, this verb is more directed at a goal, and the use of intensifiers is expected. This expectation matches the result in Table 32. Third, since the primary function of *впутывать*^{ipf} is to be the aspectual “partner” of *впутать*^{pf}, *впутывать*^{ipf} can be expected to largely appear in atelic contexts and without intensifiers. This is also reflected in the table. Thus, we see that *спутывать*^{ipf}, *перепутывать*^{ipf}, *запутывать*^{ipf} and *впутывать*^{ipf} are different with regard to the use of intensifiers, and that the degree to which they occur with such words correlate with the degree to which they are compatible with telic meaning.

4.5.5 Summary

The present chapter has nuanced the findings in Section 4.4 by showing that the Secondary Imperfectives in question vary with regard to their frequency in telic constructions: *запутывать*^{ipf} is preferred in telic constructions, while *спутывать*^{ipf}, *перепутывать*^{ipf} and *впутывать*^{ipf} are frequent in atelic constructions as well. Although this variation, at first, seems to be in conflict with the Telicity Hypothesis, I suggest that the results are motivated by two factors, namely (1) the meanings of the prefixes and (2) the aspectual strength of *путать*^{ipf} and the Natural Perfective in the relevant triplet. The first factor is displayed in the results of *спутывать*^{ipf} and *перепутывать*^{ipf}. Since the meanings of *с-* and *пере-* call for more than one object, the focus on one specific goal is replaced by a focus on several, sometimes disconnected, goals. As a result, *спутывать*^{ipf} and *перепутывать*^{ipf} are relatively incompatible with telic meaning and infrequent in use. This observation yields support to the Telicity Hypothesis, since Secondary Imperfectives, in general, are more frequent when their prefix involves telicity (Janda et al. 2013: 174ff). The second factor is relevant for *впутывать*^{ipf}. This verb is most frequent in a context that is generally reserved for the Primary Imperfective in a triplet, namely, negation. Here, the Natural Perfective is close to a Specialized Perfective, and *впутывать*^{ipf} can be assumed to be close to a Primary Imperfective, which can be used in atelic constructions, such as negation. This finding is also in line with the Telicity

Hypothesis, since Primary Imperfective is expected in atelic constructions. The last verb, *запутывать*^{ipf}, conforms to all the predictions made from the Telicity Hypothesis: this verb is most frequently directed at one object (goal), is rarely negated and is relatively often accompanied by intensifiers that emphasize a telic meaning.

4.6 The Aspectual Strength Hypothesis

As pointed out in the previous section, the example of *путать*^{ipf}/*впутать*^{pf}/*впутывать*^{ipf} suggests that the choice between Primary and Secondary Imperfective is related not only to telicity, but also to the strength of the aspectual relation between the Primary Imperfective and Natural Perfective in question. In the present section, I will investigate whether the choice of imperfective verb form can be related to aspectual strength in the remaining triplets as well. My hypothesis, which I have called “The Aspectual Strength Hypothesis”, claims that the distribution of the Primary and Secondary Imperfectives in triplets depends on the aspectual strength between the Primary Imperfective and the Natural Perfective. The hypothesis yields three predictions: (1) in triplets involving high aspectual strength, the use of Secondary Imperfective will be marginal and restricted to infrequent constructions strongly preferring Secondary Imperfective, (2) in triplets involving intermediate aspectual strength, both imperfectives will appear in frequent constructions (“balanced triplets”), and (3) in triplets involving low aspectual strength the use of Secondary Imperfective will be extensive and occur in frequent constructions, while the use of Primary Imperfective will be rare. Note that the Aspectual Strength Hypothesis does not predict at what intersection rates we find “high”, “intermediate” and “low” aspectual strengths.

The following figure builds directly on Figure 4 in Section 3.6 and illustrates my hypothesis. As the reader will remember, the horizontal line represents the continuum from Natural to Specialized Perfectives (from 100% Natural to 100% Specialized), while the shaded areas indicate two centers of gravity in the continuum (high aspectual strength vs. low aspectual strength). The figure visualizes one triplet involving high aspectual strength (“Triplet 1”), one triplet involving intermediate aspectual strength (“Triplet 2”), and one triplet involving low aspectual strength (“Triplet 3”). Triplets 1 and 3 favor the use of one imperfective verb over the other, as shown by the dotted circles. Triplet 2 is balanced in the sense that both imperfective verbs intersect with the Natural Perfective in frequent constructions. Hence in Triplet 2 the dotted circle includes both imperfective verbs.

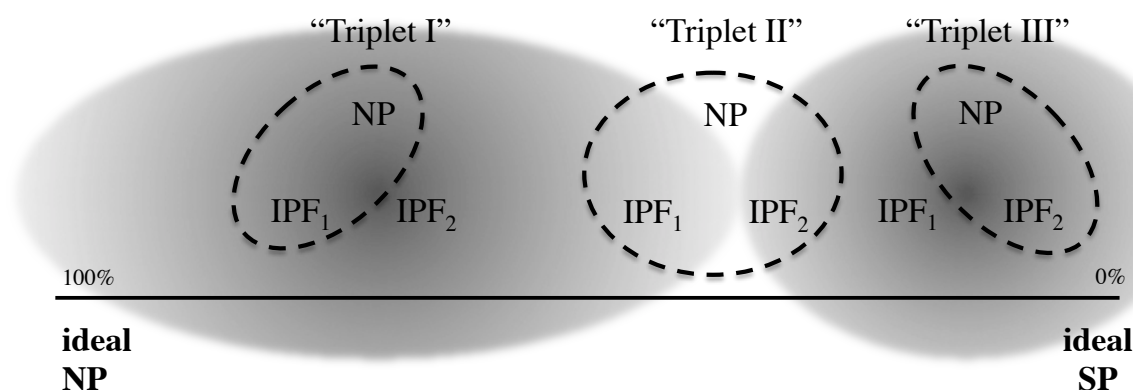


Figure 6. Organization of triplets, as expected from the Aspectual Strength Hypothesis.

Let us now compare the expectations of this hypothesis with the behavior of the four triplets involving *путать*^{ipf}. For the convenience of the reader, the four intersection rates from Section 3.4 are given below:

Verbs	Intersection rate
<i>путать</i> ^{ipf} / <i>спутать</i> ^{pf}	59
<i>путать</i> ^{ipf} / <i>перепутать</i> ^{pf}	57,5
<i>путать</i> ^{ipf} / <i>запутать</i> ^{pf}	9
<i>путать</i> ^{ipf} / <i>впутать</i> ^{pf}	0

Table 33. Intersection rates of *путать*^{ipf} and the four Natural Perfectives (Section 3.4).

The first expectation is that *путать*^{ipf}/*спутать*^{pf}/*спутывать*^{ipf} and *путать*^{ipf}/*перепутать*^{pf}/*перепутывать*^{ipf} will resemble “Triplet I”. Here, each triplet involves a relatively strong relation between *путать*^{ipf} and the Natural Perfective, and the use of Secondary Imperfective should be rare. This matches the results for both verbs: *путать*^{ipf}/*спутать*^{pf} and *путать*^{ipf}/*перепутать*^{pf} intersect in frequent constructions, while *спутывать*^{ipf} and *перепутывать*^{ipf} are extremely rare. As mentioned in Section 4.3.1, *спутывать*^{ipf} appears to be used in contexts where the meaning of c-, TOGETHER, is specifically called for (physical or abstract tangles), while *перепутывать*^{ipf}, due to the strong overlap between the prefix *пере-*, MIX, and the prototypical meaning of *путать*^{ipf}, ‘mix up’, seems to be almost superfluous in the system. This is furthermore indicated by its extremely low frequency in the corpus (see Sections 4.2 and 4.7). These findings conform to the predictions from the Aspectual Strength Hypothesis.

The second expectation is that *путать*^{ipf}/*запутать*^{pf}/*запутывать*^{ipf}, which involves an intersection rate of 9, will be more balanced with regard to the use of imperfective verbs (Triplet II). This expectation is correct, since both *путать*^{ipf} and *запутывать*^{ipf} intersect with *запутать*^{pf} in the most frequent construction of the Natural Perfective, *NP_{nom} V NP_{acc}* (*confuse*), as shown in Tables 14 (Section 3.4.2) and 21 (Section 4.3.4).

The third expectation is that *путать*^{ipf}/*впутать*^{pf}/*впутывать*^{ipf} will resemble Triplet III. As mentioned above, this expectation is correct: regardless of telicity, *впутывать*^{ipf} is preferred in all the frequent constructions of *впутать*^{pf}, while *путать*^{ipf} is hardly attested in the relevant constructions.

These findings raise an important question: where in the continuum of Natural and Specialized Perfectives do we find balanced triplets? On the basis of the “*путать* triplets”, it may seem that such triplets would be located between the intersection rates of 50-60 (*спутать*^{pf}, *перепутать*^{pf}) and 0 (*впутать*^{pf}), but the results for *путать*^{ipf}/*запутать*^{pf}/*запутывать*^{ipf} suggest that balanced triplets can appear at relatively low intersection rates. However, this is a question for future research and can only be answered by examining a larger number of verbs.

Summary

In the present section, I have tested whether aspectual strength has an impact on the choice between Primary and Secondary Imperfective in the triplets involving *путать*^{ipf} (the Aspectual Strength Hypothesis). My data suggest that aspectual strength is indeed relevant for this choice, although more research is needed to gain robust results. In the two triplets that involve high aspectual strength, *путать*^{ipf} is frequent, while the Secondary Imperfective is infrequent. The triplet that involves intermediate aspectual strength appears more balanced, since both imperfective verbs frequently intersect with the Natural Perfective. In the triplet that involves low aspectual strength, the use of *путать*^{ipf} is marginal, while the use of the Secondary Imperfective is extensive. All of these findings lend support to the Aspectual Strength Hypothesis. An important question for future research is where in the continuum of Natural and Specialized Perfectives the majority of balanced triplets appear.

4.7 A diachronic study of the four Secondary Imperfectives

Having now investigated my initial questions concerning the roles of the Primary and Secondary Imperfectives in the “путать triplets”, I would like to “round off” by examining the diachronic changes in the uses of спутывать^{ipf}, перепутывать^{ipf}, запутывать^{ipf} and впутывать^{ipf}, as observed in the database. On the basis of the examples taken from the “old” and “modern” subcorpora,⁴⁹ I will suggest that the central meaning of спутывать^{ipf} has changed from ‘confuse’ to ‘tangle’. Moreover, the verb has become less frequent in use. For перепутывать^{ipf} the most important change seems to be that it is going out of use. For запутывать^{ipf} and впутывать^{ipf} the situation remains stable.

In order to compare the examples of a given verb in the two subcorpora, I will distinguish between constructional patterns on a low level of granularity, as described in Section 2.2.1. I will also separate between meanings of the verbs. Thus, I will use the constructional patterns from Chapter 2, but, in addition, add the meaning of the verb, e.g. *v acc (mix up)*, *v acc (tangle)*, *v acc v acc (tangle into)*, etc. A high level of granularity, which yields more accurate descriptions of verb behavior (see Section 3.7), would give a large number of infrequent constructions, which would make the present analysis infeasible.

4.7.1 Спутывать

Of the four Secondary Imperfectives in question, спутывать^{ipf} seems to have changed the most. In Table 34, I show the constructions in which the verb frequently appears in the two subcorpora (constructions that are attested in more than 5% of the examples). These constructions account for 96,3% and 100% of the examples of спутывать^{ipf} in the “old” and “modern” subcorpora, respectively. The raw numbers are relatively small, but indicate that the prototypical meaning of the verb has changed and that the verb is less frequent now than it used to be.

⁴⁹ The Newspaper corpus, which involves a specific type of literature and therefore, possibly, a specific use of the verbs, is left out of this analysis.

Construction	The “old” subcorpus (55 ex.)		The “modern” subcorpus (16 ex.)	
	Raw#	%	Raw#	%
V acc (confuse)	30	54,6%	1	6,25%
V acc (tangle)	12	21,8%	8	50%
V acc (mix up)	11	20%	1	6,25%
V acc s ins (mix up)	0	n.a.	3	18,75%
V acc s ins (tangle)	0	n.a.	1	6,25%
V acc в acc (tangle)	0	n.a.	2	12,5%
Total	53	96,3%	16	100%

Table 34. Frequent constructions of спутывать^{ipf} before and after 1950. The raw numbers and percentages pertaining to the most frequent constructions in the subcorpora are given in bold.

As we can see, before 1950, спутывать^{ipf} most often expressed the meaning ‘confuse’, but it was also relatively frequent in the contexts of making physical tangles and mistaking one thing for another. After 1950, the verb’s primary meaning seems to be more centered around the making of physical tangles. An example of this is given in (76). The meaning ‘mix up’ has approximately the same frequency as before, while the verb’s dominant meaning before 1950, ‘confuse’, has become much less common. The newest example of спутывать^{ipf} in the construction *v acc (confuse)* was created in 1965 (77).⁵⁰

(76) Он засасывал в себя пряди материнских волос, лаская их, **спутывая** и распутывая, как будто хотел разбудить случайно заснувшую женщину. [Дмитрий Липскеров. Сорок лет Чанчжоэ (1996)]

(77) Он, как и другие сернистые соединения, затруднял химическую переработку нефти и каменного угля, изменял ход химических реакций, **спутывал** расчеты аналитиков, словом, был настоящим «чертиком в колбе». [Ю. Волькенштейн. Тиофен // «Химия и жизнь», 1965]

The p-value of 0.004107 and Cramer’s V of 0.4 show that the changes are significant and have a moderate effect size.⁵¹ Figure 9 visualizes the frequency of the three constructions that are frequently attested for спутывать^{ipf} in both subcorpora.

⁵⁰ This statement refers only to the sentences, which are available in the “modern” subcorpus. The Newspaper corpus, which is not considered here, gives one example of спутывать^{ipf} in the context ‘confuse’ (from 2006).

⁵¹ The p-value of 0.004107 is based Pearson’s chi-squared test with Yates’ continuity correction of the raw numbers in Table 34 (X-squared: 10.99, df = 2).

Спутывать



Figure 7. Diachronic development of *спутывать*^{ipf} constructions.

4.7.2 Перепутывать

In Table 35, I show all the constructions that appear in at least 5% of the examples with *перепутывать*^{ipf}. As we can see, the verb's most frequent construction, *v acc (mix up)*, remains stable. However, Table 35 also suggests that *перепутывать*^{ipf} is going out of use: while the “old” subcorpus includes 30 examples of *перепутывать*^{ipf}, the “modern” subcorpus has only four.

Construction	The “old” subcorpus (30 ex.)		The “modern” subcorpus (4 ex.)	
	Raw#	%	Raw#	%
V acc (mix up)	14	46,7%	3	75%
V acc (confuse)	8	26,7%	0	n.a.
V acc s ins (mix up)	4	13,3%	0	n.a.
V acc (tangle)	3	10%	0	n.a.
V acc (make unclear)	0	n.a.	1	25%
Total	29	96,7%	4	100%

Table 35. Frequent constructions of *перепутывать*^{ipf} before and after 1950. The raw numbers and percentages pertaining to the most frequent constructions in the subcorpora are given in bold.

As we can see in Table 35, *перепутывать*^{ipf} used to express ‘confuse’ and ‘tangle’ in addition to its prototypical meaning ‘mix up’. The one example with ‘make unclear’ is attested in the

“modern” subcorpus. Native speakers confirm that ‘tangle’ is an archaic meaning for *перепутывать*^{ipf} in modern-day Russian (78), while the context ‘confuse’ is strange, but possible (79).

(78) Сеятель плевелов очень опытен, коварен, исполнен злобы: легко ему посеять плевел самый злокачественный, ничтожный по наружности в начале своем, но впоследствии обхватывающий и **перепутывающий** многочисленными отпрысками всю душу. [епископ Игнатий (Брянчанинов). Правильное состояние духа (1860-1866)]

(79) Остается единственная надежда на то, что, может быть, Государь задержит его бессмысленные бредни или поймет, что без соглашения с союзником мы не имеем права **перепутывать** наших карт. [В. Н. Коковцов. Из моего прошлого / Части 1-4 (1933)]

The reason why *перепутывать*^{ipf} is disappearing has already been suggested in Section 4.6: although *путать*^{ipf} is preferred in the construction *NPnom V NPacc c NPins (mix up)* and *перепутывать*^{ipf} most frequently appears in the construction *NPnom V NPacc (mix up)*, these two constructions are very close semantically. Moreover, *путать*^{ipf} frequently appears in both. In addition, the meaning of *путать*^{ipf}/*перепутать*^{pf}/*перепутывать*^{ipf}, ‘mix up’, naturally calls for more than one object, a meaning that generally implies an atelic interpretation and the use of Primary Imperfective instead of Secondary Imperfective. I speculate that both of these factors contribute to the decrease in the use of *перепутывать*^{ipf}.

4.7.3 Запутывать

The data for *запутывать*^{ipf} suggest that this verb has remained stable in its primary construction, *v acc (confuse)*. As opposed to *спутывать*^{ipf} and *перепутывать*^{ipf}, *запутывать*^{ipf} appears to be used with the same frequency now as earlier.

Construction	The “old” subcorpus (54 ex.) 5 constructions, 3 frequent		The “modern” subcorpus (61 ex.) 5 constructions, 3 frequent	
	Raw#	%	Raw#	%
V acc (confuse)	44	81,4%	49	80,3%
V acc v acc (tangle into)	4	7,4%	3	4,9%
V acc (tangle)	3	5,5%	0	n.a.
V acc (cover)	0	n.a.	6	9,8%
Total	51	94,3%	58	95%

Table 36. Frequent constructions of *запутывать*^{ipf} before and after 1950. The raw numbers and percentages pertaining to the most frequent constructions in the subcorpora are given in bold.

In addition to appearing in its prototypical construction *NPnom V NPacc (confuse)*, *запутывать*^{ipf} is sometimes used in contexts involving physical or metaphorical tangles. Here, the verb denotes making a “tangle” (80) or getting someone into it (81). In the “modern” subcorpus, the verb is also attested in the fixed expression *запутывать*^{ipf} *следы* ‘cover tracks’.

- (80) Когда-то он его ненавидел, считал одним из главных гасильников, не признавал в нем ничего, кроме непомерного властолюбия и мастерства **запутывать нити самых беспощадных интриг**. [П.Д. Боборькин. «Поумнел» (1890)]
- (81) Они пользовались его частною и даже дружескою перепискою, отыскивая в ней поводы к обвинению митрополита, **запутывали его в дела**, в которых он не принимал никакого участия [...]. [Е. П. Карнович. Мальтийские рыцари в России (1878)]

4.7.4 Впутывать

Judging by my data (Table 37), the radial network of *впутывать*^{ipf} is no different now than it used to be, and, based on my limited data, the verb appears to become more frequent over time. The verb has one meaning, ‘tangle into’, and this meaning is expressed explicitly with the prepositional phrase *во что* ‘into something’, or implicitly without the preposition. This verb has, like *запутывать*^{ipf}, the same frequency in the “modern” subcorpus as in the “old” subcorpus, and therefore seems to have found its “niche” in the language system.

Construction	The “old” subcorpus (42 ex.)		The “modern” subcorpus (60 ex.)	
	Raw#	%	Raw#	%
V acc V acc ‘tangle into’	29	69%	39	65%
V acc ‘tangle into’	13	31%	21	35%
Total	42	100%	60	100%

Table 37. Frequent constructions of *впутывать*^{ipf} before and after 1950. The raw numbers and percentages pertaining to the most frequent constructions in the subcorpora are given in bold.

4.7.5 Summary

To summarize, my corpus data indicate that *спутывать*^{ipf}, *перепутывать*^{ipf}, *запутывать*^{ipf} and *впутывать*^{ipf} have been affected by diachronic change to different degrees. For *спутывать*^{ipf}, the changes have affected its central meaning: while this verb used to dominate in the meaning ‘confuse’, in modern Russian *спутывать*^{ipf} appears to be more frequent with the meaning ‘tangle’. The verb is also less frequent in use than it was earlier. For

перепутывать^{ipf}, the changes are dramatic, since they essentially indicate that the verb is going out of use. Although my data are too limited to facilitate strong conclusions with regard to this verb or any other, I suggest that the disappearing of перепутывать^{ipf} is motivated by the meaning of *пере-*, MIX, which, in the given triplet, overlaps with the prototypical meaning of путать^{ipf}, ‘mix up’, and furthermore does not comply with the goal-oriented meaning of Secondary Imperfective. The last two verbs, запутывать^{ipf} and впутывать^{ipf}, have remained stable in their primary constructions and neither one is becoming infrequent.

4.8 Summary and conclusions

The present chapter has offered a corpus-based case study of the relations between the Primary and Secondary Imperfectives in the four aspectual triplets involving путать^{ipf}. On the basis of earlier research on triplets, as well as my own findings in Chapter 3, I have tested three hypotheses, each of which were confirmed for my data.

According to the Semantic Differentiation Hypothesis, the Primary and Secondary Imperfectives in a triplet are frequent in different constructions. Thus, I expected the frequent constructions of путать^{ipf} to be different from the frequent constructions of the Secondary Imperfectives. This expectation was correct, since путать^{ipf} is most frequent in the construction *NP_{nom} V NP_{acc} c NP_{ins} (mix up)*, while the Secondary Imperfectives are prototypical in other constructions (Section 4.3).

The Telicity Hypothesis builds directly on the hypothesis of previous scholars, such as Veyrenc (1980) and the CLEAR group (Janda et al. 2013, Kuznetsova and Sokolova forthcoming) and was tested in two ways. First, I compared the use of путать^{ipf} and the Secondary Imperfectives in general (Section 4.4). This comparison lent support to the hypothesis, since путать^{ipf}, overall, preferred atelic contexts, while the Secondary Imperfectives were used in telic environments. Next, I compared the four Secondary Imperfectives (Section 4.5). This comparison showed that the Secondary Imperfectives involved very different levels of telicity depending on the ability of their prefixes to express telic meaning. In addition, I observed that the most frequent Secondary Imperfective in my analysis, запутывать^{ipf}, involves a prefix that is compatible with telic meaning, while the prefixes of the two least frequent Secondary Imperfectives, спутывать^{ipf} and

перепутывать^{ipf}, are less focused on one goal. This conforms to the findings of Janda et al. (2013) and yield support to the Telicity hypothesis. The results for впутывать^{ipf} appeared irrelevant for the Telicity Hypothesis, since the given verb can be expected to be close to a Primary Imperfective.

According to the Aspectual Strength Hypothesis, the Secondary Imperfective is infrequent in triplets where the Primary Imperfective and Natural Perfective have a strong aspectual relation and frequent in triplets where this relation is weak. This prediction was found to be correct for the “путать triplets”, since спутывать^{ipf} and перепутывать^{ipf} are used infrequently, while впутывать^{ipf} is used in all of the Natural Perfective’s frequent constructions. In the triplet путать^{ipf}/запутать^{pf}/запутывать^{ipf}, both imperfective verbs are frequent, and this suggests that triplets, which involve an intermediate aspectual strength, are more balanced.

In total, all of these findings yield support to the Principle of No Synonymy (Goldberg 1995), which was mentioned in the beginning of the chapter (Section 4.1). According to this principle, no constructions, in this case verbs, can involve the same meaning, and this is exactly what Sections 4.3-4.5 confirm for the “путать triplets”: the Primary Imperfective путать^{ipf} behaves uniquely with regard to context/function in each triplet. Moreover, Section 4.7 indicates that if the two imperfective verbs in a triplet involve overlapping meanings, one of them will disappear, e.g. спутывать^{ipf} and перепутывать^{ipf}.

Before closing this chapter, I would once again like to emphasize that my conclusions are based on a limited data set (638 sentences in total). However, while more research is needed on путать^{ipf} and other verbs, the conclusions arrived at in this chapter offer a good starting point for future research on aspectual triplets.

5. Conclusion

In this thesis, I have studied prefix variation in *путать*^{ipf}. Prefix variation, widespread as it may be in Russian, is an understudied area in Slavic aspectology, and previous studies of the phenomenon have mostly been large-scale studies of many verbs. My thesis supplements this approach by offering a detailed “microperspective” analysis of one verb that has four Natural Perfectives – *спутать*^{pf}, *перепутать*^{pf}, *запутать*^{pf} and *впутать*^{pf}. My analysis consists of three case studies, and in the following, I will briefly summarize the findings of each study.

My first case study (Chapter 2) concerned two questions that are relevant for second language learners of Russian: *Can the choice of prefix be predicted when there is prefix variation?* And, if yes: *How?* My hypothesis was that the choice of prefix can be largely predicted from the construction of the verb and the semantics of its internal argument, and in order to test this hypothesis, I examined 630 randomly selected sentences from the RNC “modern” subcorpus (1950-2015) that were manually coded with type of construction and semantic category of the internal argument. A cTree analysis was carried out to show the interaction between the two factors and this analysis provided the following insights:

First, I discovered that the four analyzed constructions favored different prefixes. While in two constructions, *v acc v acc* and *v acc s ins*, the semantics of the internal argument is irrelevant for the choice of prefix, in the constructions *v acc* and *passive* the choice of prefix also depends on whether the object is abstract, animate, concrete or ellipsed. This finding shows that the two examined factors, type of construction and semantics of the internal argument, interact, and that for *путать*^{ipf} the choice of prefix can be largely predicted on the basis of this interaction. Whether the same factors are decisive in other cases of prefix variation cannot be answered by my analysis.

Second, I observed a relationship between the meanings of the prefixes and the constructions in which they appear. In some cases, like *пере-*, this relationship is very clear, since the prefix expresses the very same thing as the construction: *пере-* means MIX, and *перепутать*^{pf} mostly describes situations where two things are mixed up, or have changed place. In other cases, like *за-*, the relationship between prefix and construction sometimes involves metaphorical mappings: *за-* has the basic meaning COVER, but is often used in the abstract

meaning ‘confuse’. To explain the choice of *за-* in this context, I suggested the metaphor *CONFUSION IS REDUCED VISIBILITY*. However, both in cases of literal and metaphorical meanings, it was shown that there was semantic overlap between prefix and construction, insofar as the same meaning manifests itself both in the prefix and in the construction. This semantic overlap yields support to the Overlap Hypothesis (Janda et al. 2013), which claims that prefixes retain their semantic content when forming Natural Perfectives. If the prefixes of *спутать*^{pf}, *перепутать*^{pf}, *запутать*^{pf} and *впутать*^{pf} were empty of meaning, we would not expect the observed overlap between prefix and construction.

Third, the findings above seem relevant for second language learning, since verbs with prefix variation can be especially hard to acquire and keep apart. In order to manage this task, many second language learners of Russian try to learn the relevant verbs as part of their appropriate constructions, and my findings indicate that this is a very sensible approach. However, could second language learners also benefit from doing small-scale case studies of verbs with prefix variation? Inspired by Nessel and Janda (2014), I suggest that the findings of Janda et al. (2013) can become even more applicable in a classroom situation if such projects are encouraged. My own case study in Chapter 2 offers a model for how this can be organized, but while the method is set, the amount of data to be considered can be reduced. Comparing the constructions and internal arguments of a given verb’s Natural Perfectives not only clarifies when and how to use the relevant Natural Perfectives, but also allows the learner to discover the relation between verb meaning and prefix for him- or herself.

My second case study (Chapter 3) explored the four aspectual relations of *путать*^{ipf}. I wanted to find out if simplex verbs with prefix variation are equally “close” to all of their Natural Perfectives and, expanding on this, what could motivate the relations to be different. Since Kuznetsova (2012) has already suggested that aspectual strength is motivated by the semantic overlap between verb and prefix, I hypothesized that verbs with prefix variation involve the same relationship. For the purposes of this analysis, I applied Kuznetsova’s method for calculating aspectual strength on my data for *путать*^{ipf} (200 examples) and its Natural Perfectives (630 examples). I received the following results:

First, I found that the aspectual relations of *путать*^{ipf} have different levels of strength: two of the verb’s relations are relatively strong, while the other two relations are quite weak. This

finding answers my first question, since it shows that the Natural Perfectives of *пытать*^{ipf} display different degrees of closeness to the simplex verb. However, my analysis does not answer whether the same situation applies to other verbs with prefix variation.

Second, I observed a relationship between aspectual strength and semantic overlap of verb and prefix. Aspectual relations that involve a high degree of semantic overlap also display high aspectual strength. Conversely, aspectual relations that involve a low degree of semantic overlap display low aspectual strength. A similar observation was made by Kuznetsova for a number of pairs with *по-* (Kuznetsova 2012: 144). The results obtained by Kuznetsova and me yield support to the Overlap Hypothesis, since they show that Natural Perfectives have prefixes that overlap with the meaning of the verb in most, or some, of their constructions.

Third, I suggested that the four intersection rates of *пытать*^{ipf} and the 17 intersection rates from Kuznetsova's study shed light on the relationship between Natural and Specialized Perfectives. As shown in Section 3.6, the 21 perfectives in question can be divided in two "groups" based on intersection rate. Since these groups are clearly very different, it makes sense to distinguish between perfectives that are close to ideal Natural Perfectives and perfectives that are close to ideal Specialized Perfectives. However, my analysis also shows that these groups involve considerable inner diversity and therefore do not constitute two classical Aristotelian categories. Instead, I suggested that my findings bring support to the hypothesis of other scholars (e.g. Janda et al. 2013: 177) who have claimed that Natural and Specialized Perfectives form a continuum. My findings supplement the results of previous research by suggesting where the two centers of gravity in this continuum may be located: at the intersection rates of 86-50 for Natural Perfectives and at the intersection rates of 30-0 for Specialized Perfectives. However, a large-scale study of many verbs is needed before more definite conclusions can be drawn. Expanding on the continuum model, I suggested that Natural and Specialized Perfectives form two radial categories with prototypical members and less typical members, fuzzy edges and a grey zone between the categories. To the best of my knowledge, this hypothesis has not been tested by other researchers and several questions arise, for example with regard to the prototypical intersection rate of Natural Perfectives. Another important question concerns the structure and variation that may be involved in the radial category of Specialized Perfectives.

Fourth, my analysis shed light on the choice of granularity when using constructions to measure aspectual strength. In my study of *пытать*^{ipf}, I used two levels of granularity: a low level of granularity that involved very simple constructions and a high level of granularity that involved quite fine-grained constructions. I discovered that the two levels of granularity yielded the same relative order of the pairs, but that the high level of granularity gave more accurate results. The low level of granularity was able to detect some major differences between the verbs, but was not able to recognize that one construction may involve several different meanings, each of which favors a different verb. The high level of granularity produced a unique set of constructions for each verb and the actual relations between *пытать*^{ipf} and the Natural Perfectives became clearer. The downside of the high-granular approach was that it produced a large number of infrequent constructions that, perhaps, were not always so different, e.g. *NPnom V NPacc (mix up)* and *NPnom V Vinf Vacc (mix up)*. My findings agree with the findings of Berdičevskis and Eckhoff (2014).

My third case study (Chapter 4) investigated the relation between *пытать*^{ipf} and Secondary Imperfective in the “*пытать* triplets” and is, as a case study of four triplets, intended to complement previous large-scale studies on aspectual triplets. I proposed three hypotheses that were tested on my database of *пытать*^{ipf} (200 examples) and the four Secondary Imperfectives (438 examples): (1) the Primary and Secondary Imperfective in a triplet appear in different constructions (“The Semantic Differentiation Hypothesis”), (2) the Primary Imperfective favors atelic contexts, while the Secondary Imperfective favors telic contexts (“The Telicity Hypothesis”), and (3) the distribution of the Primary and Secondary Imperfective in a triplet depends on the aspectual strength of the Primary Imperfective and Natural Perfective (“The Aspectual Strength Hypothesis”). My findings were as follows:

First, the Constructional Profiles of the five imperfective verbs showed that each verb has its own prototypical construction. Although the prototypical construction of *пытать*^{ipf}, *NPnom V NPacc c NPins (mix up)*, is semantically very close to the prototypical construction of *перепутывать*^{ipf}, *NPnom V NPacc (mix up)*, they differ with regard to the use of the preposition *с* ‘with’. The prototypical constructions of the remaining Secondary Imperfectives are semantically different from the prototypical construction of the simplex verb. This yields support to the Semantic Differentiation Hypothesis.

Second, I found that *путать*^{ipf} predominantly appears in atelic contexts, while Secondary Imperfectives overall favor telic contexts. This lends support to the Telicity Hypothesis, which has also been suggested by other scholars (e.g. Veyrenc 1980, Janda et al. 2013, Kuznetsova and Sokolova forthcoming). I furthermore discovered that the four Secondary Imperfectives in question differ with regard to their ability to express telic meaning, and that the Secondary Imperfectives that involve atelic prefixes (*спутывать*^{ipf} and *перепутывать*^{ipf}) were the least frequent verbs in my study. This finding corresponds to the results of the large-scale study of Janda et al. (2013) and yields support to the Telicity Hypothesis, since Secondary Imperfectives are expected to involve prefixes that favor a telic interpretation.

Third, I observed a relationship between the frequency of the Secondary Imperfective in a triplet and the aspectual strength of *путать*^{ipf} and the relevant Natural Perfective. As expected from the Aspectual Strength Hypothesis, the use of the Secondary Imperfective is restricted to marginal constructions when the aspectual relation of *путать*^{ipf} and the Natural Perfective is strong, and extensive when the aspectual relation of *путать*^{ipf} and the Natural Perfective is weak. On the basis of the Aspectual Strength Hypothesis, “balanced triplets” can be expected to appear somewhere between the highest and lowest intersection rates in the continuum. This situation was observed for *путать*^{ipf}/*запутать*^{pf}/*запутывать*^{ipf}, which involve an intersection rate of 9. This arguably yields further support to the hypothesis. However, strong conclusions about the validity of the Aspectual Strength Hypothesis and the “location” of balanced triplets on the continuum can only be made on the basis of a larger study of more verbs.

Fourth, I argued that my case study of the “путать triplets” yields support to the Principle of No Synonymy (Goldberg 1995). My analysis shows that *путать*^{ipf} differs from the Secondary Imperfectives with regard to prototypical construction and telicity. Moreover, my diachronic study of the verbs suggests that the two Secondary Imperfectives that are less clearly distinct from *путать*^{ipf} are becoming reduced to constructions where *путать*^{ipf} is not expected (*спутывать*^{ipf}) or go out of use (*перепутывать*^{ipf}). This yields further support to the Principle of No Synonymy, since by this principle no words are expected to display the same meaning.

In order to gain a robust understanding of prefix variation both “macroperspective” and “microperspective” investigations are needed. The “macroperspective” analysis of Janda et

al. (2013), who surveyed a large number of verbs, provided empirical evidence with regard to the extent of prefix variation in Russian and showed that prefix variation exists because different prefixes overlap with different meanings in the simplex verb (Janda et al. 2013: 162). I hope to have shown that “microperspective” analyses of individual verbs with prefix variation offer a valuable supplement and shed light on such questions as semantic overlap, aspectual strength and aspectual triplets. More studies of a similar kind are clearly needed, but that is a task for future research.

References

- Apresjan, Jurij D. and Erna Pall. (1982) *Russkij glagol – vengerskij glagol: upravlenie i sočetaemost'*. Budapest: Tankonyvkiado.
- Baayen, Harald R., Anna Endresen, Laura A. Janda, Anastasia Makarova, Tore Nessel. (2013) "Making choices in Russian: pros and cons of statistical methods for rival forms". *Russian Linguistics* 37(3): 253-291.
- Berdičevskis, Aleksandrs and Hanne M. Eckhoff. (2014) "Verbal constructional profiles: possibilities and limitations". *Proceedings of the Thirteenth International Workshop on Treebanks and Linguistic Theories (TLT13)*. Tübingen: University of Tübingen, 2-13. Available at <http://tlt13.sfs.uni-tuebingen.de/tlt13-proceedings.pdf>
- Berkov, Valerij P. (2007) *Stor russisk-norsk ordbok. Bol'šoj russko-norvežskij slovar'*. Oslo: Kunnskapsforlaget.
- Booij, Geert. (2010) *Construction morphology*. New York: Oxford University Press.
- Bulygina, Tat'jana V. and Aleksej D. Šmelev. (1997) *Jazykovaja konceptualizacija mira (na materiale ruskoj grammatiki)*. Moscow: Jazyki ruskoj kul'tury.
- Comrie, Bernard. (1976) *Aspect: an introduction to the study of verbal aspect and related problems*. Cambridge: Cambridge University Press.
- Dickey, Stephen M. (2008) "A prototype account of the development of delimitative *po-* in Russian". In *Cognitive Paths into the Slavic Domain*, edited by Divjak, Dagmar and Agata Kochanska, 326-371. Berlin: Mouton de Gruyter.
- Dickey, Stephen M. and Laura A. Janda. (forthcoming) "Slavic aspectual prefixes and numeral classifiers: two kinds of lexico-grammatical unitizers". Manuscript: University of Kansas and UiT The Arctic University of Norway.
- Divjak, Dagmar S. and Stefan Th. Gries. (2006) "Ways of trying in Russian: clustering behavioral profiles". *Corpus Linguistics and Linguistic Theory* 2(1): 23–60.
- Goldberg, Adele E. (1995) *A construction grammar approach to argument structure*. Chicago: The University of Chicago Press.
- Goldberg, Adele E. (2011) "Constructionist approaches". In *The Cambridge Encyclopedia of the Language Sciences*, edited by Patrick Hogan, 15-31. Cambridge: Cambridge University Press.
- Janda, Laura A. (2007) "Aspectual clusters of Russian verbs." *Studies in Language* 31(3): 607-648.
- Janda, Laura A. and Valery Solovyev. (2009) "What Constructional Profiles Reveal About Synonymy: a case study of Russian words for sadness and happiness". *Cognitive Linguistics* 20(2): 367-393.
- Janda, Laura A. and Olga Lyashevskaya. (2011) "Grammatical profiles and the interaction of the lexicon with aspect, tense and mood in Russian". *Cognitive Linguistics* 22(4): 719-763.

- Janda, Laura A., Anna Endresen, Julia Kuznetsova, Olga Lyashevskaya, Anastasia Makarova, Tore Nettet and Svetlana Sokolova. (2013) *Why Russian aspectual prefixes aren't empty: prefixes as verb classifiers*. Bloomington IN: Slavica Publishers.
- Kuznetsova, Julia. (2012) *Linguistic Profiles. Correlations between form and meaning*. PhD dissertation: University of Tromsø.
- Kuznetsova, Julia and Svetlana Sokolova. (forthcoming) "Aspectual triplets in Russian: semantic predictability and regularity". Manuscript: UiT The Arctic University of Norway.
- Lakoff, George and Mark Johnson. (1980) *Metaphors we live by*. Chicago: The University of Chicago Press.
- Lakoff, George. (1993) "The contemporary theory of metaphor". In *Metaphor and Thought* (2nd ed.), edited by Andrew Ortony, 202-251. Cambridge: Cambridge University Press.
- Lewandowska-Tomaszczyk, Barbara. (2007) "Polysemy, prototypes, and radial categories". In *The Oxford handbook of cognitive linguistics*, edited by Dirk Geeraerts and Hubert Cuyckens, 139-169. Oxford: Oxford University Press.
- Maslov, Jurij S. (1984) *Očerki po aspektologii*. Leningrad: Izdatel'stvo Leningradskogo universiteta.
- Nettet, Tore, Anna Endresen and Laura A. Janda. (2011) "Two ways to get out: radial category profiling and the Russian prefixes vy- and iz-". *Zeitschrift für Slawistik* 2011 56(4): 377- 402.
- Nettet, Tore and Laura A. Janda (2014) "Korpuslingvisten i klasserommet: lingvistiske profiler i fremtidens språkundervisning". *Acta Didactica Norge - tidsskrift for fagdidaktisk forsknings- og utviklingsarbeid i Norge* 8(2): 1-17. Available at: <https://www.journals.uio.no/index.php/adno/article/view/1128>
- Peirsman, Yves and Dirk Geeraerts. (2006) "Metonymy as a prototypical category". *Cognitive Linguistics* 17(3): 269-316.
- Taylor, John R. (2003). *Linguistic categorization*. Oxford: Oxford University Press.
- Veyrenc, Jacques. (1980) *Études sur le verbe russe*. Paris: Institut d'études slaves.
- Zaliznjak, Anna A. and Aleksej D. Šmelev. (2000) *Vvedenie v russkuju aspektologiju*. Moscow: Jazyki russkoj kul'tury.
- Zaliznjak, Anna A. and Irina L. Mikaëljan (2010). "O meste vidovyx troek v aspektual'noj sisteme russkogo jazyka". *Computational linguistics and intellectual technologies: Papers from the Annual International Conference*". Moscow: RGGU, 130-136. Available at <http://www.dialog-21.ru/digests/dialog2010/materials/html/21.htm>

Electronic resources

Exploring Emptiness database – emptyprefixes.uit.no

Russian National Corpus – www.ruscorpora.ru