

Constructing Perfectivity in Russian

Eugenia Romanova



A Thesis submitted for the degree of Doctor of Philosophy

Faculty of Humanities, University of Tromsø

December 2006

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List of Abbreviations

2IMPF secondary im- perfective	FREQ - frequentative	OBJ object
ABL. Ablative	G Ground GEN. Genitive	^P Perfective
ABS. Absolutive	GN Genitive of negation	PA pluractional
ADE. Adessive	^I Imperfective	PAP Present Active Participle
ALL. Allative	ILL. Illative	PART Partitive
ADJ. Adjective	imper. imperative	pass. passive
ACC. Accusative	INCEP inceptive	PERD perdurative
aor. aorist	IND. indicative	PERF. perfect
AP antipassive	INE Inessive	PPP Past Perfect Participle
COLL collective	inf. infinitive	pl. plural
CONV. Converb	INSTR. Instrumental	pres. present
CUM cumulative	LOC. Locative	Prf. prefix
DAT. Dative	ms. masculine	Prop. property
def. default	NDMV non-directed motion verb	prt. particle
DEL delimitative	NEG. negative particle	refl. reflexive
dir. directed	ndir. non-directed	S subject agreement
DIST distributive	NOM. Nominative	SC small clause
DMV directed motion verb	NON.S non-subject agreement	sg. singular
ELA. Elative	nt. neutral	SUBJ subject
ERG. Ergative	NPI negative polarity item	trans. transitive
F Figure fem. feminine		WP witnessed past

Acknowledgments

I am one of those lucky people who has two supervisors, no irony intended. They are certainly different scientists, even if both of them work at the most team-like department I've heard of, and their contributions into this creation are enormous in different ways.

I would like to thank Gillian Ramchand for teaching me, first and foremost, flexibility. Writing a thesis with Gillian was like turning a formless rock of marble into a sculpture with recognizable shapes. In the process I was taught to feel and follow the curves, to discard all the prejudices and preset expectations, instead, to let the material lead me to the areas I had never known existed. That was an exciting trip that gave me a lot of appreciation of the language and the way it works. This new skill is closely connected to another valuable ability I learnt from Gillian: to make the shapes appearing on my sculpture understandable to other people; to make the contents of my work transparent to its on-looker. All the clarity of exposition I owe to Gillian. On a more concrete note, I'd like to thank Gillian for her painstaking help in solving semantic issues, especially in Chapters 4 and 5.

I would like to thank Knut Tarald Taraldsen for having been my first supervisor at the time when I carried a chaos of vague ideas in the ocean of my hardly conscious mind. He had to deal with that at the beginning and, yet, Tarald has always been honest and shrewd with me. His sharp observations have definitely saved me a lot of disgrace. Tarald also taught me to doubt everything, not to take or make any assumptions as axioms, to do a lot of independent brain-storming, not to fall asleep to the lullaby of my own self-contented smugness, and at the same time, to speak up when I have something to say. I am still far behind him in all that but I've been shown the example. On a more concrete note, I thank Tarald for persuading me to modify chapters 3 and 5.

I would like to thank Peter Svenonius, who has always helped me whenever I asked him: when my supervisors were unavailable or when I required expert answers from his field of expertise. Peter's presence and activities at the faculty made an essential contribution to my work. Without the project on Slavic prefixes instigated by him back in 2002 this thesis would be a completely different story. Without his famous investigation of prepositions, my chapter 3 would be twice as short and supercilious. On a more

concrete note, I would like to thank Peter for reading and commenting on parts of the thesis in its early days.

Thanks to Patrycja Jabłońska for the heated discussions we had about prefixes and related issues. Some of my ideas took shape in our disputes.

Thanks to Asya Pereltsvaig for the Russian Syntax reading group, for her precious help in the field of Slavic linguistics and for reading part of my thesis and commenting on it.

I would like to thank Yulia Rodina, Marina Dyakonova, Tanya Zdorenko, Ženya Markovskaya, Aysa Arylova, Žanna Glušan and my sister Tatyana Matveyeva for being native speakers and providing me with judgments and slips of tongue for this research. Thanks to Berit Gehrke for her helpful information on German particles and prefixes. Thanks to Pavel Caha for his Czech judgments. Thanks to Svetoslav Marinov for his \LaTeX formatting advice. Thanks to Lucie Medová for references on motion verbs and sharing her knowledge on pictures in \LaTeX . Thanks to Luisa Marti for helping me understand some tricky distributivity formalisms. Thanks to Sergei Tatevosov and Andrej Šluinskij for the dissertation and references on pluractionality. Thanks to Michal Starke and Isabelle Roy for their French judgments.

I am grateful to CASTL, whose existence gave me an opportunity to talk to Hana Filip, David Pesetsky, Roumyana Pancheva and to attend the lectures by our colleagues from all over the world. CASTL also collected an outstanding and inspiring team of scientists, whose work I could observe. As a CASTL affiliate, I could travel to conferences and present my research there.

I am very grateful to our former and present Master and PhD students, post-docs and researchers for the great atmosphere both in the classroom and outside it, especially to Kristine Bentzen, Mai Tungseth, Sylvia Blaho, Peter Muriungi, Björn Lundquist, Marina Pantcheva, and Pavel Caha. Double thanks to Sylvia for the flat.

I would like to thank Tore Nettet for helping me with the layout of the whole work. I am also grateful to him for his assistance with both Russian and Norwegian, let alone with my living conditions during the pre-final stage of this production.

I would have never coped with this task without my friends and my family. I'd like to thank Marina Dyakonova, Jonny Jamtjord, Asya Pereltsvaig, Nataša Miličević, Vyara Istratkova, Jurgita Jankeviciute, the two Polish families (Asia and Tomek, Gosia and Robert) and Iza-Rodaczka for their beautiful friendship. I thank Tarald Taraldsen, Peter Svenonius and Gillian Ramchand now for our communication on a 'human' (informal) level that made my dissertation years versatile and exciting. I would like to thank Madeleine Halmøy and Erlend Lien for their hospitality and propaganda of the Norwegian culture, and Madeleine personally for her humor and affection. I would like to thank Tanya Zdorenko and Sullay Kanu for their warmth in whatever cold places they end up. I'd like to thank my dear friend Kaori Takamine for our invariably quality time

together.

I'd like to give separate warmest thanks to Patrycja Jabłońska and Svetoslav Marinov, Yulia Rodina and Adnan Ičagić, and Monika Bašić and Lucius Bader, especially to the girls. These dear people have grown to be a part of me and without them I would have been completely lost on the island. My love is with you.

I would like to thank my friends outside Tromsø for their support for these five years: Nataša Solovjěva, Olja Ankudinova, Ira Goldberg, Yulya Šarapova, Nadja Mixajlova, Kostja Fefelov and my ex-colleagues at the university - I always had nice vacations at home and I always felt their caring presence.

I would like to thank Heikki Kotiranta for believing in me and cheering me up all these years, for this has worked well.

I would like to thank my family: mama, dad and Tanya. My genes (the linguistic one(s) included) and the perfect conditions for pursuing my dream were created by my parents. My sister has always been my guardian angel, which helped me in this work tremendously. I am also grateful to Tanya for taking a new cat to our household, who substituted for me the wild nature I had grown so accustomed to in Norway. Mama, papa i Tanya! Ja globoko vam blagodarna za vaši terpenije i podderžku. Bez vas ničego by nikogda ne polučilosj.

I am also grateful to myself for not quitting, for not going mad, for not letting personal problems prevail, for learning to work hard and to take responsibility for my truth.

Foreword

The subject matter of the present dissertation is the morphosyntactic mechanisms that underlie deriving perfective verbs from imperfectives with different event structures in Russian. To be more precise, the main morphosyntactic mechanism in question is prefixation. My aim is to demonstrate that prefixation in Russian is a non-uniform phenomenon depending on a number of different syntactic and semantic factors, which has consequences for the interpretation of the linguistic expressions prefixes are part of.

Russian aspect has invariably aroused a lot of interest on the part of linguists working within various frameworks. The theoretical background underlying this work is determined by the Universal Grammar hypothesis, the Minimalist Program (Chomsky (1995), Chomsky (2001b)) and the constructionalist approach (Borer (2005), Ramchand (2006) and others).

Under this view there are two components involved in production of linguistic expressions: the lexicon and the computational system. The lexicon contains the items with idiosyncratic properties that enter into the computational system. The computational system then constructs a pair of interface representations (π , λ) drawn from the interface levels (PF (Phonetic Form), LF (Logical Form)) respectively. Logical Form is the level of representation at which meaning is assigned to the linguistic expression. Phonetic Form is the level at which a sound representation is given to the linguistic expression. The operation Spell-Out removes LF-uninterpretable material¹ from the syntactic object and sends it to the PF. Surface semantic effects are restricted to *narrow syntax*.

This work is going to focus on one of the interfaces, namely, the syntax-LF interface. In other words, I am going to investigate the relation between the syntactic structure and the predicational structure of one particular domain of the clause, speaking of which, I must return to the notion of Spell-Out.

Spell-Out is a cyclic process occurring at the boundaries of clausal units, marked by C (Complementizer) and v (a functional head dominating the extended projection of the

¹Interpretable features of lexical items include categorial features and ϕ -features, like gender, number and person. The rest are uninterpretable features.

verb). This clausal units are termed *phases*. At the point where a syntactic derivation reaches a phase boundary, the syntactic object constituting the phase is accessed and evaluated by the interfaces. My research deals with the narrow syntax of the ν P-phase, for which Ramchand (2006) coined the term ‘First Phase Syntax.’

The relations between syntax and semantics within the ν P phase are based on the possibility of decomposition of both structures. The predicational structure constituting the meaning of ν P bears on cause-effect properties of events and therefore can be represented as separate conceptual units inside the event. The syntactic decomposition of verbs is facilitated by their morphological complexity, which is often mappable onto the conceptual units within the events they denote.

The ideas developed in the dissertation are in line with the Universal Grammar hypothesis. This means that the particular grammar under discussion, S_R (‘R’ stands for Russian), is a parametrized instantiation of the human grammar S_0 . It allows me to draw generalizations and conclusions by comparing the Russian data to respective sets of data from other languages. Simultaneously, generalizations that have arisen on the basis of the language specific empiria hopefully present an additional support in favor of the UG hypothesis.

As I proceed with this work, I am going to explain concrete theoretic devices I will introduce for the purpose of investigating the syntax-semantics interface where aspectual composition takes place.

Chapter 1

The aspectual network

This chapter serves as a background for the whole dissertation. I will undertake two complementary tasks here: first, I will outline the main approaches to Russian aspect in the literature, and second, I will propose my own way of looking at the complicated mechanism of constructing different aspectual interpretations.

1.1 Perfectivity under tests

1.1.1 An introductory word on perfectivity

There has been a long tradition among researchers of Russian grammar of dividing all verbs into two big groups, labeled ‘perfective’ and ‘imperfective’. The split is justified by the differences in grammatical behavior well demonstrated by a number of linguistic tests. There are also more or less uniform morphological patterns involved in the formation of perfective and imperfective verbs. For example, most perfective verbs are formed by prefixation:

- (1) za-pisatj, pro-čitatj, po-sidetj, vy-učitj
 in-write^P.inf Prf-read^P.inf DEL-sit^P.inf out-learn^P.inf
 ‘write down, read completely, sit for a while, learn (by heart)’

Consequently, most unprefixated forms are imperfective:

- (2) pisatj, čitatj, sidetj, učitj
 write^I.inf read^I.inf sit^I.inf learn^I.inf
 ‘write, read, sit, learn’

There is a small group of unprefixated verbs that are perfective (according to Isačenko (1960), about 30):

- (3) brositj, datj, kupitj, rešitj
 throw^P.inf give^P.inf buy^P.inf solve^P
 ‘throw, give, buy, solve’

The morphological uniformity of perfective formation is not violated just by this small group of exceptions. There are other morphological means that mark perfectivity and imperfectivity. For example, another group of unprefixated perfectives includes semelfactives that are characterized by the presence of the suffix *-nu-*:

- (4) kinutj, prygnutj, stuknutj, čixnutj
 cast^P.inf jump^P.inf hit^P.inf sneeze^P
 ‘cast, jump (once), hit/ knock (once), sneeze (once)’

The verbs with a specific type of prefix can undergo further aspectual derivation and form secondary imperfectives. It is, therefore, important to know that prefixes in Russian are subdivided into two big classes: lexical and superlexical. Lexical prefixes can attach to all varieties of verb mentioned above, apart from already prefixed verbs. Superlexical prefixes in their majority never attach to perfective verbs. Lexical prefixes have spatial, idiosyncratic or completive meanings. Superlexical prefixes have systematic meanings which can be either similar to those of quantificational adverbs or to phasal verbs (‘begin’, ‘end’)¹. Verbs with lexical prefixes systematically form secondary imperfectives (5-a), verbs with superlexical prefixes, with few exceptions, do not (5-b):

- (5) a. zapisyvatj, perečityvatj, vysiživatj
 in-write^I.inf re-read^I.inf out-sit^I
 ‘write down, re-read, hatch’
- b. *zadvigivatjsja, *pererezyvatj (vsex kur),
 INCEP-move^I.inf.self. DIST-cut^I.inf. all.pl.ACC. hens.ACC.
 *pobegivatj
 DEL-run^I.inf.
 ‘start moving, slaughter (all the chickens) distributively, run for a while’

¹Secondary imperfectives in their turn can be changed into perfectives again via attaching another, superlexical, prefix:

- (i) pozapisyvatj, navysiživatj
 DIST-in-write^P.inf CUM-out-sit^P.inf
 ‘write down (one after another), hatch (a lot of)’

As can be seen, at the end there is no uniform morphological indication of perfective or imperfective aspect. If we considered the presence of a prefix to be a sign of perfectivity, it would be false, for a) semelfactives are formed by suffixes; b) there is a group of unprefixed perfective verbs, like *brositj* ‘throw’, *kupitj* ‘buy’ etc.; c) secondary imperfective verbs preserve prefixes. If we considered the presence of *-(i)va* suffix to be a sign of imperfectivity, it would be false, for a) primary imperfectives do not usually have this suffix; b) secondary imperfectives can have other imperfectivizing suffixes (*-a-*, for example); c) superlexically prefixed verbs are perfective, yet retain the imperfectivizing suffix. It is clear that morphological characteristics are not enough for distinguishing between the two aspects in Russian. There must be some more precise linguistic criteria for dividing all the verbs of the language into these two big groups, in the first place. In fact, as I mentioned above, there are. Perfective verbs behave in specific ways distinct from those of imperfective verbs, which is systematically demonstrated by the tests in the section below.

1.1.2 Tests for perfectivity and imperfectivity

Many tests for perfectivity are assumed to work and are shared therefore by different authors (Schoorlemmer (1995), Filip (1999), Borik (2002) and others). The tests are:

- The formation of present participles (only imperfectives can form them)
- The formation of past passive participles (only perfectives can form them)
- Ability to appear as the complements of ‘Phase’ verbs test
- Future reading tests

Present participles (PAP) test

In Borik (2002) it is suggested to treat present participle formation as a test for imperfectivity. This suggestion is based on the morphological system of participles in Russian. Only imperfective verbs can form present participles, both active and passive:

(6)	present	active uvoljnja- <i>jušč</i> -ij ‘firing’	passive uvoljnja- <i>jem</i> -yj ‘being fired’
	past	uvoljnja- <i>vš</i> -ij ‘firing’ (past) uvoli- <i>vš</i> -ij ‘having fired’	uvol- <i>enn</i> -yj ‘having been fired’

The upper part of the table is pretty uncontroversial. The formation of present participles always involves only imperfective verbs and has no exceptions. Although verbs of both voices can form present participles, present active participles (PAP) are more common and sound more natural in Russian than present passive participles, therefore I am going to use PAP formation as a test for imperfectivity:

(7)

	IMP	PF	
a.	strojaščij	*postrojaščij	‘building’
b.	govorjaščij	*skazaščij	‘talking’
c.	sporjaščij	*posporjaščij	‘arguing’

(from Borik (2002):41)

As PAP refer to ongoing progressive events, and perfective verbs can never express any progressivity; only imperfective stems can serve the basis for PAP formation.

Past passive participles (PPP) test

The impeccability of the second test, namely, the formation of PPP only from ‘perfectives’, is undermined by a big number of counterexamples. According to Schoorlemmer (1995) for the test to work two conditions should be met by the tested perfective verb: a) it must be transitive; b) it must be paired (that is, it mustn’t be an aktionsart verb in her terminology, or a superlexically prefixed verb in mine). In addition, there are some acceptable imperfective PPPs. In Schoorlemmer (1995) there are examples of *-t*-participles formed from monosyllabic verbs:

(8)

bityj,	brityj,	mytyj,
beaten ^I .sg.ms.NOM.,	shaven ^I .sg.ms.NOM.,	washed ^I .sg.ms.NOM.,
šityj,	krytyj	
sown ^I .sg.ms.NOM.,	covered ^I .sg.ms.NOM.	
‘beaten, shaven, washed, sown, covered’		

In fact, the number of imperfective PPPs is much bigger than three or five. In the web corpus <http://ruscorpora.ru> I found altogether 27 PPPs formed by different imperfective verbs. Some examples, to illustrate:

(9)

a.	Strojeno	bylo	eto	vsjo	ploxo...
	built ^I .sg.nt	was ^I .nt	this.NOM.	all.NOM.	badly
	‘All this was built badly’				

- b. Pisannaja javno neumeloj rukoj...
written^I.sg.fem.NOM. clearly inapt.sg.fem.INSTR. hand.sg.INSTR.
'Written by a clearly inexperienced hand'
- c. ...kolonna avtomašin, gružennyx bumažnymi
column.NOM. cars.pl.NOM. loaded^I.sg.fem.NOM. paper.pl.INSTR.
paketami...
bags.INSTR.
'a string of cars, loaded with paper bags'

According to Babko-Malaya (1999) the crucial property of past passive participles formed by perfective verbs is that they are adjectival, and the examples in (9-a) and (9-b) are those of eventive participles. However, it is of no importance here, because the neatness a test has to possess is not characteristic of the PPPs test: there are too many exceptions that go both ways. One group of exceptions has just been discussed and encompasses quite a number of imperfective past passive participles. The other group was also mentioned above: the verbs with superlexical prefixes. They cannot form past passive participles in spite of being formally perfective, as the other tests will show²

- (10) a. *počitannaja kniga
DEL-read.PPP.sg.fem.NOM. book.NOM.
'*a book read for a while'
- b. *zapetaja pesnja
INCEP-sung.PPP.sg.fem.NOM. song.NOM.
'*a song that was started'

In addition, there are possibly 'accidental gaps' among lexically prefixed perfectives - at the moment I do not know how accidental they are:

- (11) a. *otkačennaja bočka
aside-rolled.PPP.sg.fem. barrel.NOM.
'*a rolled aside barrel'
- b. *pereletennaja granica
across-flied.PPP.sg.fem. border.NOM.
'*a crossed by air border'
- c. *smaxnutyj stakan
off-waved.PPP glass.NOM.
'*a flicked glass'

²The PAP test can already support the claim: neither *počitati* 'read for a while' nor *zapej* 'start singing' are capable of forming present active participles:

- (i) *počitajuščij, *zapojuščij

Basing my conclusions on sheer empirical data, I suggest that the past passive participles test is different from other diagnostics for perfectivity. It does not reflect the ‘big’ distinction between perfectives and imperfectives, since in some cases imperfectives can also form PPPs, and in others PPP formation is sensitive to semantic nuances within the class of perfectives.

‘Phase’ verbs test

Borik (2002) offers the following verbs as ‘phase’ verbs: *načínatj* ‘begin’, *prodolžatj* ‘continue’, *zakančivatj/končatj* ‘finish’, *perestavaj* ‘stop’. These verbs can take infinitives or nominals as their complements. ‘Phase’ verbs complement infinitives are always imperfective:

- (12) a. Petja načal čitatj/*pročitatj knigu.
 P.NOM. began^P.sg.ms. read^{I/*P}.inf. book.ACC.
 ‘Petja began to read a book’
- b. Petja zakončil stroitj/*postroitj dom.
 P.NOM. finished^P.sg.ms. build^{I/*P}.inf. house.ACC.
 ‘Petja finished building a house.’
- c. Petja prodolžal guljatj/*poguljatj.
 P.NOM. continued^I.sg.ms. walk^{I/*P}.inf
 ‘Petja continued walking.’ (Borik (2002):44)

The phase verbs themselves can be perfective (as in (12-a) and (12-b)) and imperfective (as in (12-c)); the complement infinitives cannot be perfective irrespective of the type of prefix they have. For example, in (12-c) the verb *guljatj* ‘walk’ with a superlexical prefix is as ungrammatical as the verbs in (12-a) and (12-b). Some modal verbs, like abilitative *umetj* ‘be able to, know how’, can be comparable to the phase verbs’ behavior. *Umetj* has the same requirements on its complements as the phase verbs above:

- (13) Ja umeju čitatj/ *pročitatj.
 I can^I.1sg. read^{I/*P}
 ‘I can read.’

As the phase verbs test is reliable, I am accepting it with no explanations at this point.

Present Tense readings

Another certain test is connected with the only interpretational possibility of the perfective verbs with present tense morphology, namely, the future interpretation. Compare the following verbs:

- (14) On *číta-jet* - On *pročíta-jet*
 he.NOM read^I.pres.3sg. - he.NOM Prf-read^P.pres.3sg.
 ‘He is reading - He will have read ...’

Even if perfective verbs can be interpreted habitually in the right contexts, they can never have a present progressive (or any progressive) interpretation; instead the event time itself is shifted to the future.

The tests above do justify the necessity of dividing the verbs into two big grammatically distinct groups. Yet they do not constitute a theory with explanatory power of its own, they are just a set of data. There have been numerous attempts to create a theory of perfectivity vs imperfectivity. However, none of them was successful enough as to give a satisfactory definition of the phenomenon in question. The definitions existing are either not formal enough or fairly contradictory. When a particular feature of perfectivity is highlighted in such accounts, other features go unnoticed or forgotten and become a source of criticism for the opponents of this or that account, which in its turn contains exactly the same flaw. While not aiming at giving an ultimate answer to the aspect in Russian, below I cite the present day theories with their contradictory conclusions.

1.2 Previous attempts to formalize (im)perfectivity

1.2.1 Non-reichenbachian definitions of aspect

It is not very easy to grasp the behaviors demonstrated by perfective and imperfective verbs above in a concise way, that is, in the form of a definition. Therefore, to find a good definition of outer aspect has been a real challenge for generations of Slavicists. Many words have been used in the attempt. They all sprang from conventional wisdom, as Klein (1995) puts it. According to Klein, most definitions are intuitive and metaphoric but do not grasp the phenomenon accurately enough. He divides all the definitions of aspect into three groups:

1. Perfective presents the action referred to in its totality, whereas imperfective lacks this feature
2. Perfective presents the action as completed, and imperfective presents it as not completed
3. Perfective implies an inner boundary, whereas imperfective does not

The first group of definitions is quite traditional and the most popular. Its proponents (Isačenko (1960), Comrie (1976), Filip (1999) and others) describe the Perfective aspect

as referring to the event observed from the outside. As a consequence, there cannot be any reference to the internal temporal constituency of a situation (Comrie (1976)), represented in its totality as a single indivisible whole (Filip (1999)). The imperfective aspect makes the internal temporal structure of an event observable from the inside. Thus it is describable from the point of view of its parts, where “part” is ‘understood in the sense of the weak ordering relation \leq ’ (Filip (1999):14). The problem with these definitions of aspect is that ‘totality’ of perfectiveness is not explained: probably, it is expected that the world knowledge of the reader contains the meaning of this term. However, Klein (1995):675 offers the following examples, noting that the imperfective verbs used in them do refer to the events (or states) in their totality:

- (15) a. Velikan Rodosa vesil sto tonn.
colossus.NOM. Rhodes.GEN. weighed^I.sg.ms. 100 tons.GEN.
‘The colossus of Rhodes weighed 100 tons.’
- b. Tridcatj let nazad litr piva stoil pjatj
thirty years.GEN. ago liter.NOM. beer.GEN. cost^I.sg.ms. five
kopejek.
copecks.GEN.
‘Thirty years ago a liter of beer cost 5 copecks.’
- c. Prošlju noč Ivan spal v komnate dlja
last.sg.fem.ACC. night.ACC. slept^I.sg.ms. I. in room.LOC. for
gostej.
guests.GEN.
‘Last night John slept in the guest room.’

Neither of the examples in (15) refer to the event observed from inside, as is appropriate for imperfectives, neither of them represents a non-total situation. The definitions of the first group also fail, because they predict that no reference to the internal temporal structure of an event is provided by perfective verbs. In multiply-prefixed verbs some of the internal temporal structure of the event can be parsed due to the morphological transparency of such verbs:

- (16) Ona po-vy-ry-va-la vse stranicy.
she DIST-out-tear-2IMPF-past^P.sg.fem. all pages.ACC.
‘She tore out all the pages (in portions).’

In (16) the secondary imperfective suffix *-va-* and the superlexical prefix with distributive entailment *po-* let us assume that the event repeated more than once and it must have been spread in time - thus its temporal structure is visible in spite of the perfectivity of the whole verbal predicate.

The second group of approaches is more or less characteristic of some Italian authors (Giorgi and Pianesi (2001), Bertinetto (2001)). They perceive perfective as referring to the terminated event or, in Bertinetto's terms, the event with the right boundary. The imperfective aspect thus cannot be described from the point of view of terminativity and the right boundary of an imperfective event 'lies outside the horizon of the language user' (Bertinetto (2001):183-184). The examples in (15) undermine this type of definition as well: all the events described in (15) are completed. As Klein (1995) puts it, it is not due to the events being placed in the past, for the grammatical tense must have nothing to do with aspect. To better demonstrate his point, he gives an example of an adverbially bounded imperfective predicate in the future (p.676):

- (17) Zavtra Severin budet rabotatj s dvux do pjati.
tomorrow S. will work^I.inf from two to five
'Tomorrow, Sévérine will work from two to four.'

Both boundaries are given in (17) by the adverbials. The point of completion is specified in spite of the imperfectivity of the verb. As a second weakness of this group of definitions, Klein notices that the point of completion is understood irrespective of a time span. Thus, he finds it necessary to mention that 'completion' has to be viewed relative to some time point, even if it's implicit. For him the definition 'PERF presents an action as completed' only makes sense when it means 'it is presented as completed at some time T.' The third weakness concerns an overly heavy focusing on the end of the situation made by this group of definitions. By doing so, it deprives, say, inceptives or motion verbs with source prefixes of the right to ever be perfective:

- (18) a. Ona zaprygala ot radosti.
she INCEP-jumped^P.sg.fem. from joy.GEN.
'She started jumping out of joy.'
b. On otbežal ot mašiny.
he aside-ran^P.sg.ms. from car.GEN.
'He ran aside from the car.'

The definitions offered in Smith (1997) belong to the third class of approaches. For Smith perfective events include both the initial and the final end-points; imperfective events, focusing a part of a situation, have neither end-points. As Klein (1995) again correctly notes, speaking about outer aspect in terms of internal boundaries equates it with the inner (lexical, situational) aspect. In the typology of Vendler (1967) all the verbs are divided into accomplishments, achievements, activities and states. The former two have natural boundaries (end-points), the latter do not. Both *pisatj pisjmo* 'write^I a letter' and *napisatj pisjmo* 'write^P a letter' would belong to Vendler's accomplish-

ment class, but they differ nevertheless in their outer aspectual characteristics (Klein (1995):677).

The definitions above are similar with respect to their treating perfective events as delimited, closed, such that their internal temporal structure cannot be accessible any more: usually because the action was completed having reached its (natural) end-point. Imperfective events have no boundaries, they are open and their internal temporal structure is possible to observe. Consequently, the flaws of the definitions above are similar: they lack precision and often do not offer any explanation of why this or that criterion has been used for distinguishing perfective vs imperfective aspect. The theory developed in Reichenbach (1947) presents the explanation of the ‘viewpoint’ approach to aspect via intricate relations between Event Time, Speech Time and Reference Time. Different researchers offer different relationship patterns between E, S and R - and so their representation of aspect in principle is similar to the definitions above with respect to versatility, but looks more formalized and systematized.

1.2.2 Definitions of aspect in terms of E, S and R

The Event Time (E), also called Situation Time (T-SIT) by some authors (Klein (1995)) or abbreviated as EV-T by others (Demirdache and Uribe-Etxebarria (2000), Ramchand (2004c)) is the actual time when the event takes place. It is expressed by the grammatical Tense in the sentence. The Speech Time (S) or Utterance Time (TU (Klein (1995), UT-T (Demirdache and Uribe-Etxebarria (2000), Ramchand (2004c)) is NOW. The idea of the Reference Time (R) or Assertion Time (T-AST, AST-T) was developed by Reichenbach from the original idea by Jespersen (1924) as the time required for accounting for perfect tenses (Giorgi and Pianesi (1997), Alexiadou et al. (2003)):

- (19) a. *John has left at six. E_R,S & at six(R)
 b. ^{OK} John had left at six E_R,S & at six(R)

Klein (1995):687 characterizes the time of assertion as ‘the time for which the assertion is made’. This is the deictic point relative to both E and S. Thus, E and S are never in immediate relation to each other. They are always mediated by R. Giorgi and Pianesi (1997) are the researchers treating E, S and R as points. The points on the time axis can only precede, follow each other or coincide with each other. It follows that there are two groups of relations possible as a consequence of such mediation: between S and R (T1) and between E and R (T2), various tenses being the result of composition of relation of a type T1 with a type T2 (Giorgi and Pianesi (1997):27):

- (20) T1: S_R future T2: E_R perfect
 R_S past R_E prospective
 (S,R) present (E,R) neutral

However, even if the system including the Reference time, R, was invented for accounting for perfect tenses, Giorgi and Pianesi (1997) encounter a serious problem of Future Perfect in English (they also refer to Comrie (1985) and Hornstein (1990)). The future perfect results from the combination of S_R and E_R:

- (21) John will have finished his manuscript by tomorrow.

Here both E and S precede R and the mediation of the latter between the former two is not possible. The Reichenbachian system has been criticized for its inability to correctly deal with aspect, which requires that time intervals can stand in the inclusion relation (Alexiadou et al. (2003)). So if one considers perfect an aspect, not a tense, and shares the criticism of the Reichenbachian system, one can look at the relations between E, R and S in a different way. Indeed, the majority of researchers approach E, S and R as intervals (Klein (1995), Demirdache and Uribe-Etxebarria (2000), Borik (2002)) related to each other via operators like 'WITHIN' (Demirdache and Uribe-Etxebarria (2000)) or 'INCLUDES' (Paslawska and von Stechow (2003)). As is known from the Neo-Davidsonian literature on events beginning with Parsons (1985), Parsons (1990), there is a variable e ranging over events, like in (22-b):

- (22) a. Mary saw John
 b. $\exists e[\text{Seeing}(e) \ \& \ \text{Agent}(m,e) \ \& \ \text{Object}(j,e)],$

in which $\text{Seeing}(e)$ means that e is an event of seeing, $\text{Agent}(m,e)$ means that Mary is the agent of that seeing event, and $\text{Object}(j,e)$ means that John is the object of the seeing (Parsons (1985):235). The time of event is not stated by the verb directly, it has to be elicited by a special function applied to e , the temporal trace function τ that maps the event on its run time (Krifka (1989), Krifka (1998)), 'the time at which an event is going on.' To be more accurate when speaking of aspect as a temporal relation, a number of authors (Pancheva (2003), Paslawska and von Stechow (2003), Ramchand (2004c)) use $\tau(e)$ instead of just E or EV-T. They express the R - E ordering as the superset - subset relation (Pancheva (2003)):

- (23) a. $i \subseteq \tau(e) = \text{Imperfective}$
 b. $\tau(e) \subseteq i = \text{Perfective},$

where i is a (reference) temporal interval. The same idea shows up in different (but similar) notations from author to author. For instance, Borik (2002) expresses the containment relations between R and E as $[_R E]$. This is a fixed relation. There are two more relations, however: between S and E (morphological tense) and between S and R (aspect). The former stand in the relation of overlap or precedence with each other, and thus two configurations are possible: present, when S and E overlap, and non-present, when either E precedes S or vice versa. If the event is imperfective, R includes the whole S - E affair:

- (24) a. *čital* ‘read^I.sg.ms.’
 b. $[_R E < S]$

If the verb is perfective, S is excluded from the immediate relation with R :

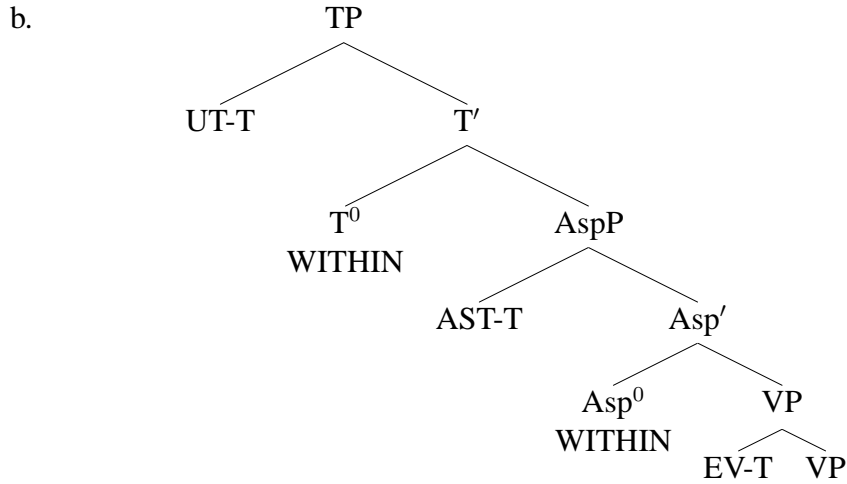
- (25) a. *pročital* ‘read^P.sg.ms.’
 b. $[_R E] < S$
 (Borik (2002):160)

A number of authors map the semantic relationships between the times onto their syntactic representation, following Zagana (1995), Stowell (1996) who view Tense as a predicate head taking two arguments, Z(eit) Phrases. The external ZP is the Reference time and the internal ZP is the Event time. Demirdache and Uribe-Etxebarria (2000) extend this proposal to aspect. They say (p.162, 164):

- (26) Both Tense and Aspect are dyadic spatiotemporal ordering predicates taking time-denoting phrases as arguments. The external argument of Aspect (Asp^0) is a reference time; its internal argument is the time of the event denoted by the VP.
- (27) Both T^0 and Asp^0 are spatiotemporal ordering predicates. The head of TP is a temporal ordering predicate with the meaning of AFTER for Past Tense and WITHIN for Present Tense (Stowell (1996)). The head of AspP is a spatiotemporal ordering predicate with the meaning of AFTER for Perfect Aspect and WITHIN for Progressive Aspect.

Thus, Present Progressive under this approach will be characterized by two WITHIN relations: first, progressive aspect places the time of event within the assertion time, then the assertion time is taken by the present T as its internal argument and placed within the time of utterance:

- (28) a. Henry is building a house.



Ramchand (2004c) develops this line of thought with two crucial differences. First, she treats E, R and S as points (like Reichenbach (1947) and Giorgi and Pianesi (1997)). Second, AspP binds the event variable introduced by the VP (the predicate over events) and introduces a Reference time, t (the predicate over times). This particular t is related to the event via the temporal trace function, which makes it possible to include t into the running time of the event. Thus, the relation will always be

$$(29) \quad t \in \tau(e)$$

This point of the event time in Asp can be definite or indefinite. Definite t characterizes perfectives, indefinite imperfectives:

- (30) a. $\llbracket \text{Asp} \rrbracket = \lambda P \lambda t \exists e: [P(e) \ \& \ t \in \tau(e)]$
Indefinite assertion time = *Imperfective Asp*
- b. $\llbracket \text{Asp} \rrbracket = \lambda P \lambda t [\text{there is a single unique moment } t_{def} \text{ in the event that is salient}] \exists e: [P(e) \ \& \ t = t_{def} \in \tau(e)]$
Definite assertion time = *Perfective Asp* (Ramchand (2004c):345)

Thus, the variety of definitions of aspect in the Reichenbachian terms of three times is comparable with the variety of less formal definitions. All the authors approaching aspect via R, E, S can be subdivided into those who treat them as points (Reichenbach (1947), Giorgi and Pianesi (1997), Ramchand (2004c)) and those who treat them as intervals (Klein (1995), Schoorlemmer (1995), Demirdache and Uribe-Etxebarria (2000), Borik (2002), Pancheva (2003), Paslawska and von Stechow (2003), Alexiadou et al. (2003) and others). Most of the authors agree that Reference time mediates between E and S, otherwise no ordering is possible (for example, future perfect in English). For many of them imperfective is represented as the superset relation between R and E and

perfective as the superset relation between E and R. Such an approach makes the internal temporal structure of the event inaccessible as was also pointed out in a lot of traditional literature on the viewpoint aspect. However, in the system developed in Borik (2002) it's not necessarily the case. For Borik (2002) it is important that S and R do not overlap when the verb is perfective and can overlap when the verb is imperfective; this approach accounts for non-distribution of perfect in the present tense, and mainly focuses on the relation between R and S rather than on the relation between R and E, more popular in the literature on aspect. Another deviation from the common picture is the analysis presented in Ramchand (2004c). The author describes the relation between the Reference time and the Event time in terms of function composition: a definite (for perfectives) or indefinite (for imperfectives) time point picked out from the running time of event by Asp and re-introduced by it as a temporal argument of Tense is simultaneously an Event time and a Reference time. The event time proper, though, cannot be considered a point.

The approaches above do make their contribution in the study of aspect; however each or them has problems, as will be demonstrated below.

1.3 Internal distinctions between types of imperfective

In this section I will show that imperfective verbs do not constitute an internally uniform aspectual class, even if they are clearly different from perfectives. On the view where aspect is described as a relation between the Reference Time and the Event Time, non-uniformity of imperfectives is surprising. Yet, the distinction within this class is a linguistic reality.

1.3.1 Many readings of imperfective

Russian Imperfective has a number of interpretations sometimes contradicting each other or the whole notion of imperfectivity³:

PROGRESSIVE

- (31) Kogda prišla Margarita, ja žëg svoju
 when came^P.sg.fem. M. I burned^I.sg.ms. self's.fem.ACC.
 rukopisj.
 manuscript.ACC.
 'When Margarita came, I was burning my manuscript.'

³General factual reading in (34), annulled result reading in (35) and experiential perfect reading in (37) are available only for imperfective verbs in the past tense.

SIMPLE

- (32) Okna gostinicy **vyxodili** na jug.
 windows hotel.GEN out-went^I.pl. on south.ACC.
 ‘The hotel windows faced south.’

HABITUAL

- (33) Každóje utro on **otkryval** okno.
 each morning.ACC. he.NOM. aside-covered^I.sg.ms. window.ACC.
 ‘Every morning he opened the window.’

GENERAL FACTUAL

- (34) On **pokazyval** mne jejě fotografiju.
 he showed^I.sg.ms. me.DAT. her photo.ACC.
 ‘He showed me her picture.’

ANNULLED RESULT

- (35) K tebjě kto-to **prixodil**.
 to you.DAT. someone.NOM. by-came^I.sg.ms.
 ‘Someone was here to see you.’

UNIVERSAL PERFECT

- (36) S dvuxtysjačnogo goda Aleksandra živět v Los Anželese.
 from 2000 year.GEN. A.NOM. lives^I in L. A.LOC.
 ‘Since 2000, Alexandra has lived in LA.’

EXPERIENTIAL PERFECT

- (37) Aleksandra byla v Los Anželese (ranjšě).
 A.NOM. was^I.sg.fem. in L. A.LOC. (before)
 ‘Alexandra has been in LA (before).’
 (examples (32) through to (35) are from Padučeva (1996)); examples (36) and
 (37) are translated from Pancheva (2003):277)

General factual, annulled result and experiential perfect imperfectives stand for events that have already taken place and can be argued to induce a result state. Tense-relatedness of these readings is the reason for competition for a distributional slot between some imperfectives and their perfective counterparts. I will discuss it further in the chapter. Now I would like to concentrate on the two most common imperfective interpretations:

progressive and habitual.

1.3.2 The Puzzle of Motion Verbs and two points of view

The availability of different interpretations of imperfective depends on its finely grained aspectual make-up. In this view, it is fair to speak about Progressive and Habitual aspectual characteristics of imperfective, for the vast majority of imperfectives are ambiguous between these two readings without additional contextual material (see also Delfitto (2004)). There is at least one group of imperfective verbs in Russian the members of which do not demonstrate this ambiguity. The group of verbs I am talking of is motion verbs. Motion verbs in Russian are divided into two subclasses: directed (DMV) and non-directed (NDMV). Morphologically DMV and NDMV share the same root but differ in a thematic vowel. Root suppletion is another way of encoding ‘directedness’ vs ‘non-directedness’:

(38)

Directed Motion Verbs	Non-directed Motion Verbs
<i>let-e-tj</i> ‘fly ^I .dir.’	<i>let-a-tj</i> ‘fly ^I .ndir.’
<i>idti</i> ‘walk ^I .dir.’	<i>xoditj</i> ‘walk ^I .ndir.’

Semantically, directed motion verbs stand for the motion along an uninterrupted path whose subparts are adjacent, therefore they yield a progressive reading only⁴; non-directed motion verbs stand for disjunct motion, the motion broken into subparts either spatially or temporally and depending on the type of disjunction they can have either progressive or habitual/iterative reading⁵:

- (39)
- a. Ja **begu** na zanjatija.
I **run^I.dir.1sg.** on classes.ACC.
‘I am running to the classes’.
 - b. Gde Bonzo? - Bonzo **begajet** po čužim
where B.NOM. B.NOM. **run^I.ndir.sg.ms.** about strange.pl.DAT.
dvoram.
yards.DAT.
‘Where is Bonzo? -Bonzo is running about other people’s yards.’
 - c. *Ona často **letit** v Moskvu.
she often **fly^I.dir.3sg.** in Moscow.ACC.
‘She often flies to Moscow’

⁴According to Padučeva (1996), there are other verbs that lack a habitual reading in their imperfective form, like degree achievements, *soxnutj* ‘get.dry’.

⁵I will discuss motion verbs in more detail in chapter 3.

- d. Ona često **letajet** v Moskvu.
 she often **fly^I.ndir.3sg.** in Moscow.ACC.
 ‘She often flies to Moscow.’

Non-directed motion verbs imply iteration even on their progressive instantiation. Each subevent in the event represented by the verb ‘fly’ in (40) covers exactly one circle around the tree⁶:

- (40) Drakon letajet vokrug dereva.
 dragon.NOM. flies^I.ndir. around tree.GEN.
 ‘The dragon is flying around and around the tree.’

Iterated events made from multiple resultative subevents like in (40) are clearly different from the traditional notion of ‘habituality’. I think it is more reasonable to use a term that would describe all the cases of the repetitive event phenomenon. I will call such cases ‘pluractional’ events without further explanations at this point (but see Chapter 5).

Returning to the discussion of the reichenbachian system, I must note that it seems difficult to solve the problem of imperfectivity using just Event time, Speech time and Reference time as the mediator between the former two, irrespective how one treats these times: as points or as intervals. If they are considered to be points, anchoring a progressive imperfective event (39-a) to a reference time becomes a trivial matter: the event is always in progress at some specific point on the time line. This is not the case for pluractional events, though (39-d).

The relation between Reference time and an imperfective event is not always correctly described, since imperfective contains such a lot of different interpretations part of which is connected with Tense. Take, for example, a formula below (Borik (2002)):

- (41) $[_R E < S]$

Such a formula would describe a progressive or even a universal Perfect interpretation of imperfective, but will inevitably fail when applied to experiential Perfect imperfective. Borik’s formalism would have identical representations for the latter and the perfectives:

- (42) $[_R E] < S$

The unclearness of the Reference Time in imperfectives is connected with different perspectives on the event provided by pluractional and progressive operators. The thing is that the Reference time does not exist independently of a speaker and is directly con-

⁶There are different ways of describing the phenomenon in (40). Under the view developed in Zwarts (2006) the cycles can connect and be concatenated into one singular increasing path. However, I still perceive the event in (40) as iterated, since even a circle has the beginning point and the end point.

nected with the individual perception of time. Consider the following picture:

(43)

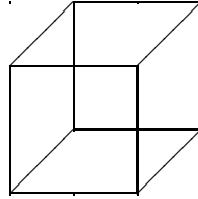


Figure 1.1: Different points of view

If you look at the cube for some time, your perspective changes: first it may look like the cube is standing on the ground and you see its upper surface from above, then it looks like the cube is hanging in the air and you look at its lower surface from below. It happens because the picture offers a two-dimensional image of the cube, the third dimension is added by our conceptual apparatus. The same happens with the Reference time: the formalism of E and S is schematic in a two-dimensional way; the third dimension, the Reference time, is added by our conceptual apparatus and we have an ambiguous subjective perception of the schematic image of the objective reality. The context can help us disambiguate between different readings of imperfectives, just like the placement of a cube in the real three-dimensional world would. And then it is clear that in reality there are different axes that define the way we perceive a cube. The same is true of imperfective events. With pluractional there is a bounded subevent, whose run time is included into the run time of the unbounded macroevent; progressive picks up a time point in the running time of the event. Thus, the pluractional operator picks out the event with the result state and makes a process (activity) out of it by multiplying it; progressive aspect can deal only with the process part of the event. Even if the comparison to the cube is not a good linguistic argument for the existence of more than one way of perceiving imperfectives, it is called for additional support for distinguishing between their progressive and pluractional instantiations.

However, the notion of imperfectivity that unites at least progressive and pluractional is a grammatical reality as we saw in section 1.1.2. There must be some common denominator in all the imperfective readings discussed above, which makes them clearly different from perfectives. It is problematic to call this denominator a Reference Time, for, as we have seen, it often fails the researchers in complying with all the possible imperfective interpretations. At this point I am not ready to offer a solution to the imperfective uniformity criterion. This is just the statement of the problem.

Here I summarize some readings of perfective and imperfective aspects and directed motion verbs in the table below⁷:

(44)

	Progressive	Habitual	Exp. P. and Annulled Res.
Impf	✓	✓	✓
Impf [+dirM]	✓	✗	✗
Perf	✗	✗/✓	✗/✓

At least two points can be seen from the table above.

- Directed motion imperfectives differ from both imperfectives proper and perfectives
- The progressive operator tolerates only imperfective verbs in its domain, whereas perfectives are never compatible with it.

So far, the Progressive reading of imperfectives seems to be what makes them belong together and differ from perfectives. Let's see what other angles are available for observing the evidence for the existence of these two aspects.

1.4 Internal distinction between types of perfective

As well as inside the class of imperfective verbs, there are distinctions inside the class of perfectives which cannot be detected morphologically. Most perfectives are formed with the help of prefixation. The type of prefix on the verb plays a crucial role in syntactic distribution and semantics of this perfective. As was briefly mentioned above, all the prefixes are divided into

- lexical
- superlexical

(Smith (1997), Babko-Malaya (1999), Romanova (2004a), Romanova (Forthcoming), Ramchand (2004c), Svenonius (2004a), etc.).

Lexical prefixes can be spatial, in which case an LP-verb is interpreted compositionally; or they can be idiosyncratic in meaning, in which case an LP-verb is interpreted idiomatically. The attachment of lexical prefixes gives rise to perfective accomplishments and achievements:

⁷If some readings for perfective are marked ✗/✓, it means that the typical pattern is negative but there are cases or contexts where this pattern can be violated

- (45) ACTIVITY: *bitj* ‘beat^I’ - ACCOMPLISHMENT: *vybitj* ‘knock^P out’
 ACTIVITY: *jexatj* ‘drive, ride^I’ - ACHIEVEMENT: *prijexatj* ‘arrive^P’

Most **superlexical prefixes** (SLPs) have characteristics of quantifying adverbials. They measure the event expressed by the host verb in different ways, or mark a specific phase within the macroevent (like the inceptive prefix *za-* or the terminative prefix *ot-*). An SLP-verb has only a compositional interpretation. The attachment of a superlexical prefix gives rise to all kinds of perfective aktionsarts (Vendlerian classes): activities, states, accomplishments and achievements, depending on the initial event type:

- (46) *ležatj* ‘lie^I’ STATE - *poležatj* ‘lie^P for a while’ PERF STATE
petj ‘sing^I’ ACTIVITY - *propetj* ‘sing^P for a specified amount of time’ PERF ACTIVITY
igratj ‘play^I’ ACTIVITY - *zaigratj* ‘start playing^P’ ACHIEVEMENT
stiratj ‘do laundry^P’ ACTIVITY - *perestiratj* ‘wash^P (everything)’ ACCOMPLISHMENT
otkrytj ‘open^P’ ACCOMPLISHMENT - *priotkrytj* ‘open^P a little’ ACHIEVEMENT?

Thus, lexical prefixes always change the event structure of the verb they attach to simultaneously changing its ‘outer’-aspectual characteristics; superlexical prefixes do not always change the event structure. However superlexical prefixes also always turn imperfective verbs they attach to into perfective verbs.

Lexically and superlexically prefixed verbs differ from each other at least along two criteria: a) passing telicity tests and b) formation of PPP:

- (47)

	Lexically prefixed verbs (LPV)	Superlexically prefixed verbs (SLPV)
Passing telicity tests	✓	depending on a prefix
Forming PPP	mostly yes	mostly no

In the following subsections I will show how telicity interacts with perfectivity in general and verbs with different types of prefix in particular. But first I need to introduce the notion of telicity as it is described in the literature.

1.4.1 On telicity

Inner aspect is often equated to telicity. Unlike perfectivity, which is presumably formed by grammatical means, telicity is considered to be a phenomenon of the lexical domain.

The verbs are supposed to come from the lexicon in one of the four (or more) varieties, based on the distinction made in Vendler (1967): activities (*work, read*), accomplishments (*build a house, write a letter*), states (*hate, sit*) and achievements (*win, find a key*). Activities and states are atelic events, accomplishments and achievement are telic events. The word ‘telic’ comes from Greek *telos* ‘purpose, end’. So, originally, telic events have *telos*, or end-point. Dowty (1979) decomposed the vendlerian events into semantic primitives DO, CAUSE and BECOME and characterized states, activities, accomplishments and achievements in terms of their cause-effect interaction:

(48)

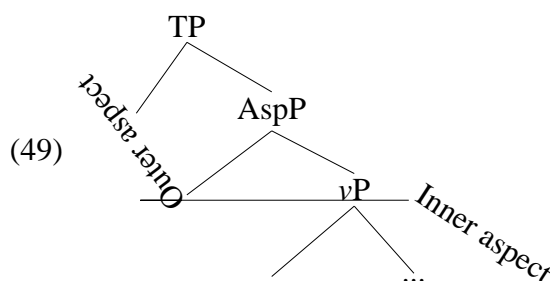
Atelic	Telic
states V (x1,..., xn)	achievements BECOME V(x1,..., xn)
activities DO(x1, V(x1,..., xn))	accomplishments DO(x1, V(x1,..., xn)) CAUSE (BECOME V(x1,..., xn))

Smith (1997) also isolates a class of semelfactives, which she characterizes as ‘dynamic, atelic, instantaneous.’ As already could be noticed from the bracketed examples above, there is a certain controversy in the notion of lexical aspect. It is often not just the verb alone that is said to belong to one of the vendlerian classes. Sometimes it must come with a complement to be counted as, say, an accomplishment. Dowty’s representation of events accounts for this fact: if DO, CAUSE and BECOME are predicates in their own right, each of them has to have something they predicate of. States, achievements and activities are ok with one argument, accomplishments must have at least two. Thus the level of characterization of the event shifts from V to VP. The shape of the complement is also an important factor in creating the properties of a telic or atelic event: thus, ‘write a letter’ is an accomplishment, because it has an endpoint, or a subject of BECOME predicate; whereas ‘write letters’ is an activity, having no endpoint and no subject of BECOME and therefore no BECOME.

Similar facts underlie the theory of compositional aspect by Verkuyl (1972), Verkuyl (1993). For Verkuyl, aspect can be made up minimally at the level of a VP, and it does not have anything to do with the ontological meaning of separate verbs, which he considers philosophy blurring the linguistic picture. Thus, the verb ‘write’ is characterized by the property [+ADD TO], the noun ‘a letter’ is characterized by the property [+SQA], ‘letters’ by [-SQA]. ‘The [+ADD TO]-property of the verb expresses dynamic progress, change, nonstativity or whatever term is available to distinguish it from stative verbs, which have a minusvalue. The [+SQA]-feature expresses that the NP pertains to a specified quantity of things or mass denoted by its head noun’ (Verkuyl (2002):203). To

yield a telic interpretation, both the verb and the noun have to be characterized by positive values.

It seems to be important to take a stance with respect to the level at which telicity is determined. Once you exclude the level of V, the picture is more or less neat and could be fit into the scheme most researchers follow (Verkuyl (2002), Pancheva (2003), Ramchand (2004c)), namely: everything up to the level of VP (or *v*P) belongs to the domain of lexical aspect (telicity) and the aspectual value of this level, or the event time, discussed in the previous section, is what is passed on to the higher domain of grammatical aspect:



However, when a prefix is added to an imperfective verb, often an activity or a state, the verb becomes both, a) perfective; b) an accomplishment or an achievement. In addition, the compositionality of inner aspect becomes irrelevant - on attaching a prefix the verb is telic irrespective of the shape of its complement. It looks as though the neat boundary between the inner and outer aspects is washed away. However, the consequences of prefixation are not so catastrophic as they seem. The line dividing the tree in (49) in two aspectual domains, is simultaneously the boundary between two classes of prefix. Lexical prefixes in (49) originate below this borderline. Superlexical prefixes would typically originate above the borderline in (49). As will be seen from the following subsections, the site of attachment of a prefix has consequences for telicity of its host verb.

1.4.2 Lexical prefixation and telicity

As was claimed at the end of the previous section, lexically prefixed verbs are always telic. How do we know that? In this section I am going to mention one popular test for telicity: the time adverbials test⁸. As the time adverbial ‘in an hour’ is supposed

⁸The progressive entailment test is based on the notion of homogeneity. The event is homogeneous (and thus, atelic) if all the subevents constituting it are not different from the event itself and therefore the ongoing event always entails that some part of it has happened. Non-homogeneous events (telic) are made up by the subevents which are different from the event itself, and the ongoing event cannot entail

to measure a bounded time span, it is natural to apply it to the events with an inherent end-point, like accomplishments. As the time adverbial ‘for an hour’ measures an event that lasts in time, it is natural to apply it to the atelic events, like states and activities (Dowty (1979)). It is more problematic when ‘in an hour’ is applied to achievements or to semelfactives, for both are rather short lasting and therefore hard or impossible to measure. Using this test alone, we get the following results for unprefixing and lexically prefixed verbs in Russian:

(50)

	Unprefixed	Prefixed
States	<i>znatj otvet poldnja</i> ‘know the answer for half a day’	<i>priznatj *(ošibku) za pjatj minut</i> ‘confess a fault in five minutes’
Activities	<i>guljatj dva časa</i> ‘have a walk for two hours’	<i>vyguljatj *(sobaku) za dva časa</i> ‘walk a dog in two hours’

It is not correct to term the prefixed verbs in the table still states or activities; on prefixation they clearly change the status and become achievements (‘confess’)⁹ and

that part of the event has already happened:

- (i) a. He is running. → He has run.
b. He is dying. → He has died.

Borik (2002) employs this test for Russian in the following way:

- (ii) Petja iskal knigu polčasa → Petja iskal knigu
P. looked.for^I.sg.ms. book.ACC half.hour.ACC P. looked.for^I.sg.ms. book.ACC
pjatnadcatj minut.
fifteen minutes.GEN
‘Petja was looking for a book for half an hour → Petja was looking for a book for fifteen minutes.’

I do not use this test here, because unlike in English, in Russian time adverbials should be included in the VP (ii) to make the test work. Thus, it is unclear what is being tested, telicity of VP or cumulativity of the time adverbial.

⁹Therefore the time adverbial used in the table with the verb ‘confess’ might sound bad to some speakers. Such adverbials as *totčas že* or *nemedlenno*, both meaning ‘immediately’, would go better with it. Beavers (in press) offered a test for punctual events in English:

- (i) The settler will cross the border in two hours.

accomplishments ('walk a dog'). As a consequence, they acquire an obligatory direct object even if prior to prefixation they were intransitive, like *guljatj* 'walk'. And as another consequence, the verbs are perfectivized. On the other hand, it is not correct to claim that only activities and states can be imperfective: accomplishments and achievements can be imperfective as well. For example,

- (51) a. Po utram on **vygulivajet** svojego kota.
 about mornings.DAT. he.NOM. **out-walks^I** self's.ACC. cat.ACC.
 'He walks his cat in the mornings.'
 b. U menja v komnate **umirajet** osa.
 at me.GEN. in room.LOC. **dies^I** wasp.NOM.
 'There is a wasp dying in my room.'

As you can see from (51-a), the accomplishment from the table is used habitually, which was facilitated by its imperfectivization. Now I will not develop a discussion of why lexically prefixed accomplishments obligatorily require direct objects: it is clearly a result of prefixation (see Chapter 2). It has to be checked if lexically prefixed verbs are telic, perfective or both. As was seen from the table above, they are telic according to the time adverbials test. If the valid perfectivity tests are applied to them, they come out as clearly perfective as well. The example in (52-a) demonstrates PAP test, in (52-b) PHASE VERBS test and in (52-c) FUTURE INTERPRETATION test:

- (52) *vyguljatj sobaku* 'walk a dog'
 a. **vyguljajuščij* sobaku
 out-walking^P.sg.ms.NOM. dog.ACC.
 'walking a dog'
 b. *On *perestal* *vyguljatj* sobaku
 he.NOM. stopped^P.sg.ms. out-walk^P.inf dog.ACC.
 'He stopped walking the dog.'
 c. On *vyguljajet* sobaku.
 he.NOM. out-walks^P dog.ACC.
 'He will walk his dog.'

Yet, telicity and perfectivity belong to different semantic and syntactic domains. The former basically represents the event structure reflected in the first phase syntax (below the borderline in (49); see also Ramchand (2006)), the latter is closer to the temporal system of the clause. Thus, telicity cannot be analyzed on a par with perfectivity, first

If the event is durative, the time adverbial measures its duration; if the event is punctual, the time adverbial marks the initiation point of the event in the future. Unfortunately, this test does not work in Russian, because we use a different preposition for the future reference.

and foremost, because these two phenomena apply at different levels. I am going to limit my terminology concerning the *vP*-domain to the event structure. On lexical prefixation the event structure definitely changes, once Dowty's BECOME gets added to an activity or a state. For the present purposes the presence or absence of this resultative part in the event structure of a predicate is crucial.

1.4.3 Superlexical prefixation and telicity

As was said in section 1.4.1, superlexical prefixes do not always change the event structure of the verb. This has been noticed in the literature before. For example, Borik (2002) in her dissertation showed that there is no two-way entailment between perfectivity and telicity. To demonstrate the point, Borik (2002) chose two superlexical prefixes, delimitative *po-* and perdurative *pro-*. It turned out, the verbs prefixed with *po-* and *pro-* can be modified only by the 'for an hour' adverbial:

- (53) a. Petja poiskal knigu polčasa.
 P. DEL-looked.for^P.sg.ms. book.ACC. half.hour.ACC.
 'Petja looked for a book for half an hour.'
 b. Petja prosidel v tjurjme pjatj let.
 P. PERD-sat^P.sg.ms. in prison.LOC. 5 years.GEN.
 'Petja has been in prison for 5 years.'

These adverbials cannot be easily omitted, so, regardless of the account for this phenomenon, they would rather not be used as a test for telicity:

- (54) a. Petja poiskal knigu ?(polčasa).
 b. Petja prosidel v tjurjme *(pjatj let).

Remaining agnostic of their 'rough' telicity status, I am positive about the perfectivity of superlexically prefixed verbs. The verbs below fail the PAP test in (55-a) and the PHASE VERB test in (55-b), since they are perfective:

- (55) a. *poiščuščij, *prosidjaščij
 DEL-looking.for^P.sg.ms.NOM., PERD-sitting^P.sg.ms.NOM.
 '*looking for for a while', '*sitting for a specified amount of time'
 b. *Petja načal poiskatj knigu/ prosidetj v
 P. started^P.sg.ms. DEL-look.for^P.inf book.ACC./ PERD-sit^P.inf in
 tjurjme.
 prison.LOC.
 '*Petja has started looking for a book for a while/ sitting in prison for a specified amount of time.'

'Look for' is an activity, so is 'sing', and they do not have BECOME predicate in their structure even after attachment of the superlexical prefixes. While lexically prefixed perfectives have result state Perfect readings, this is not true of superlexically prefixed verbs. Compare:

- (56) a. Alëna spela romans.
A.NOM. PRF-sang^P.sg.fem. romance.ACC.
'Alëna sang a song.'
- b. Nastja popela i ušla guljatj.
N. DEL-sang^P.sg.fem. and away-went^P.sg.fem walk.inf.
'Nastja sang for a while and went for a walk.'

In (56-a) the prefix *s-* describes the result state that holds of its subject, the song, at the moment of speech. In (56-b) there is no result state. The perfective verb only describes a situation in which Nastja sang for a while. This can be better demonstrated with the help of past passive participles: they describe the result state and therefore can be formed only out of the lexically prefixed verbs. The PPP for (56-a) is readily derived from the corresponding verb (57-a). The PPP for (56-b) is impossible:

- (57) a. *spetyj (Alënoj) romans* 'a romance sung by Alëna'
b. **popetyje pesni* '*songs sung for a while'

In other words, having no resultative subevent, the activity remains activity, even if it is bounded. The perdurative verbs can even bear an interpretation corresponding to the English Perfect Progressive¹⁰, which creates an exception out of the rule (otherwise, this interpretation is available only to imperfectives, as I showed in subsection 1.3.1). Thus, the attachment of a prefix does not always bring about the result state, although it always turns an imperfective verb into a perfective one. I will follow the intuition of many authors before, who refused to mix telicity and perfectivity (see Smith (1997), Borik (2002), Bertinetto (2001) etc.). There are at least two clear patterns in the behavior of perfective verbs, depending on the type of prefixation they undergo¹¹:

(58)

	Result state (PPP formation)	'in an hour' modification (‘rough’ telicity)
Lexically prefixed V	✓	✓
Superlexically prefixed V	✗	depends on a prefix

¹⁰This reading is usually termed U(niversal)-Perfect (Pancheva (2003)).

¹¹Note that some superlexical prefixes do not disallow PPP formation, like distributive *pere-* and cumulative *na-*

1.4.4 Perfectivity and presupposition

Thus, perfectives are not uniform either. However, they do form a separate class, as we have seen from their distributional patterns. This means there is a common denominator in all the perfective verbs. To capture this common denominator, I will have to compare perfectives and imperfectives describing the same situation, and see why one aspectual instantiation of the verb is not sufficient.

There has been a debate in cognitive semantics literature about the competition of two aspects in Russian because of the easy mutual substitutability of the perfective and imperfective verbs in some contexts, like general factual. Consider the perfective in (59-a) and the imperfective in (59-b):

- (59) a. Direktor uže **vystupal**.
director.NOM. already **performed^I.sg.ms.**
'The director has already spoken.'
- b. Direktor uže **vystupil**.
director.NOM. already **performed^P.sg.ms.**
'The director has already spoken.'

However, there is a meaning difference between an imperfective and a perfective verb, revealed in negative and common question contexts:

- (60) a. Ty **pokazal** jej eto pisjmo?
you showed^P.sg.ms. her.DAT. this.nt.ACC. letter.ACC.
'Have you shown her this letter?' = 'It was expected that you had to show the letter, so, have you?'
- b. Ty **pokazyval** jej eto pisjmo?
you showed^I.sg.ms. her.DAT. this.nt.ACC. letter.ACC.
'Have you shown her this letter?' (Padučeva (1996):53) = 'Is it true that you have shown you this letter?'
- (61) a. Ja ne **vyzyval** taksi.
I not **out-called^I.sg.ms.** taxi.ACC.
'I haven't called a taxi.' = 'I haven't even called for a taxi.'
- b. Ja ne **vyzval** taksi.
I not **out-called^P.sg.ms.** taxi.ACC.
'I haven't called a taxi.' = 'I might have called for a taxi, but didn't come through' or 'I was supposed to call for a taxi, but I didn't do it.'
- c. Universiteta Bernard Shaw ne **končal**.
university.GEN. B. S. not **finish^I.sg.ms.**
'Bernard Shaw didn't graduate from the university.' = 'He never studied

at the university.’

- d. Universiteta Bernard Shaw ne **končil**.
 university.GEN. B. S. not finish^P.sg.ms.
 ‘Bernard Shaw didn’t graduate from the university.’ = ‘He studied at the
 university, but didn’t graduate.’

‘The content of an expression divides into an asserted and a presupposed part.’ (Geurts (1999):24). Presupposition, or ‘givenness’ of information, is triggered by multitude of factors. So-called aspectual verbs, ‘begin’, ‘start’ and ‘continue’, in English are considered to be such presupposition triggers (Geurts (1999)). It is not surprising that there is a component in the semantic constitution of a Russian perfective verb that does the same work: triggers presupposition. Padučeva (1996) claims that it is the activity component of perfectives that constitutes the presupposition. The resultative component, or in Padučeva’s terms, ‘reaching the boundary’-component, is the asserted part of the meaning of perfective verbs. Geurts (1999) offers a system of tests distinguishing presuppositional expressions from mere assertions or implicatures, labeling them ‘PTB’: Projection Test Battery. For the present purposes and for the purposes of the illustration of Geurts’ idea, it is enough to mention only the first stage of his PTB:

Let $\varphi\{\chi\}$ be a sentence containing a candidate presupposition trigger, which induces the inference that χ is true. So if φ contains the definite NP *the Queen*, then χ is that there is a Queen; or if φ is the *it*-cleft in (62), then χ is that someone called the police.

- (62) It is Fred who called the police.

In order to establish if χ is a presupposition, we enter stage one of the PTB: we must check if sentences like the following would normally imply that χ is true:

- (63) not $\varphi\{\chi\}$
 it is possible that $\varphi\{\chi\}$
a believes that $\varphi\{\chi\}$
 if $\varphi\{\chi\}$ then ψ
 either $\varphi\{\chi\}$ or ψ ’

(Geurts (1999):5)

Geurts agrees that the context of a negation or modal operator should be natural to infer that χ is true. Padučeva (1996) also considers yes-no questions to be a test for

presupposition. When there is a presuppositional element present in the meaning of perfective events, it does not get under the scope of negation or interrogative operator. If in imperfectives it is the whole event that is questioned or negated, in perfectives it is only the asserted component of their meaning, that is, ‘reaching-the-boundary’ component. While the whole approach seems to me intuitively right, there are two notes to be made. First, I agree with Geurts (1999) that scope and presupposition can be phenomena of two different characters, one of syntactic, the other of pragmatic. They do often overlap, however to be accurate and not to mix notions I will refrain from speaking of scope in the context of presupposition. Second, it is not true that only resultative verbs or the verbs with ‘reaching-the-boundary’ component, can bear the presupposition of perfectives. Superlexically prefixed verbs, including inceptive *za*-verbs, do as well. In fact, this is one thing which makes all perfectives a uniform class¹²:

- (64) a. Tonja ne **zapela** svoju pesnju.
 T. not **INCEP-sang^P.fem.sg.** self’s.fem.ACC. song.ACC.
 ‘Tonja didn’t start to sing her song (contrary to the expectation).’
- b. Ja ne **počitala** putevoditelj (i zabludilasj).
 I not **DEL-read^P.sg.fem** guide.ACC. (and got.lost^P.sg.fem)
 ‘I haven’t consulted the guide (and got lost)’ = ‘I had a guide, was expected to read it, but didn’t.’
- c. Ja ne **čitala** putevoditelj.
 I not **read^I.sg.fem** guide.ACC.
 ‘I haven’t read the guide.’ = ‘I might not even have a guide, so I didn’t read it.’

There is no ready-made explanation for the arising of presuppositions in literature. Geurts (1999):28 writes:

The content of an utterance is complex, not only at sentence level but also below that; even the content of a single word will rarely be a simple matter. In view of this complexity, it is natural that the interlocutors will concentrate their attention on selected parts of the content conveyed by an utterance; the rest is of secondary importance, it is backgrounded. There may be many factors that can influence this selection process, but once the focal points have been identified, what remains tends to be presupposed.

Thus, irrespective of the event structure that is achieved by prefixation, perfective verbs must have a complex semantic structure, where one part is asserted, the other is

¹²The presupposition of the perfective verb in (64-a) has nothing to do with reaching the boundary. It is an inceptive verb and the presupposition here is that Tonja was expected to start singing a song.

presupposed. There is no one-to-one correspondence of the asserted activity part to the stem of a perfective verb and of the presupposed part to the prefix. The presupposition is present even in unprefixated perfectives:

- (65) Ty kupila xleb?
 you.sg.NOM. bought^P.sg.fem. bread.ACC.
 ‘Did you buy bread?’ (‘You were supposed to.’)

This division into assertion and presupposition is absent from imperfectives, even from habituals that do not represent a monodimensional event. Presuppositionality is clearly a phenomenon that belongs to the domain of perfectivity-imperfectivity rather than to the domain of the internal event structure¹³.

1.5 Aspect and objecthood. The data

In some non-Slavic languages the aspectual interpretation of a VP structure depends on the make-up of a direct object of the verb (in these languages it is impossible to say if the aspect in question is outer or inner). Compare the following English and Finnish examples in (66) and (67) to the Czech and Bulgarian examples in (68) and (69):

- (66) English
 a. John ate apples for an hour/ *in an hour.
 b. John drank wine for five minutes/*in five minutes.
 c. John ate the apples *for an hour/ in an hour.
 d. John drank the wine *for five minutes/ in five minutes.
- (67) Finnish
 a. Jussi söi perunoita tunnin/*tunnissa.
 J. ate potatoes.PART. hour.ACC./hour.INE.

¹³The connection between presupposition and perfectivity requires more research. For example, it is difficult to test some superlexically prefixed verbs with respect to presuppositionality: they fare badly in common questions and negative sentences:

- (i) a. ??Ja ne pereslušala vse pesni etoj gruppy.
 I not DIST-listened^P.sg.fem. all songs.ACC. this.fem.GEN. band.GEN.
 ‘I haven’t listened to all the songs by this band.’
 b. ??On ne nadaril jej podarkov.
 he not CUM-presented^P.sg.ms. her.DAT. gifts.GEN.
 ‘He didn’t give her a lot of presents.’

I am appealing to presupposition here as one of the clear ways of distinguishing between the two aspects.

- ‘Jussi ate potatoes for an hour/ *in an hour.’
- b. Jussi söi perunat *tunnin/tunnissa.
 J. ate potatoes.ACC. hour.ACC./hour.INE.
 ‘Jussi ate the potatoes *for an hour/ in an hour.’

In English the definiteness of the object affects the choice of a time adverbial, which is supposed to be testing ‘rough’ telicity, or the telicity of the whole VP structure. In Finnish the case of the object defines the aspectual interpretation of the VP and, consequently, the adverbials used. However, in Slavic the direction of influence seems to be the reverse. For example, in the Czech examples below the object looks the same in both cases, but the aspect of the verb changes, as can be seen from the prefix on it, and, contrary to (66) and (67), the object’s reading depends on the aspect of the verb. But similarly to English, the object of the perfective verb gets a definite interpretation:

- (68) a. Ota pil vino.
 O. drank^I.sg.ms. wine.ACC.
 ‘Ota drank wine/?the wine.’
- b. Ota vypil vino.
 O. drank^P.sg.ms. wine.ACC.
 ‘Ota drank the wine/*wine.’

It is true that most Slavic languages lack overt determiners of the type of English articles. However, even for the languages with articles, like Bulgarian, (perfective) aspect has been claimed to be the source of quantification over NPs (Di Sciullo and Slabakova (2005)):

- (69) xudožnikət **na-risuva** **kartini** i izleze da gi
 painter.def **Prf-paint^P.aor.3sg. pictures** and out-went^P.3sg. that them
 prodade na ulicata
 sell^P.3sg. on street.def
 ‘The painter painted some pictures and went out to sell them in the street.’
 (Di Sciullo and Slabakova (2005))

According to Di Sciullo and Slabakova (2005), in (69) the plural object of the perfective verb ‘paint’ *kartini* ‘pictures’ has a strong reading even without the definite article (although, ‘strong’ here rather means ‘specific’).

In the following two subsections I am going to investigate the question whether perfectivity and imperfectivity of the verbs affects their direct objects in Russian.

1.5.1 Object interpretation and verbal aspect: perfectives

Naturally, the patterns cited from Czech are also observed in Russian:

- (70) a. Andrej pererézal provoda.
 A. across-cut^P.sg.ms. wires.ACC.
 ‘Andrej has overcut certain/the wires.’
 b. Liza vypila vino.
 L. out-drank^P.sg.fem. wine.ACC.
 ‘Liza drank the wine.’

Without overt quantifiers it is really difficult to show that the object is definite or specific - in (70) I am relying on my native intuitions¹⁴. In some cases of lexically prefixed verbs the object NP is interpreted as definite, in some as specific, and the boundary between these two interpretations is really thin in Russian. I will call it ‘strong’ as opposed to ‘weak’, non-specific indefinite.

Diakonova and Romanova (2003) used a number of tests for distinguishing strong NPs from weak NPs:

SCOPE: Op_y [articles(y)] Every_x [student(x)] x read y

- (71) Každýj student dočital statji.
 each student up.to-read^P.sg.ms. articles.ACC.
 ‘Every student read the (same set of) articles to the end.’

SCRAMBLING

- (72) Statji Rizzi studenty dočitali.
 articles R.GEN. students.NOM. up-to-read^P.pl.
 ‘The students have finished the articles by Rizzi.’

DP-EXTRACTION

- (73) ??O čěm Tanja vyčitala informaciju?
 about what.LOC. T.NOM. out-read^P.sg.fem. information.ACC.
 ‘*About what did Tanja read the information?’

¹⁴The situation described in (70-a) could be the following. A family bought a new air conditioner. It’s impossible to install before the old one is eliminated. The problem is, the wires of the old conditioner are not detachable from the socket anymore. After the repairs the socket is not active and is under a very heavy cupboard. So, the sentence ‘Andrej cut certain/the wires’ describes a long-awaited event for installing the new equipment. In other words, it implies the knowledge of a particular entity (‘wires’) on the part of a speaker, or specificity of the NP.

The SCOPE test shows that the object DP raises at LF to some operator, therefore it has a wide scope in the sentence in (71). Such a behavior is shared by definite and specific indefinite NPs (Hallman (2004), Ionin et al. (2003)). For some reason, with plural objects this test seems to work only with the verb ‘read’, therefore it is not reliable.

The SCRAMBLING test is designed along the lines of Diesing (1992) and her Mapping Hypothesis: object DPs can leave their VPs and raise, now overtly, to the operator inducing a definite or specific interpretation.

The DP-EXTRACTION test is based on the idea that definite DPs form islands and cannot be extracted from (Ross (1967)). However, islands vary in extractability; weak islands allow extraction from them; thus, this test should also be applied carefully.

Applying SCRAMBLING and DP-extraction tests to the sentences in (70) we get the following results. Examples (74-a) and (74-c) demonstrate that the DP objects of the perfective verbs can scramble; examples (74-b) and (74-d) show poor acceptability of these DPs with extracted Wh-words. Both behaviors testify for the definiteness or specificity of these DPs:

- (74) a. Provoda Andrej pererezal (a rozetki ne
wires.ACC. A.NOM. across-cut^P.sg.ms. (but sockets.ACC. not
zamenil).
exchanged^P.sg.ms.)
‘The wires Andrej overcut (but the sockets he didn’t change).’
- b. ??Ot čego Andrej pererezal provoda? (Ot
from what.GEN. A.NOM. across-cut^P.sg.ms. wires.ACC. from
kondicionera)
conditioner.GEN.
‘*Of what did Andrej overcut the wires?’ (of the air conditioning)
- c. Vino Liza vypila (a k mineraljnoj vode
wine.ACC. L.NOM. out-drunk^P.sg.fem. (but to mineral water.DAT.
ne pritrulasj).
not touched^P.sg.fem.)
‘The wine Liza drank up (but she didn’t even touch the mineral water).’
- d. ??Iz čego Liza vypila vino? (Iz
out.of what.GEN. L.NOM. out-drunk^P.sg.fem. wine.ACC. out.of
vinograda Kaberne)
grapes.GEN. K.
‘*Of what did Liza drank up the wine?’ (made of Cabernet)

The same sentences can be uttered with overt quantifiers:

- (75) a. Andrej pererézal vse provoda/ mnogo provodov.
 A. across-cut^P.sg.ms. all.ACC. wires.ACC./ many wires.GEN.
 ‘Andrej has overcut all the wires/ many wires.’
 b. Liza vypila vsë vino/ mojë vino.
 L. out-drunk^P.sg.fem. all.ACC. wine.ACC./ my.ACC. wine.ACC.
 ‘Liza drank all the wine/ my wine.’

One construction demonstrates a clear contrast between the strong object DP in (70-b) and (75-b) and the non-specific indefinite object in (76): this is a construction with the partitive genitive complement of a perfective verb:

- (76) a. Liza vypila vina.
 L. out-drunk^P.sg.fem. wine.GEN.
 ‘Liza drank some wine.’
 b. *Liza vypila vsego vina/ mojego vina.
 L. out-drunk^P.sg.fem. all.GEN. wine.GEN./ my.GEN. wine.GEN.
 intended ‘Liza drank some of the wine/ some of my wine.’

The construction with the genitive case on a bare mass noun in (76) is not very typical, it is characteristic of some verbs, whose non-superlexical prefixes have lost much of their lexical content. This construction is nearly obligatory with the superlexical cumulative prefix *na-*:

- (77) Liza **nastroila** (kuču) planov na vyxodnyje, no
 L. **CUM-built** (pile.ACC.) plans.GEN. on weekend.ACC. but
 vypitoje v pjatnicu vino ne dalo im
 drunk.PPP.sg.nt.NOM. in friday.ACC. wine.NOM. not gave^P.sg.nt. them.DAT.
 vplotitjsja.
 realize.self^P.inf
 ‘Liza built a lot of plans for the weekend, but the wine she had drunk on Friday,
 kept her from realizing them.’

So, not all perfective verbs have strong DP objects; but so far, in the examples above the objects were quantified in some way. In the example below it is not true anymore:

- (78) Ja počitala (*vse) anekdoty/ *mnogo anekdotov i
 I **DEL-read**^P.sg.fem. (all) anecdotes.ACC./ many anecdotes.GEN. and
 usnula.
 fell.asleep^P.sg.fem.
 ‘I read (*all/ *a lot of) anecdotes for a while and fell asleep.’

The bare object of the delimitative verb in (78) is not definite or quantified in any way (Diakonova and Romanova (2003)), neither can it occur with overt quantifiers. The generalization at this point is:

Lexically prefixed perfective verbs induce some quantification on their direct objects and tolerate overt quantifiers; superlexically prefixed verbs should be treated separately from lexically prefixed ones, and separately from each other. Perfectivity per se does not seem to be hiding covert quantifiers all over the area of its influence.

1.5.2 Object interpretation and verbal aspect: imperfectives

Quantified NPs are impossible as complements of progressive imperfectives (Wierzbicka (1967), Padučeva (1996)). Even the secondary imperfective of the verb from (75-a) does not tolerate quantified complements when used progressively:

- (79) *Andrej **pererezál** vse provoda/ **mnogo** provodov
 A. **across-cut^I.sg.ms. all.ACC.** wires.ACC./ **many** wires.GEN.
 včera v semj utra.
 yesterday in seven morning.GEN.
 ‘* Yesterday at seven in the morning Andrej was cutting all the wires/ many wires over.’

The generalization holds of both types of imperfectives, primary and secondary, whenever they get a progressive reading. Padučeva (1996):182 gives a lot of ungrammatical examples of progressive primary imperfectives with quantified objects:

- (80) a. *V tot moment on **jel** **nemnogo** buljona.
 in that.ms.ACC. moment.ACC. he **ate^I.sg.ms. a.little** broth.GEN.
 ‘*He was eating a little broth at that moment.’
 b. *V eto vremena on **pil** **stakan** vody.
 in this.nt.ACC. time.ACC. he **drank^I.sg.ms. glass.ACC.** water.GEN.
 ‘*At that point he was drinking a glass of water.’
 c. *On **prinimajet tabletku** aspirina.
 he **by-takes^I pill.ACC.** aspirin.GEN.
 ‘*He is taking a pill of aspirin.’
 d. *On sidel za stolom i **jel** **neskoljko**
 he sat^I.sg.ms. behind table.INSTR. and **ate^I.sg.ms. several**
 sliv.
 plums.GEN.

‘*He was sitting at the table and eating several plums.’

- e. *Ja **čitaju** **tri** stranicy.
 I **read^I.pres.1sg. three** pages.GEN.
 ‘*I am reading three pages.’ (Padučeva (1996):182)

Only progressive imperfectives are incompatible with quantified objects. When the imperfective has a habitual instantiation, the compatibility is there:

- (81) a. On **inogda** **s’jedajet** **nemnogo** buljona.
 he **sometimes Prf-eats^I a.little** broth.GEN.
 ‘Sometimes he eats a little broth.’
 b. On **pjët** **stakan** moloka **v denj**.
 he **drinks^I glass.ACC.** milk.GEN. **in day.ACC.**
 ‘He drinks a glass of milk a day.’

This is a point of view under which the incompatibility of a certain aspectual interpretation of the verb with a certain type of an object is verb-centric. There is another way of looking at the phenomenon. It is not that progressives are incompatible with quantification, whereas habituals are; rather, the make-up of objects defines what interpretation an imperfective verb will get. Sometimes just the plurality of the object suffices for this end. If I say *Ja čitaju romany* ‘I read novels’, it is clear that the interpretation of the imperfective verb ‘read’ is non-progressive, contrary to *Ja čitaju roman* ‘I am reading a novel’, which cannot be habitual (unless an attractive context forces it to be). In fact, in Chapter 3 I will argue that the pluractional interpretation of non-directed motion verbs is induced by a path with a special shape (Z-path).

Another case when the interpretation of the imperfective verb depends on the shape of its object is when a plural object makes a distributive reading of the event possible (and, correspondingly, a singular object does not):

- (82) a. On brosal kamenj.
 he threw^I.sg.ms. stone.ACC.
 ‘He was throwing a stone.’
 ITERATIVE/ *DISTRIBUTIVE
 b. On brosal kamni.
 he threw^I.sg.ms. stones.ACC.
 ‘He was throwing (the) stones.’
 ITERATIVE (COLLECTIVE)/ DISTRIBUTIVE

Thus, the progressive-habitual split of imperfectives is also justified by their different behavior with respect to their objects. The generalization at this point is:

Progressive imperfectives do not tolerate quantified DP complements, whereas pluractional imperfectives do.

The alternative way of looking at imperfectivity and objecthood is via the influence of the object DP structure on the interpretation of the verb; English-style but finer-grained.

1.6 Background to Lattice Theory

To be able to explain the intricate relations between the verb and its objects, I will need a powerful theoretical tool. A number of researchers (Link (1983), Bach (1986), Krifka (1989), Landman (1991), Krifka (1992), Krifka (1998), Landman (2000), Landman (2004)) looked into the problem from the perspective of Lattice Theory.

1.6.1 (Semi-)lattices and algebraic relations

Lattices are relational structures (partial orders). In a partial order, $\langle A, \leq \rangle$, for a set $X \subseteq A$ (assume, X is shown in Figure 1.3),

(83) a is a lower bound for X if $\forall x \in X: a \leq x$

Let $LB(X)$ be the set of all lower bounds for X :

(84) a is the infimum of X iff $a \in LB(X)$ and
 $\forall b \in LB(X): b \leq a$ ¹⁵

The supremum is the opposite of the infimum. They are written $\bigwedge X$ for the infimum of X and $\bigvee X$ for the supremum of X .

Let $a, b \in A$.

(85) the *meet* of a and b , $a \wedge b: = \bigwedge \{a, b\}$
the *join* of a and b , $a \vee b: = \bigvee \{a, b\}$

Hence, meets are infimums of two element sets and joins are supremums of two element set.

A lattice is an algebra $\langle A, \wedge, \vee \rangle$, where \wedge and \vee are two place operations satisfying

¹⁵The definitions are from Landman (1991).

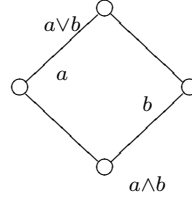


Figure 1.2: A lattice for two-element sets

(86)

1. *idempotency*: $(a \wedge a) = a$
 $(a \vee a) = a$
2. *commutativity*: $(a \wedge b) = (b \wedge a)$
 $(a \vee b) = (b \vee a)$
3. *associativity*: $(a \wedge b) \wedge c = a \wedge (b \wedge c)$
 $(a \vee b) \vee c = a \vee (b \vee c)$
4. *absorption*: $a \wedge (a \vee b) = a$
 $a \vee (a \wedge b) = a$

In addition, another law underlying the Boolean algebra is of importance here, *distributivity*:

- either 1. $a \wedge (b \vee c) = (a \wedge b) \vee (a \wedge c)$
or 2. $a \vee (b \wedge c) = (a \vee b) \wedge (a \vee c)$

Not every lattice is subject to the laws of the Boolean algebra. Only bounded lattices have a 0 and a 1 (see Figure 1.3). A bounded lattice is a structure $\langle A, \wedge, \vee, 0, 1 \rangle$, where:

- (87) $\langle A, \wedge, \vee \rangle$ is a lattice.
Laws of 0 and 1: $a \wedge 0 = 0$
 $a \wedge 1 = a$

Landman (1991)

A complemented lattice is a bounded lattice where every element has a complement. The complement of a is written as $\neg a$.

- (88) a is a complement of b iff $a \wedge b = 0$ and $a \vee b = 1$.

Some lattices are atomic, like powerset lattices. Powersets are the sets of all the subsets in a set, $\langle \text{pow}A, \cap, \cup \rangle$. An atom is an element that is minimally greater than 0. A lattice without atoms is called atomless. A lattice without 0 or 1 is not complete. A lattice without 0 is a *join semi-lattice*, a lattice without 1 is a *meet semi-lattice*. The minimal elements of a join semi-lattice are atoms. For a concrete example consider Figure 1.3:

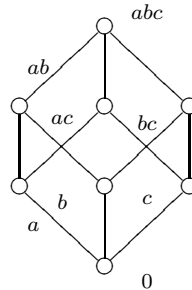


Figure 1.3: A complete Boolean lattice

The structure in Figure 1.3 represents a complete Boolean algebra, $\langle A, \neg, \wedge, \vee, 0, 1 \rangle$. It means that:

1. the structure is atomic: there are three atoms, a , b and c , each of which is minimally greater than 0 (the *infimum* of the lattice)
2. \wedge and \vee satisfy idempotency, commutativity, associativity, absorption, distributivity (the relations can be tested with the help of (86))
3. $a \wedge \neg a = 0$; $a \vee \neg a = 1$

Atoms, via \vee (join operation) form sets of atoms: $\{ab\}$, $\{ac\}$ and $\{bc\}$ (later on they will be termed *pluralities*); sets of atoms via \vee form the supremum of the lattice, $\{abc\} = 1$. ‘Elements minimally smaller than 1 are called *dual atoms*’ (Landman (1991):241).

Within this model, plurals can be treated both as sums of individuals or as plural individuals (Link (1983), Landman (1991), Landman (2000)). For example, $\ast\text{BOY}$ represents the sum of singular individuals. A sum operation is basically a part-of relation applied to the domain of singular and plural individuals. According to Landman (1991), *i*-join semilattices are structures ideally suited for such relations (*i* stands for ‘individual’). Here he diverges from Link (1983), who uses complete Boolean algebras for analysing singular, plural and mass terms. Landman’s reasoning comes from the number of operations available for *i*-join semilattices and full Boolean lattices. The former is only equipped with \vee ; whereas the latter also has \wedge , which does not prevent the individuals from *meet* with the lowermost bound, which is a zero, thus yielding a 0 as a sum. This is an unwelcome complication in treating sums of individuals. The gridding operation of *group formation* shifts the sum of boys as in $\sigma(\ast\text{BOY})$ to a corresponding semantically singular interpretation $\uparrow(\sigma(\ast\text{BOY}))$ as a *group atom*: ‘the boys regarded as a singular entity in its own right, i.e. with its part-of structure of singular boys, so to say, ignored’ (Landman (2004):239).

The same operations that are applicable to individuals and their sums, are also applicable to mass terms in the system developed by Link (1983) and extended by Landman (1991). Link (1983) proposed a unified analysis for plurals and mass terms. He based it on the empirical observation that ‘there is a striking similarity between collective predication and predication involving mass nouns’: the inherently collective predicate ‘gather’ in (89) is equally compatible with plural and mass nominals.

- (89) a. The children gather around their teacher.
b. The water gathers in big pools.

‘Moreover, a characteristic feature of mass terms, their *cumulative reference property*, can be imitated by plurals.’

- (90) a. If a is water and b is water then the sum of a and b is water.
b. If the animals in this camp are horses, and the animals in that camp are horses, then the animals in both camps are horses.

(Link (1983):127-128)

However, Landman (1991) notices that even if sums of mass terms of the type *the water in glass A and the water in glass B* are possible, these sums are not the same as the sums of minimal individuals making up plurals. *Water* has no minimal parts (if non-linguistic atoms are disregarded), which leads Landman to suggest that the mass domain should be an atomless structure. On the other hand, all parts of water are also water: ‘the mass entity water is the sum of its parts’ (Landman (1991):313). Thus, the structure containing the mass domain is still an *i*-join semilattice, $\langle A, \bigvee \rangle$, a *part-of structure*, by Landman (1991), with the following characteristics:

- (91) 1. A does not have a minimum
2. *distributivity*: if $a \leq b \vee c$ then $a \leq b$ or $a \leq c$ or
 $\exists b' \leq b \exists c' \leq c: a = b' \vee c'$
3. *witness*: if $a < b$ then $\exists c \leq b: \neg(a \circ c)$

The latter formula stands for the overlapping relations between a and c , the definition of *overlap* being:

- (92) a overlaps b , $a \circ b$ iff $\exists c: c \leq a$ and $c \leq b$

The maximal part-of set (blockset) is constituted by partitions. Mathematically speaking, a *partition* is a way of writing an integer n as a sum of positive integers where the order of the addends is not significant, for example $10 = 3 + 2 + 2 + 2 + 1$ (<http://mathworld.wolfram.com>). Returning to the lattice in Figure 1.3, it is a good structure

for representing relations between individuals and sums of individuals, although for the latter the lower bound 0 has to be removed, see Landman's views above. If we wanted to have a purely part-of structure for mass terms, not only the lower bound has to be absent, but also the atoms a , b and c . Thus, if there are no individuals, there are no sums of individuals and the lattice structure will look irregular, for it will be made up by partitions.

My position in this dissertation heavily relies on the lattice theory as it can well capture the nature of the distinction between perfective and imperfective verbs. This means that I am not going to syntacticize this distinction and postulate its dependence on some node, say, AspP, even if there could exist such a node in principle. For my story, the lattice-theoretic approach to (im)perfectivity makes more sense than the approach involving AspP, since both perfective and imperfective verbs display a great number of aspect-internal differences. These differences are difficult to unify according to the distribution and interpretation of perfectives, on the one hand, and imperfectives, on the other - an unwelcome result for a possible functional projection that would represent a set of features describing either of the two aspects. Thus, in the following subsections I will employ the theory of lattices to describe perfectivity and imperfectivity.

1.6.2 Perfectivity in lattices

I will assume that the domain of events is like the domain of individuals and mass terms in that it can be dealt with within the lattice-theoretical framework (see also Landman (2004)). Thus, events can represent both part-of and atomic structures.

Krifka (1998) defines two types of predicates, cumulative and quantized:

- (93) a. $\forall X \subset U_P [\text{CUM}_P(X) \leftrightarrow \exists x, y [X(x) \wedge X(y) \wedge \neg x = y] \\ \wedge \forall x, y [X(x) \wedge X(y) \rightarrow X(x \oplus_P y)]]$
 b. $\forall X \subset U_P [\text{QUA}_P(X) \leftrightarrow \forall x, y [X(x) \wedge X(y) \rightarrow \neg y <_P x]]$
 (Krifka (1998):200)

where U_P is a part-of domain. If we imagine that the descriptions in (93-a) and (93-b) are given for events, in (93-a) x is a subevent of y and does not equal y , and if X is cumulative predicate that holds of x and of y , it must also hold of the unit of x and y . In (93-b) y is not a subevent of x and X holds of y and of x as of two separate events. Borik (2002) offers an interesting test for cumulative and quantized events: a conjunction test. If we conjoin two separate time spans, they would stand for two different events in case of a quantized event, and for one and the same event in case of a cumulative event. This is achievable via the temporal trace function τ (see section 1.2.2) which maps the event on its run time. The join of the temporal traces of two events equals the temporal trace

of the join of these events.’ (Krifka (1992):33).

$$(94) \quad \forall e, e' [\tau(e) \sqcup \tau(e') = \tau(e \sqcup e')]$$

Thus if you conjoin two run times and they remain discontinuous, you are conjoining quantized events. It seems to hold of all the perfectives irrespective of their prefixes:

- (95) Petja **poiskal** knigu **v ponedeljnik i vo vtornik**.
 P. **DEL-looked.for^P.sg.ms.** book.ACC. **in Monday** and **in Tuesday**
 ‘Petja looked for a book for a while on Monday and on Tuesday.’ = There were two events of looking for a book for a while by Petja, one on Monday and one on Tuesday.

So, we can conclude that perfective verbs, irrespective of their type, are either separate atoms or atoms combined under join.

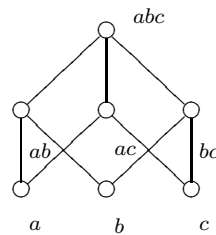


Figure 1.4: A semi-lattice representation of atomic entities describing perfective events

A perfective verb can be a single atom *a* in Figure 1.4, like in *prygnutj* ‘jump once’, or a supremum *abc*, as in *perebil vsju posudu* ‘DIST-broke all the dishes’, where the sum of events in the denotation of the perfective verbs undergoes the operation of *group formation* (Landman (2004)). As atoms can be summed via the join operation, it is expected that perfective events can form pluralities as well. The data also corroborate this prediction:

- (96) Pjatj let nazad muž načal menja izbivatj. V
 five years.GEN. ago husband began^P.sg.ms. me.ACC. Prf-beat^I.inf. in
 2003 godu on **izbil** menja **pjatj raz;** v
 2003 year.LOC. he.NOM. **Prf-beat^P.sg.ms.** me.ACC. **five times.GEN.** in
 prošlom godu on **izbil** menja ješčo **četyre**
 last.ms.LOC. year.LOC. he **Prf-beat^P.sg.ms.** me.ACC. yet **four**
raza.
time.GEN.
 ‘Five years ago my husband started beating me. In 2003 he beat me five times;
 last year he beat me four times more.’

Though the lattice-theoretic approach treats all the perfectives as atoms, it does distinguish between lexically- and superlexically-prefixed species. The reason for this discrimination lies in the diverging character of the two classes of prefixes. Remember that in addition to treating events as mereological structures, there is a parallel, decompositional, way of analyzing them. From the latter perspective elaborated in Dowty (1979) and developed by his followers, the events I call atomic can represent a tripartite structure with CAUSE, DO and BECOME subatomic components. Lexical prefixes are BECOME events. Superlexical prefixes belong to the domain of quantifiers or delimiters measuring the event in some way, they cannot attach to already atomic events. Rather their attachment converts the plurality or cumulation of events to a derived atomic individual by packaging it. On this view lexical prefixes can attach to the verbs standing for atomic events, whereas superlexical prefixes (at least, *pere-*) usually attach to the verbs standing for pluralities of events. The general description of perfective verbs then is:

Unprefixed and lexically prefixed perfectives represent the minimal elements of the join semi-lattice in Figure 1.4, superlexically prefixed verbs represent ‘packaged’ partitions or pluralities of atoms, for example, at the level of the supremum of the join semi-lattice (as with *pere-*). In both cases the resulting mereological structure of the verb is atomic.

1.6.3 Imperfectivity in lattices

The test applied to the perfective verb in (95) does not always work in the opposite way for imperfectives: on an Experiential Perfect reading or on a General Factual reading the conjunction of two different events is conceivable. The imperfective verb in (97) retains both of its readings, so the test characterizes the progressive instantiation of the verb

as homogeneous (reading A) and the pluractional instantiation as non-homogeneous (reading B):

- (97) Petja iskal knjigu v ponedeljnik i vo vtornik.
 P. looked.for^I.sg.ms. book in Monday and in Tuesday
 ‘Petja was looking for a book on Monday and on Tuesday.’ = A. There was one event of looking for a book by Petja, which lasted on Monday and on Tuesday.
 B. There were two events of looking for a book by Petja, one on Monday and one on Tuesday.

Reading B of the imperfective verb ‘look for’ in (97) suggests that even if pluractional events are not atoms in their own right, they contain pluralities of atoms. The internal presence of atoms does not determine the shape of the macroevent and pluractional events remain unbounded, as opposed to the case of superlexical prefixation, where the macroevent itself is always measured or packaged. However, atoms constituting pluractional events make it possible for the corresponding verbs to pass the ‘rough’ telicity test:

- (98) a. On jest buljon polčasa/ *za polčasa.
 he eats^I broth.ACC. half.hour.ACC./ for half.hour.ACC.
 ‘He is eating broth for half an hour/ *in half an hour.’
 PROGRESSIVE
 b. On s’jedajet buljon *polčasa/ za polčasa.
 he PERF-eats^I broth.ACC. half.hour.ACC./ for half.hour.ACC.
 ‘He eats broth *for half an hour/ in half an hour.’
 HABITUAL

Naturally, a pluractional imperfective can stand for multiple events:

- (99) On **izvinjalsja** za eto uže pjatj raz, skolkjo možno?
 he apologized^I.sg.ms. for this.ACC. already five times.GEN. how.many
 needed
 ‘He has already apologized for it five times, how many more times do you need?’

In (99) the imperfective has the reading of the experiential perfect. This reading, be it a singular event or a multiple event, comes from the cardinality of the verbs denoting pluractional events. Yet, in spite of the presence of (sums of) atoms at some level of the pluractional structure, this type of imperfective differs from perfective verbs.

The difference lies in the unboundedness of the macroevent (see (100-a)). Pluractional imperfectives represent infinite sums of atoms, and, according to Krifka (1998), ‘infinite part structures need not have a top element’. This makes the structure of pluractional imperfectives different from the structure of perfectives which always either represents a singular atom or has a top element.

The general description of imperfective verbs then is:

The two types of imperfective reflect different kinds of semi-lattice: progressive events are atomless part-of structures (100-b), whereas pluractional imperfectives are pluralities of atoms (100-a). The feature uniting all imperfectives as a separate class is the absence of the supremum in both types of structures (the infimum is not present either)

- (100) a. $\{a\} \{b\} \{c\} \dots \{n\} \rightarrow \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\} \dots \{a, b, n\}$
 b. $\{\dots\} \{\dots\} \{\dots\} \rightarrow \{\dots\}$

As I said in the previous subsection, the indefinite plurality of atoms or a part-of structure in (100) can be packaged with the help of a superlexical prefix. Thus, the application of the Lattice theory to treating (im)perfectivity in Russian results in the following generalization:

(101)

	Internal structure		Top element presence
	Atoms	Partitions	
IMPF	✓	✓	✗
PERF	✓	✓	✓

As can be seen from the table, imperfectives cannot be distinguished from perfectives on the basis of their internal structure: both can represent underlyingly atomic events and both can represent part-of events. The crucial difference lies in the presence or absence of the supremum in the event-describing semi-lattice. Imperfective event semi-lattices are top-less. A perfective event expresses a minimal element in a join semi-lattice, or a join semi-lattice with a maximal element, the supremum.

1.6.4 Homomorphisms

Thus, having arrived at the lattice-theoretic characteristics of both types of perfective and both types of imperfective, I can use these characteristics to explore the mysterious

behavior of the verbs with respect to their complements. To remind of the results reached at this point:

- lexically prefixed perfectives induce a strong interpretation of their objects and tolerate overt quantifiers with them;
- suplexically prefixed perfectives behave in different ways: some induce a quantified reading of their objects, others do not;
- pluractional imperfectives can occur with quantified objects;
- progressive imperfectives cannot occur with quantified objects

When I was speaking of perfective verbs and the quantificational effect they have on their objects in section 1.5.1, I never mentioned that this effect appears only on the mass and plural nominal complements of the verb. Bare mass and plural nominal complements are also a decisive factor in the English aspectual system: their presence signals the atelic VP structure. I repeat (66) as (102) below:

(102) English

- a. John ate apples for an hour/ *in an hour.
- b. John drank wine for five minutes/*in five minutes.
- c. John ate the apples *for an hour/ in an hour.
- d. John drank the wine *for five minutes/ in five minutes.

The lattice-theoretical approach and especially its part concerning the homomorphism from objects to events has been widely used as an explanation for the facts in (102). Krifka (1992) extends the formalism to accounting for the definiteness of objects of perfective verbs also in Czech (68). Then it is worthwhile trying it on the Russian facts.

Homomorphism is an important relation holding between two or more structures. Its importance mainly lies in its structure-preserving properties.

If we have a homomorphism from a lattice onto some other structure, that other structure will be a lattice as well, and similarly if we have a homomorphism from a particular type of lattice (say, a Boolean lattice) onto some other lattice, the other lattice will be of that same type. (Landman (1991):239)

The famous application of homomorphism from one structure upon another has been executed by Krifka (1992), who postulated that objects, events and times can be looked upon from the point of view of lattices (Krifka (1992):32):

Assume that we have two non-overlapping sorts of entities, *objects* (characterized by a predicate o), *events* (characterized by a predicate \mathcal{E}) and *times* (characterized by a predicate \mathcal{T}). The extensions of o , \mathcal{E} and \mathcal{T} have a structure of a complete join semi-lattice without a bottom element.

The relations within the sets o , \mathcal{E} , \mathcal{T} satisfy the laws of the Boolean algebra (commutativity, idempotency, associativity, part), and their lattices have no 0 levels. As was mentioned in the previous subsection, mass terms are also subject to the laws of the Boolean algebra. However, as their domain is the domain of partitions and blocksets (according to Landman (1991)), they are joined via a special operation of *fusion*. According to Krifka (1992) (p.32; see also Higginbotham (1995), p.392), fusion maps a set P to its lowest upper bound:

$$(103) \quad \forall x, P [[(P \sqsubseteq o \vee P \sqsubseteq \mathcal{E} \vee P \sqsubseteq \mathcal{T}) \rightarrow FU(P) = x] \\ \leftrightarrow \forall y [P(y) \rightarrow y \sqsubseteq x] \wedge \forall z [\forall y [P(y) \rightarrow y \sqsubseteq z] \rightarrow x \sqsubseteq z]]$$

In section 1.6.2 I mentioned the *temporal trace* function τ from the extension of \mathcal{E} to the extension of \mathcal{T} ; the function that maps an event to its ‘run time’. It is homomorphism relative to the join operation. Below I repeat (94) as (104):

$$(104) \quad \forall e, e' [\tau(e) \sqcup \tau(e') = \tau(e \sqcup e')] \\ \text{(Krifka (1992):33)}$$

In a similar way a homomorphism from objects to events, ‘which preserves the lattice structure’, is assumed by Krifka. The relations underlying this homomorphism are: summativity, uniqueness of objects, uniqueness of events, mapping to objects and mapping to events. Informally, with the use of examples, these relations are explained as follows (Krifka (1992):39):

- *Summativity*: two (distinct) events of drinking a glass of wine yield an event of drinking two glasses of wine
- *Uniqueness of events*: for a specific glass of wine there can be only one drinking event
- *Uniqueness of objects*: a drinking of a glass of wine is related via the patient role to this glass of wine and nothing else
- *Mapping to objects*: every part of drinking of a glass of wine corresponds to a part of the glass of wine
- *Mapping to events*: every part of a glass of wine being drunk corresponds to a part of the drinking event

The formalism above is applicable only to incremental verbs (the term by Filip (1999)), as can be seen from the examples featuring verbs like ‘eat’ or ‘drink’. As proposed in Krifka (1989) and Krifka (1992), ‘eat an apple’ and ‘see a zebra’ differ in thematic relations between the verb and the object and only with the former predicate the homomorphism from the object to the event is possible, because it satisfies the conditions above and an additional condition of graduality. Thus, only gradual effected (‘write a letter’), gradual consumed (‘eat an apple’) and gradual affected patients (‘read a letter’) have the right thematic marking for being mapped onto the event. It makes them different from both affected patient (‘touch a cat’) and stimulus (‘see a horse’).

According to Rothstein (2004), the BECOME event provides a criterion for individuating atoms. So, lexically prefixed verbs¹⁶ are atoms in \mathcal{E} -semi-lattice. Atoms cannot induce homomorphism: they do not have parts and cannot be incremental. This makes any kind of mapping impossible.

Superlexically prefixed verbs represent ‘packaged’ semi-lattices. As packaging can occur at different levels, superlexical prefixes behave in a number of ways different from each other. For example, the delimitative prefix *po-* has no quantificational effect on the object of its host verb; the cumulative prefix *na-* induces weak quantification, and the distributive prefix *pere-* indicates the presence of the universal quantifier in the structure (examples (78) and partly (77) are repeated below). It is not so obvious that the relation between superlexically prefixed verbs and their objects can be described in terms of homomorphism, even if this class of verb represents events with mereological structure. I will return to this question in Chapters 4 and 5.

- (105) a. Ja **počítala** (*vse) anekdoty/ *mnogo
 I **DEL-read**^P.sg.fem. (all) anecdotes.ACC./ many
 anekdotov i usnula.
 anecdotes.GEN. and fell.asleep^P.sg.fem.
 ‘I read (*all/ *a lot of) anecdotes for a while and fell asleep.’
- b. Liza **nastroila** (kuču) planov na vyhodnyje.
 L. **CUM-built** pile.ACC. plans.GEN. on weekend.ACC.
 ‘Liza built a lot of plans for the weekend.’
- c. Gerasim v gneve **perebil** vsju posudu.
 G. in rage.LOC. **DIST-broke**^P.sg.ms. all.ACC. dishes.ACC.
 ‘Gerasim broke all the dishes in rage.’

Progressive imperfectives have S-cumulative structure which can be compatible with a similar structure in the non-evental domain. Rothstein (2004) suggests that, for example, ‘fence’ stands for such a structure in the nominal domain. If adjacency is taken for one

¹⁶Unprefixed perfectives can be treated on a par with lexically prefixed ones.

of the major indications of S-cumulativity, then paths, as described in Krifka (1998), are the best reflections of S-cumulative events. For Krifka ‘paths are elements that are convex and linear, a notion that can be enforced by adjacency; two disjoint, non-adjacent parts of a path are always connected by exactly one subpath.’ It is true that directed motion verbs, which are imperfectives completely stripped of any pluractionality, are compatible with paths expressed by directed PPs:

- (106) a. letetj na Jug
 fly^I.dir.inf on south.ACC.
 ‘be flying to the South’
 b. katitjsja pod stol
 roll.sja^I.dir.inf under table.ACC.
 ‘be rolling (to) under the table’

In Chapter 3 I am going to investigate the behavior of motion verbs in more detail. Progressive instantiations of ‘usual’ verbs, as we saw in (80), are incompatible with quantified NPs. This is expected if we perceive progressive events as having no relation to any quantized structure: they have no access to the information revealing the event structure of the verb, they are just temporal cuts of this event. By homomorphism, such verbs will not care for what structure their object NPs represent, either. However, proper parts of the entity denoted by the object NP should be mappable onto the parts of the event denoted by the progressive imperfective:

- (107) a. jestj jabloko
 eat^I.inf apple.ACC.
 ‘be eating an/the apple’
 b. gryztj semečki
 crack^I.inf seeds.ACC.
 ‘be nibbling sunflower seeds’

As can be seen from (107) nominal complements of progressive verbs can be both count singular nouns and bare plural or mass nouns. Both types of the nominal complement of the verb ‘eat’ in (107) represent path-structures, comparable to real paths in (106) (cf. Hay et al. (1999)). Real paths in (106) and path-like structures in (107) conform with the ideas of homomorphism and incrementality.

Pluractional verbs represent an indefinite \mathcal{E} -semi-lattice, which means that nothing restricts the join operation on its atoms. Direct objects of pluractional imperfectives can be a) plural; b) mass; c) quantized:

- (108) a. pisatj pisjma
 write^I.inf letters.ACC.
 ‘write letters’
- b. nositj vodu
 carry^I.ndir.inf. water.ACC.
 ‘carry water’
- c. pitj dva stakana moloka v denj
 drink^I.inf 2 glasses.GEN. milk.GEN. in day.ACC.
 ‘drink two glasses of milk a day.’

However, the structures above do not exhaust the combinatory potential of pluractional verbs. They can also freely occur with count singular nominals, in which case the latter refer to the same object throughout the repetition of the event. The occurrence of pluractional verbs with singular count objects can be a phenomenon of the same order as the occurrence of non-directed motion verbs with directed paths. The path remains the same, but the trips along the path expressed by non-directed motion verbs are many. Such cases do not satisfy Krifka’s uniqueness of events requirement as one of the conditions for homomorphism:

- (109) jezditj na Kanary
 go^I.ndir.inf. on Gran.Canaria.ACC.
 ‘travel (many times) to Gran Canaria’

Homomorphism of a pluractional event is different from that of a progressive event. If in the latter each subpart is a chunk (partition) of the ordered path directly mappable onto a similar \mathcal{O} -semi-lattice, in the former each subpart is an atom identical to all the other atoms (like the reflection in the mirror corridor). By homomorphism, the \mathcal{O} -semi-lattice should represent a similar top-less structure containing atoms or partitions as its subparts. An atom in \mathcal{E} -semi-lattice is mapped onto an atom, a join of atoms or a partition in \mathcal{O} -semi-lattice. There is no graduality in this type of mapping. It just requires the bottom-less top-less structure to be preserved in both related semi-lattices. Thus, homomorphism between progressive events and their path-like objects bears a more dynamic (incremental) character than homomorphism between pluractional events and their part-of objects. In Chapter 4 I will discuss the relation of the former type, and in Chapter 5 of the latter.

As we have seen in this subsection, homomorphic relations are possible between progressive incremental verbs and their objects, on the one hand, and pluractional verbs and their part-of objects, on the other hand. Events represented by lexically prefixed

verbs (\mathcal{E} -atoms) and their objects cannot be homomorphically related¹⁷. Neither can iterated pluractionals and their singular objects that remain the same throughout the event.

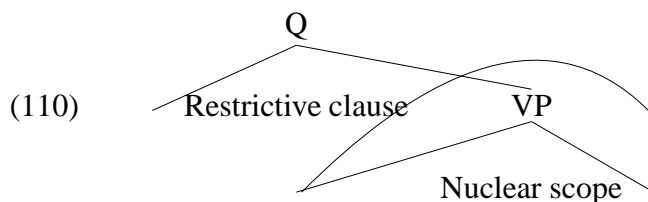
In fact, treating the relation between verbs and their objects is not just limited to the mereological approach. Another useful way of looking at the phenomenon is offered by the Mapping Hypothesis of quantification. As I am going to use both the Lattice Theory and the Mapping Hypothesis at different points of the work, I give a short account of the latter below.

1.7 Perfectivity in the light of Mapping Hypothesis

As I stated at the end of the previous section, the Lattice theoretic approach cannot solve all the cases of verb-object interrelations. What it means is that homomorphism is not the only mechanism underlying them. Some authors try to explain the quantificational implications of perfectivity structurally. Discussing the example in (69) Di Sciullo and Slabakova (2005) suggest that there is a terminative feature [T] introduced into the computation whenever the verb is perfective (or aorist - but this is beyond the point here) and this feature [T] provides existential closure. More generally, the main idea concerning the Slavic paradigm in Borer (2005) also boils down to the same conclusion: perfective aspect is responsible for the definite (quantity) reading of the direct objects of the verb. I will describe the system in more detail in Chapter 4. Now I can anticipate the discussion and say that such systems, though noble in their attempts to give a unified account of aspect and quantification, fail when challenged by concrete linguistic material. They do not consider the scenarios in which perfective verbs do not induce quantification on their objects and they do not distinguish between different ways of quantifying depending on a particular prefix. They do bear, though, on the Mapping Hypothesis worked out by Diesing (1992).

The trend mentioned above goes back to the seminal work by Heim (1982) (based on Lewis (1975)), in which the author structured the domain of quantification into three subparts: the quantifier proper, the restrictive term of the quantifier and the nuclear scope. These three subparts were neatly mapped onto actual syntactic structures by Diesing (1992) and have been widely used ever since. The rough scheme of the quantificational structure mapped onto syntax would look like the following then:

¹⁷At least, they cannot be homomorphically related in the way implying mutual mapping of proper parts.



According to Diesing's Mapping Hypothesis the nuclear scope is mapped onto VP, the restrictive clause of the quantifier is above the VP. If prefixes are quantifiers, the interpretation of the objects of prefixed verbs must depend on the clause they find themselves in. Suppose, lexical prefixes are definiteness inducers. Then the objects of their host verbs must always end up in the restrictor of the Q (= a lexical prefix) and thus get their definite interpretation¹⁸. There are several complications underlying this hypothesis for the lexical prefixes:

- there are perfective unprefixed verbs whose objects are interpreted in the same way as the objects of lexically-prefixed verbs;
- some non-superlexically prefixed verbs, like *vypitj* 'out-drink', allow definite and indefinite objects (76-a);
- some perfective verbs (mainly, achievements) do not induce definite readings even on their bare plural and mass objects, like in *našël zoloto* 'found^P (the) gold' or *uvidel mebelj* 'saw^P (the) furniture'

I will undertake a detailed investigation of lexical prefixes and connected issues in Chapter 2. Superlexical prefixes must differ in their quantificational character and the sites they attract the objects of their host verbs to. I will show the plausibility of this proposal in Chapters 4 and 5, devoted to the quantificational power of superlexical prefixes.

1.8 Conclusion

1.8.1 Common distinctions between perfectives and imperfectives

The natural conclusion to be made at this point should encompass all the differences in the behavior of perfective and imperfective verbs discussed above. The differences were described from four major perspectives:

¹⁸Note, that throughout the discussion of quantification of nominals in Russian it refers only to bare plural and mass objects, for they introduce a variable that can be bound by the quantifier (following the theories in Heim (1982), Link (1983), Carlson (1977a), whereas a singular count noun has a reading ambiguous between that of an argument and a predicate (Chierchia (1998))

- passing the traditional perfectivity tests;
- (non-)homogeneity (atomic vs part-of structures);
- presuppositions
- effect on object interpretation

If perfectives and imperfectives are distinguished by these characteristics, the latter must correlate with each other irrespective of the internal differences within the two big classes of verbs. Here is the demonstration of how these criteria work for two big groups of perfectives - Lexically Prefixed Verbs (LPV) and SuperLexically Prefixed Verbs (SLPV); and for two big instantiations of imperfectives - progressive and pluractional. UNIT means two things: a) representing the atom; b) representing a join-semilattice with a top element.

(111)

		Traditional PERF tests	presupposition	UNIT
PERF	LPV	✓	✓	✓
	SLPV	✓	✓	✓
IMPERF	Prog	✗	✗	✗
	PA	✗	✗	✗

I began the present chapter with demonstrating how perfective and imperfective verbs fare on the traditional perfectivity tests without explaining the latter: I just took them for an axiom based on the empirical data. As I moved on, I demonstrated that there were some more features common for perfectives on the one hand and imperfectives on the other.

One of such features is presupposition, carried by all the perfective verbs. According to Padučeva (1996) and Geurts (1999), presupposition is a backgrounded piece of information, assertion is a focused piece of information in a proposition, which can be as small as a word. This is what we deal with in perfectives: words that encode decomposable structures (informational, semantic and therefore syntactic).

The other feature is a ‘packaging’ of an event: events denoted by perfective verbs represent atoms or bound join semi-lattices, events denoted by imperfective verbs represent semi-lattices without a top element irrespective of their internal organization. The external ‘packaging’ is what important for the juxtaposition of the two verb classes, which is reflected in the table above. Pluractional verbs may be constituted by atoms and sums and atoms, but such a structure does not have a supremum and therefore we

view it as unbounded. Some superlexically-prefixed verbs can be internally homogeneous, but the part-of structure underlying them is ‘packaged’ by prefixation that turns the structure into atomic. This, again, bears on the discussion of presupposition above and on the augmentable structure of perfectives.

Another angle at which perfectivity and imperfectivity were discussed in the present chapter is their relation to their complements. I attempted to state the relation in terms of homomorphism on the one hand, and in terms of the Mapping Hypothesis, on the other. At this point it was not possible to choose one approach over the other, because it is not clear to which extent they are applicable to the issue in question. It is clear, though, that they are phenomena of a different order. Homomorphism is a purely semantic notion, worked out within the lattice-theoretic framework (Krifka (1992), Krifka (1989), Krifka (1998), Landman (1991), Landman (2000), Landman (2004), Rothstein (2004) etc.) and referring to atomic and non-atomic (homogeneous) structures. The alternative way of looking at the relation between the verb and its complements is via quantificational structure. This approach captures the differences in the type of prefixation. If all the prefixes are considered to be akin to quantificational adverbs, it follows that the objects of their host verbs are interpreted according to the part of the tripartite quantificational structure they end up in: for instance, in the restrictor of the quantifier they will get the reading induced by the quantifier.

Thus, this chapter has laid the ground for dealing with (im)perfectivity in the dissertation. Here I have established

- what tests are reliable for distinguishing between perfective and imperfective verbs;
- that the interpretation of a perfective verbs is determined by the verbal root and the prefix it carries;
- that the interpretation of imperfective verbs depend on the context or the shape of their direct objects;
- that the interpretation of the whole VP is based on the complex interrelation between the verb, the prefix and the object

I should underlie the importance of the framework I have chosen for describing (im)perfectivity in Russian with respect to the points established above. Lattice theory makes it possible to keep the aspect-internal distinctions transparent and to explain the intricate relations between the structure of the event and the structure of arguments, simultaneously. As a single aspectual projection (AspP) would not cope with these tasks equally well, I have no syntactic account for perfectivity-imperfectivity in Russian at this point, although I appeal to syntax for revealing and explaining the structural relations between the verb, the prefix and the object throughout the whole thesis.

1.8.2 The layout of the work

Chapter 2 concentrates on the first way of constructing perfectivity, namely, on lexical prefixation. The main finding of the chapter is the generalization stating that even the subclass of lexically prefixed verbs is not uniform: it contains three distinct structures. Non-uniformity of this class is conditioned by the argument structure of unprefixed verbs. Lexical prefixes are claimed to merge in the prepositional domain and to head the complement small clause of the lexical verb. Transitive and unaccusative verbs readily combine with the SC yielding two respective structures: DP_{subj} PRF-V DP_{obj} PP and DP_{subj} PRF-V PP. Unergatives do not combine with the complement SC even if they can (rarely) take lexical prefixes. The resulting structure of prefixed unergatives is DP_{subj} PRF-V DP_{obj} *PP. The puzzle of lexically prefixed unergatives and their incompatibility with (complement) PPs is passed over to the next chapter.

Chapter 3 deals with the type of verb naturally inclined to take complement PPs even in unprefixed form: motion verbs. Two groups of motion verbs, directed and non-directed, are neatly mapped onto two argument structures: unaccusative and unergative, respectively (transitive MVs are left aside for the moment). Prefixation patterns characteristic of each of the motion verb groups also neatly comply with the generalization made in Chapter 2: directed MVs take lexical prefixes, non-directed MVs do not. Taking lexical prefixes by DMVs follows from their combinability with directional PPs. A solution for incompatibility of NDMVs with lexical prefixes is offered in this chapter. It is based on detailed discussion of the notion of ‘path’ and the relation between the event structure of the verb and its path complement. The solution offered for NDMVs can be extended to other unergatives. However, non-directed motion verbs in particular and unergative verbs in general do not completely avoid prefixation. Nothing in the analysis proposed stops them from taking superlexical prefixes. Thus, the natural flow of narration takes us further, to exploring superlexical prefixation.

In Chapter 4 I will discuss the second class of perfectives, namely, the verbs with superlexical prefixes. In that chapter I will concentrate on the prefix *na-*, labeled ‘accumulative’ by Isačenko (1960). I will show the interaction between the quantificational properties of *na-* and the event represented by the verb *na-* attaches to. In some way, the relation between *na-*-prefixed verbs and their arguments can be analyzed from both theoretical perspectives: Lattice theory and Mapping Hypothesis.

In Chapter 5 I will discuss another superlexical prefix, *pere-*. Investigating its behavior, I will return to the notion of pluractionality, and now it will be developed in greater detail than in Chapter 1. I will show that, like *na-*, *pere-* possesses quantificational properties that influence the event and have an indirect impact on the arguments of the verb expressing the event with *pere-*. I will describe the relation between *pere-* verbs and their arguments with the help of Mapping Hypothesis.

Chapter 6 is going to take us back to this chapter and to show which of the problems postulated here received their solution, and which problems cannot be solved at this point and require further research.

1.8.3 Background syntactic assumptions

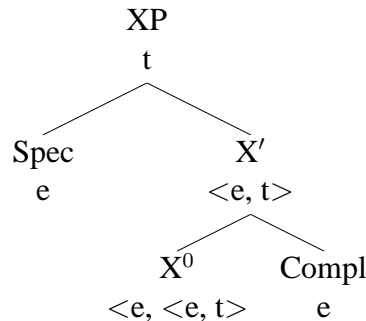
As I mentioned earlier, the aim of this dissertation is a close investigation of one particular area of the syntax-LF interface, namely aspectual formation of Russian verbs. In addition, the investigation is going to concentrate on one particular domain of the clause: the *v*P-phase. In general, this work is written within the framework of Generative Grammar and the ideas it elaborates are based on the recent developments in the theory (Chomsky (1995), Chomsky (2001b)). More concretely, I am adopting a constructionalist approach to the syntax-semantics interface advocated in works by Marantz (1997), Borer (2005), Ramchand (2006) etc. This approach employs the following assumptions:

- There is a universal hierarchy of functional projections
- Complex morphology reflects complex syntactic hierarchy
- Event structure and argument structure come from the syntactic environment of a verb

This approach varies in the amount of grammatical information available for lexical items (listemes) in their storage place (lexicon, encyclopedia). In the extreme cases (Borer (2005)) all grammatical information is represented by the functional structure of the clause. In other analyses (e.g. Ramchand (2006)) lexical items are inserted into syntax with category information.

The clause is generally mapped onto a tree with binary branching consistent with the X-bar theory (Chomsky (1995)). The head *X* is a terminal of the maximal projection *XP*. *XP* has the *Spec*(ifier) and the *Compl*(ement). Such a structure reflects the relation of predication between the heads and their arguments. Take for example, a predicate of the semantic type $\langle e, \langle e, t \rangle$, where *e* is an individual and *t* is a truth value. Each syntactic position bears certain interpretative implications for the compositionality of the predicate and its arguments:

(112)



Every verb has an event argument (Parsons (1990)). Events can be decomposed into subevents. Under mereological views (Landman (2000), Landman (2004), Krifka (1998) etc.) subevents are proper parts of the events with specific characteristics (much like mass and plural entities). Under decompositional views (Dowty (1979)) subevents are predicates in their own right.

Dowty (1979) isolates three such primitive operators: CAUSE, DO and BECOME. CAUSE stands for the predicate bringing about the event. For example, in (113-a) ‘John’ causes the door to be closed. The process of closing the door by John is represented by the predicate DO and the result state of the door’s being closed comes as a consequence of BECOME. CAUSE is not always present in the event structure of verbs, like in (113-b).

- (113) a. John closed the door.
 b. The door closed.

Thus, different combinations of Dowty’s predicates yield the following templates:

- (114) States: $V(x_1, \dots, x_n)$
 Activities: $DO(x_1, V(x_1, \dots, x_n))$
 Accomplishments: $DO(x_1, V(x_1, \dots, x_n)) \text{ CAUSE } (BECOME V(x_1, \dots, x_n))$
 Achievements: $(BECOME V(x_1, \dots, x_n))$

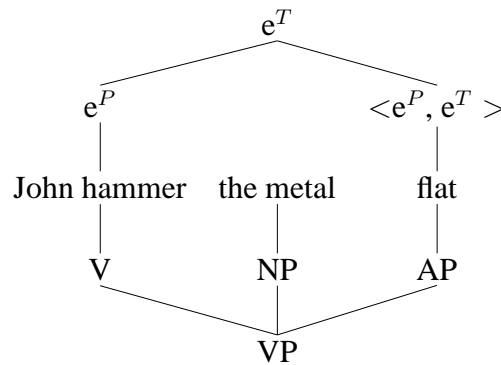
Pustejovsky (1991), Pustejovsky (2004) takes Dowty’s theory a step further. According to Pustejovsky (2004):376, ‘even those theories that rely on some internal structure for word meaning (Dowty (1979)...) do not provide a complete characterization for all of the well-formed expressions in the language.’ He notices that there is certain systematicity in the ambiguities exemplified below:

- (115) a. Mary hammered the metal.

- (116) a. John wiped the table.
 b. John wiped the table clean.

According to Pustejovsky (2004), such a systematicity suggests that ‘a more general and simpler explanation is possible.’ The ambiguity does not lie in either of the verbs in examples (115) and (116). The event structure of both representatives of the ambiguous pairs is the same¹⁹. It is described from the point of subevental analysis, where Pustejovsky (2004) isolates states (e^S), processes (e^P) and transitions (e^T). ‘In this view e^T may be decomposed into two sequentially structured subevents: (e^P, e^S)’ (p.378). The verbs in (a) and (b) examples of (115) and (116) are both underlyingly specified with an event type of process. The adjectival phrases ‘flat’ and ‘clean’ are clearly stative in nature:

(117)



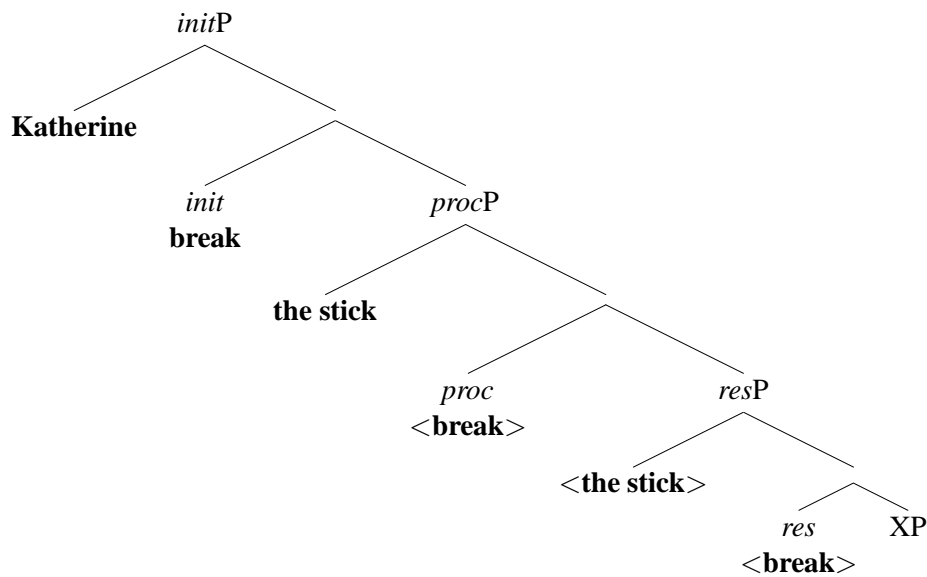
As the meaning of the sentence in (115) ‘is determined by both function application of hammer to its arguments and function application of ‘flat’ to the event-type of the verb, this is an example of compositionality’ (Pustejovsky (2004):381).

The approach developed by Pustejovsky is a close precursor of the theory I am going to follow. The First Phase Syntax by Ramchand (2006) maps Dowty’s and Pustejovsky’s subevental predicates onto the syntactic structure of the verb representing the decomposed event. In this approach, too, events are augmented into three subparts: *initiation*, corresponding to Dowty’s CAUSE, *process* corresponding to Dowty’s DO or Pustejovsky’s e^P , and *result*, roughly corresponding to Dowty’s BECOME. Unlike in Dowty (1979), *result* clearly represents a result state, not a transition to it from the processual part of the event. As now the subevents have their own functional projections in

¹⁹ ‘Event-based interpretation of a word or phrase’ is termed by Pustejovsky (2004):378 ‘event structure’.

the syntactic structure of the verb, Ramchand's system is incompatible with the Theta criterion, since the same argument (*the stick* in (118)) can be multiply represented as a subject of a separate subeventive predicate:

- (118) From Ramchand (2006):69
 a. Katherine broke the stick.
 b.



Multiple representation of arguments is described in derivational terms of Merge and Move (Chomsky (1995)). The argument merges as the subject of the lowest predicate that 'shares' it with other predicates: i.e. the argument moves to their Spec positions. The argument is spelled-out in its top-most site.

Thus, considered from the mereological point of view on the one hand and the view developed in the First Phase Syntax on the other, the same perfective verb in Russian, *sorvatj* 'rip off', simultaneously represents an indivisible atomic event (a minimal element in the join-semilattice) and a complex macroevent decomposable into three predicational arguments.

The details of the proposed machinery are going to be exemplified in the chapters to come.

Chapter 2

Lexical prefixes

2.1 Foreword

I already introduced the notion of lexical prefixes in Chapter 1. It was claimed that lexical prefixes embody Dowty's BECOME predicate and turn activities and states into telic accomplishments and achievements. I repeat (45) as (1) and the table from Chapter 1 demonstrating the telicity of LP verbs below:

- (1) *bitj* 'beat^I' ACTIVITY - *vybitj* 'knock^P out' ACCOMPLISHMENT
jexatj 'drive, ride^I' ACTIVITY - *prijexatj* 'arrive^P' ACHIEVEMENT

(2)

	Unprefixed	Prefixed
States	<i>znatj otvet poldnja</i> 'know the answer for half a day'	<i>priznatj *(ošibku) za pjatj minut</i> 'confess a fault in five minutes'
Activities	<i>guljatj dva časa</i> 'have a walk for two hours'	<i>vyguljatj *(sobaku) za dva časa</i> 'walk a dog in two hours'

I also mentioned that lexical prefixes can be spatial or idiosyncratic in meaning. In this chapter I am going to elaborate on the assumptions made previously and using relevant literature show how they work in semantics and syntax. Before I do so, I will present the class of lexical prefixes proper.

As prefixes have historically developed from the prepositions (Matushansky (2002)), some of them have retained prepositional meanings. From now on I will translate them

systematically according to their prepositional meanings (*v-*, *do-*, *na-*, *nad-*, *pod-*, *ot-*, *pri-*, *s-* and *u-*), or according to their newly developed ones (*za-*, *o-/ob-*, *pro-*). Some prefixes have no corresponding prepositions (*vy-*, *pere-*, *raz-*), so their translation is based on their spatial meanings. The prefixes are:

(3)

<i>v-</i>	‘in’	<i>vy-</i>	‘out.of’
<i>do-</i>	‘up.to’	<i>za-</i>	‘on’
<i>na-</i>	‘on’	<i>nad-</i>	‘above’
<i>o-/ob-</i>	‘around’	<i>ot-</i>	‘aside’
<i>pro-</i>	‘through’	<i>pere-</i>	‘across’
<i>pod-</i>	‘under’	<i>pri-</i>	‘by’
<i>raz-</i>	‘apart’	<i>s-</i>	‘with’ or ‘off’
<i>u-</i>	‘away’		

As I have already said, the view that is maintained in this work is that the prefixes above are resultative predicates that represent the result state ‘in’, ‘out’, ‘on’, ‘through’, ‘by’, ‘above’ and ‘below’. Lexical prefixes can also attach to semelfactives and the verbs like *brositj* ‘throw’, *kupitj* ‘buy’, *datj* ‘give’, which are already perfective. However, as I will show below, the ability of lexical prefixes to attach to already perfective verbs is not inconsistent with their usage as resultative predicates.

In addition to the claim that lexical prefixes are resultative predicates, I give here several tangible characteristics that isolate lexical prefixes as a separate class (I briefly mentioned them in Chapter 1). The characteristics are:

- lexically prefixed perfective verbs have secondary imperfective (2Impf) counterparts:

(4) Opjatj jegu direktor segodnja **propesočil!** - On
 again him.ACC. director.NOM. today **through-sand^P.sg.ms.** he.NOM.
 jegu každuju nedelju **propesočivajet.**
 him.ACC. each week.ACC. **through-sands^I**
 ‘- The director again tore a strip off him today! - He tears a strip off him every week.’

- when two prefixes stack a lexical prefix is always the inner one (*vy-* in (5)):

(5) Avtor **navydumyval** sjužetnyx linij.
 author.NOM. **CUM-out-thought^P.sg.ms.** plot.ADJ.pl.GEN. lines.GEN.
 ‘The author has invented a lot of story lines.’

- lexical prefixes often have no regular meaning, for which they have traditionally been considered ‘modifiers of verbal meaning’ (Isačenko (1960)) or pieces of derivational rather than inflectional morphology (Filip (1999)) - they create ‘new’ words:

- (6) On menja **perebil**.
 he.NOM. me.ACC. **across-beat^P**.sg.ms.
 ‘He interfered with me.’

Below I will use these characteristics as a diagnostic of lexical prefixes to distinguish them from ‘superlexical’ prefixes.

2.2 Theoretical premises

2.2.1 Event structure in the semantics literature

In Chapter 1 I stated that lexical prefixes are the closest exponents of the BECOME predicate in decompositional structure of events. BECOME is a marker of resultative verbal predicates. The Vendlerian verb classes and resultative secondary predication have fit together in the literature since Dowty (1979). To recall, Dowty (1979) decomposed events into CAUSE, DO and BECOME semantic components. According to him, the verb classes have the following templates:

- (7) States: $V(x_1, \dots, x_n)$
 Activities: $DO(x_1, V(x_1, \dots, x_n))$
 Accomplishments: $DO(x_1, V(x_1, \dots, x_n)) CAUSE(BECOME V(x_1, \dots, x_n))$
 Achievements: $(BECOME V(x_1, \dots, x_n))$

As can be clearly seen from (7), accomplishments are the most complex event templates: they include activities and achievements, connected by the CAUSE component. More recent approaches have remained faithful to Dowty (1979) with some adjustments. For example, Levin (1999) isolates simple event structure templates (activities, states and achievements) and complex event structure templates (accomplishments). Accomplishments are composed by the activity and achievement both in her system and in the system of Rothstein (2004):

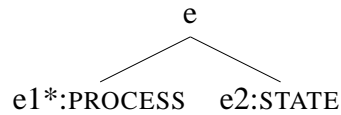
- (8) a. Levin (1999): $[[x ACT_{\langle MANNER \rangle}] CAUSE[BECOME[y \langle STATE \rangle]]]$
 (causative)

- b. Rothstein (2004): $\lambda e. \exists e_1 \exists e_2 [e =^S (e_1 \sqcup e_2) \wedge (\text{ACTIVITY}(P))(e_1) \wedge (\text{BECOME}(P'))(e_2)]$,

where $^S(e_1 \sqcup e_2)$ is an operation summing two atomic events into a new singular event¹.

Pustejovsky (2000) also develops the idea of decomposition of the neo-davidsonian event predicate into subpredicates associated with the subevents constituting the bigger event. Thus, instead of representing the accomplishment *build* as $\lambda y \lambda x \lambda e [\text{build}(e, x, y)]$, he proposes the following event tree for this verb where the activity part is represented by e_1 and the resultative part is represented by e_2 :

(9)



As accomplishments have such a complex event structure, it is not surprising that the verbs representing this class are often morphologically complex as well. In Slavic they usually consist of a verbal stem and a prefix. Resultative predication in English and other Germanic and non-Germanic languages is realized by separate words, adjectives ((10-a), (10-d)), PPs (10-b) and particles (10-c):

- (10) a. Mary painted the house red.
 b. John ran to the store.
 c. I ate the soup up.
 d. John sang the baby asleep.

The sentence in (10-a) is a typical example of an accomplishment derived from a transitive activity; that in (10-d) is an example of an accomplishment derived from an intransitive activity. The analysis of the semantic processes involved in such derivations proposed in Rothstein (2004) contains the operation **RSUM**:

- **RSUM** = resultative summing operation that sums the verbal predicate and the adjectival predicate;
- a type shift that takes place on secondary resultative predication.

- (11) a. $\text{RSUM}[\alpha, \beta] = \lambda y \lambda e. \exists e_1 \exists e_2 [e =^S (e_1 \sqcup e_2) \wedge \alpha(e_1, y) \wedge \beta(e_2, y) \wedge \text{TPCONNECT}(\text{Cul}(e_1), e_2, y)]$

¹Rothstein (2004) deliberately eliminates the **CAUSE** part from the event structure, because there are non-caused accomplishments, like ‘eat a sandwich’.

- b. $\text{SHIFT}_{\text{activity} \rightarrow \text{acc}}(\alpha_{\langle d, \langle e, t \rangle \rangle})$:
 $= \lambda y \lambda e. \exists e_1, e_2 [e =^S(e_1 \sqcup e_2) \wedge \alpha(e_1, y)$
 $\wedge \text{BECOME}_{\langle Y \rangle}(e_2) \wedge \text{Arg}(e_2) = y$
 $\wedge (e_1, e_2, C(e_2))]$
- c. $\text{SHIFT}^*_{\text{activity} \rightarrow \text{acc}}(\alpha_{\langle e, t \rangle})$:
 $\lambda y \lambda e. \exists e_1, e_2 [e =^S(e_1 \sqcup e_2) \wedge \alpha(e_1) \wedge \text{Arg}(e_1) = y$
 $\wedge \text{BECOME}_{\langle Y \rangle}(e_2) \wedge \text{Arg}(e_2) = \text{Th}(e_1)$
 $\wedge \text{INCR}(e_1, e_2, C(e_2))]$

In (11-a) α and β stand for the two predicates, the verbal and the adjectival as in ‘Mary painted the house red’, TPCONNECT is an operation connecting the time (T) and the participant (P) of the complex event, which culminates in e_1 . ‘The culmination modifier denotes a function from activities to accomplishments... [it] assigns the culmination to an event, and selects the theme (or affected argument) of the matrix verb to be the argument of the culmination. When the matrix predicate is an intransitive, the second clause in the culmination modifier, $\text{Arg}(e') = \text{Th}(e)$, forces the verb meaning to shift from type $\langle e, t \rangle$ to type $\langle d, \langle e, t \rangle$, adding an argument to the matrix predicate which is the argument of the culmination event and thus the incremental theme’ (Rothstein (2004):101-102), where d is a type for a free variable x , belonging to the domain of individuals, e is an individual, t is a truth value. (11-b) represents a notation for the aspectual shift from transitive activities to transitive accomplishments (10-a): ‘resultative conjunction is object-oriented, and thus the process conjoins expressions at type $\langle d, \langle e, t \rangle \rangle$ ’ (Rothstein (2004):76), (11-c) is a representation of the shift from intransitive activity of the type $\langle e, t \rangle$ to the transitive accomplishment (10-d) of the above mentioned types. Thus, all the accomplishments are transitive, because the culmination subevent has an argument, an incremental theme, shared with the verb through the TPCONNECT operation.

Intuitively, in the terms of Pustejovsky (2000), the analysis of the sentence ‘John painted the white house blue’ can be represented in a simpler schematic notation, in which the activity subevent precedes the result state subevent and the two share the argument throughout one macroevent:

$$(12) \quad \exists x \exists e_1 \exists e_2 [\text{paint_act}(e_1, j, x) \wedge \text{house}(x) \wedge \text{blue}(e_2, x) \wedge e_1 \prec e_2]$$

This model is the closest semantic precursor of syntactic representation of event decomposition.

2.2.2 First Phase Syntax

I do not find treating event and argument structure sufficient without appealing to syntactic mechanisms underlying the composition of predicational relations. Even if the

systems in Dowty (1979), Levin (1999), Rothstein (2004) etc. manage to capture certain regularities of the phenomena in question, they fail to offer a systematic explanation for non-arbitrary morphosyntactic derivations crosslinguistically.

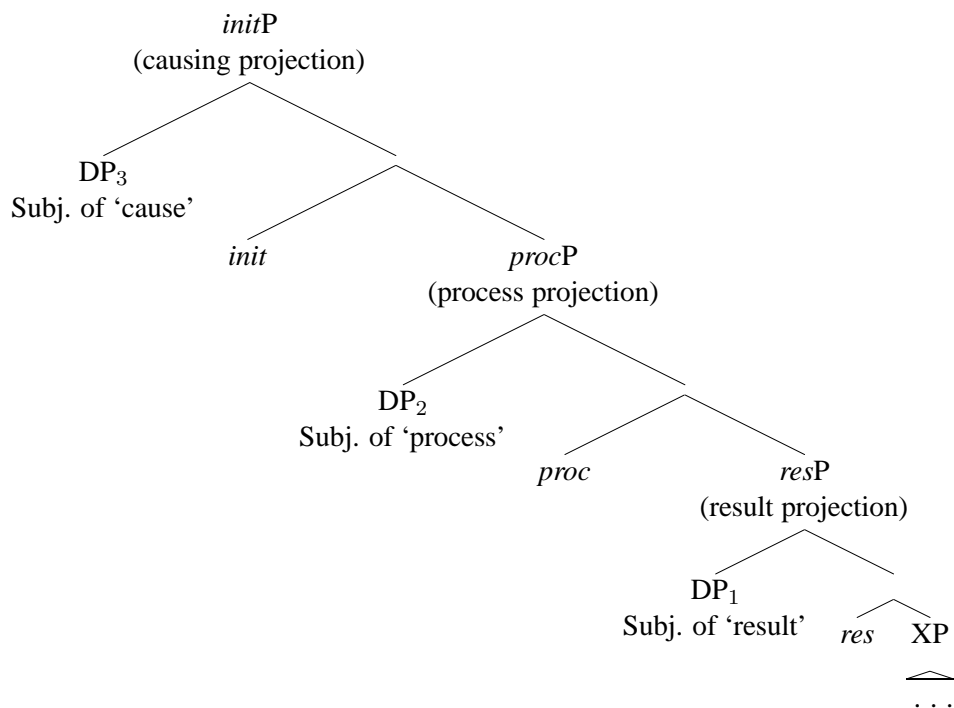
Lexicalist systems account for various structures on a case-by-case basis. For them, the verb comes from the lexicon with a semantic denotation that presupposes its appearance in certain semantic structures. For example, to justify transitivity emerging in originally intransitive verbs containing the BECOME predicate, Rothstein (2004) postulates the complicated type shift operation (11). However, this operation is not applicable to all intransitive verbs. Compare:

- (13) a. John sang the babies asleep.
 b. The firewood burnt (*the paper) black.

This is one thing templatic systems cannot always predict, namely, a way in which resultative predication correlate with the argument structure of the verb. However, when one treats argument structure of the verb as the contribution of its syntactic environment which simultaneously determines structural options for resultative predication, one can draw a number of enlightening generalizations based on syntactic regularities provided by grammar.

I will appeal to Ramchand (2006) and her First Phase Syntax for explaining argument structure and event structure interdependence. The First Phase Syntax is a tripartite structure including *init*(iation) P(hrase), *proc*(ess) P(hrase) and *res*(ult) phrase. *ResP* is the name of the resultative predicate locus that can be lexicalized by a verbal root ('break') or a separate morpheme or word in English (a particle or a resultative adjective):

(14)



An activity verb coming from the lexicon is inserted simultaneously in two projections: *initP* and *procP*, because it is agentive and stands for a process; it has no means of filling *resP*. As I will show below, the *resP* is filled by a prefix (see also Ramchand (2004b), Ramchand (2004a), Svenonius (2004a)). The obligatory object then is the obligatory Subject of 'result' - and this is consistent with Rothstein's story. As I will demonstrate in the coming sections, lexically prefixed verbs often require not only a direct object but also a PP, and the direct object of the lexically prefixed verb is often a specifier of the prepositional phrase. Thus, in the system, where the prefix is a head of *resP*, the resultative predicate and the verb share one argument (Rothstein (2004)) and PP is an obligatory complement of the verb, one and the same argument is simultaneously an argument of the preposition, a Subject of 'result' and a Subject of 'process'.

From the perspective of syntactic constraints on lexical insertion known as the Theta-criterion and the Projection Principle, the system described above does not seem very plausible. I conclude that it works only at the macrolevel, the level of the verb and its arguments; at the level of event decomposition the arguments of the event arguments inevitably 'collect' more than one role. Brody (1993) used multiple Theta-marking of one and the same argument as evidence against the Theta-criterion. Chomsky (1995) for a number of reasons similar to those in Brody (1993) and due to non-existence of D-structure rejected the Theta-criterion altogether.

2.2.3 Two approaches to analyzing particles

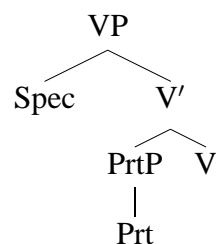
Russian lexical prefixes can be analyzed on a par with Germanic particles, having a lot in common and inducing similar structural effects. Below I present the catalogue of their similarities:

- phonologically most lexical prefixes on the one hand and Germanic particles on the other have counterparts among prepositions;
- in Slavic as well as in Germanic the prefix (particle) and the preposition of the same phonological form often coocur;
- they can have spatial meaning;
- or they can have idiosyncratic meaning;
- lexical prefixes and Germanic particles form accomplishments and achievements;
- the internal argument of a lexically prefixed verb and a particle verb is a subject of BECOME predicate;
- particles and prefixes often demonstrate similar behaviour wrt internal argument selection.

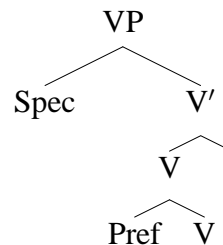
I will discuss how Germanic particles have been treated in literature and extend this discussion to lexical prefixes.

There have been two main approaches in analysing Germanic particles: the complex predicate approach (CP) and the small clause (SC) approach. The former approach takes the verb and the particle to form a constituent. One of the proponents of this approach is Zeller (2001). According to him, the contrast between particle verbs and prefix verbs in German and Dutch can be illustrated like the following:

(15) a. Particle verbs



b. Prefix verbs



The constructions in (15) explain why particle stranding is possible with the particle verbs and impossible with the prefix verbs - the former never make up a complex head. However, the direct object of the verb is directly left out of the picture.

The second major approach to treating verbs and particles (prefixes) shows how the presence of a prefix extends the argument structure of the verb.

This is a Small Clause approach (den Dikken (1995), Dehé et al. (2002) and the references cited there, Ramchand and Svenonius (2002)). Its proponents claim that a particle and the direct object are the Head and the Specifier of the same maximal projection, that is, the particle predicates of the direct object:

(16) $[_{VP} \dots \text{write } [_{SC} [_{NP} \text{the number}] [_{Particle} \text{down}]]]$

In Ramchand and Svenonius (2002) V and Prt (Particle) are mediated by R(esult) Phrase. This is a position where the particle end up after the particle shift takes place. In the view advocated by these authors, the internal argument of the verb is introduced by Prt:

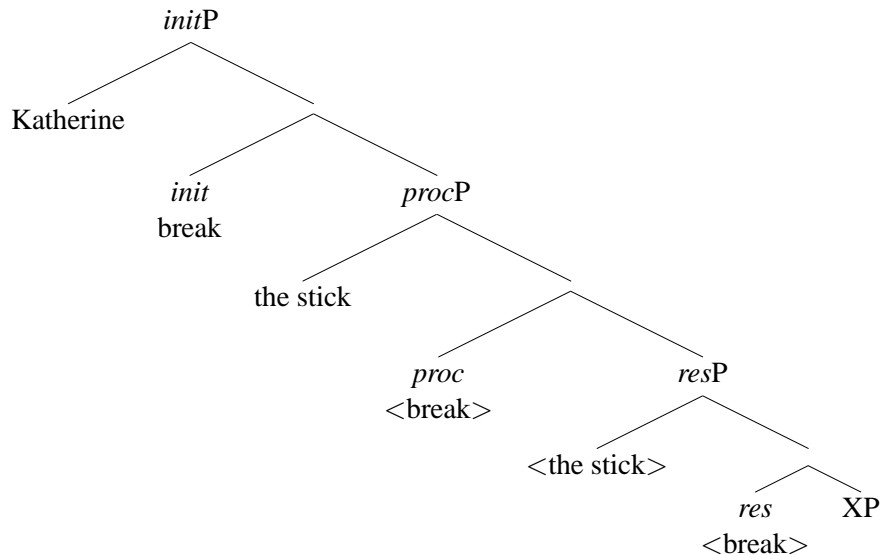
(17) $[_{VP} \text{AGT throw-}v [_{VP} \text{UNDR } t_V [_{RP} \text{HOLDR of-R } [_{PrtP} \text{the rat } [_{Prt} t_{Prt}]]]]]$,
where UNDR is Undergoer and HOLDR of-R is a Holder-of-Result State.

As is clear at this point, this is the analysis I am adopting in this work. It is also corroborated by the data above and the part of the semantic analysis offered in Rothstein (2004), which deals with the argument introduction in accomplishments.

(18) a. He ran his shoes ragged.
b. She wiped the table clean.
c. $[_{TP} [_{DP} \text{he}] [_{VP} \text{ran}] [_{RP} [_{DP} \text{his shoes}] [_{AP} \text{ragged}]]]$

It remains to clarify what category a lexical prefix actually represents. In section 2.2.1 I mentioned a group of verbs which have a culmination component in their event structure prior to prefixation. According to the First Phase Syntax model, such verbs lexicalize all the three subevent projections without extra morphological tools (like prefixes). Consider the example from Ramchand (2006):

- (19) a. Katherine broke the stick.
b.



The example in (19-b) demonstrates that RP can be present in the structure of the verb even without a prefix. Thus, the prefix must originate in another projection, lower down than RP. Lower down there usually can be a PP. This idea is also corroborated by Ramchand and Svenonius (2002) to which I return in the following section.

2.3 Types of lexical prefix

In this chapter I am going to show how the first type of perfective is formed. As lexical prefixes head a small clause, they introduce a predicational structure of their own. Thus, attaching to the verb, they interact not only with its aspectual characteristics, but also with the relation between the verb and its arguments, so the original argument structure of the verb itself is important in combining the two predicational structures.

Prefixed transitive verbs remain transitive; however their direct object can be selected not by the verb but by the prefix. In addition, some prefixes induce the presence of a PP in the complement position of a transitive VP. Intransitive verbs are subdivided into traditional unaccusatives and unergatives. Quite consistently the former demonstrate the following structure: DP PRF-V PP, whereas the structure of the latter (when they exist) is DP PRF-V DP. The patterns outlined here do not depend on the thematic role or incrementality of the object, neither do they depend on semantic characteristics of the verb apart from its (in)transitivity.

As prefixes are a subclass of the category of preposition and have an argument structure, at this point we should discuss the prepositional structure. The argument structure of prepositions involves two important spatial notions widely used in research on the category P (see, for examples, works by Peter Svenonius on the topic): Figure and Ground. 'Figure' and 'Ground' are substitute terms for 'Theme' and 'Location' arguments of prepositions. Prepositions are normally conceived of as relation between Figure and Ground. Talmy (1978):627 characterizes Figure and Ground as follows:

- (20) The Figure object is a moving or conceptually movable point whose part or site is conceived as a variable the particular value of which is the salient issue.
- (21) The Ground object is a reference-point, having a stationary setting within a reference frame, with respect to which the Figure's path or site receives characterization.

For example,

- (22) a. The pen lay on the table.
b. The pen fell off the table.

'In both, *the pen* specifies the object which functions as Figure, and *the table* the object which functions as Ground' (Talmy (1978)). Prepositions have certain characteristics with respect to both, Figure and Ground, discussed in detail in Svenonius (2002) and Svenonius (to appear):

- if there is a complement to P, it is always the Ground;
- P determines (lexically) whether there is a Ground;
- P can place selectional restrictions on the Ground;
- a Figure is expressed or implied;
- P does not c-select Figure
- P can s-select Figure

Consequently, prefixes have the characteristics above and can have a different argument structure. With respect to that predicational structure there are three main types of prefix:

- Prefixes with a Figure and a Ground

- Prefixes with a Figure
- Prefixes with a Ground

2.3.1 Prefixes with a Figure and a Ground

In this group I consider cases where a resultative predicate names the final location of the object (the Figure). Such resultative predicates are made up by a prefix introducing the Figure argument and a preposition introducing the Ground.

Transitive verbs

With transitive verbs, consider the example in (23). The interpretation of this example would be: ‘Waldemar made the street name be copied out of the notebook by writing it elsewhere.’ The sentence in (23) is a demonstration of the selectional properties of the resultative predicate, combined with the selection of the verb: with *pisatj* ‘write’ something goes to a new location by way of being written².

- (23) Waldemar **vy-pisal** nazvanije ulicy iz
 W. **out-wrote^P.past.3ms.** name.ACC. street.GEN. out.of
 bloknota.
 notebook.GEN..
 ‘Waldemar copied the street name out of the notebook.’

Thus, the spatial prefixes do not add to the argument structure of the transitive verbs, but they do seem to co-(s-)select for the arguments:

- (24) *pisatj pisjmo* ‘write a letter’
- vypisatj** *pisjmo/ predloženije iz pisjma
out-write^P.inf letter.ACC./ sentence.ACC. out.of letter.GEN.
 ‘copy *a letter/ a sentence from the letter’
 - vpisatj** *pisjmo/ predloženije v pisjmo
in-write^P.inf letter.ACC./ sentence.ACC. in letter.ACC.
 ‘insert *a letter/ a sentence into the letter’
 - zapisatj** *pisjmo/ predloženije s doski
on-write^P.inf letter.ACC./ sentence.ACC. off blackboard.GEN.
 ‘put down *a letter/ a sentence from the blackboard’

²In this particular case the original stays where it is; both copies are preserved, so to speak. A lot of spatially-prefixed verbs stand for a real change of location, as will be seen below.

- d. **pripisatj** *pisjmo/ predloženije
by-write^P.inf letter.ACC./ sentence.ACC.
 ‘add *a letter/ a sentence’
- e. **propisatj** *pisjmo/lekarstvo
through-write^P.inf letter.ACC./ medicine.ACC.
 ‘prescribe *a letter/ a medicine’
- f. **nadpisatj** ?pisjmo/knigu
above-write^P.inf letter.ACC./ book.ACC.
 ‘sign (on top) ?a letter/ a book’

The verbs of creation are not the only cases where prefixes select for the argument. As I mentioned at the beginning of the section, it does not matter to which semantic class the verb belongs. Take the transitive verb of motion *gnatj* ‘chase, drive’. In its unprefixated form the verb selects for the internal argument whose referent is either animate or a vehicle, when it is prefixed with *pro-* ‘through’, the internal argument of the verb can be ‘an article’ or ‘a speech’:

- (25) Neuželi neljzja bylo statju snačala čerez WORD
 prt. not-possible was.def. article.ACC. first through WORD.ACC.
prognatj?
through-drive^P.inf.
 ‘Why didn’t you first test the article in the Word?’ (meaning the spelling check)
 (<http://www.ryazancity.com/guestbook/index115.html>)

In such cases where lexical prefixes seem to substitute the arguments of the transitive verbs with their own, the thematic relations between the verb and its object are different from the original. You can ‘under-write a letter’ - *podpisatj pisjmo* - but this VP does not stand for the event of writing a letter at all, it is an event of signing a letter.

Another interesting fact about the prefixed transitive verbs is that they must have a PP as their complement. The presence of a PP seems to be a consequence of the presence of a prefix:

- (26) a. Vasja **pisal** predloženije (??iz rasskaza).
 V. **wrote^I.sg.ms.** sentence.ACC. **out.of short.story.GEN.**
 ‘Vasja was writing a sentence (??from a short story).’
- b. Vasja **vypisal** predloženije ??(iz rasskaza).
 V. **out-wrote^P.sg.ms.** sentence **out.of short.story.GEN.**
 ‘Vasja wrote a sentence out of a short story.’

The question marks instead of a star in (26-b) is an indication of omissibility of PPs for pragmatic reasons.

The prefixes homophonous with prepositions are the strongest inducers of PP presence:

- (27) a. Kamenj na detskoj ploščadke byl sliškom
stone.NOM. on children's ground.LOC. was.ms. too
boljšim, jeho nevozmožno bylo razbitj, i togda
big.sg.ms.INSTR. it.ACC. impossible was.def. break.inf. and then
Heikki **vdavil** jeho *(v zemlju).
H.NOM. **into-pressed^P.sg.ms.** it.ACC. into earth.ACC.
'The stone on the playground was too big, it was impossible to break it, so Heikki just pushed it *(into the earth).'
- b. Stepan **otkatil** bočku s ogurcami ??(ot
S. **aside-rolled^P.sg.ms.** barrel.ACC. with cucumbers.INSTR. from
saraja).
barn.GEN.
'Stepan rolled the barrel with pickles away ??(from the barn wall).'
- c. Katja **stërla** kroški ??(so stola).
K. **from-rubbed^P.sg.fem.** crumbs.ACC. from table.GEN.
'Katja cleaned the crumbs ??(from the table).'
- d. Veter **nagnal** tuči ?(na ijuljskoje tromsovskoje
wind **on-drove^P.sg.ms.** clouds.ACC. on July Tromsø.ADJ.
nebo).
sky.ACC.
'The wind has blown the clouds ?(onto July Tromsø sky).'

However as can be seen from the examples above, even the prefixes homophonous with prepositions allow PPs to drop in contextually clear cases, like in (27-b), (27-c) or, especially, (27-d) and maybe even in (27-a)³. Some prefix-verb complexes are lexicalized and their interpretation depends on the presence of a PP, like in *vybrositj musor* 'out-throw rubbish' vs *vybrositj sobaku* *(*iz okna*) 'out-throw a dog *(out of the window)⁴. If

³This phenomenon is similar to the direct object drop in Russian, the discussion of which is beyond the scope of this research

⁴As was noted to me by Asya Pereltsvaig, the presence of a particular PP can also change the meaning of the Prefix-Verb combination:

- (i) Vybrosj eto iz golovy.
out-throw^P.imper.2sg. this.ACC. out.of head.GEN.

the second example is used without a PP, the meaning will be like in the first, ‘discard’. Therefore, I will consider PPs obligatory with lexical prefixes attaching to transitive verbs. I will assume that a lexical prefix together with a prepositional phrase introduces a predicational relation, the Figure, which then gets promoted to the object position of the verb:

- (28) Kak vseгда, v vosemj časov babuška **zagnala**
 as always in eight hours.GEN. granny.NOM. **into-chased^P.sg.fem.**
 korovu v xlev i prigotovilasj jejo doiti.
 cow.ACC. (into barnACC.) and prepared it.ACC. milk.inf.
 ‘As usual, at eight o’clock granny drove the cow into the barn and was about to milk it.’

The direct object ‘cow’ is the Figure of the preposition, since it goes into the barn, the subject of the result state denoted by the prefix, since it ends up in the barn, and the internal argument of the verb. The internal argument of the verb sometimes gets only the accusative case from the verb, like in (27-c), and sometimes the accusative case and the thematic role, like in (28): the object in (27-c) is unselected and incompatible with the same verb without a prefix; in (28) the object can be the same even when the verb is unprefixes.

The case facts will be better seen when speaking about the intransitives. The resultative interpretation of lexical prefixes makes it possible for the VPs to pass the “rough” telicity test ‘in an hour’:

- (29) a. Katja **stërla** kroški so stola za pjatj minut/
 K. **off-rubbed^P.sg.fem.** crumbs.ACC. off table.GEN in five minutes/
 *pjatj minut.
 five minutes.
 ‘Katja cleaned the crumbs from the table in five minutes/ *for five minutes.’
- b. Veter **nagnal** tuči na nebo za kakije-to
 wind **on-drove^P.sg.ms.** clouds.ACC. on sky.ACC in some
 polčasa/*polčasa.
 half.an.hour/half.an.hour.
 ‘The wind has blown the clouds onto the sky in half an hour/*for half an hour.’
- c. Babuška **zagnala** korovu v xlev za desjatj
 granny **into-chased^P.sg.fem.** cow.ACC. into barnACC. in ten

‘Forget it!’

minut/ *desjatj minut.
 minutes/ten minutes.
 ‘Granny drove the cow into the barn in ten minutes/*for ten minutes.’

The first conclusion that can be inferred on the basis of transitive verb prefixation and its consequences for the argument realization of these verbs are:

1. After prefixation transitive verbs can have unselected direct objects
2. The direct objects of the prefixed verbs are also ‘subjects’ of the result state represented by a prefix and Figures of prepositions
3. Prefixed transitive verbs require PPs as their complements, thus the structure being DP PRF-V DP PP.

Now I am going to establish the co-occurrence patterns between VP and PP. At some point of the analysis (section 2.4) I will have to put the structures in (30) together to form a complex VP with the template above: DP PRF-V DP PP. The co-indexation of DPs is decoded in the following way⁵:

	Arguments of V	Arguments of P
Internal	Th = Theme	G= Ground
External	Ag = Agent	F = Figure

Schematically, the two predicational structures represented by a transitive verb and a prefix with both arguments are:

(30) $[_{VP} DP_{Ag} [V DP_{Th}]] + [_{PP} DP_F [P DP_G]]$

As we know, in resultative structures the external argument of the preposition and the internal argument of the verb is the same DP, that is, $DP_{Th} = DP_F$ in (30).

Intransitive verbs

There are two main patterns characterizing lexically prefixed intransitive verbs. Pattern I describes the situation in which the subject of the verb is also the Figure of the PP, and the PP is obligatory with the prefixed verb:

⁵The subscripts on the arguments of the verb are inspired by Dowty (1991): Ag corresponds to Dowty’s Proto-Agent, and Th corresponds to Proto-Patient thematic roles; the subscripts on the arguments of the preposition follow the terminology from Talmy (1978).

(31) Pattern I

- a. Erik, začem ty opjatj **zalez** *(na kletku s
E. why you.sg. again **on-climbed^P.sg.ms.** onto cage with
popugajčikom)?
parakeet.INSTR.
'Erik, why have you climbed onto the parakeet's cage again?'
- b. Xotj u menja i neboljšaja summa na sščète, *(na
though at me.GEN. and not.big sum.NOM. on account.LOC. on
nejë) uže **nabežali** procenty.
it.ACC. already **on-ran^P.pl.** percents.NOM.
'Although the sum in my account is not big, it has already produced some
interest.'
- c. Izmučennyj žaždoj putnik **pripal** *(k xolodnomu
tortured thirst.INSTR. traveller **by-fell^P.sg.ms.** to cold
gornomu rodniku).
mountain spring.DAT.
'The traveller, exhausted by thirst, knelt down and started drinking from
the cold mountain stream.'
- d. Xozjain sobaki **podlez** *(pod komod) i
owner dog.GEN. **under-climbed^P.sg.ms.** under closet.ACC. and
dostal sprjatannyj jej televizionnyj puljt.
got^P.sg.ms. hidden she.INSTR. TV.ADJ. remote.control.ACC.
'The owner of the dog crawled under the closet and got the remote control
it had hidden away there.'

If the surface subject of the verb is a Figure of a PP, there must be cases of apparently unselected subjects. This is indeed the case in (31-b): normally 'interests' do not 'run' in the usual sense of this verb, but considering the fact that the Ground is a sum of money, the Figure is 'interests', and this is then promoted to external argument position.

In Pattern II, an intransitive verb becomes transitive and no PP is required even in those rare cases when the verb has a prefix. I am taking two intransitive verbs in (32) for an example and demonstrate what happens to them after prefixation in (33):

- (32) a. ***dumatj** šutku
think^I.inf. joke.ACC.
'*think a joke'
- b. ***dutj** sveču
blow^I.inf. candle.ACC.
'*blow a candle'

(33) Pattern II

- a. Dima **vydumal** kakuju-to šutku k Nastinomu Dnju
 D. **out-thought**^P.sg.ms. some joke.ACC. by N.'s day.DAT.
 roždenija, no ona nikomu ne ponravilasj.
 birth.GEN. but it nobody.DAT. not appealed.^P.sg.fem.
 'Dima invented some joke for Nastja's birthday, but no one liked it.'
- b. Rževskij **zadul** sveču i stal medlenno snimatj
 R. **on-blew**^P candle.ACC. and got.^P.sg.ms. slowly take-off.inf.
 obmundirovanije.
 uniform.ACC.
 'Rževskij blew on the candle to extinguish it and started slowly to take off his uniform.'

The presence of the PP in (33-a) is not obligatory, it is not a complement of VP. The verbs in (33) seem to belong to the most interesting class, because after prefixation they become transitive, which supports the idea that it is prefixes that introduce a new argument.

One possible exception to the generalization that Pattern II verbs disallow the presence of the PP is the case of the prefix *v-*:

- (34) a. Tak, graždanin, **vdujte-ka** vozdux vot v etu tubočku.
 so citizen **in-blow.prt.** air prt. into this tube.ACC.
 'So, citizen, blow the air into this tube.'
- b. Naš novyj sotrudnik uže **vrabotalsja** v projekt.
 our new worker already **in-worked.self**^P.sg.ms. into project.ACC.
 'Our new colleague has already submerged into the project.'
- c. **Vdumajsja** v eti slova.
into-think.self.2sg.IMP into these words.ACC.
 'Consider these words.'

This might be a property of a single prefix - in addition, as can be seen from (34-b) and (34-c), the verbs are not exactly transitive, instead of the direct objects they have reflexive markers *-sja*. If we assume that *-sja* in the examples above represents the internal argument of the verb, the structures there are really those demonstrated by the transitives: DP PRF-V DP PP⁶.

⁶The same verbs without prefixes have a different type of *-sja* that does not represent the internal argument, but rather changes the whole construction into an impersonal(-causative?) one:

- (i) Mne zdesj xorošo **dumajetsja/ rabotajetsja**.
 me.DAT here well **think**^I.sja.3sg./ **work**^I.sja.3sg.

In general, the behavior of Pattern I intransitive verbs is reminiscent of that demonstrated by transitive verbs:

1. After prefixation Pattern I intransitive verbs can have unselected subjects (underlying objects)
2. Pattern I intransitive verbs (nearly) obligatorily take PPs as their complements, thus the structure being DP PRF-V PP.

If I put exceptional *v-* prefixed cases aside, the general behavior demonstrated by the Pattern II intransitive verbs is different from the ones stated for transitive and Pattern I intransitive verbs and has the following characteristics:

1. After prefixation Pattern II intransitive verbs transitivize
2. The newly acquired object of the verb is shared by the verb and the prefix.
3. Prefixed Pattern II intransitives do not take a PP as their complement, thus the structure being DP PRF-V DP

2.3.2 Verb classes in Russian. The tests for (un)ergativity

As we saw from the behavior demonstrated by prefixed intransitives, there seems to be two distinct intransitive classes. The purpose of this section is to examine whether the intransitive classes stated in the previous section correspond to the unergative-unaccusative division in the literature (Perlmutter (1978), Hale and Keyser (1993), Levin and Hovav (1995), Kratzer (1996), Arad (1998), Harves (2002) etc.).

Some languages are luckier than others in having, for example, different auxiliaries with unergative and unaccusative verbs. Italian and Dutch are the best known examples:

- (35)
- a. Jan heeft gesprongen
J. have jumped
'Jan has jumped.' Dutch, unergative
 - b. Jan is in de sloot gesprongen
J. is in the ditch jumped
'Jan has jumped into the ditch.' Dutch, unaccusative
 - c. Gianni ha corso.
G. have run
'Gianni has run.' Italian, unergative

'Thinking/ working is easy (pleasant) for me here.'

- d. Gianni è corso a casa.
 G. is run to house
 ‘Gianni has run to the house.’ Italian, unaccusative
 (examples from Arad (1998))

Russian does not have any overt expression of unaccusativity or unergativity, or so it seems, therefore a number of tests were coined for testing the verbs with respect to their argument structure. The most popular tests are genitive of negation and distributive (preposition) *po*. I have doubts about the validity of these tests. Below I will show why.

Genitive of Negation

The popular tests for unaccusativity in Russian, namely, Genitive of Negation (GN) (Pesetsky (1982), Neidle (1988), Schoorlemmer (1995), Babyonyshev et al. (2001), Babyonyshev (2002), Harves (2002), Bailyn (2003)) and distributive *po* phrase (Pesetsky (1982), Schoorlemmer (1995), Schoorlemmer (2004), Harves (2002)), are not reliable. GN was proposed in Pesetsky (1982) as a diagnostic for unaccusativity because it is a famous fact that genitive is often the case of the object of the negated verb:

- (36) Ja ne čitaju knig.
 I not read^I.pres.1sg. books.GEN.
 ‘I do not read any books.’

As the only argument of an unaccusative verb is its underlying object, the GN phenomenon has to hold of it too and it has to be ungrammatical with unergatives⁷:

- (37) a. Zdesj ne voditsja losej.
 here not be.found^I.pres.3sg. moose.pl.GEN.
 ‘Here moose are not found.’ (Neidle (1988):73)
- b. Zdesj travy ne roslo.
 here grass.GEN. not grew^I.def.
 ‘No grass has grown here.’ (Schoorlemmer (1995):32)
- c. *Nikakix devoček ne tancevalo.
 no.kind.pl.GEN. girls.GEN. not danced^I.def.
 ‘No girls danced.’ (Babyonyshev et al. (2001):12)

However the following examples from Babby (2001):50-51 are considered grammatical by the author (Leonard Babby) and many native speakers, even though they are supposed to be unergative:

⁷The example in (37-c) is acceptable for a lot of native speakers, including me.

- (38) a. Tam (boljše) ne igrajet nikakix detej.
 there (more) not play^I.pres.def. no.kind children.GEN.
 ‘There are no longer any children (seen) playing there.’
- b. Uže byli ne toljko kvartiry, no daže celyje doma, v
 already were not only flats.NOM. but even whole.pl. houses.NOM. in
 kotoryx ne žilo ni odnogo čeloveka.
 which not lived^I.def. not single person.GEN.
 ‘There were not only flats but even entire buildings in which there wasn’t
 a single person living.’

On the other hand, the example in (39) is not as grammatical as would be expected:

- (39) *Ne upalo jabloka/jablok.
 not away-fell^{P/I}.def. apple/apples.GEN.
 ‘No apple(s) fell.’

On adding a negative concord element the example drastically improves⁸:

- (40) S etogo dereva ne upalo ni odnogo jabloka.
 from this.nt.GEN. tree.GEN. not fell^P.def. not.NPI single.nt.GEN. apple.GEN.
 ‘Not a single apple has fallen from this tree.’

In addition, the picture is not as uniform as one would hope with respect to passive constructions: sometimes, like in (41-a), GN is possible, but sometimes, as in (41-b) it is not (the examples are from Testelec (2001):337):

⁸Compare the following unergative sentences with and without negative concord elements:

- (i) a. *V etoj komnate ne spalo detej.
 in this.fem.LOC. room.LOC. not slept^I.def. children.GEN.
 ‘No children were sleeping in this room.’
- b. ?V etoj komnate (ješčě) ne spalo ni odnogo reběnka.
 in this.fem.LOC. room.LOC. (still) not slept^I.def. not.NPI single.ms.GEN. child.GEN.
 ‘Not a single child has ever slept in this room.’

- (41) a. Deneg ne bylo prislano.
 money.GEN. not was.def. sent.PPP
 ‘No money has been sent.’
 b. *Statej ne bylo pročitano.
 articles.GEN. not was.def. read.PPP
 ‘No articles have been read.’

As there are such a lot of contradictory facts about GN and as judgements differ drastically from one speaker to another, I am taking a stand against using GN as an unaccusativity diagnostic.

So the facts justifying my doubts about this test are summarized below:

- A lot of factors are at play with GN: word order, negative concord elements, referentiality, presupposition of existence, possibly even aspect. Thus the right environment for GN can be generated with any class of verb
- Without the above mentioned factors even unaccusative genitive subjects may sound ungrammatical under negation (see (39))

Thus, even if GN is assigned to the subjects of unaccusative verbs more easily than to the subjects of some unergatives, it is not applicable as a diagnostic for unaccusativity for reasons mentioned above (general messiness)⁹.

Distributive *po* construction

Distributive *po* is a preposition used in distributive constructions with a DISTRIBUTOR and a DISTRIBUTE (or distributed share). The DISTRIBUTOR is a DQP (Distributive Quantifier Phrase) headed by ‘each/ every’; the DISTRIBUTE is what is distributed (Beghelli and Stowell (1997)). In Russian the latter is often marked by preposition *po*.

The motivation that led Pesetsky (1982) and other authors to choose the distributive *po* phrase as a diagnostic for unaccusativity was its syntactic distribution: it is limited to non-oblique VP-internal NPs:

- (42) a. Ja dal každomu maljčiku po jabloku.
 I gave^P.sg.ms. every boy.DAT. po apple.DAT.
 ‘I gave every boy (a different) apple.’
 (Harves (2002):92)

⁹For those interested, Padučeva (1997):107-109 offers a long but not exhaustive list of verbs allowing GN on their subjects.

- b. Po jabloku upalo s každogo dereva.
 po apple.DAT. fell^P.def. from every tree.GEN.
 ‘A (different) apple fell from each tree.’
 (Harves (2002):93 citing Babby (1980))
- c. *V každoj kvartire smejalosj po maljčiku.
 in each.fem. flat.LOC. laughed^I.def. po boy.DAT.
 ‘A (different) boy laughed in each flat.’
 (Schoorlemmer (1995):33)

However, there are cases when *po* phrase can be a subject of a transitive or unergative verb¹⁰:

- (43) a. Každyj filjm posmotrelo po odnomu zritelju.
 each film.ACC. watched^P.def. po one.DAT. spectator.DAT.
 ‘Every film has been watched by one spectator.’
- b. ?Každuju rukopisj čitajet po redaktoru.
 each.fem. manuscript.ACC. read^I.pres.def. po editor.DAT.
 ‘Each manuscript is beign read by an (different) editor.’
 (Testelec (2001):338)
- c. (?)Po (odnomu) amerikancu v každoj komnate igralo
 po (one) American.DAT. in every.fem. room.LOC. played.^I.def.
 v rusckuju ruletku.
 in Russian.fem. roulette.ACC.
 ‘One American in each room was playing the Russian roulette.’
- d. ?V každoj pesočnice igralo po rebjonku.
 in each.fem. sandbox.LOC. played^I.def. po child.DAT.
 ‘There was a child playing in each sandbox.’
 (Testelec (2001):338)¹¹

So the main reason for doubting the distributive *po* phrase as a valid unaccusativity diagnostic in Russian is:

- The empirical data show that *po* phrases are not limited to the internal argument

¹⁰Harves (2002) claims that ‘distributive *po* phrases are disallowed with subjects of transitive and unergative predicates due to the fact that transitive and unergative predicates are incapable of licensing non-agreement in Russian’ (p.103). The claim is certainly wrong as has been seen from the examples above and as was well shown in Pereltsvaig (2006), where the author comes to the conclusion that it is the size of the nominal projection that matters for agreement or non-agreement: DPs do agree with the verb, QPs do not.

¹¹It is true that it’s hard to judge such examples. The speakers who accept them claim that they sound like puzzles from a maths book.

position of the verb.

Thus, due to the general lack of understanding of *po* phrase and the contradictory empirical data, this phenomenon cannot be used as an unaccusativity diagnostic (though, again, *po* phrase is more acceptable as an internal argument of the verb than as any other argument).

The test that works. Distributive and cumulative prefixes scoping over the subjects

This test has been offered in Borik (1995), Schoorlemmer (1995), Harves (2002), Romanova (Forthcoming). It is based on the structural position of some superlexical prefixes - namely, accumulative *na-* and distributive *pere-* - with respect to the verb and its arguments. The main idea is that cumulative *na-* and distributive *pere-* scope only over the internal arguments of the verb.

- (44) a. Apostol Andrej **nalovil** peskarej.
 apostle A. **CUM-caught^P.ms.** gudgeons.GEN.
 ‘Apostle Andrew has caught a lot of gudgeons.’
- b. I kto eto **peremyl** vse bokaly posle
 and who this **DIST-washed^P.ms.** all.pl. goblets.ACC. after
 korporativnoj večerinki?
 corporative.fem. party.GEN.
 ‘Who was that that washed all the goblets after the office party?’
- c. O, skoljko šišek **napadalo!**
 oh how.many cones.GEN. **CUM-fell^P.def.**
 ‘Oh, what a lot of cones have fallen down!’
- d. Vse krysy **peredoxli.**
 all rats.NOM. **DIST-died^P.pl.**
 ‘All the rats died.’

Thus, in (44-a) and (44-b) the superlexical prefixes under discussion take scope over the direct objects of the verb, in (44-c) and (44-d) they scope over the subjects of the verb - but in fact, they are still internal arguments. I think it is better demonstrated by the accumulative prefix *na-*, because it requires an overt or covert quantifiers which assign genitive to the objects: in (44-a) it is ‘gudgeons’ that are genitive, in (44-c) it is ‘cones’ (here there is an overt quantifier though). The same configuration is not possible with unergative verbs at all: cumulative *na-* does not attach to the majority of them ¹², and

¹²A so-called saturative *na-* can attach to unergatives, but it scopes over *-sja* coreferent with the external argument.

with those it attaches to it never scopes over the subject. The same is true of distributive *pere-*:

- (45) a. *Pod batarej **naspalo** mnogo kotjat.
 under radiator.INSTR. **CUM-slept^P.def.** many kittens.GEN.
 ‘A lot of kittens slept under the radiator.’
 b. *Deti **pereplakali** nad skazkoj.
 children **DIST-cried^P.pl.** over fairy.tale.INSTR.
 ‘*Children cried over the fairy tale one after another.’

From now on I will use this test for classifying the Russian verbs into unaccusative and unergative and thus it will be clear if we are getting an additional test for unaccusativity reflected in the pattern of attaching behavior of lexical prefixes.

The unaccusativity test applied to Pattern I and Pattern II intransitives

Here I am going to apply the valid unaccusativity test to the verbs from section (30) (see (48) for Pattern I and (49) for Pattern II). The examples of Pattern I verbs in section (30) are:

- (46) *goretj* ‘burn’, *bežatj* ‘run’, *leztj* ‘climb’, *(u)pastj* ‘fall’.

Under prefixation they bring about the structure similar to that of transitives: DP PRF-V PP. The examples of Pattern II verbs in section (30) were:

- (47) *dumatj* ‘think’, *dutj* ‘blow’, *rabotatj* ‘work’, *žitj* ‘live’

Under prefixation these verbs project structures different from both transitives and Pattern I intransitives in that they do not have a PP: DP PRF-V DP. As an unaccusativity diagnostic here I am using the accumulative prefix only, for distributive *pere-* or *po-* attach to different verbs for independent reasons:

- (48) a. **nagorelo** električestva
CUM-burned^P.def. electricity.GEN.
 ‘lots of electricity was used’
 b. **nabežalo** ljubopytnyx
CUM-ran^P.def. curious.pl.GEN.
 ‘lots of curious people have come (by running)’
 c. **nalezlo** vsjakix pridurkov
CUM-crawled^P.def. sundry.pl.GEN. morons.GEN.
 ‘lots of different morons got in
 (the forum on sqd.ru/music/metal/the_golden_age_of_grotesque/)’

- review/print)'
 d. **napadalo** apeljsinov
CUM-fell^P.def. oranges.GEN.
 'lots of oranges fell down'

(49)

- a. ***nadumalo** (mnogo) maljčikov
CUM-thought^P.def. (many) boys.GEN.
 'a lot of boys have thought'
 b. ***narabotalo** kompjuterov
CUM-worked^P.def. computers.GEN.
 'lots of computers have worked'
 c. ***nadulo** uraganov
CUM-blew^P.def. hurricanes.GEN.
 'lots of hurricanes have blown'
 d. ***nažilo** mnogo studentov
CUM-lived^P.def. many students.GEN.
 'lots of students have lived'

As the tests in (48) and (49) show, I can boldly rename 'Pattern I' verbs 'unaccusative' verbs and 'Pattern II' verbs 'unergative' verbs.

2.3.3 Prefixes with just a Ground

In the previous type of lexical prefixation, the prefix introduces the Figure that becomes the internal argument of the verb, and the preposition introduces the Ground of the spatial-resultative predication. In this section I am going to investigate the prefixes that introduce only a Ground argument and do not introduce a Figure. I will consider prefixes like *o-* 'around', *za-* 'on' and *iz-* 'out.of':

- (50) a. Jussi **ispisal** vsju tetradj (stixami).
 Jussi **out.of-wrote^P.3sg.ms.** all.fem.ACC. notebook.ACC. poems.INSTR.
 'Jussi used up the whole notebook (by writing poems in it).'
 b. Ivan **zakleil** dyru (bumažkami).
 John **on-glued^P.sg.ms.** hole.ACC (papers.INSTR.)
 'John glued the hole with pieces of paper.'

All the verbs in (50) select for different objects from the ones in the examples. You do not write a notebook (51-a), you write something *in* it, and you do not glue the hole, you glue pieces of paper onto it (52-a). Compare the examples above to the unprefixated coun-

terparts of the verbs in (50) yielding ungrammaticality without a PP and fully acceptable with a PP:

- (51) a. *Jussi **pisal** vsju tetradj.
 Jussi **wrote^I.3sg.ms.** all.fem.ACC. notebook.ACC.
 ‘*Jussi wrote the whole notebook.’
- b. Jussi **pisal** stixi v tetradj.
 Jussi **wrote^I.3sg.ms.** poems.ACC. into notebook.ACC.
 ‘Jussi was writing poems into the notebook.’
- (52) a. *Ivan **kleil** dyru.
 John **glued^I.sg.ms.** hole.ACC
 ‘*John glued the hole.’
- b. Ivan **kleil** bumažki na dyru.
 I. **glued^I.sg.ms.** papers.ACC. on hole.ACC.
 ‘Ivan was gluing paper pieces onto the hole.’

As the verbs do not select for the arguments in (51-a) and (52-a), the sentences are ungrammatical or unacceptable; remember that with their prefixed counterparts in (50) these nouns were licit. The sentences in (51-b) and (52-b) show what source the arguments in (50) have; namely, they are Ground arguments of the prepositions. There are also Figures in (51-b) and (52-b). What happens to them after the attachment of *is-*, *za-* and *ob-*? And what happens to the prepositions?

As we can see, the Ground argument in (50) immediately follows the transitive verb and has accusative case. With an overt preposition this position and this case are allocated to the Figure ((51-b), (52-b)). When *o-*, *za-* and *iz-* attach to the verb, the Figure argument becomes optional and gets marked with the instrumental case (50). All this is very reminiscent of the passivization of a verb: its external argument can be present in the structure, but then it is optional and marked with the instrumental case (53-b)¹³, meanwhile the internal argument of the verb occupies the position and gets the case typical of the external arguments of active verbs:

- (53) Passive verbs
- a. Policija **arestovala** studentov.
 police.NOM. **arrested^P.sg.fem.** students.ACC.
 ‘The police arrested the students.’ ACTIVE
- b. Studenty **byli arestovany** policijej.
 students.NOM. **were arrested.PPP.pl.** police.INSTR.
 ‘The students were arrested by the police.’ PASSIVE

¹³The instrumental case on the external arguments corresponds to the English ‘by-phrase.’

The possible problem in the discussion is connected with the interpretation of the prefixes and their relationship with the only argument they have: when a notebook ends up in the result state *is-* ‘out.of’, it does not mean that the notebook is out of something, except for space¹⁴.

Ground selecting prefixes and spray/load alternation

Besides the argument reversal type verbs like ‘fear-frighten’ mentioned in footnote 14, Ground selecting prefix constructions might be also reminiscent of the ‘spray/load’ alternation type verbs, only in this case the alternation is induced by prefixation. The Figure+Ground prefixes preserve the original argument relations of the verb ((54) and (55)); the Ground prefixes reverse it (56):

- (54) a. **kleitj** oboi na
glue^I.inf. w.paper.ACC. on
 stenu
 wall.ACC.
 ‘glue wallpaper onto wall’
- b. ***kleitj** stenu
glue^I.inf. wall.ACC.
 obojami
 w.paper.INSTR.
 ‘glue wall with wallpaper’
- (55) a. **nakleitj** oboi na stenu
on-glue^P.inf. wallpaper.ACC. on wall.ACC.
 ‘glue the wallpaper onto the wall’
- b. ***nakleitj** stenu obojami
on-glue^P.inf. wall.ACC. wallpaper.INSTR.

¹⁴Pointed out to me by Peter Svenonius, who suspects there might be just an argument reversal similar to Subject/Object experiencer cases like ‘frighten/fear’: either something goes out of space (like, poems), or space goes out of something (notebook); either something goes out of existence (i-a) or comes into it (i-b):

- (i) a. He cut his name out from the list.
 b. He cut his name out on a rock.

Interestingly, the sentence in (i-a) contains a change-of-location Theme, the sentence in (i-b) contains an effected Theme. This pattern is also present in Russian, but it is not connected with passivizing prefixes:

- (ii) a. On **vyrezal** slonika iz dereva.
 he **out-cut^P.sg.ms.** elephant.ACC. out.of wood.GEN.
 ‘He chipped a little elephant out of wood.’
- b. On **vyrezal** zametku iz gazety.
 he **out-cut^P.sg.ms.** article.ACC. out.of newspaper.GEN.
 ‘He cut an article out of the newspaper.’

I will return to such cases later in the chapter.

‘glue the wall with wallpaper’

- (56)
- | | | | |
|----|--|----|---|
| a. | <p>*zakleitj oboi
 on_p-glue^P.inf. wallpaper.ACC.
 na stenu
 on wall.ACC.
 ‘*be-glue the wallpaper on the</p> | b. | <p>wall’
 zakleitj stenu
 on_p-glue^P.inf. wall.ACC.
 obojami
 wallpaper.INSTR.
 ‘be-glue the wall with the wallpa-
 per’</p> |
|----|--|----|---|

Most unprefixated verbs refuse to alternate between Figure and Ground arguments, including *kleitj* ‘glue’, *kapatj* ‘drip’, *lepitj* ‘paste’, *bryzgatj* ‘spray’ etc. However there is a limited number of verbs in Russian that truly behave like ‘spray’ and ‘load’ even when unprefixated:

- (57)
- | | | | |
|----|--|----|--|
| a. | <p>gruzitj seno na
 load^I.inf. hay.ACC. on
 telegu
 cart.ACC.
 ‘load hay onto cart’</p> | c. | <p>mazatj maslo na
 smear^I.inf. butter.ACC. on
 xleb
 bread.ACC.
 ‘smear butter onto bread’</p> |
| b. | <p>gruzitj telegu
 load^I.inf. cart.ACC.
 senom
 hay.INSTR.
 ‘load cart with hay’</p> | d. | <p>mazatj xleb
 smear^I.inf. bread.ACC.
 maslom
 butter.INSTR.
 ‘smear bread with butter’</p> |

The alternating nature of such predicates is preserved with Figure+Ground prefixes:

- (58)
- | | | | |
|----|---|----|--|
| a. | <p>namazatj maslo na
 on-smear^P.inf. butter.ACC. on
 xleb
 bread.ACC.
 ‘smear (the) butter on the bread’</p> | b. | <p>namazatj xleb
 on-smear^P.inf. bread.ACC.
 maslom
 butter.INSTR.
 ‘smear the bread with butter’</p> |
|----|---|----|--|

The difference between the majority of verbs (cf. (54)) and the verbs in (57) is that in the former case, the Ground prefixes create an order of the arguments which is not available otherwise, and in the latter case both orders are available prior to prefixation, but one (Figure_{ACC} P Ground_{ACC}) gets blocked when a Ground prefix attaches:

- (59) a. **zamazatj** stenu kraskoj
on-smear^P.inf. wall.ACC. paint.INSTR.
 ‘bedaub the wall with paint’
- b. ***zamazatj** krasku na stenu
on-smear^P.inf. paint.ACC. on wall.ACC.
 ‘*bedaub the paint onto the wall’
- c. **izmazatj** stenu kraskoj
out.of-smear^P.inf. wall.ACC. paint.INSTR.
 ‘smear the wall with paint’
- d. ***izmazatj** krasku na stenu
out.of-smear^P.inf. paint.ACC. on wall.ACC.
 ‘smear the paint onto the wall’

This set of data is supposed to show that the selectional properties of *za-*, *iz-* and *o-* are strongly restricted to the Ground of a preposition.

Ground selecting prefixes and unaccusatives

There is basically one structure available with unaccusatives with Ground selecting prefixes¹⁵:

- (60) a. Nastupila osenj i derevja **obleteli**
 came.fem.3sg. autumn.NOM. and trees.NOM. **around-flew.3pl.**
(opali).
(around-fell).
 ‘The autumn came and the trees lost all their leaves.’

¹⁵Some directed motion verbs demonstrate a different pattern, the one characteristic of Figure+Ground prefixes, DP PRF-V DP:

- (i) My s carëm **obleteli** svoi vladenija.
 we with tsar **around-flew^P.3pl.** self.poss. possessions.ACC.
 ‘The tsar and I have flown around our kingdom.’

The number of such verbs is limited and some of them are substitutable with their non-directed counterparts:

- (ii) On **obegal/** **obežal** vse magaziny.
 he **around-ran^P.ndir.inf./** **around-ran^P.dir.inf.** all shops.ACC.
 ‘He has been to all the shops around’

Due to the small number of such cases I will consider them exceptions to the otherwise robust generalization about the behavior of unaccusatives with Ground selecting prefixes.

- b. Častj steny **oplyla**.
 part.NOM. wall.GEN. **around-swam^P.sg.fem.**
 ‘A part of the wall guttered.’
 (from Sergei Lukjanenko ‘Linija grěz’
 at www.grizly.cwp.ru/Index.php?uin=81&page=165)
- c. Naša sobaka **oblezla**.
 our dog.NOM. **around-crawled^P.sg.fem.**
 ‘All the fur has pilled from our dog.’

Thus, the pattern shown in (60) is:

(61) DP PRF-V

In (60) there is no Figure in any of the examples at all. It is ungrammatical to say:

- (62) a. *Derevja **obleteli** listjami.
 trees.NOM. **around-flew^P.pl.** leaves.INSTR.
 ‘*The trees have been flown around by leaves.’
- b. *Stena **oplyla** štukaturkoj.
 wall.NOM. **around-swam^P.sg.fem.** plaster.INSTR.
 ‘*The wall guttered with plaster.’
- c. *Sobaka **oblezla** šerstju.
 dog.NOM. **around-crawled^P.sg.fem.** fur.INSTR.
 ‘*The dog has pilled with fur.’

Without the prefixes, the verbs in (60) combine with PPs and the arguments occupying the subject position in (60) are then Grounds of the PPs. The structures are ungrammatical or have a different meaning when the arguments in question occupy the subject position of an unprefixated verb, just like it is with the Ground in the object position of an unprefixated transitive:

- (63) a. #Nastupila osenj, i derevja **leteli (padali)**.
 came^P.sg.fem. autumn.NOM. and trees.NOM. **flew^I.pl. fell^I.pl.**
 ‘#The autumn came and the trees were flying (falling).’
- b. Nastupila osenj, i listja **leteli (padali)** s
 came^P.sg.fem. autumn.NOM. and leaves.NOM. **flew^I.pl. fell^I.pl.** off
 derevjev.
 trees.GEN.
 ‘The autumn came and leaves were flying (falling) from the trees.’
- (64) a. #Sobaka **lezla**.
 dog.NOM. **crawled^I.sg.fem.**

NOT ‘The dog was pilling.’

OK ‘The dog was sidling up.’

- b. Šerstj **lezla** s sobaki kločkami.
 fur.NOM. **crawled^f.sg.fem.** off dog.GEN. flocks.INSTR.
 ‘The fur was pilling off the dog in flocks.’

So, the situation with the prefixes selecting for the Ground attaching to unaccusatives is that the Ground is promoted all the way up to the grammatical subject position and is assigned nominative case in that position. This is an expected result, since unaccusatives in general freely co-occur with PPs thus providing the prefixes under discussion with the selectee.

Ground selecting prefixes and unergatives

Some unergatives can combine with Ground selecting prefixes, some cannot (*spatj* ‘sleep’, *plakatj* ‘cry’). Among those that can are non-directed motion counterparts of the unaccusatives discussed in the previous section¹⁶:

- (65) a. On **oplaval** vse morja.
 he **around-swam^P.sg.ms.** all seas.ACC.
 ‘He has swum around all the seas.’
 b. Naša sobaka **oblazila** vse pomojki.
 our dog.NOM. **around-crawled^P.sg.fem.** all scrapyards.ACC.
 ‘Our dog has checked all the garbage-bins.’

As one can see, the relational pattern between the arguments of the prefix-verb combination is absolutely the same as it is with the other lexical prefixes attaching to unergatives:

- (66) DP PRF-V DP

Non-motion verbs can also take the prefix *o-*:

- (67) a. Danila-master **obrabotal** kamenj.
 D.-master.NOM. **around-worked^P.sg.ms.** gem.ACC.
 ‘Master Danila filed down a rock/ a gem.’
 b. Prezident **obdumal** vopros o
 president.NOM. **around-thought^P.sg.fem.** question.ACC. about
 sostave buduščego praviteljstva.
 makeup.LOC. future.sg.ms.GEN. government.GEN.

¹⁶In Chapter 3 I will discuss prefixation of motion verbs in more detail.

'The president considered the question on who to include into the future government.'

- c. Michael **obdul** pistol i položil pod
M. **around-blew**^P.sg.ms. pistol.ACC. and put^P.sg.ms. under
podušku.
pillow.DAT.
'Michael blew off the dust from the gun and put it under the pillow.'

As the structure of unergatives with *o-* is completely the same as it is with other lexical prefixes, the question is: can *o-* be a regular Figure+Ground prefix with the Ground argument unrealized due to the absence of a PP, characteristic of prefixed unergatives? In order to demonstrate that the unselected argument is actually the Ground of the PP structure, we need only look at the corresponding unprefixes verbs with PP complements:

- (68) a. *On **plaval** vse morja.
 he **swam**^I.ndir.sg.ms. all seas.ACC.
 '*He was swimming all the seas.'
- b. On plaval po morjam i okeanam.
 he **swam**^I.ndir.ms.sg. about seas.DAT. and oceans.DAT.
 'He was swimming around the seas and oceans.'
- (69) a. *Danila-master **rabotal** kamenj.
 D.-master.NOM. **worked**^I.sg.ms. gem.ACC.
 '*Master Danila worked the gem.'
- b. Danila-master rabotal nad kamnem.
 D.-master.NOM. **worked**^I.sg.ms. above gem.INSTR.
 'Master Danila worked on the gem.'
- (70) a. *Prezident **dumal** vopros.
 president.NOM. **thought**^I.sg.ms. question.ACC.
 '*The president was thinking the question.'
- b. Prezident dumal nad voprosom.
 president.NOM. **thought**^I.sg.ms. above question.ACC.
 'The president was thinking over the question.'

The structures in (68), (69) and (70) do not help answer the question about the source of the argument introduced on prefixation. The PPs combining with the verbs in the examples above are not obligatory, thus they must be adjuncts having no bearing on a type of a prefix that would attach to the verb. Thus, the sentence in (70-b) is not possibly connected with any of the prefixed constructions in (71):

- (71) On **vydumal/** **pridumal/** **produmal**
 he **out-thought^P.sg.ms./** **by-thought^P.sg.ms./** **through-thought^P.sg.ms.**
 vopros.
 question.ACC.
 ‘He thought out/ invented/ thought through a question.’

O- seems to be a special prefix, as other Ground selecting prefixes do not attach to unergatives at all: unergative verbs do not provide this type of prefix with a spatial structure containing a Figure-Ground relation. In most cases this conclusion is well supported by the data:

- (72) a. **izrobotatj* ‘away-work’, **isspatj* ‘away-sleep’, **izdumatj* ‘away-think’, **iz-*
dutj ‘away-blow’¹⁷
 b. *zarobotatj denjgi* ‘earn money’ (idiosyncratic); **zaspatj*, *zadumatj gadostj*
 ‘plan a nasty thing’ (idiosyncratic), *zadutj sveču* ‘extinguish a candle light’
 (idiosyncratic)

Thus, the prefixes discussed in this section take away one argument of the preposition (with the preposition itself) when they attach to transitives and unaccusatives, and change the argument structure of unergatives exactly in the same way as other prefixes:

- (73) Transitive verbs with Ground-selecting prefixes: DP PRF-V DP

$$[_{VP} DP_{Ag} [V DP_{Th}]] + [_{PP} P DP_G]$$

- (74) Unaccusative verbs with Ground-selecting prefixes: DP PRF-V

$$[_{VP} DP_{Th} V] + [_{PP} P DP_G]$$

- (75) Unergative verbs with *o-*: DP PRF-V DP

$$[_{VP} DP_{Ag} V] + [_{PP} P DP_G]$$

Notice that the two predicational structures in (73) and (74) are united via the common argument, $DP_{Th} = DP_G$. The situation described in (75) will shortly receive special attention.

¹⁷It is true that *iz-* is a rare prefix, not productive, but its complete inability to attach to unergatives still seems to be symptomatic.

2.3.4 Prefixes with just a Figure

Idiosyncrasy of Groundless prefixes

A lot of non-spatial lexical prefixes convey just the meaning of completion ((76-a) and (76-b)), but some prefixes develop an additional metaphoric interpretation ((76-c) and (76-d)). In any case, verbs with such prefixes do not require a PP complement in spite of their being transitive ((76-b) through to (76-d)) or unaccusative (76-a):

- (76) a. Drova **progoreli** i banja načala
firewood **through-burnt^P.pl.** and bathhouse began^P.sg.fem.
ostyvatj.
cool.down^I.inf.
The firewood burnt completely and the bath house (banya) started to cool down.
- b. Imperatora Pavla **zadušili** poduškoj.
emperor P.ACC. **to.death-suffocated^P.pl.** pillow.INSTR.
Emperor Paul was suffocated with a pillow
- c. Lovko ty menja **ujel!** No ničego, ja ječšě
skillfully you.sg. me.ACC. **away-ate^P.sg.ms.** but nothing I yet
podumaju, kak otvetitj!
think^P.pres.1sg. how answer.inf.
'You got me! But ok, I will figure out how to answer.'
- d. Jego novuju knigu **izdali** za
his new.sg.fem.ACC. book.ACC. **away-gave^P.pl.** behind
rubežom.
boundary.INSTR.
'His new book was published abroad.'

In the examples above there is no P which could introduce the Figure argument shared with the prefix and the verb. The objects are selected by the verb and the prefixes just add a result state - completive, not spatial. The verbs in (76-a) and (76-b) are unaccusative and transitive, respectively, and nothing happens to their arguments after prefixation. The same verbs without prefixes have the same arguments:

- (77) a. Drova **goreli.**
firewood.NOM. **burned^I.pl**
'Firewood was burning.'
- b. Pridvornyje **dušili** imperatora.
courtiers.NOM. **suffocated^I.pl.** emperor.ACC.
'The courtiers were suffocating the emperor.'

From the number of examples with each prefix it can be seen that some of them are more productive than others and some of them produce more idiosyncratic readings than others. Unproductivity often results in idiosyncrasy, as can be inferred from the example of the very unproductive prefix *iz-* ‘out from’ (76-d) and the slightly more productive prefix *u-* ‘away’ (76-c). Nowadays *iz-* does not require a PP because it does not participate in spatial predication. The meanings of both prefixes in (76-c) and (76-d) can be seen as metaphors of their original concepts ‘out.of’ for *iz* and ‘away’ for *u-* (see Lakoff and Johnson (1980)).

Even if in the previous sections I assumed that Figure+Ground prefixes have a systematic spatial meaning, verbs with Figure+Ground prefixes and just Ground prefixes can also occasionally have a non-compositional interpretation. I repeat (27-c) and (60-a) below as (78-a) and (78-b):

- (78) a. Katja **stërla** kroški so stola.
 K. **from-rubbed^P.sg.fem.** crumbs.ACC. from table.GEN.
 Katja cleaned the crumbs from the table.
- b. Nastupila osenj i derevja **obleteli**
 came.fem.3sg. autumn.NOM. and trees.NOM. **around-flew.3pl.**
(opali).
(around-fell).
 ‘The autumn came and the trees lost all their leaves.’

In (78-a) the verb *teretj* ‘rub’ and the prefix *s-* ‘off’ together form a combination with not quite a compositional meaning *steretj* ‘wipe off’. The verb *teretj* ‘rub’ does not mean ‘wipe’ without a prefix. A non-compositional meaning also characterizes (78-b): the meaning the verb *letetj* ‘fly’ yields when it has a Ground selecting prefix attached is unpredictable¹⁸. The idiosyncrasy of the verbs in (78) is a by-product of the morphosyntactic relationships between verbs and prefixes. In spite of a non-compositional interpretation of the PRF-V combination, the prefix *s-* in (78-a) preserves its spatial and selectional properties, introduces a Figure and requires a Ground introduced by the homophonous and synonymous preposition; the prefix *o(b)-* in (78-b) also behaves as

¹⁸The idiomaticity of this particular combination goes further and involves the argument of the predicate; the prefixed verb *obletetj* ‘around-fly’ is hardly ever used with any other argument than ‘trees’. In fact, a certain reversal is happening in the conceptual structure of the verb in question and the Figure argument can be used as a subject of the construction instead of the Ground with no consequence for the interpretation:

- (i) Nastupila osenj i listja obleteli.
 came^P.sg.fem. autumn.NOM. and leaves.NOM. around-flew^P.pl.
 ‘The autumn came and the leaves fell from the trees.’

a Ground-selecting prefix: it ‘passivizes’ the prepositional structure and promotes the Ground argument to the nearest available case position. Thus, spatial prefixes can vary with respect to the degree of idiosyncrasy or completeness they convey, whereas prefixes with no Ground can only be idiosyncratic or completive.

The most systematic spatial behaviour is demonstrated by the prefix *v-* ‘in’, and probably *vy-* ‘out’ and *nad-* ‘above’. The rest are more or less deviant, though the general meaning can be observed throughout the example lists. In addition, the prefix *za-* ‘on’ is either polysemous or its meaning depends on the class to which its host verb belongs (note that it never has the original prepositional meaning ‘behind’): with motion verbs it means ‘on’ (79-a), with the verbs of consumption, something like ‘after’ (79-b), with the verbs of destruction ‘to death’ (76-b), which is basically just a completive meaning, or with some verbs it selects a Ground of the non-overt preposition (79-d). Notice that there is no PP complement in (79-b), and the meaning of *za-* here is especially unpredictable as compared to its other instantiations:

- (79) a. Erik **zalez** na kletku.
E. **on-climbed^P.sg.ms.** onto cage.ACC.
‘Erik has climbed onto the cage.’
- b. Tětja Maša **zajela** vodku čěrnym xlebom.
aunt M. **after-ate^P.sg.fem.** vodka.ACC. black bread.INSTR.
‘Aunt Maša ate rye bread to kill the taste of vodka.’
- c. Imperatora Pavla **zadušili** poduškoj.
emperor P.ACC. **to.death-strangled^P.pl.** pillow.INSTR.
‘Emperor Paul was suffocated with a pillow.’
- d. Kjartan **zakapal** divan krasnym vinom.
K. **cover-dripped^P.sg.ms.** sofa.ACC. red wine.INSTR.
‘Kjartan covered the sofa with drops of red wine.’

According to Marantz (1997), ‘if the morphophonology justifies decomposition into a complex structure of terminal nodes, the syntax must create this structure and the structure must be interpreted in the regular way for such constructions.’ At the same time, ‘roots may have special meanings in the (syntactic) context of other elements within a locality domain.’ The locality domain is defined by the little *v*: ‘nothing above this head may serve as a context for the special meaning of any root below this head.’ This is consistent with the story developed here: superlexical prefixes that attach above *v*P (cf. Chapter 1) never create a situation under which a verbal root receives a special, idiomatic, interpretation, whereas lexical prefixes can do so to varying degrees (see (78) above). Before proceeding, let’s make the following assumptions:

- prefixes are not specified for the precise meaning in the lexicon and get their interpretation from the structure they appear in
- non-spatial lexical prefixes are pure BECOME predicates with primarily completive meanings

The examples showing the difference between spatial use of particles that creates a compositional meaning for the whole verbal predicate, and their non-transparent use, following Wurmbarnd's (1998) terminology, that creates idiosyncrasy, abound also in Germanic languages, as was briefly mentioned above:

- (80) Spatial transparent particle meaning - compositional interpretation:
- English (from McIntyre (2002b)): *sail off*, *go off*, *carry off*;
 - German: *absegeln* 'sail off', *abgehen* 'go off', *abtragen* 'carry off';
- (81) Idiosyncratic or completive meaning:
- English: *eat up*;
 - German: *aufessen* 'eat up';

I will follow McIntyre (2002b), Ramchand and Svenonius (2002) and Svenonius (2004a) in accepting the idea that both transparent and non-transparent particles must undergo a unified analysis, because it is actually "arguable that idiosyncratic pv's inherited from previous generations play a role in the expansion of the inventory of pv's, and that there is such a thing as 'productive idiosyncrasy'." (McIntyre (2002b):111). As the idiomatic development of the meaning of some prefixes brings about their non-spatial interpretation, they gradually stop being a P-like relation between the Figure and the Ground, the metaphor induced by the prefix extends onto its Figure, and the Ground becomes conventionalized or abstract, therefore PPs are dispensed with. Compare:

- (82) a. Kot **ubežal** iz doma.
 cat **away-ran^P.ms.sg.** out.of home.GEN.
 'The cat ran away from home.'
- b. Lovko ty menja **ujel** (*iz doma).
 skilfully you.sg. me.ACC. **away-ate^P.ms.sg.** out.of home.GEN
 'You got me (out of home)!'

Thus, exactly like Germanic particles, the Russian prefixes can be spatial, on the one hand (see section 2.3.1), or idiosyncratic or completive, on the other hand (the present section). If the former require a PP given the right verb type, the latter do not whatever verb type hosts the prefix. In other words, the so-called spatial prefixes mediate in the relation between the Figure and the Ground arguments and the prefixes discussed in this

section do not. The only relation they participate in is with the verbal predicate. The prefix here introduces the shared argument, the Resultee, which is simultaneously the object of the verb. Separately, the two structures are:

(83) $[_{VP} DP_{Ag} [V DP_{Th}]] + [_{PrfP} DP_R Prf]$

In (83) $DP_{Th} = DP_R$. The same describes a big number of particles in Germanic languages.

The parallel between lexical prefixes and Germanic particles

By this point the analogy between Russian lexical prefixes and Germanic particles should have become noticeable. Summarized, the similarities of lexical prefixes and Germanic particles are:

- phonologically most lexical prefixes have counterparts among prepositions, the exceptions being *vy-*, *pere-*, *raz-* (cf. Matushansky (2002));
- in Slavic as well as in Germanic the prefix (particle) and the preposition of the same phonological form often cooccur;
- they can be spatial predicates mediating in the relation Figure - Ground;
- or they can have idiosyncratic or completive meaning and introduce only the Figure arguments¹⁹;
- there are particles in German that can select for the Ground argument with an optional Figure just like certain prefixes in Russian ((84) and (85)):
Russian:

(84) Ivan **za-kleil** dyru (bumažkami)
John **on-stuck** hole.ACC. (papers.INSTR.)
'John covered the hole with the papers'

¹⁹In Germanic there is no such a strong correlation between the spatial meaning of a particle and an obligatory presence of the Ground; so spatial particles can also introduce only the Figure argument:

- (i) He carried the plant in.

German:

- (85) weil der Hans das Loch (mit den Zetteln) **über klebte**.
 since the John the hole.ACC. (with the notes) **over stuck**
 ‘since John covered the hole with the notes’
 (Wurmbrand (1998))

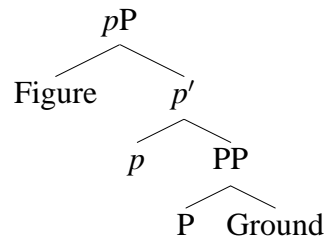
Syntactic similarities between Russian lexical prefixes and Germanic particles reflect the Universal Grammar at work. This means that representatives of category P are exponents of the same functional structure across languages and should be analyzed on a par.

2.4 Structural representation of LPVs and their arguments

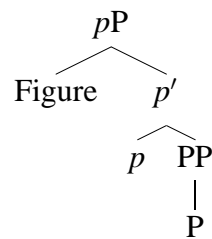
Both, particles in Germanic (Ramchand and Svenonius (2002)) and lexical prefixes in Slavic constitute a part of the prepositional phrase. The PP can be an extended projection in its own right and with its own functional structure above the lexical preposition. There have been different proposals in literature concerning the nature of this functional structure (Radford (1997), Koopman (2000), Svenonius (2002), Manninen (2003), Svenonius (2006)). In this chapter I am going to use an ‘umbrella’ projection - little *p* on top of P (Svenonius (2002), Manninen (2003)). Little *p* is an analogue of little *v* with the expected consequences.

P is a head occupied by the lexical preposition. In section 2.3.1 the schematic representation of the prepositional domain contained PrfP immediately dominating PP. Now I can substitute the label of the maximal projection headed by the lexical prefix for *p*P. Thus, the prefix itself lexicalizes the functional head *p*. Prefixes are often homophonous and synonymous with big P and thus it is not unnatural that the prefix and the preposition are products of the same extended projection. Based on (86), selectional properties of *p* would be again analogous to those of *v*: this is the head that introduces the external argument of the predicate, in this case, a Figure of the preposition. When the RP is not lexicalized by the verb, it is lexicalized by the prefix that moves there from the *p*P. As we know by now, lexical prefixes can be transitive (Figure+Ground selecting) (86-a), intransitive (just Figure selecting) (86-b) and just Ground selecting (86-c) (based on Svenonius (2002) discussing particles):

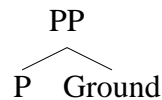
(86) a. Transitive



b. Intransitive



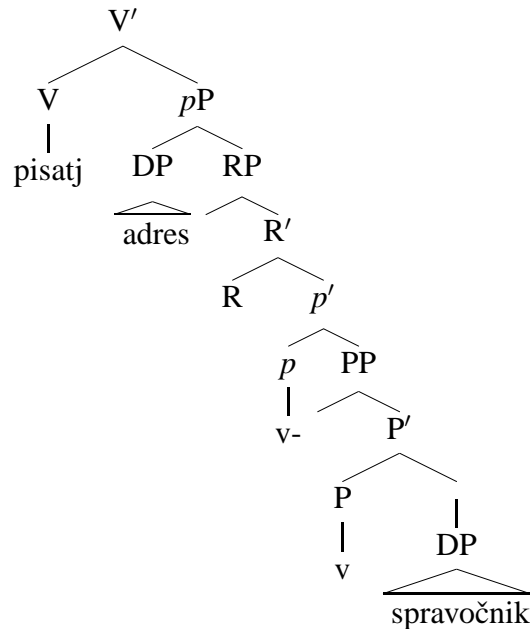
c. Unaccusative



In the previous sections I showed the approximate configurations for the verb and the prefix with independent argument structures. In the following sections I am going to structurally represent the fusion of two predicational structures. All the important empirical information has been retrieved by now from the distribution of lexical prefixes merged with different argument structures of the verb. For example, all the spatial prefixes discussed above repeat a uniform pattern. When they attach to transitive verbs, they basically behave like transitive prepositions from (86-a) with the only exception that the Ground DP is introduced by a PP, complement to the *pP*. The First Phase Syntax has room for PP predicates and contains a special projection, RP, that is going to glue the *v*-clause and the *p*-clause together. The whole structure would be like the following, then:

(87) a. **V-pisatj** adres v spravočnik.
into-write.inf address.ACC. into address-book.ACC.
 'To write an address into an address-book.'

b.



To summarize, the patterns of predicational structure combinations are:

(88)

	Trans Vs	Unacc Vs	Unerg Vs
Tr Ps	DP _{Ag} Prf-V DP _{Th/F} PP	DP _{Th/F} Prf-V PP	N/A
Intr Ps	DP _{Ag} Prf-V DP _{Th/R}	DP _{Th/R} Prf-V	DP _{Ag} Prf-V DP _{Th/?}
G Ps	DP _{Ag} Prf-V DP _{Th/G}	DP _{Th/G} Prf-V	DP _{Ag} Prf-V DP _{Th/G}

On the surface, without going into thematic relations between the prefixed verb and its arguments, one can notice that the structure DP Prf-V DP is attested four times, the structure DP Prf-V twice (with unaccusatives), and each structure involving obligatory presence of PP only once. On the other hand, unergative verbs do not combine with transitive prefixes. This is a surprising fact. The combinatoric powers of the First Phase Syntax should allow all types of vP to co-occur with all types of pP .

In the following section I will demonstrate that

- three apparently identical DP Prf-V DP and two DP Prf-V structures represent underlyingly different relations between the Prf-V complex and its arguments, as can already be seen from subscripts next to DPs in the table. It will become clear that co-indexation of DPs is the reflection of their overt movement;

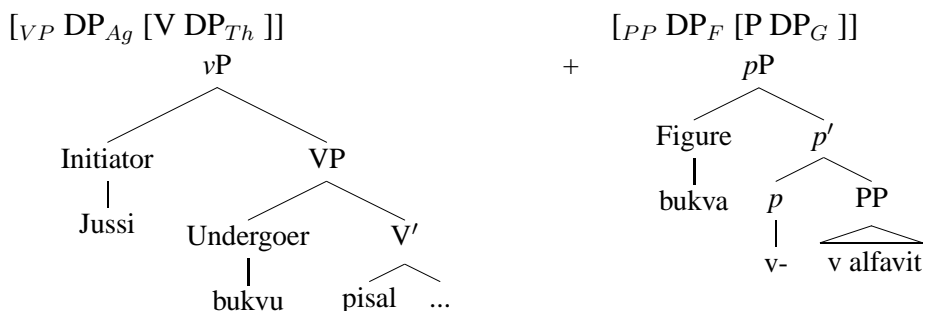
- unavailability of unergative verb + transitive prefix combination stems from structural incompatibility of the two predicates.

2.4.1 Figure introducing prefixes with the three verb types

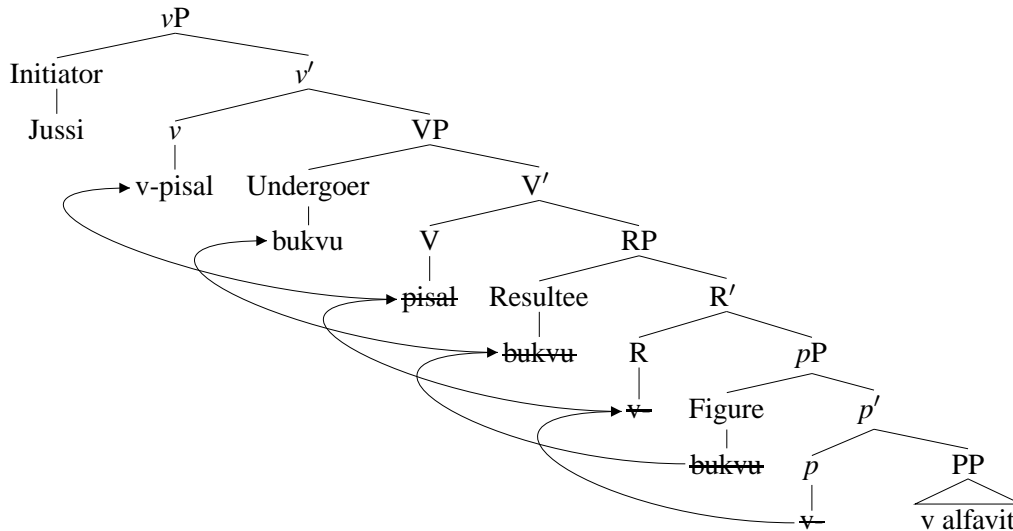
To be able to take an object, the prefixed verb should have the little *v* in its structure, which is necessary for accusative case assignment to the ‘external’ argument of the prefix (cf. Svenonius (2003)). Thus, there are several ways in which the verb and the resultative predicate share their argument. If it is introduced, say, by the little *p* as a Figure, it gets no case from this projection; but in the object position of the verb (Spec-RP) it can be marked accusative by the little *v*. So, the view expressed by McIntyre (2002a) that ‘direct objects in resultative constructions are licensed solely by the secondary predication’ seems problematic. He also claims that ‘they are not arguments of the verb’, but it is not completely the case. As we have seen, the argument has thematic properties that came from the verb itself: DP can move to occupy more than one position in the process of decomposition of the first phase derivational structure (Ramchand (2006)). Below I will first demonstrate the revised separate structures for transitive verbs and transitive prefixes ((30) in section 2.3.1), and then show how the two combine:

(89) Transitive V, transitive P

- a. Jussi **v-pisal** bukvu v alfavit.
 Jussi **into-wrote.past.3sg.ms.** letter.ACC. into alphabet.ACC.
 Jussi inserted a letter into the alphabet.
- b.



(90)



In (90), ‘Jussi’ is an Initiator and ‘the letter’ is an Undergoer, a Resultee and a Figure. Thus, the Theme argument of this construction forms a chain²⁰:

(91) [letter_U, ~~letter~~_R, ~~letter~~_F]

The chain contains all the copies of the Theme. Depending on what a copy of the Theme is predicated of (*pP*, *RP* or *VP*) it is assigned a role by the predicate. There are several ways of representing this structure, both within representational and within derivational approaches. I am going to use the bottom up derivational approach with such underlying mechanisms as merge and re-merge. For the purposes of this thesis the choice between movement (re-merge) and a multidominance strategies is not conceptually crucial. Both comply with the hypothesis saying that ‘the whole is more than the sum of its parts’, what Gärtner (2002) calls his ‘neo-romantic hypothesis.’ Notice that in (90) there are two accusative cases on DP arguments: one is on the Theme argument and the other marks the Ground argument of *P*. Traditionally it has been assumed that the accusative case on the Theme argument of transitive verbs is assigned by the little *v* (Kratzer (1996), Hale and Keyser (1993)). Svenonius (2003) claims that the source of the accusative case on the Ground arguments of prepositions is the little *p*.

So, the construction in (90) is transitive (it cannot be used without the *PP*); its Theme argument has three roles and it assigns two accusative cases: to the Theme argument and

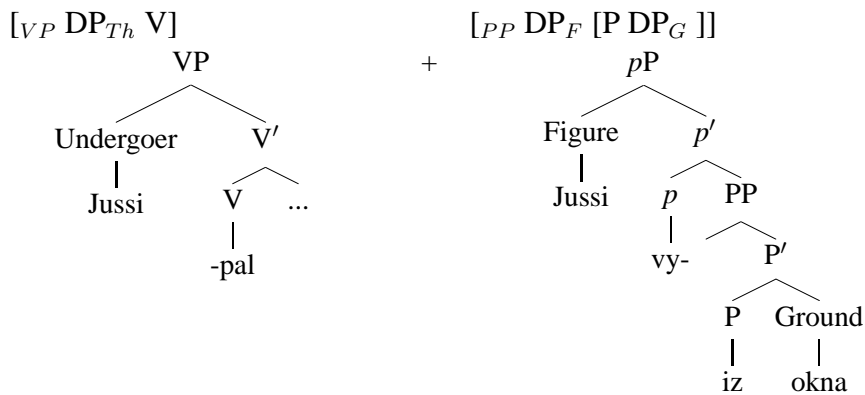
²⁰The chain shows all the augmented event positions the Theme argument of the verb occupies, with its roles specified as diacritics on the copies. The copy which is not crossed-out is, naturally, pronounced

to the Ground argument of PP. In unaccusative constructions the common argument of *p* and V has to move to the subject position of the verb to get nominative.

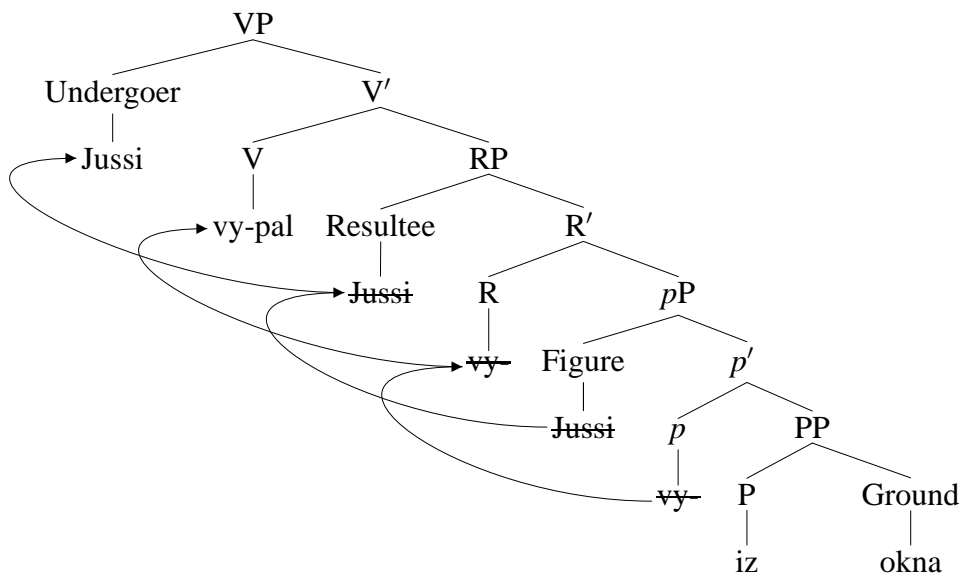
(92) Unaccusative V, transitive P

- a. Jussi **vy-pal** iz okna.
 Jussi **out-fell.past.3sg.ms.** from widow.GEN.
 Jussi fell out from the window.

b.



(93)

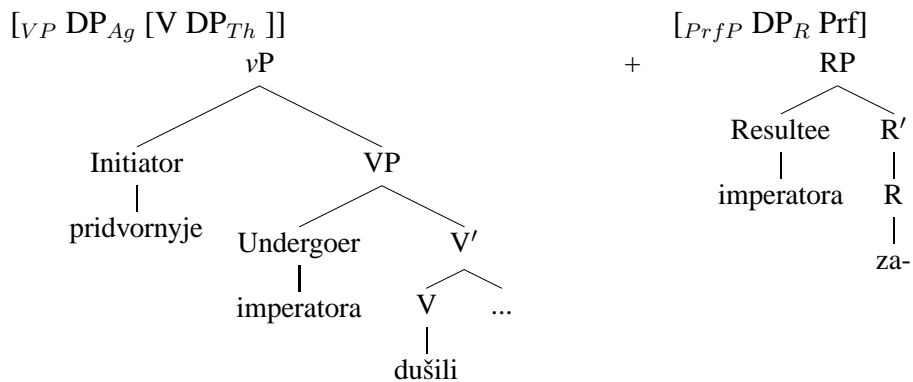


In (93) 'Jussi' is an Undergoer, a Resultee and a Figure, just like 'letter' in (90). However, the structure remains agentless and unaccusative because of the absence of

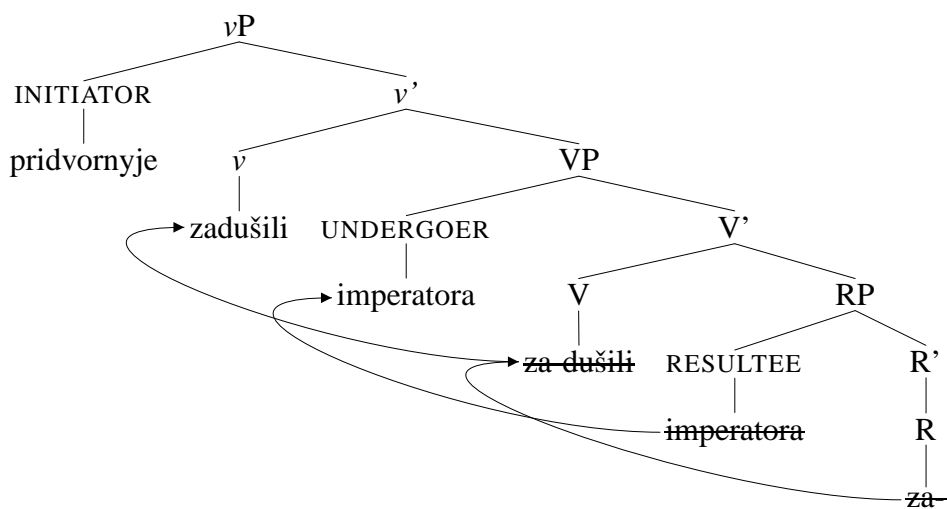
little *v* and has one accusative due to the presence of little *p*: on the Ground argument of P.

Intransitive prefixes do not have complement PPs. As was demonstrated in section 2.3.4, such prefixes have lost their spatial meaning. However, they still represent the result state in the event structure of the verb. As there is no PP of origin for such prefixes, they merge directly in RP.

- (94) Transitive V, intransitive P
- a. Pridvornyje **zadušili** imperatora.
 courtiers.NOM. **Prf-suffocated^P.pl.** emperor.ACC.
 ‘The courtiers suffocated the emperor.’
 - b.



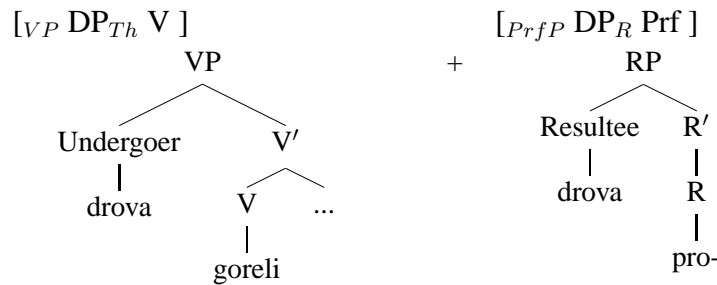
(95)



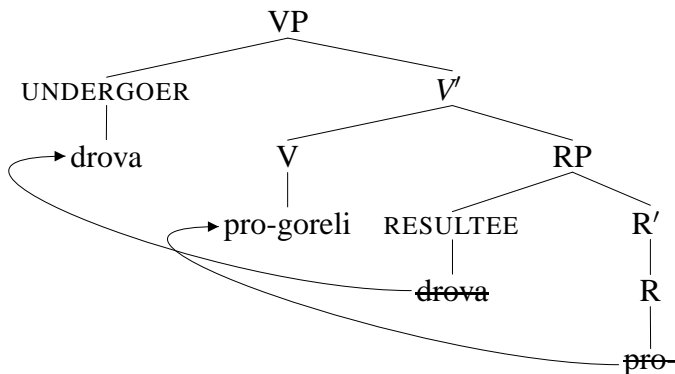
This structure looks almost like the one in (19-b) with only one difference: R is lexicalized by the resultative prefix, not a part of the verbal root. Whereas ‘the courtiers’ represent an Initiator, ‘the emperor’ is simultaneously a Resultee and an Undergoer.

Unaccusative verbs with intransitive prefixes demonstrate the same behavior, with the usual difference in that the deep object of the verb, now originally a Resultee, is promoted to the surface subject position for case reasons:

- (96) Unaccusative V, intransitive P
- a. Drova **progoreli.**
 firewood.NOM. **through-burnt^P.pl.**
 ‘The firewood burnt completely.’
- b.



(97)

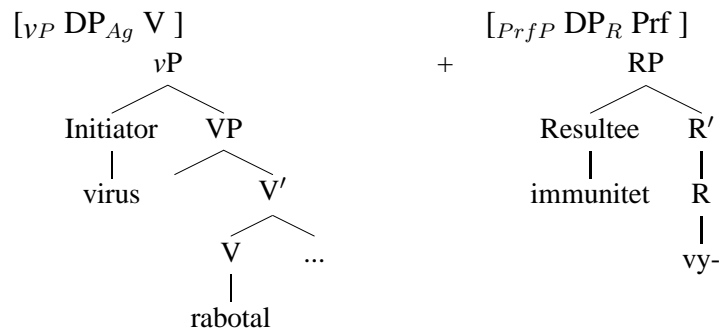


Thus, the only argument in (97), ‘the firewood’, is simultaneously a Resultee and an Undergoer.

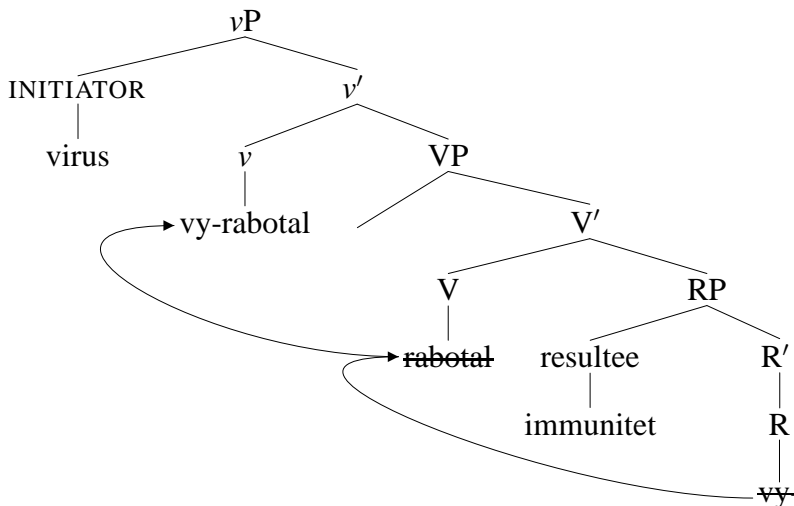
Unergative verbs also take intransitive prefixes, which make the verb transitive in the usual sense of this word. However, the data in this section demonstrated that there are very few resultative prefixes that attach to unergatives: *vy-* and a couple of others. In Chapter 3 I will show that because of the inability of unergative verbs to combine with *pPs* also, resultative prefixes attaching to this type of verb cannot merge in RP. In other

words, unergatives co-occur neither with *pP* nor with *RP*. This is surprising, since the two predicational structures do exist separately and could be combined with the help of *RP* exactly like it happens with other argument structures under lexical prefixation:

- (98) Unergative V, intransitive P
 a. Virus **vyrabotal** immunitet.
 virus.NOM. **out-worked^P**.sg.ms. immunity.ACC.
 ‘The virus developed immune resistance.’
 b.



- (99) *



To summarize, this section contained the structural analysis of the three types of verb combined with transitive and intransitive lexical prefixes. Both transitive prefixes originating in *PP* and intransitive prefixes originating in *RP* attach to transitive and unaccusative verbs and do not attach to unergatives. Two observations fall out from this generalization: first, the structure of the prefix-containing *PP* is dependent on the argument structure of the verb it is a complement of; second, the availability of accusative

case for the arguments of PP is also determined by the type of the verb a prefix attaches to.

(100)

	Transitive P	Intransitive P
Trans	Ag, [Th _U , Th _R , Th _F] _{ACC} , Gr _{ACC}	Ag, [Th _U , Th _R] _{ACC}
UnAcc	[Th _U , Th_R , Th_F], Gr _{ACC}	[Th _U , Th_R]*
UnErg	✗	Ag, Th _{ACC}

As can be seen from the table, the internal arguments of transitive verbs and their complement PPs are both accusative marked. This happens due to the presence of both little *v* and little *p* in this bi-predicational structure. Unaccusative verbs taking PPs provide only one accusative which is assigned to the Ground argument of the PP complement of the verb. This is expected, since little *v* is assumed to be absent from the structure of unaccusative verbs²¹, but little *p* is present in the structure of their prepositional complements, which can be seen from the argument relations of the preposition. The prepositional phrase has both arguments, and, as was stated before, the Figure is always introduced by little *p*. Predictably, when there is no little *p* in the structure, the ‘second’ accusative is not available: transitive and unergative verbs prefixed with intransitive Ps do not typically take PP complements and the only accusative we find in this case is assigned to the object of the transitive verb or unselected object of the unergative verb. Recall that the accusative marking of the Theme argument is dependent on the little *v*, which is present in unergative structures. As you can see, the only argument of the unaccusative verb with intransitive prefix is marked nominative.

The question is: what bans the PP complement from appearing under unergatives? There seem to be no conceptual reasons for why this should not be possible. Compare the sentence in (101-a) to the Finnish example in (101-b):

- (101) a. On **vyplakal** vse **slëzy**.
 he **out-cried**^P.sg.ms. all **tears**.ACC.
 ‘He cried out all his tears.’
- b. Olen katsonut sen kaksi kertaa ja joka ikinen kerta
 am watched.PERF.sg. it.ACC. two time.PART. and each only time
olen itkinyt silmät päästä.
am cried.PERF.sg. eyes.ACC. head.ELA

²¹In the system I am using little *v* is the functional head corresponding to *initP* in Ramchand (2006) in that it introduces an Initiator. Simultaneously, it is responsible for the assignment of accusative to the internal argument of the verb.

‘I have seen it twice and each time I cried my eyes out of the head.’
(<http://x-stage.yle.fi/node/5277>)

In the Finnish example the relation between the Figure and the Ground is expressed via the locative case marking on the Ground (*pää* ‘head’ here) instead of the prepositional predication. This leaves me to suggest that unavailability of PP complements for unergative verbs in Russian must be connected with case assignment on the Ground argument, thus, with little *p*. I am developing this suggestion in section 2.5.

2.4.2 Passivizing prefixes formerly known as ‘just Ground selecting prefixes’

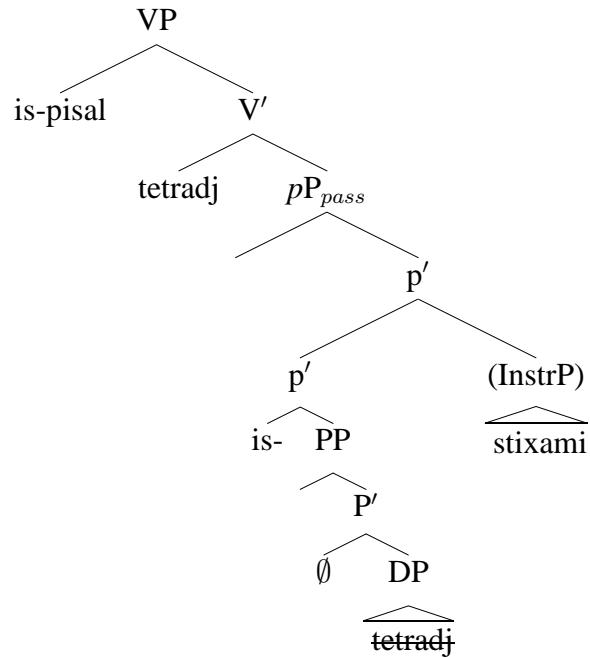
The third type of prefix is a Ground selecting LP. According to Svenonius (2002), such Ps are unaccusative, since they do not introduce the external argument. Consequently, he analyzes them as having no little *p* in the extended functional projection. In examples (73) through to (75) in section 2.3.3 my PrfP looked exactly like unaccusative Ps in Svenonius (2002). However, now we know that prefixes are *p* heads and cannot introduce Ground arguments on their own. The Ground is always introduced by lexical prepositions.

Thus, I will put forward the following claim. Ground selecting prefixes trigger a process reminiscent of the passivization of the verb: the external argument, the Figure, gets demoted and the internal argument, the Ground, is promoted to its position, say, for case reasons. The ‘passivization’ of the *p*P looks like complete non-realization of the preposition itself - just a prefix is present in such constructions. The Figure argument is optional and exactly like the demoted external argument of the *v*P it can appear as an adjunct bearing the Instrumental case (an analogy of the English ‘by-phrase’):

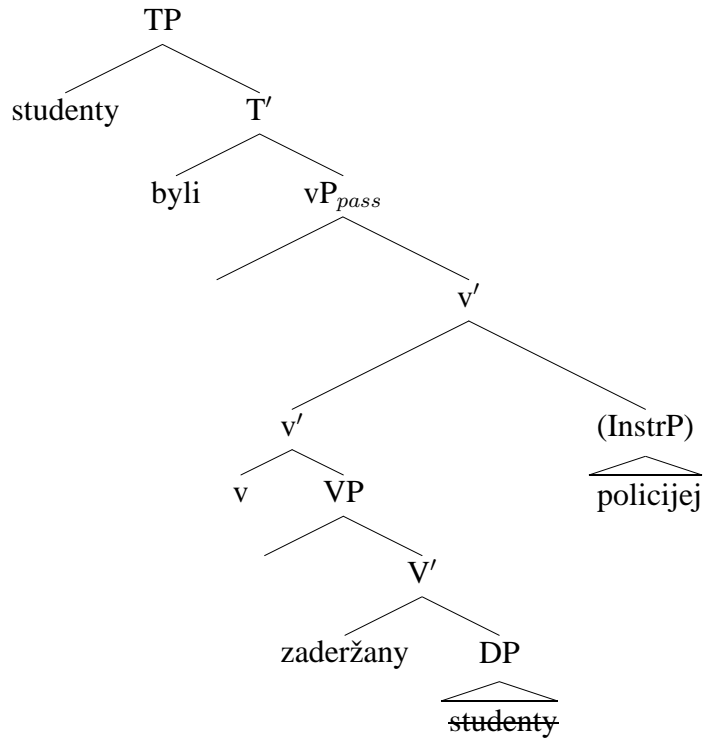
- (102) a. Jussi **ispisal** tetradj (stixami).
Jussi **out.of-wrote.3sg.ms.** notebook.ACC. poems.INSTR.
‘Jussi used up the notebook (by writing poems in it).’
- b. Studenty byli **zadržany** (policijej).
students.NOM. were **detained.PPP.pl.** police.INSTR.
‘The students were detained (by the police)’.

Structurally, verbal and prefixal passivization thus look very similar, as (103-a) and (103-b) show:

(103) a.



b.



Due to the fact of striking similarity between verbal and prefixal passivization from now on I will call Ground-selecting prefixes ‘passivizing’.

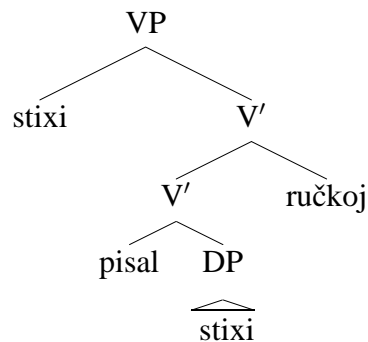
Note, that in the construction outwardly identical to (102-a) the instrumental adjunct is ungrammatical:

- (104) Jussi **ispisal** ručku (*stixami).
 Jussi **out.of-wrote** pen.ACC. poems.INSTR.
 Jussi used up a pen *by writing poems with it.

Example (104) is predicted to be ungrammatical because there is no structural source for the prepositional passivization: in (105-a) there is a PP, in (105-b) there is none

- (105) a. Jussi **pisal** stixi **v tetradj**.
 Jussi **wrote^I.3sg.ms.** poems.ACC. **into notebook.ACC.**
 Jussi was writing poems into the notebook.
- b. Jussi **pisal** stixi **ručkoj**.
 Jussi **wrote^I.3sg.ms.** poems.ACC. **pen.INSTR.**
 Jussi was writing poems with a pen.

c.



The sentences in (105) give support to the idea of the ‘passivization’ of *pP*. This arises from the fact that the *pP* in (105-a) is a complement of the VP, whereas *ručkoj* ‘pen.INSTR’ in (105-b) is an adjunct, it is optional and it has no preposition - thus, no structure for prepositional passivization. The forms prefixed by a spatial prefix look like the following:

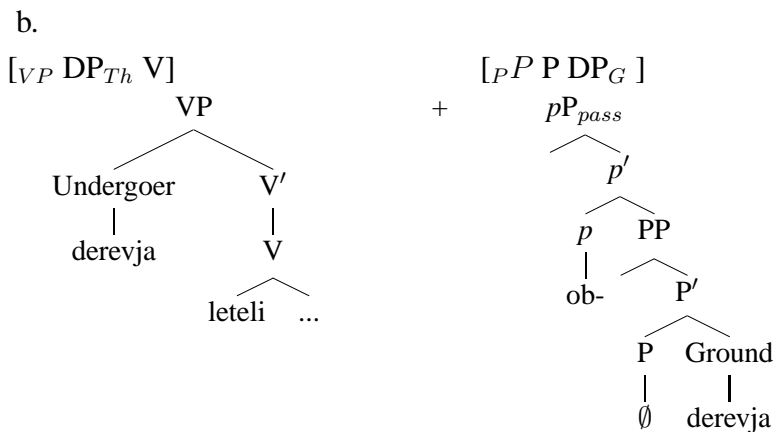
- (106) Jussi **vpisal** stixi **v tetradj** (ručkoj).
 Jussi **in-wrote^I.3sg.ms.** poems.ACC. **into notebook.ACC.** **pen.INSTR.**
 ‘Jussi wrote the poems into the notebook (with a pen).’

Is- selects for the Ground of the PP and the only way to reach so low down in the structure is to block the merge (or movement) of ‘active’ prepositions to P, therefore no

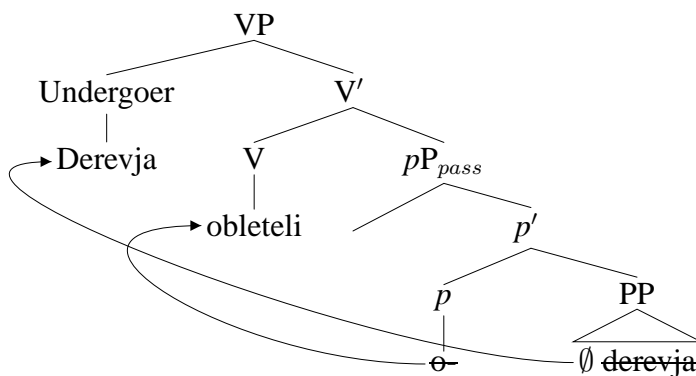
case is available for the Ground argument and it has to be promoted to the nearest case position, the Figure argument can optionally appear as an instrumental adjunct.

No optional instrumental Figure is possible with unaccusatives. To illustrate, I repeat (62-a) as (107-a) below and give the structure for it²²:

- (107) a. *Derevja obleteli* (*listjami).
 trees.NOM. **around-flew^P.pl.** leaves.INSTR.
 ‘The trees got stripped bare (*by leaves).’



(108)



²²Instrumental adjuncts are restricted to structures with at least a segment of the little *v*, like in ‘accusative unaccusatives’. According to Markman (2003), availability of accusative on the object in the presence of non-agentive instrumental subject comes from the CAUS projection, representing a part of split *v*P:

- (i) *Lodku uneslo* *vetrom*.
 boat.ACC. away-carried^P.def. wind.INSTR.
 ‘The boat was carried away by the wind.’

Thus, unaccusatives, having no *v*P, cannot provide instrumental to the Figures of *p*.

Interestingly, unergative verbs seem to combine with one passivizing prefix, namely, *o-*. I repeat an example from (67):

- (109) Danila-master **obrabotal** kamenj.
 D.-master.NOM. **around-worked^P.sg.ms.** gem.ACC.
 ‘Master Danila filed down a rock/ a gem.’

This is surprising, if ‘passivizing’ prefixes originate in the prepositional structure with a deficient little *p*. As we know from the data section and Table 2.1, unergatives do not combine with the little *p* structure. I will shortly return to discussing unergatives with passivizing prefixes.

Meanwhile, the interim conclusion states that deficient little *p* is not able to introduce the Figure in its appropriate position. Like with intransitive prefixes, it reduces the number of available accusative cases in both, transitive and intransitive verbal structures. Here I give the table from section 2.4.1 modified for passivizing prefixes:

(110)

Type of V	Realization of F	Arg-s and their roles	ACC availability
Transitive	optional	Ag, [Th _U , Th _R , Th _G] instr F (=‘by-phrase’)	Th=G _{ACC}
Unaccusative	✗	[Th _U , Th _R , Th _G]	✗
Unergative	?	Ag, [Th _U , Th _R , Th _G ?]	Th=G? _{ACC}

The verbs with passivizing prefixes differ from the verbs with intransitive prefixes in that the argument of the preposition is assigned an accusative (or, with unaccusatives, nominative) case, and not the shared argument of the little *p* and V. The Ground argument is promoted to the next available case position in the matrix predicate domain (Spec-RP).

2.5 The puzzle with unergatives. Den Dikken (2003)

The puzzle we still have to face at this stage is:

Unergative verbs cannot combine with the *pP* structure headed by spatial lexical prefixes, although nothing in the First Phase Syntax prevents them from doing so.

In Romanova (2004b) I suggested that accusative is assigned to the Theme arguments of the verb in analogy with the nominative case assignment. As is well known,

nominative is assigned by the Tense head, but T alone is not sufficient for this task. According to Chomsky (2001a) ‘T functions in the Case-agreement system only if it is selected by C, in which case it is also complete.’ Extending this reasoning to case assignment to the Themes, in Romanova (2004b) I argued that accusative is available for unselected objects of unergatives only when there is an Aspect Projection selected by little *v*. In Pesetsky and Torrego (2004) the projection traditionally labeled AspP is called T_O , by which the authors state the parallelism between this projection and the clausal TP. So far, the important conclusion is that prefixed unergatives have all the tools necessary for marking their unspecified objects accusative; yet, there is no PP possibly because there is no second accusative available for the potential Ground argument.

Some Germanic languages demonstrate interesting parallelisms with Russian with respect to ‘passivization’ of P and special properties of unergatives. In German, whenever a verb has an incorporated particle (a prefix), the argument the verb shares with it is the Ground of the preposition (cf. Noonan (2001)).

Compare two examples from Wurmbrand (1998): in (111-a) the particle is not incorporated into the verb, and there is an overt preposition with a Ground argument. In (111-b), where the verb has a prefix, there is no overt preposition and the Ground argument is promoted to the case position:

- (111) a. weil der Hans die Zettel über das Loch **klebte**
 since the John the notes over the hole **stuck**
 ‘Since John stuck the notes over the hole.’
 b. weil der Hans das Loch (mit den Zettel) **überklebte**
 since the John the hole (with the notes) **overstuck**
 ‘since John covered the hole with the notes’

According to den Dikken (2003) and vast data from Dutch, P can genuinely incorporate only in unergative verbs. He bases this conclusion on different behavior of unergative Vs with incorporated P and unaccusative and transitive Vs with seemingly incorporated P. Unlike in transitives and unaccusatives, in unergatives

- the object of P (the Ground, in our terms) can be extracted from PP and relativized by the *d*-pronoun
- the object of P can scramble over an adverbial presumably originating in the extended functional projection of the verb

- (112) Underlyingly unergative verbs in Dutch
 a. dat hij de boom is **ingeklommen**
 that he the tree is **in-climbed**
 ‘that he has climbed the tree’

- b. de boom **die** hij is **ingeklommen**
 the tree **that** he is **in-climbed**
 ‘the tree that he has climbed’
- c. dat hij <**gisteren**> de boom <**gisteren**> is **ingeklommen**
 that he **yesterday** the tree **yesterday** is **in-climbed**
 ‘that he yesterday climbed the tree’
- (113) Transitive verbs in Dutch
- a. dat hij de bal de kamer heeft **ingeschoten/ gerold/ gegoid**
 that he the ball the room has **in-shot/ -rolled/ -thrown**
 ‘that he has shot/ rolled/ thrown a ball into the room’
- b. ***de kamer die** hij de bal heeft **ingeschoten/ gerold/ gegoid**
the room which he the ball has **in-shot/ -rolled/ -thrown**
 ‘the room into which he has shot/ rolled/ thrown a ball’
- c. dat hij <**gisteren**> de bal <**gisteren**> de kamer <?***gisteren**>
 that he **yesterday** the ball **yesterday** the room **yesterday**
 heeft **ingeschoten/ gerold/ gegoid**
 has **in-shot/ -rolled/ -thrown**
 ‘that he yesterday shot/ rolled/ threw a ball into the room’
- (114) Underlyingly unaccusative verbs in Dutch
- a. (??) dat hij de kuil/ sloot is **ingevallen**
 that he the pit/ ditch is **in-fallen**
 ‘that he has fallen into the pit/ ditch’
- b. ***de kuil/ sloot die** hij is **ingevallen**
 the pit/ ditch **which** he is **in-fallen**
 ‘the pit/ ditch into which he has fallen’

The possibility of the relativization of the object and its ability to scramble follow when it is actually the object of the verb, as in (112). However, we know that originally it is the object of the preposition. Such sharing of the object of the preposition can result from merging of two functional projections into one: the functional projection of P becomes one with the extended functional projection of V. This is what den Dikken (2003) calls genuine incorporation. Genuine P incorporation means that P+V raise to *v* and together yield ‘government transparency’ effects (Baker (1988)):

- (115) Government transparency corollary

A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original

structural position (Baker (1988):64)

In Den Dikken's theory, the only P that can incorporate is devoid of any functional structure. This makes it impossible for the Ground argument to get case from such a P. However, P incorporation into the verb leads to the 'government transparency' effects, thanks to which the Ground argument receives accusative case: the little *v* 'shares' its capacity for case assignment with P that has become part of it. The situation is different with transitive and unaccusative verbs, of course. In the former the little *v* licenses accusative on the argument of the verb and has nothing left for the Ground argument of the PP; and in the latter the little *v* is not present at all. Unergatives, thus, are the only candidates for P incorporation. As in unergatives *v* only potentially has the case marking ability, it is activated by this incorporation process: with incorporation a DP argument also appears in the structure of the unergative. As in transitives *v* assigns case to the argument the verb already has, nothing would remain for the Ground if P incorporated into V. If in unaccusatives there is even no *v*, there is no way for the case story to proceed here.

A somewhat similar phenomenon is shared by other Germanic languages, like English and Norwegian. If scrambling of the object out of the V-PP complex is an indication of incorporation, pseudopassive constructions in above mentioned languages are examples of such an incorporation at some level. The corresponding Dutch counterparts always feature the particle *be-* on their verbs:

ENGLISH

(116) this problem has been looked at from all possible angles.

NORWEGIAN

(117) *taket ble gått på av to barn*
 roof-def. became walked on of two children
 'the roof was walked on by two children'

DUTCH

(118) a. *dit problem is vanuit alle mogelijke invalshoeken bekeken.*
 this problem is from all possible angles BE-looked
 'this problem was looked into from all possible angles'
 b. *het dak werd door twee kinderen belopen*
 the roof became by two children BE-walked
 'the roof was walked on by two children.'
 (den Dikken (2003):40)

Thus, in Dutch both, prepositions and particles can incorporate into the verb. When it is a preposition, it truly incorporates only into underlying unergatives and the verb undergoes the ‘ergativity shift’ as can be seen from the auxiliary co-occurring with it; when it is a particle, it is invariably *be-* and the verb remains unergative:

- (119) a. Jan **is**/***heeft** de berg **op** geklommen.
 J. **is**/ **has** the mountain **up** climbed
 ‘Jan has climbed the mountain.’
 b. Jan ***is**/**heeft** de berg **beklommen**.
 J. **is**/ **has** the mountain BE-climbed.
 ‘Jan has climbed the mountain.’

In Russian, as I assumed, only prefixes (=particles) can incorporate into the verb; and the Dutch *be-* (as well as German *be-*) corresponds to the Russian ‘passivizing’ prefixes:

- (120) a. **kleitj** oboi na stenu
glue^I.inf. wallpaper.ACC. on wall.ACC.
 ‘glue wallpaper onto wall’
 b. **zakleitj** stenu obojami
on_p-glue^P.inf. wall.ACC. wallpaper.INSTR.
 ‘be-glue the wall with the wallpaper’

den Dikken (2003), indeed, points out that

‘language variation in the domain of pseudo-passives comes down to which of the two elements..., PRT and P, is lexicalized overtly. Dutch spells PRT out lexically and has P null; hence P-stranding is not observable on the surface in something like (121). In the English equivalent of (121), by contrast, PRT is null and P is overt (and the same is true for the Norwegian cases of this type).

- (121) dit bed is niet beslapen
 this bed is not BE-slept
 ‘this bed has not been slept in’

Assume, however, that there can be two Dutch scenarios for Russian unergatives:

1. The Ground selecting prefix on unergatives is P like in (119-a)
2. The Ground selecting prefix on unergatives is *p_{pass}* like in (119-b)

Scenario 1 is attractive from the point of view of incorporation proper. If there is no functional structure interfering between the verb and the preposition, nothing stops the

preposition from raising to the verb and incorporating into it. One thing is problematic, though. In Dutch, P incorporates into the little ν of unergatives to ‘borrow’ the case assigning power of the latter, since without functional projections responsible for case inside the PP the argument of the preposition is in danger of getting no Case. In Russian prepositions can often assign lexical case to their Ground arguments ((69-b) is repeated as (122)):

- (122) Danila-master **rabotal** nad kammem.
 D.-master.NOM. **worked**^I.sg.ms. above gem.INSTR.
 ‘Master Danila worked on the gem.’

Scenario 2 on which the deficient little p incorporates into the verb is more along the lines of den Dikken (2003), since, as we know from above, ‘passivizing’ p cannot assign case to the Ground argument and its incorporation into ν would make case assignment to the Ground argument immediately feasible by Government Transparency Corollary. On the other hand, in section 2.4.2 I claimed that co-occurrence of Aspectual Projection with the little ν was enough for ‘activating’ ν and assigning accusative to new objects of unergatives with any lexical prefix. In addition, out of three or four passivizing prefixes only the prefix *o-* attaches to unergative verbs.

At this point the unergative puzzle remains unsolved. In Chapter 3 I will go deeper into its investigation with the help of motion verbs. Motion verbs and prepositional phrases can shed light on a) incompatibility of unergatives with transitive prepositions; b) the character of what outwardly looks like ‘passivizing’ prefixation.

2.6 Direct Object Types

In this chapter I have shown that lexical prefixes are massively non-uniform and, depending on the argument structure of their host verb, can merge as p (transitive prefixes), R (intransitive prefixes) or p_{pass} (passivizing prefixes). As the structural position of arguments introduced by different type of prefix is also going to vary from case to case, it is interesting to see how arguments introduced by R differ from those introduced by p and P. When speaking about the Themes of the verbs I used the notion of chains. Say, in (94) the Theme chain is:

- (123) [imperatora_U, ~~imperatora~~_R]

That means that the ‘emperor’ in (94) can be realized in either of the two positions: the position of the Resultee and the position of the Undergoer. It is not so easy to say which copy gets pronounced in this example. As I claimed above, the Spec-of-R is the

case position for Figures (cf. section 2.4.1) and sometimes Grounds of the prepositions; it can be a case position when the PP is absent as well. In addition, the Past Passive Participle test shows that resultees are true holders of the result state:

- (124) zadušennyj imperator
 PERF-suffocated.PPP.sg.ms. emperor
 ‘the suffocated emperor’

In spatial structures there is one more position for the Theme argument of the verb, that of Figure of the preposition:

- (125) a. Nemcy **smeli** gorod s lica zemli.
 Germans.NOM. **off-swept^P.pl** town.ACC. off face.GEN. earth.GEN.
 ‘The Germans wiped the town off the earth’s surface.’
 b. [gorod_U, ~~gorod_R~~, ~~gorod_F~~]

In (125) ‘the town’ originates in Spec-of-*p*P and the result state that holds of this argument is not just ‘wiped off’, but ‘wiped off the earth’s face’, therefore a bare unmodified PPP preceding ‘the town’ is ungrammatical:

- (126)
- | | | | | |
|----|----------------------|-----|----------------------------|------------|
| a. | *smetënnjy | | lica | zemli |
| | off-swept.PPP.sg.ms. | | face.GEN. | earth.GEN. |
| | gorod | | gorod | |
| | town.NOM. | | town.NOM. | |
| | ‘*a wiped-off town’ | | ‘a town wiped off from the | |
| b. | smetënnjy | s | earth’s surface’ | |
| | off-swept.PPP.sg.ms. | off | | |

The distinctions between the objects is more than twofold, though. The subjects of the result state in (124) and (126) differ in the structural positions they were introduced in. However, the subjects of R, even if introduced in the same position, can vary in some respects too. Some of them cannot be modified by past passive participles unless the latter is modified itself:

- (127) Ja podaju ??(sobstvennoručno) ispečënnnye pirožki k
 I give^I.1sg. self-handed.Adv. PERF-baked.PPP.pl. pies.ACC. to
 stolu.
 table.DAT.
 ‘I have put on the table the pies baked by myself.’
 (beliashou.blogonline.ru/692753.html?mode=reply)

This is a surprising distinction, if we accept the idea in Rothstein (2004) that resultative predicates always introduce incremental themes. The theme in (125) is not incremental, yet it is introduced by the resultative predicate; the themes in (124) and (127) are incremental, yet seem to differ from each other in some way. In the following section I am going to discuss what impact lexical prefixation actually has on the objects of the verb. The analysis I am going to propose will link different interpretations of direct objects of the verb to their different local relations with the predicates whose subjects or complements they can be.

A number of theories, some of which I mentioned in Chapter 1, connect the aspectual interpretation of VP with the type and shape of the direct object of the verb (Tenny (1994), Krifka (1992), Verkuyl (1972), Verkuyl (1993), Schoorlemmer (1995), Kiparsky (1998), Rothstein (2004), Borer (2005) etc.). Different authors use different explanatory mechanisms for the generalization that bare mass and plural objects induce atelicity of VP, whereas quantized objects bring about a quantized, hence telic, reading of VP. This connection is called ‘compositionality of aspect.’ There are voices that do not agree with compositionality of aspect, especially in Slavic (Młynarczyk (2004)). However, even in English or in Finnish, languages where the aspectual reading of the verb does depend on its direct object in many cases, the compositionality does not always hold:

- (128) a. push the cart (Gillian Ramchand, p.c.)
 b. *löytti kultaa* ‘found some gold’ (Kiparsky (1998))

In (128-a) the object is quantized, yet the VP can be atelic, in (128-b) the object is partitive, yet the VP is telic²³.

The popular opinion about Slavic is that perfective verbs induce quantizedness of mass and plural objects (Verkuyl (1999), Schoorlemmer (1995), Borer (2005)). In this section I will show that this opinion is correct only with respect to some lexically-prefixed verbs and their Theme arguments.

²³Partitive objects in Finnish signal atelicity of the VP

2.6.1 Objects introduced by the resultative predicates

Thus, the compositionality of aspectual interpretation assumes that the objects of the telic verbs necessarily get a strong interpretation. The same conclusion falls out from the work by Rothstein (2004) and other works stating the homomorphic relations between the verb and its objects. This section will deal exclusively with lexically prefixed verbs, accomplishments-achievements by the old definition, thus telic events in the traditional view. It will be shown that the picture is not as uniform in Russian as predicted in the literature. Let's look at it point by point.

- Point 1. Rothstein (2004) claims that resultative predicates introduce incremental Themes.

Resultative predicates can introduce change-in-location objects, which are not incremental themes, because they do not undergo a gradual change of state. Their state remains the same, but their position changes. Yet, they mostly get specific or definite interpretations.

- Point 2. Incremental Themes must be homomorphically mapped onto the event, thus, if the event is telic, they must be quantized.

In Chapter 1 I established that incrementality underlying homomorphic relations between V and O, characterizes the events expressed by imperfective verbs and their objects, thus lexically prefixed perfectives and their internal arguments cannot be described from this point of view.

However, creation verbs with Effected Themes might be different from the rest of perfectives. Effected Themes receive only the weak interpretation even when they are arguments of lexically prefixed perfectives. The Effected Theme *plany* 'plans' in (129-a) fails the SCRAMBLING test in (129-b)²⁴:

- (129) a. Fakuljtet **vyrabotal** plany na buduščėje.
 faculty.NOM. **out-worked**^P.sg.ms. plans.ACC. on future.ACC.
 'The faculty has worked out (the) plans for the future.'
- b. *Plany **vyrabotal** fakuljtet na buduščėje.
 plans.ACC. **out-worked**^P.sg.ms. faculty.NOM. on future.ACC.
 '*Plans the faculty worked out for the future.'

I will discuss effected objects in great details in Chapter 4. Now I will concentrate on the affectedness of direct objects of lexically prefixed verbs.

²⁴The tests for definiteness or specificity of DPs were introduced in Chapter 1 and included SCOPE, DP-EXTRACTION and SCRAMBLING. The SCOPE test does not usually work, so I rejected it. The other two are more reliable.

2.6.2 Affected and non-affected objects

Lexical prefixes are not essentially quantificational. The availability of a quantified (strong) interpretation on the objects of their host verbs depends on the type of the object, and the type of the object might depend on its predicational relation with the lexical prefix.

There are two big types of object discussed in literature (Jaeggli (1986), Cornips and Hulk (1999)): affected and non-affected objects. Affected objects undergo a change of state in the run-time of the event (Roberts (1987)). Unaffected objects are for example effected objects that come into existence as a result of the event and change-in-location objects that change their position as a result of the event. The fact that affected objects syntactically differ from unaffected objects was noticed as long ago as in 1986 by Jaeggli (Jaeggli (1986)), who proposed the Affectedness Constraint:

- (130) If a complement of X is unaffected, it is impossible to eliminate the external theta-role of X.

Jaeggli (1986) introduced this constraint in connection with the argument structure of derived nominals. Affectedness Constraint seems to play some role in the present analysis. It holds in Russian at least with past passive participles. PPPs of the verbs with effected objects cannot be used without a by-phrase or some modification implying the presence of the external argument (see also (127) in the introduction to this section)²⁵:

- (131) a. My kleili oboi na **pokrašennyje** steny.
we glued^P.pl. wallpaper..acc. on **Prf-painted.PPP.pl.ACC.** walls.ACC.
'We were hanging the wallpaper on the painted walls.'
- b. *V mojej komnate visit **napisannyj** portret.
in my.sg.fem. room.LOC. hangs^I on-**written.PPP.sg.ms.** portrait.NOM.
'*There is a painted portrait in my room.'

The example in (131-b) becomes grammatical when the external argument of the passive participle is present in the construction:

²⁵So far, I am not sure what structural account there is for this phenomenon. Back in 1986 Jaeggli explained it by the obligatoriness of external Θ -role assignment by the nominals derived from the verbs with unaffected objects.

- (132) V mojej komnate visí portret, napisannyj
 in my.sg.fem. room.LOC. hangs^I portrait.NOM. on-written.PPP.sg.ms.
 ispanskim xudožnikom na P.
 Spanish.sg.ms.INSTR. artist.INSTR. on P.ACC.
 ‘In my room hangs a portrait painted by the Spanish artist, whose name begins
 with P.’

So, the Affectedness Constraint supports isolating of affected objects into a separate internal argument group.

I will focus on three important characteristics of affected objects and compare them to those of non-affected, subdivided into effected and change-in-location objects. The characteristics are:

- existence presupposition
- specificity or definiteness
- Affectedness Constraint effects with PPPs

First, let us look at the minimal pairs provided by affected and effected objects. The affected object in (133-a) existed prior to the event; the effected object in (133-b) came to existence as a result of the event:

- (133) Existence presupposition:
- a. On **pererezal** provoda.
 he **across-cut^P.sg.ms.** wires.ACC.
 ‘He cut (the) wires into halves.’
 - b. On **vyrezal** slonika.
 he **out-cut^P.sg.ms.** elephant.ACC.
 ‘He chipped a little elephant.’

The second characteristic tightly connected with the first one is definiteness or specificity of affected objects of lexically prefixed verbs as opposed to vagueness of unaffected objects. In (134-a) ‘the fuel’ is completely used up and therefore is understood as definite. In (134-b) the object ‘plans’ came into existence for the first time and therefore does not bear any referentiality:

- (134) Specificity:
- a. Samolët **vyrabotal** toplivo i blagopolučno
 plane.NOM. **out-worked^P.sg.ms.** fuel.ACC. and safely
 prizemlilsja.
 by-landed^P.sg.ms.

- ‘The plane burnt out the fuel and landed safely.’
- b. Srazu posle svadjby molodoženy **vyrabotali**
 immediately after wedding..gen. newlyweds.NOM. **out-worked^P.pl.**
 plany na buduščėje.
 plans.ACC. for future.ACC.
 ‘Right after the wedding the newlyweds made plans for the future.’

The third characteristic was discussed at the beginning of the section and exemplified in (131) and (132). The affected object in (131-a) displayed the ability to be modified by PPPs with no agentive implication, the effected object in (131-b) and (132) displayed the requirement in agentive modification of attributive PPPs preceding them.

Thus, to summarize, affected objects differ from effected objects of the verb in the following characteristics (cf. Cornips and Hulk (1999))²⁶:

- (when mass or plural) they get a strong interpretation from lexically prefixed verbs
- they easily combine with unmodified past passive participles

The verbs taking change-in-location objects and the verbs taking affected objects both induce strong interpretation on their objects²⁷.

Change-in-location object

- (135) Zaxar vbil gvozdi v dosku.
 Z.NOM. in-beat^P.sg.ms. nails.ACC. in board.ACC.
 ‘Zaxar hammered (the) nails into the board.’

Affected object

- (136) Alisa umyla detej.
 A. Prf-washed^P.sg.fem. children.ACC.
 ‘Alisa washed (the) children’s faces.’

²⁶As existence presupposition is triggered by definiteness (and possibly, specificity), I have collapsed these two characteristics together.

²⁷Applying the Scrambling test for specificity (definiteness) to the DPs in (135) and (136), we get:

- (i) a. Gvozdi Zaxar vbil v dosku.
 nails.ACC. Z.NOM. in-beat^P.sg.ms. in board.ACC.
 ‘The nails Zaxar hammered into the board.’
- b. Detej Alisa umyla.
 children.ACC. A.ACC. Prf-washed
 ‘The children’s faces Alisa wahsed.’

Change-in-location object verbs and affected object verbs differ from each other in the second characteristic: unlike affected object verbs, the verbs taking change-in-location objects cannot form unmodified PPPs. In the introduction to this section I mentioned that the past passive participles cannot modify the objects of the verbs with spatial prefixes unless the former include a PP. Here are more examples²⁸:

- (137) Change-in-location objects
- a. **otkačennaja** *(ot steny) teležka
aside-rolled.PPP.sg.fem. from wall.GEN. cart.NOM.
 ‘a/the cart rolled from the wall’
- b. **smaxnutyje** *(so stola) kroški
off-waved.PPP.pl. off table.GEN. crumbs.NOM.
 ‘flicked *(off the table) crumbs’

Affected object

- (138) **otremontirovannaja** teležka
Prf-repaired.PPP.sg.fem. cart.NOM.
 ‘repaired cart’

So far, the distinctive characteristics of affected and non-affected objects seem to be clear. To summarize, affected (AO) and non-affected objects including effected (EO) and change-in-location objects (ChLO) can differ along the lines of definiteness or specificity and PPP modification

(139)

Criteria	AO	EO	ChLO
Strong interpretation	✓	✗	✓
unmodified PPP	✓	✗	✗

Affected objects would most probably be selected by the verb (though it is not oblig-

²⁸Some examples, like (137-a), show that PPP is not possible with the change-in-location object at all. Some examples, though, allow the omission of a PP with the PPP to the same extent it is allowed with the verb (when contextually implied, see section 2.3.1):

- (i) otodvinutyj stul
 aside-pushed.PPP.sg.ms. chair.NOM.
 ‘a moved away chair’

It is implied in the most examples like the one above, that the chair was moved away from the table. Therefore, this collocation is the most frequent as well, not like *otodvinutyj goršok* ‘a moved away pot’.

atory) and occupy Spec-of-RP. As they freely co-occur with unmodified PPPs, it is suggestive of the result state the lexical prefix and the verb denote.

As change-in-location objects can be modified only by Past Passive Participles with PPs, the prefix and the verb are not sufficient for describing a result state of such an object; its result state indicates the location where such an object ends up, and to express it we need a Prepositional Phrase with the Ground, with respect to which the location is defined. Again, it is rather difficult to judge about definiteness or specificity of change-in-location objects, even if they must exist prior to the event.

Effected objects are incremental: they co-occur with creation verbs and that means that their gradual coming into existence is mappable onto the event bringing them to being. In the system of Ramchand (2006) they would occupy the complement (RHEME) position of *procP*. With lexically prefixed perfectives (134-b), effected objects are complements of R, that is, they occupy the same position as *pPs* introducing change-in-location objects. Analogously to the PPPs formed from the verbs with spatial prefixes, PPPs formed from creation verbs are usually not acceptable when unmodified.

In Chapter 1 I claimed that the strong interpretation of Theme arguments of some perfectives is not conditioned by the perfective aspect per se. Now we see what it depends on: a structural relation between an object DP and a perfective verb. Judging by affected and change-in-location Themes, the source of strong interpretation of object DPs seems to be the Spec-of-RP. This suggestion is corroborated by the behavior of effected objects that occupy the complement position of RP and, consequently, do not have a strong interpretation. The issue of predicational relations between verbs and prefixes, on the one hand, and their internal arguments, on the other, will re-emerge as I continue investigating the topic of aspectual composition of the Russian verb.

2.7 Conclusion

Chapter 2 discussed the first type of perfective verb: lexically prefixed perfectives. As lexical prefixes head a small clause complement of the verb, their attachment allows the combination of two predicational structures. As was shown at the end of the chapter, different combinations of predicational structures lead to different interpretations of the arguments shared by the verb and the prefix, depending on the structural position of the argument DP. The main finding of Chapter 2, though, is that there is an unexpected gap in predicational combinatorics.

There are four possible surface structures yielded by the combination of verbal and prepositional predicates:

1. DP Prf-V DP PP

2. DP Prf-V PP
3. DP Prf-V
4. DP Prf-V DP

These structures are distributed in the following way:

(140)

	Transitive P	Intransitive P	Passivizing P
Transitive V	1	4	4
Unaccusative V	2	3	3
Unergative V	X	4	4

As is seen from the table, drawn on the basis of vast empirical data, transitives and unergatives produce the same structures with intransitive and passivizing prefixes. As these two types of verb share the property of projecting the little v , such an outcome should not be surprising. The surprising part of the table is no combination between unergative verbs and transitive prefixes. The generalization that appeared as a result of studying unergatives with lexical prefixes is:

- Unergative verbs in Russian do not allow merge of pP as their complement.

In view of this generalization the occurrence of one passivizing prefix, namely $o-$, on unergatives is unexpected, since in passive prepositional structures the little p is present, though deficient. The solution proposed in den Dikken (2003) does not seem to contain a clear answer to this problem. Thus, the behavior of unergatives in Russian leaves two questions open:

1. What stops this verb type from combining with lexical prefixes?
2. What is the origin of the only passivizing prefix, $o-$, that can attach to unergatives?

In the following chapter I will continue looking into the behavior of combined Prf-V predicates. This time the research will lead me to the case of motion verbs, verbs that take Paths as their arguments. Intransitive motion verbs in Russian come in two varieties: unaccusative directed and unergative non-directed. The distribution of directed and non-directed motion verbs with prepositional phrases is going to yield a generalization stating what type of PP can co-occur with what type of motion verb. As lexical prefixes originate in the PP structure as well, the generalization will also describe their ability to combine with unaccusative and unergative motion verbs. The solution found on the basis of motion verb morphosyntax will return me to the discussion of the unergative puzzle discovered in this chapter.

Chapter 3

Motion verbs

3.1 Introduction

In the previous chapter I stated a correlation between the argument structure of a verb prior to prefixation and the type of structure the attachment of lexical prefix can produce. I claimed that spatial lexical prefixes are elements of the prepositional domain conveying predicational relations between their arguments, a Figure and a Ground (Talmy (1978)). Whenever a spatial prefix, or the little *p* head, is present in the structure, a complement PP is obligatory. In this chapter I am going to have a closer look at licensing of prepositional phrases by verbs. For this purpose a specific class of verbs is going to be investigated: motion verbs. As I have already mentioned before, motion verbs in Russian are divided into two big groups: directed and non-directed motion verbs (DMV and NDMV). They have different stems, though often morphologically related, and different syntactic distribution. Interestingly, both groups are imperfective. As was presented in Chapter 1, two different motion verb groups also demonstrate a clear split in aspectual behavior. As I will show in this chapter, directed motion verbs and non-directed motion verbs differ in their ability to co-occur with complement PPs, too, even without prefixes. Directed motion verbs always require a PP complement. Non-directed motion verbs are not acceptable with it. This behavior of MVs provides a curious parallelism with the behavior of lexically prefixed transitives and unaccusatives, and lexically prefixed unergatives, respectively. Therefore, learning more about motion verbs can shed some light on the nature of lexical prefixation and the structure of unergatives disallowing their co-occurrence with *p*P.

The verbs under discussion are:

(1) *DMV - NDMV* ‘translation’

idti - xoditj ‘walk, go’
jexatj - jezditj ‘go by a vehicle’
bežatj - begatj ‘run’
letetj - letatj ‘fly’
plytj - plavatj ‘swim’
polzti - polzatj ‘crawl’
leztj - lazitj ‘climb, creep’

taščitj - taskatj ‘drag’
nesti - nositj ‘carry, wear’
vesti - voditj ‘walk (tr.), drive’
vezti - vozitj ‘transport’
katitj - katatj ‘roll’
gnatj - gonjatj ‘chase’

The syntactic distribution of motion verbs with respect to a) Phase and Modal verbs; b) prefixes; c) Prepositional Phrases shows that the distinction above is grammatically justified. Directed motion verbs are bad complements of phase verbs and abilitative modals whereas non-directed motion verbs are fully acceptable with them:

- (2) a. *Provodnik* *načal* ***nositj/*** ****nesti***
 conductor.NOM. began^P.sg.ms. ***carry^I.ndir.inf./*** ***carry^I.dir.inf.***
vodu.
 water.ACC.
 ‘The conductor started carrying water.’
- b. *Devočka* *uže* *umejet* ***xoditj/*** ****idti.***
 girl.NOM. already can.pres.3sg. ***walk^I.ndir.inf./*** ***walk^I.dir.inf.***
 ‘The girl can already walk.’

Directed motion verbs take only lexical prefixes, whereas non-directed motion verbs take only superlexical prefixes¹:

- (3) a. *Parom* ***propyl*** *pod mostom/* ****vsě***
 ferry.NOM. ***through-swam^P.dir.sg.ms.*** *under bridge.INSTR./* ***all***
utro.
 morning
 ‘The ferry passed under the bridge/ *the whole morning.’

¹The status of the prefix in (3) is shown in the following way. When *pro-* has a lexical interpretation, it combines with the PP standing for a path extended in space, roughly meaning ‘through under the bridge.’ Such PPs will be discussed in section 3.2.2. Lexical *pro-* is ungrammatical with the time adverbial ‘for the whole morning.’ When *pro-* has a superlexical interpretation it felicitously combines with the time adverbial ‘for the whole morning’, whereas the PP ‘under the bridge’ does not express the path component ‘through’.

- b. Annuška **proplavala** vsě utro/ *pod
 A.NOM. **PERD-swam**^P.**ndir.sg.fem.** all morning.ACC./ under
 mostom.
 bridge.INSTR.
 ‘Annuška swam the whole morning/ *under the bridge.’
 (The PP is acceptable only in its locative meaning, unlike in (3-a) where it denotes a path crossing the space under the bridge)

Directed motion verbs combine with directional PPs, non-directed motion verbs can combine with locative PPs:

- (4) a. Žuk **polz** v **korobku**.
 beetle.NOM. **crept**^I.**dir.sg.ms.** in **box.ACC.**
 ‘A beetle was creeping into the box.’
 b. Žuk **polzal** v **korobke**.
 beetle.NOM. **crept**^I.**ndir.sg.ms.** in **box.LOC.**
 ‘A beetle was creeping in the box.’

Recall from the previous chapter, that spatial lexical prefixes attach to unaccusative and transitive verbs and do not attach to unergatives: they lose their spatial meaning with the latter. As I will show here (again), intransitive directed motion verbs have the argument structure of unaccusatives, intransitive non-directed motion verbs are unergative.

Having solved some of the problems characterizing motion verbs in Russian I will be able to decide what is responsible for certain interpretations of verb objects. It seems that among intransitive motion verbs only directed MVs have what I will call a Path object. There is also a general agreement in literature that a Path is a variety of the Incremental Theme. Here we return to the ending of the previous chapter, where I subdivided all the objects into three classes: affected objects, effected objects and change-in-location objects. After Ramchand (2006) I compared effected objects to Paths. In this chapter I will explain why.

3.2 Unprefixed motion verbs: two subtypes of imperfective

3.2.1 Aspectual interpretation of MVs

In Chapter 1 I tested all the verbs according to their aspectual characteristics: as is seen from perfectivity diagnostics, they belong either to the group of perfectives or the group of imperfectives. The non-contradictory diagnostics included:

- Present participles (only imperfectives can form them)
- ‘Phase’ verbs test
- Future reading tests

Only *imperfectives* can form present active participles:

- | | IMP | PF | | |
|-----|----------------|---------------|------------|------------------------|
| (5) | a. strojaščij | *postrojaščij | ‘building’ | (from Borik (2002):41) |
| | b. govorjaščij | *skazaščij | ‘talking’ | |
| | c. sporjaščij | *posporjaščij | ‘arguing’ | |

Only *imperfectives* can pass the ‘phase’ verbs test:

- (6) Petja načal čitatj/*pročitatj knigu.
 P.NOM. began^P.sg.ms. read^I/*^P.inf. book.ACC.
 ‘Petja began to read a book’

Here I will add that the ability to be the complement of the future auxiliary *bud-* ‘will be’ and the modal *umetj* ‘can, know how’ also characterizes only imperfective verbs:

- (7) a. Zavtra ja budu ***posmotretj**/ **smotretj** novyj datskij
 tomorrow I be.1sg. **watch^P.inf./ watch^I.inf.** new.ms. danish.ms.
 serial.
 series.ACC.
 ‘Tomorrow I’ll be watching a new Danish series.’
- b. Ženix umejet ***spetj**/ **petj**.
 bride-groom can.3sg. **sing^P.inf./ sing^I.inf.**
 ‘The bride-groom is able to sing.’

Only present tense *perfectives* can yield future interpretation:

- (8) On **čita-jet** - On **pročita-jet**
 he.NOM. **read^I.pres.3sg.** - he.NOM. **Prf-read^P.pres.3sg.**
 ‘He is reading - He will have read ...’

All the motion verbs in (1) are imperfective. Both types of verb pass the present active participle test:

- (9) a. *bežatj* ‘run^I.dir.inf.’ - *beguščij* ‘running.PAP.dir.’ DIRECTED
 b. *begatj* ‘run^I.ndir.inf.’ - *begajuščij* ‘running.PAP.ndir. around’ NON-DIRECTED

Both types of verb fail the future reading test²:

- (10) On letit/ letajet!
 he flies^{I.dir.}/ flies^{I.ndir.}
 'He is flying (around)!'

However, the 'phase' verbs, the future auxiliary and the modal *umetj* 'can' applied to motion verbs do not give such uncontroversial results. Directed motion verbs are less acceptable with phase verbs, auxiliaries and modals than non-directed motion verbs:

- (11) a. Vyara zakončila *plytj/ plavatj i
 V. finished^{P.sg.fem.} swim^{I.dir.inf.}/ swim^{I.ndir.inf.} and
 pošla v saunu.
 went^{P.sg.fem} in sauna.ACC.
 'Vyara finished swimming and went to the sauna.'
- b. Zavtra ja budu *idti v magaziny/
 tomorrow I be.1sg. go^{I.dir.inf.} to shops.ACC./
xoditj po magazinam.
go^{I.ndir.inf.} along shops.DAT.
 'Tomorrow I will go shopping.'
- c. On umejet *polzti/ polzatj.
 he is.able.3sg. crawl^{I.dir.inf.}/ crawl^{I.ndir.inf.}
 'He can crawl.'

Thus, even though they are both imperfective, MV in the left-hand column and the ones in the right-hand column are different imperfectives.

In Chapter 1, I mentioned that directed motion verbs can have only a progressive interpretation (39):

- (12) a. Ja **begu** na zanjatija.
 I run^{I.dir.1sg.} on classes.ACC.
 'I am running to the classes'.
- b. *Ona često letit v Moskvu.
 she often fly^{I.dir.3sg.} in Moscow.ACC.
 'She often flies to Moscow'

Non-directed motion verbs have both progressive and pluractional interpretations:

²Motion verbs, especially directed motion verbs, can have a planned future interpretation, but it requires contextual specification, whereas with perfectives the future interpretation is the only one available in the Present Tense.

- (13) a. Gde Bonzo? - Bonzo **begajet** po čužim
 where B. B.NOM. **run^I.ndir.sg.ms.** about strange.pl.DAT.
 dvoram.
 yards.DAT.
 ‘Where is Bonzo? - Bonzo is running about other people’s yards.’
- b. Ona često **letajet** v Moskvu.
 she often **fly^I.ndir.3sg.** in Moscow.ACC.
 ‘She often flies to Moscow.’

Recall also from Chapter 1 that the only reading unavailable for perfectives was progressive, exactly the one that is the only available reading option for directed motion verbs. However, paradoxically, in the phase verbs test above directed motion verbs pattern more with perfectives than with regular imperfectives³.

3.2.2 PP distribution wrt the two classes of motion verbs

To make the narrative in this section possible, I am giving the list of Russian locative and directional prepositions and PPs (from Arylova et al. (2005)):

(14)

Locative	Directional	
	Goal	Source
<i>v_{LOC}</i> ‘in’	<i>v_{ACC}</i>	<i>iz_{GEN}</i> ‘out of’
<i>na_{LOC}</i> ‘on’	<i>na_{ACC}</i>	<i>s_{GEN}</i> ‘off, from’
<i>pod_{INSTR}</i> ‘under’	<i>pod_{ACC}</i>	<i>iz-pod_{GEN}</i> ‘from under’
<i>za_{INSTR}</i> ‘behind’	<i>za_{ACC}</i>	<i>iz-za_{GEN}</i> ‘from behind’
	<i>k_{DAT}</i> ‘to, towards’	<i>ot_{GEN}</i> ‘from’
	<i>do_{GEN}</i> ‘up to’	? <i>ot_{GEN}</i> ‘from’

³The level of acceptability between phase verbs and perfectives on the one hand and phase verbs and directed motion verbs on the other is not the same: the former construction is always strikingly ungrammatical, the latter is not so strikingly ungrammatical; in right contexts even grammatical variants are possible:

- (i) V kakoj-to moment demonstranty načali **bežatj** po šosse i
 in some moment.ACC. demonstrators.NOM. began^P.pl. **run^I.dir.inf.** along road.DAT. and
 dviženije ostanovilosj.
 traffic.NOM. stopped^P.sg.nt.
 ‘At some moment the demonstrators began running along the road, and the traffic stopped.’
 (www.rjews.net/maof/print.php3?id=7778&type=s&sid=52)

As can be seen from the table, there are four prepositions ambiguous between directional and locative readings: *v* ‘in’, *na* ‘on’, *pod* ‘under’ and *za* ‘behind’. However, the case on their Ground arguments always disambiguates their interpretation. If the case is locative or instrumental, the reading of the whole PP is locative; if the case is accusative, the whole PP is understood as directional. These prepositions have source-directional counterparts: *iz* ‘out of’, *s* ‘off’, *iz-pod* ‘from under’, *iz-za* ‘from behind’ that always assign genitive case on the Ground arguments.

In addition to the prepositions having both locative and directional counterparts, there are a number of just locative and symmetric (Nam (2004)) prepositions having no pair in the directional domain:

(15) Locative prepositions

<i>pered</i> _{INSTR} ‘in.front.of’	<i>meždu</i> _{INSTR} ‘between’
<i>u</i> _{GEN} ‘at’	<i>voze</i> _{GEN} ‘beside’
<i>nad</i> _{INSTR} ‘above’	<i>okolo</i> _{GEN} ‘near’
<i>sredi</i> _{GEN} ‘among’	

(16) Symmetric prepositions

<i>vdolj</i> _{GEN} ‘along’	<i>vokrug</i> _{GEN} ‘around’
<i>po</i> _{DAT} ‘along, about’	<i>čerez</i> _{ACC} ‘across, through’

PPs have a certain predictable distribution with respect to the two classes of motion verbs. From (17) you can see that locative prepositional phrases cooccur with non-directed and not with directed motion verbs:

- (17) V prihožej **letala/** ***letela** babočka.
 in corridor.LOC. **flew^I.ndir.sg.fem./ flew^I.dir.sg.fem.** butterfly.NOM.
 ‘A butterfly was flying in the corridor.’

In (18) the non-cooccurrence of non-directional motion verbs with directional PPs is shown:

- (18) Babočka **letit/** ***letajet** na kuxnju.
 butterfly.NOM. **flies^I.dir./ flies^I.ndir.** on kitchen.ACC.
 ‘The butterfly is flying to the kitchen.’

However, this is not the end of the story. It’s only on the progressive reading that non-directed motion verbs do not combine with directional PPs. When a non-directed motion verb cooccurs with a directional PP, the latter triggers a pluractional interpretation of the verb:

- (19) Andrea **letajet** v Italiju každyj mesjac.
 A.NOM. **flies^I.ndir.** in Italy.ACC. each month.ACC.
 ‘Andrea flies to Italy every month.’

Directed motion verbs also demonstrate some exceptions to the pattern of incompatibility with locative PPs:

- (20) a. Ptica **letela** nad lesom.
 bird.NOM. **flew^I.dir.sg.fem.** above forest.INSTR.
 ‘The bird was flying above the forest.’
 b. Koška **šla** pered sobakami.
 cat.NOM. **walked^I.sg.fem.** in.front.of dogs.INSTR.
 ‘The cat was walking in front of the dogs.’
 (see the picture at <http://freepix.ru/pic/2218.html>)

Two purely locative prepositions *nad* ‘above’ and *pered* ‘in.front.of’ do not yield any ungrammaticality in (20). As I will show below, this oddity is explained by the trajectory outlined by the PPs above: they represent continuous linear paths contained within the extended location. In this respect, symmetrical prepositional phrases are interesting. They can simultaneously stand for a location and contain paths, thus, the prediction would be that both, directed and non-directed motion verbs can cooccur with them. The prediction is borne out⁴. *Po gorodu* ‘all over town’ in both (21-a) and (21-b) stands for an extended location, as can be seen from the examples in (21). However, the type of motion verb imposes a certain interpretation of this extended location PP. In (21-a) it describes a single path going through the town, in (21-b) it describes a set of random paths covering the territory of the town:

- (21) a. Ja **šel** po gorodu i dumal.
 I **went^I.dir.sg.ms.** all.over town.DAT. and thought^I.sg.ms.
 ‘I was walking through the town and thinking.’
 (http://butcher.newmail.ru/15_05.htm)
 b. Po gorodu **xodil** boljšoj krokodil.
 all.over town.DAT. **went^I.ndir.sg.ms.** big crocodile.NOM.
 ‘A big crocodile was walking around the town.’

In (22) the path described by the prepositional phrase is circular and covers the space around the airplane shed in both cases. Both verbs are used progressively. However,

⁴The interpretations of the preposition *po* in (21) are not mutually substitutable between ‘along’ and ‘around’. You cannot coerce the reading on which non-directed *xodil* ‘walked’ is iterative and, subsequently, *po* stands for a unidirectional path traversed many times.

in (22-a) ‘the boy’ does not make a full circle, he is in the process of running and this process happens along the trajectory outlined by the PP; in (22-b) ‘the boy’ is in the process of making full circles around ‘the shed’, running. Thus in (22-a) the path is not traversed by the Figure even once, in (22-b) it is multiply traversed:

- (22) a. Maljčik **bežal** vokrug angara.
 boy.NOM. **ran^I.dir.sg.ms.** around airplane.shed.GEN.
 ‘The boy was running around the airplane shed.’
- b. Maljčik **begal** vokrug angara.
 boy.NOM. **ran^I.ndir.sg.ms.** around airplane.shed.GEN.
 ‘The boy ran around the airplane shed.’

The explanation of the flexible behavior of symmetrical PPs is also thus connected with the topography they describe. Depending on the type of the motion verb they combine with, they get the interpretation either of a linear path (DMV) or a non-linear path (NDMV). At the same time, they convey no directionality on their own. I will shortly return to the discussion of the phenomenon.

The table below sums up the distribution of PPs with respect to the motion verb classes:

(23)

	DMV	NDMV	
		PROG	PLUR
DirPP	✓	✗	✓
LocPP	✗	✓	✗
SymmPP	✓	✓	✓

3.3 Prefixation and motion verbs

3.3.1 The notion of Path as represented in previous works

As the table above showed, directionality of prepositional phrases is important for directed motion verbs, but not crucial. In the previous section I discussed PPs which denote pure locations but still can combine with DMVs. Purely locative prepositions like *nad* ‘above’, *pered* ‘in front of’ do co-occur with directed motion verbs if their Ground argument covers a region extending in space (20). Symmetrical prepositions are underspecified for a path or location reading and can appear with both MV types, receiving their interpretation from the verb ((21), (22)). However, when a PP contains a specification of goal (see the Table in (14)), only progressive directed motion verbs

can co-occur with them, progressive NDMVs cannot. Under several accounts (Zwarts (2005), Jackendoff (1991) etc.) directionality is one of the properties of paths. On the other hand, not all the accounts share this view as I will demonstrate below. There are two more reasons to discuss the notion of a Path. First, a Path of motion is considered to be a variety of Incremental Theme by a number of researchers (Dowty (1991), Hay et al. (1999)), and its proper treatment could shed light on the relationship between the verb and the object. Second, as was seen in the previous section, Path denoting PPs yield different interpretations for the two types of motion verb.

Zwarts (2006) gives the following characterization of paths:

The notion of path is commonly used in different semantic frameworks to analyze the meaning of expressions that describe how something is moving or extending in space.

...A path is a continuous function from a real interval $[0,1]$ to spatial points (given a particular model of points or regions). Lets call the number of $[0,1]$ the indices of the path. If p is such a function, then $p(0)$ is the starting point of the path, $p(1)$ is its end point, and for every index i between 0 and 1, $p(i)$ is an intermediate point. In this way a path corresponds roughly to a sequence of positions. Notice that the definition allows paths to cross themselves and to back up and cover the same stretch of space again in opposite direction.

The PPs in (24) denote paths for Zwarts:

- (24) a. Alex walked **all around the city centre**.
 b. Alex ran **round and round** the track.
 c. Alex paced **back and forth** the alley. (Zwarts (2005):749)

Translated into Russian, the examples from (24) will require non-directed motion verbs and will sound ungrammatical with directed motion verbs⁵:

- (25) a. Aleksej **xodil/** *šël **po vsemu**
 A.NOM. **walked^I.ndir.sg.ms/** **walked^I.dir.sg.ms.** **along all.DAT.**
centru goroda.
center.DAT. town.GEN.
 ‘Alexei walked all around the city center.’

⁵The unacceptability of (25-a) with DMVs unlike in (21-a) is due to the quantifier ‘all’ in the clause precluding the coercion of the PP denotation into ‘extended location’

- b. Aleksej **xodil**/ ***šël** **vzad i vperëd**
 A.NOM. **walked^I.ndir.sg.ms./ walked^I.dir.sg.ms.** **back and forth**
 po alleje.
 along alley.DAT.
 ‘Alexei walked back and forth the alley.’

Not all the authors agree with the characteristics of the path above. Some include the temporal element into the definition of paths or their analogs (Kracht (2002), Medová and Taraldsen (2005)), for some the beginning and the end of a path are irrelevant (Krifka (1998), Jackendoff (1991)), some do not consider directionality to be a natural property of paths (Krifka (1998)). This is a welcome versatility, since I have to select a definition that suits my purposes most. I have arrived at the following descriptive generalization:

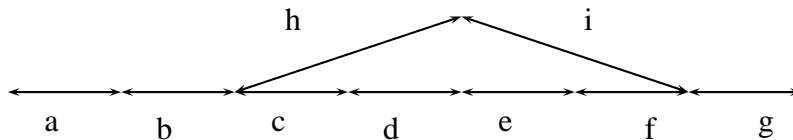
- The trajectory of a path represented by directed motion verbs is strictly linear and unidirectional, the trajectory represented by non-directed motion verbs ‘allows paths to cross themselves and go back up and cover the same stretch of space in opposite direction’ (25).

The best definition of a path should be helpful in accounting for the differences in behavior of DMVs and NDMVs.

The definition in Zwarts (2006) exemplified in (24) can be perceived in such a way that overlapping and returning paths consist of non-overlapping and non-branching segments. Then, non-overlapping and non-branching paths encoded by directed motion verbs can represent a subset of paths encoded by non-directed motion verbs. However, Zwarts (2006) does not isolate two natural classes. His terminology does not distinguish between the overlapping, branching and circular paths, on the one hand, and the non-overlapping and non-branching paths or segments, on the other. Thus, the definition of path given in Zwarts (2006) cannot capture the differences in distribution of DMVs and NDMVs in Russian.

In Krifka (1998) the most important property of paths is adjacency: the relation of two entities being externally connected, $x \propto y$. Adjacency means that ‘adjacent elements do not overlap, and that, if an element x is adjacent to an element y that is part of an element z , either x is also adjacent to z , or x overlaps z .’ (Krifka (1998):203). Path structures in Krifka (1998) are a special case of adjacent structures: they are convex and linear; non-branching, non-circular and non-crossing:

(26)



In (26) Krifka (1998):204 illustrates some properties of path formations:

- $a \oplus b \oplus c$ is a path
- $a \oplus c \oplus d$ is not a path: a and c are not connected by a subpath
- $a \oplus b \oplus c \oplus h$ is not a path: it violates uniqueness of connecting subpaths, ‘as both b and $b \oplus h$ are parts that connect between a and c ’
- $c \oplus d \oplus e \oplus f \oplus i \oplus h$ is not a path: ‘there are two parts that connect non-overlapping c and f , namely $d \oplus e$ and $h \oplus i$ ’

As you can see, this is different from paths in Zwarts (2006). The definition given in Krifka (1998) clearly describes the type of path encoded by directed motion verbs and not encoded by non-directed motion verbs. This is a helpful step on the way to formalizing the distinction between two classes of motion verb.

As motion always implies traversing a path, all motion verbs should combine with paths. How these paths are expressed is a different matter. Suppose, directional and symmetrical PPs and some other expressions can stand only for adjacent non-branching and non-crossing structures. We know that only directed motion verbs co-occur with them. Let’s take an unambiguous directional expression *vperëd* ‘forward’ to demonstrate the point:

- (27) a. On šël vperëd.
 he walked^I.dir.sg.ms. forward
 ‘He was walking forward.’
- b. ??On xodil vperëd.
 he walked^I.dir.sg.ms. forward
 ‘*He walked forward (repetitively).’

Or, take time expressions in Russian. They are combinable only with directed motion verbs, which supports the idea that this type of motion verb occurs only with linear path-

denoting PPs and which must be suggestive that one path structure (time) is mappable on the other (DMV)⁶:

- (28) a. Vremja **letit/ idët/ bežit/ nesëtsja.**
 time.NOM. **flies^I.dir./ goes^I.dir./ runs^I.dir./ rushes^I.dir.sja**
 ‘Time flies/ goes/ runs/ rushes.’
- b. *Vremja **letajet/ xodit/ begajet/ nositsja.**
 time.NOM. **flies^I.ndir./ goes^I.ndir./ runs^I.ndir./ rushes^I.ndir.sja**
 ‘*Time flies/ goes/ runs/ scampers around.’

On the other hand, in (20) we saw that directed motion verbs can also combine with PPs which *contain* adjacent non-branching and non-crossing paths:

- (29) Verxovnyj pravitelj Olbi **polz pod stolom.**
 supreme ruler.NOM. O.NOM. **crawled^P.dir.sg.ms. under table.INSTR.**
 ‘Governor Olbi was crawling under the table (towards something).’
 (<http://members.fortunecity.com/alitik/zagovor.htm>)

The observation exemplified in (29) is suggestive of the scenario on which locative PPs denoting an area rather than a point can contain all kinds of paths. Motion represented by non-directed motion verbs does not require that paths defining its trajectory are non-crossing, non-branching and non-reversing. Quite on the contrary, non-directed motion verbs are more compatible with expressions representing non-linear paths, paths accepted by Zwarts (2006) but not accepted by Krifka (1998). When the reverse expression of ‘forward’, *vzad* ‘backwards’, is added to the examples in (27) to mean ‘back and forth’, the grammaticality of the two types of motion verb switches:

- (30) a. On xodil **vzad i vperëd.**
 he walked^I.ndir.sg.ms. backwards and forward
 ‘He walked back and forth (repetitively).’

⁶There are about two exceptions in the poetic texts, one by Vladimir Tiunov

- (i) Rvutsja dni s kalendarja, vremja **nositsja po krugu.**
 tear^I.pres.pl.sja days.NOM. off calendar.GEN. time.NOM. **scampers^I.ndir.sja** along circle.DAT.
 ‘The days fly off the calendar, the time is scampering about.’

the other one by Alexei Kornev (‘Nesčastnyj slučaj’):

- (ii) Vremja **nositsja stremglav.**
 time.NOM. **scampers^I.ndir.sja** headlong
 ‘The time is scampering headlong.’

Otherwise, I know of no other exceptions

- b. *On šël vzad i vperëd.
 he walked^I.dir.sg.ms. backwards and forward
 ‘He was walking back and forth.’

The set of paths contained in the denotation of locative PPs is vague and a motion verb picks up the one(s) it can combine with, as was shown in the example with directed MV in (29) where the verb represents motion along the linear, non-branching and non-circular trajectory. Non-directed motion verbs pick up a different trajectory from the denotation of the same PP *pod stolom* ‘under table.INSTR.’. It is non-linear, crossing, branching and reversing:

- (31) Ja **polzal** **pod stolom**, sobiraja
 I **crawled^I.ndir.sg.ms. under table.INSTR.** picking.CONV.pres.
 oskolki.
 shatters.ACC.
 ‘I was crawling (around) under the table and picking up shatters.’
 (magazines.russ.ru/znamia/1999/11/shish.html)

In English, due to morphological underspecification of aspectual properties of the verb, the aspect of VPs is determined by other material inside the verbal projection: direct objects (see Chapter 1) and PPs. As path-denoting PPs are a sub-species of the Incremental Theme, it is quite a predictable and understandable result, which led Zwarts (2005) to treating prepositions from the point of view of their aspectual input in the constructions they are part of. The examples below demonstrate how important the choice of a preposition is for the aspectual interpretation of English VPs:

- (32) a. Alex swam to the beach in/ *for an hour.
 b. Alex swam towards the beach *in/ for an hour.
 c. Alex walked onto the platform/ out of the hotel in/ *for ten minutes.
 d. Alex drove along the river *in/ for a day.
 e. Alex ran around the lake/ through the grass in/ for one hour. (Zwarts (2005):740, 741)

From the data presented in (32) Zwarts (2005) concludes that the prepositions *to*, *onto* and *out of* lead to telic aspect, the prepositions *toward* and *along* lead to an atelic sentence; and the prepositions *around* and *through* are ambiguous and can allow either a telic or atelic interpretation. Prepositional aspect is ‘transferred’ onto the verb by the function TRACE:

- (33) $\llbracket V PP \rrbracket = \{ e \in \llbracket V \rrbracket; \text{TRACE}(e) \in \llbracket PP \rrbracket \}$

‘The PP restricts the denotation of the verb (a set of events) to those events that have paths in the PP denotation as their trace. Here is how it works for the tenseless VP *walk to the station*:

- (34) $\llbracket \text{walk to the station} \rrbracket =$
 $\{e \in \llbracket \text{walk} \rrbracket : \text{TRACE}(e) \in \llbracket \text{to the station} \rrbracket\} =$
 $\{e \in \llbracket \text{walk} \rrbracket : \text{TRACE}(e) \in \{\mathbf{p} : \mathbf{p}(1) \text{ is at the station}\}\} =$
 $\{e \in \llbracket \text{walk} \rrbracket : \text{TRACE}(e)(1) \text{ is at the station}\},$

where \mathbf{p} is a path.

In Russian the verbs themselves are marked for a perfective or imperfective aspect (Chapter 1) and the VP internal material does not interfere with higher aspectual projections. As I showed at the beginning of this chapter, directed and non-directed motion verbs also differ in their sub-aspectual characteristics in spite of the fact that both classes are imperfective. Directed motion verbs always yield a progressive interpretation to the whole VP which remains uninfluenced by the PP:

- (35) idti v magazin
 walk^I.dir.inf. in shop.ACC.
 ‘be walking to the shop’

The transition from walking to the shop to being at the shop encoded in the preposition as $\mathbf{p}(1)$ (Zwarts (2005), (34)) takes place when a lexical prefix attaches to the motion verb. Notice that the prefix in the example below looks the same as the preposition:

- (36) vojti v magazin
 in-walk^P.dir.inf. in shop.ACC.
 ‘enter the shop’

The phrase in (35) is comparable to any English progressive construction which will remain uninfluenced by the PP type:

- (37) Alex was swimming to the beach *in an hour/?for an hour.

However, the combination of non-directed motion verbs with path-denoting prepositional phrases always leads to the pluractional reading of the whole VP:

- (38) Rektor xodil v striptiz-bar za sčēt
 rector.NOM. walked^I.ndir.sg.ms. in strip-bar.ACC. behind expense.ACC.
 vuza.
 high.school.GEN.
 ‘The rector attended the strip-bar at the university’s expense.’

([http://rus.delfi.ee/archive/article.php?id=9690686
&categoryID=309647&ndate=1107425025](http://rus.delfi.ee/archive/article.php?id=9690686&categoryID=309647&ndate=1107425025))

In this case it looks like the point on the Path **p**(1) presented in (34) is in the denotation of the PP; moreover, it is repeatedly traversed by the argument ('rector' in (38)) because of the pluractionality of the verb.

To conclude, we have arrived at interesting results.

- Directed motion verbs combine with PPs denoting Paths in the sense of Krifka (1998)
- Non-directed motion verbs combine with PPs denoting other Paths than described in Krifka (1998): branching, overlapping and reversing
- 'Extended locations' denoted by symmetrical PPs receive their interpretation from a motion verb they co-occur with: that of linear non-crossing and non-overlapping path with directed motion verbs ((21-a), (22-a)); and that of multiple (crossing, overlapping and reversing) path with non-directed motion verbs ((38), (22-b)).

Thus, it looks like something in the makeup of even unprefixed motion verbs is responsible for the verb-PP combination. The type of PP taken by DMV is the same type that comes as a complement of verbs with spatial prefixes. At the same time, NDMVs impose a 'plural' reading onto the path denoted by PPs they co-occur with; if a PP stands for a Krifkan path, NDMV itself acquires a pluractional interpretation.

The first step towards achieving a clearer picture of the structural properties of MVs is to find out how much in the V-PP relation is actually affected by prefixation.

3.3.2 Lexical and superlexical prefixes divided between two MV types

The two types of motion verb differ in their prefixation pattern, which might, in its turn, reflect the divergence points described above. In addition, variable behavior of prefixes wrt MV types is seemingly conditioned by the argument structure of the two motion verb classes. Directed motion verbs are typically unaccusatives, non-directed motion verbs are unergatives:

- (39) sobak **nabežalo/** ***nabegalo;** pridurkov
 dogs.GEN. **CUM-ran^P.dir.def./** **CUM-ran^P.ndir.def.** morons.GEN.
 nalezlo/ ***nalazilo;** baboček
 CUM-crawled^P.dir.def./ **CUM-crawled^P.ndir.def.** butterflies.GEN.
 naletelo/ ***naletalo**
 CUM-flew^P.dir.def./ **CUM-flew^P.ndir.def.**

‘a lot of dogs gathered (by running); a lot of morons gathered (by getting in); a lot of butterflies gathered (by flying).’

Chapter 2 offered another clear test for unergativity vs unaccusativity: a PRF-V PP template. As you can recall, lexically prefixed transitive and unaccusative verbs were accompanied by PPs, unergatives were not. As I will show in subsection 3.3.3, the generalization holds of motion verbs as well. When prefixed, transitive non-directed MVs will pattern with unergatives.

Two classes of motion verb typically have different means of perfectivization. Directed motion verbs become perfective mostly on lexical prefixation⁷; non-directed motion verbs tend to perfectivize with the help of superlexical prefixation⁸.

As an example, consider the prefix *za-* which is ambiguous between a lexical prefix interpretation ‘into’ (‘onto’, etc.) and a superlexical one, marking the beginning subevent of the event denoted by its host verb. When it combines with directed motion verbs, it gets only a spatial lexical reading as in (40-a); when it combines with non-directed motion verbs, it can only be interpreted as inceptive as in (40-b):

- (40) a. Čja podlodka **zplyla** v gory
 whose.fem. submarine.NOM. **on-swam^P.dir.sg.fem.** in mountains.ACC.
 Kolumbii?
 Colombia.GEN.
 ‘Whose submarine got to the mountains of Colombia?’
 NOT ‘Whose submarine started swimming in the mountains of Colombia?’
 (www.TRUD.ru/Arhiv/2000/09/09/200009091690402.htm)
- b. Akula nervno **zaplavala** po fontanu,
 shark nervously **INCEP-swam^P.ndir.sg.fem.** around fountain.DAT.
 napugannaja svetom.
 frightened.PPP.sg.fem. light.INSTR.
 ‘Scared by the light, the shark started to swim nervously about the fountain.’

⁷As is seen from the unaccusativity test in (39), superlexical *na-* attaches also to directed motion verbs.

⁸I am using the terms ‘lexical prefixation’ and ‘superlexical prefixation’ for the sake of convenience. The real situation is that prefixes in the lexicon are not divided into either lexical or superlexical, they acquire specific characteristics from the syntactic position they merge in. As lexical prefixes merge in *pP* they have a spatial meaning and are closely connected with the prepositional phrase; as superlexical prefixes merge high in the clausal structure they interact with this structure in the way reminiscent of quantificational adverbials. All this just means that the verbs different types of prefix attach to also have different structures. However, some prefixes exist only in one variety, like spatial *v-* ‘in’ or superlexical *po-*

NOT ‘The shark swam into the fountain, scared by the light.’

Some traditional accounts (Gvozdev (1973), Vinogradov (1972)) claim that spatial prefixes can attach to both directed and non-directed motion verbs with the difference that directed motion verbs become perfective and non-directed motion verbs remain imperfective and thus are exceptional:

- (41) a. Iz školy **vyšli** oxranniki s
 out.of school.GEN. **out-went^P.dir.pl.** guards.NOM. with
 avtomatami.
 tommy-guns.INSTR.
 ‘Guards with tommy-guns went out of the school.’
- b. Zatem načali **vyxoditj** deti.
 then started^P.pl. **out-go^I.dir.inf.** children.NOM.
 ‘Then children started going out.’

In fact, such views are deeply wrong, because what we see in (41-b) is the secondary imperfective of the verb *vyjti* ‘go out’ from example (41-a) (that it is imperfective is seen from its co-occurrence with the phase verb ‘begin’). For some reason, the secondary imperfective of the verb *vyjti* has a root of the non-directed counterpart of this verb *xoditj* ‘go, walk.ndir’ (see (1)). Four more verbs from (1) use their non-directed counterparts for forming secondary imperfectives: *letetj* - *letatj* ‘fly’, *nesti* - *nositj* ‘carry, wear’, *vesti* - *voditj* ‘walk (tr.), carry’, *gnatj* - *gonjatj* ‘chase’. Secondary imperfectives are still directed motion verbs because:

- when the prefix *vy-* ‘out’ attaches to a verb, it invariably attracts the word stress onto its vowel; the stress is back on the root when the verb is imperfectivized again (see (41-b))
- in footnote 8 I said that prefix *v-* ‘in’ can be only spatial, which implies that they attach only to directed motion verbs: *vletetj* ‘in-fly^P’ - *vletatj* ‘in-fly^I’

The roots used by the majority of directed motion verbs for forming secondary imperfectives are distinct from the corresponding roots of non-directed motion verbs, as can be seen from (42):

(42)

DMV	NDMV	2impf root
jex-a-tj	jezd-i-tj	-jezž-a-tj
bež-a-tj	bég-a-tj	-beg-á-tj
ply-tj	pla-va-tj	-ply-va-tj
polz-ti	pólz-a-tj	-polz-á-tj
lez-tj	laz-i-tj	-lez-a-tj (more frequent than -laz-i-tj)
tašč-i-tj	task-a-tj	-task-iva-tj
kat-i-tj	kat-a-tj	-kat-yva-tj

I have shown that non-directed motion verbs cannot take spatial prefixes. They can take superlexical prefixes, though, and on prefixation demonstrate the same change in aspectual behavior as all the other imperfectives, thus, they are not exceptional in any way. This can be clearly seen from the behavior of a non-directed motion verb with the root distinct from a secondary imperfective morpheme used by its directed counterpart. Thus, the verb ‘swim’ in (40-b) fails perfectivity tests as expected:

- (43) a. *Akula perestala **zaplavatj**.
 shark.NOM. stopped^P.sg.fem. **INCEP-swim^P.ndir.inf.**
 ‘*The shark stopped starting to swim.’ PHASE VERBS TEST
- b. Akula **zaplavajet** segodnja.
 shark.NOM. **INCEP-swim^P.ndir.3sg.** today
 ‘The shark will start swimming today’
 NOT ‘The shark is swimming today.’ FUTURE READING TEST
- c. ***zaplavajuščaja** akula
 INCEP-swimming.sg.fem. shark.NOM.
 intended ‘a shark beginning to swim’ PRESENT PARTICIPLE TEST

We should keep in mind that the generalization discussed in this subsection reflects a tendency to a certain type of prefixation within a separate class of motion verbs. Just as unergatives in general combined only rarely with LPs, so too there are some examples of lexical prefixes with NDMVs. These are interesting to look at because they define motion verbs as belonging to one of the structures discussed in Chapter 2: either containing the *pP* or disallowing it.

3.3.3 PRF-V PP template with directed and non-directed motion verbs

Still preserving the old distinction between lexical and superlexical prefixes, I will mention only one in this subsection: *vy-* ‘out of’. In Chapter 2 we saw that *vy-* is the lexical

prefix that attaches to unergative verbs more often than other lexical prefixes. While its use with directed motion verbs results in the natural spatial interpretation ‘Figure moves out of Ground’, its semantic and syntactic contribution to the interpretation and structure of non-directed motion verbs is comparable to what *vy-* contributes to the structure of other unergatives: it introduces an unselected object, usually effected. *Vy-* with non-directed motion verbs is fairly productive and is used quite creatively:

- (44) a. Veronika **vybežala** ??(iz kletki).
 V.NOM. **out-ran^P.dir.sg.fem.** out.of cage.GEN.
 ‘Veronika ran out of the cage.’
- b. Veronika **vybegala** vid na žitelsjtvo.
 V.NOM. **out-ran^P.ndir.sg.fem.** permit.ACC. on residence.ACC.
 ‘Veronika got a residence permit (by running around different important institutions).’

In example (44-a) with a directed motion verb the PP is required, the surface subject of the verb originates as the Figure of the prepositional structure. In (44-b) the same prefix on the non-directed version of the same verb cannot take any PP; however it introduces an additional argument into the structure (‘residence permit’). The interesting parallel with unergatives is demonstrated by non-directed motion transitives (the structural parallel between lexically prefixed unaccusatives and transitives was noticed in the previous chapter). When the transitive directed motion verb ‘carry’ in (45-a) has *vy-* attached, the PP is nearly obligatory and the whole structure receives a spatial interpretation. In (45-b) the prefixed non-directed motion verb ‘carry’ a) selects for a different internal argument (see (45-c) for comparison); b) cannot co-occur with a PP. This is quite characteristic of unergatives, as we saw in Chapter 2:

- (45) a. Maksim **vynes** xolodiljnik ?(iz ofisa).
 M.NOM. **out-carried^P.dir.sg.ms.** refrigerator.ACC. out.of office.GEN.
 ‘Maxim carried the refrigerator out of the office.’
- b. Maksim davno **vynosil** ideju
 M.NOM. long.ago **out-carried^P.ndir.sg.ms.** idea.ACC.
 perejezda (*iz golovy).
 across-goingGEN. out.of head.GEN.
 ‘Maksim decided to move long ago.’
- c. Maksim davno **vynosil** *xolodiljnik iz
 M.NOM. long.ago **out-carried^P.ndir.sg.ms.** refrigerator.ACC. out.of
 ofisa.
 office
 NOT ‘Maksim carried a refrigerator out of the office.’

So, just like with unergatives in Chapter 2, there seems to be an inability to license *pP* in non-directed motion verbs. This is confirmed by the fact that they take only locative PP complements. To conclude several sections above and summarize the distinctions between two types of motion verb, I offer the table below:

(46)

	Aspect		PP type		Prefix type		Arg. Str. (for intr.)	
	prog	pluract	dir	loc	lp	slp	unacc	unerg
DMV	✓	✗	✓	✗	✓	✗	✓	✗
NDMV	✓	✓	✓	✓	✗	✓	✗	✓

Thus, we can see that directed motion verbs always describe adjacent paths and are⁹:

- only progressive;
- compatible with prepositions taking accusative objects, known as directional PPs;
- grammatical only with lexical prefixes;
- only unaccusative (when intransitive)

In their turn, non-directed motion verbs always describe branching, crossing, reversing or plural paths and are:

- both progressive and pluractional;
- compatible with prepositions taking locative or instrumental objects, known as locative PPs;
- grammatical only with superlexical prefixes;
- only unergative (when intransitive)

⁹Notice directed motion verbs do not require that the PPs combining with them necessarily stand for a telic point:

- (i) Malčik medlenno šel k oknu.
 boy.NOM. slowly walked^{I.dir.sg.ms.} towards window.DAT.
 ‘The boy was slowly walking towards the window.’
 (www.lib.ru/INOFANT/BRADBURY/gift.txt)

3.4 Zooming in on the PP

In Chapter 2 I analyzed lexical prefixes as heads of *pP* that is a part of an extended projection of PP, headed by a lexical preposition, often homophonous with the prefix. From *pP* the prefix raises to RP, a position within the functional projection of the verb. Thus, simultaneously a lexical prefix belongs to two domains - the verbal domain and the prepositional domain. The object introduced by a prefix also raises to the verbal domain - minimally, to the Spec of RP, which, I claimed, was the first position where the Figure could get case due to the fact that RP is inside the matrix clause which in the right configuration is equipped with little *v*. The case of the Ground depends on the presence and the type of little *p*, that is, a lexical prefix. What was unclear is whether the little *p*, the head of a small clause, can have case assigning properties independently of the verb. Another puzzle was lexical prefixation of unergatives.

One direction towards its solution is outlined by an array of eminent researchers in the field of P (Koopman (2000), den Dikken (2003), Svenonius (2006)) who decompose *p* and P into a bigger number of functional projections. This approach could clarify where prefixes can and cannot originate.

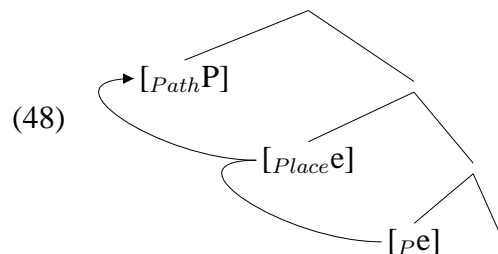
This section is going to outline the very elaborated analyses of Dutch, German and other particle-adposition combinations presented in Koopman (2000), den Dikken (2003) and Svenonius (2006), with the focus on incorporation of prepositional elements into V. Above I sketched semantic analyses of Paths. Path, thus, can be a justified part of the prepositional phrase responsible for its directionality or extendedness. Path is oriented with respect to the locative reference point expressed by PlaceP. The approaches to treating PathP and PlaceP inside the PP can be slightly different, but they all are based on the original proposal made by Koopman (2000). In the next subsection I will introduce the main postulates of Koopman's theory.

3.4.1 Koopman (2000)

Analyzing Dutch circumpositions Koopman (2000) decomposes them into PathP and PlaceP. PlaceP immediately dominates P and can project different size structure up to CP(place). PlaceP and its extended projection of varying sizes can be a complement of PathP, that is responsible for directional readings of PPs and, consequently, VPs. PathP imposes a directional reading on the VP in two ways, depending on whether the Path head is silent or overt.

- (47) Silent Path is a trace whose antecedent is incorporated in a verb of motion (Koopman (2000):228)

An overt Path is a result of the incorporation of P into the Path head¹⁰:



Applied to the Dutch empirical data, a silent Path incorporated into the verb and an overt Path, itself a result of P incorporation, produce different syntactic configurations.

1. Postpositional PPs are always interpreted as directional ((49-b), (50b))
2. Prepositional PPs are interpreted as directional only when directionality is encoded in the verb governing it (49-a)
3. Prepositional PPs are interpreted as locative in all the other cases (50-a)

In (49) both, prepositional and postpositional PPs have a directional reading, because in (49-a) the silent Path is incorporated into the verb and the verb forces the right reading of the PP, and in (49-b) the Path is overtly expressed by P raised to it:

- (49) a. Zij is meteen **in het water** gesprongen.
 she is immediately **in the water** jumped
 ‘She jumped into the water immediately.’
- b. Zij is meteen **het water in** gesprongen.
 she is immediately **the water in** jumped
 ‘She jumped into the water immediately.’

Notice, that when the same verb is used with the auxiliary ‘have’ the prepositional PP has only a locative reading, the postpositional PP is ungrammatical:

- (50) a. Zij heeft **in het water** (op en neer) gesprongen.
 she has **in the water** up and down jumped
 ‘She jumped up and down in the water.’

¹⁰Sometimes, in circumpositional phrases, an overt Path is directly lexicalized by a ‘specific lexical postpositional element’:

- (i) over de stoel **heen**
 over the chair **heen**
 ‘(to) over the chair’ (Koopman (2000):230)

- b. *Zij heeft **het water in** gesprongen.
 she has **the water in** jumped
 ‘She jumped in the water.’

As was said above, postpositional PPs always have a directional reading, since their presence in the structure signals merge of Path. Thus *postpositional* directional PPs are possible even in complement position of N (prepositional never are - because ‘silent Path must attach to a [- N] category’):

(51) From Koopman (2000):224

- | | | | |
|----|--|----|--|
| a. | de weg in het bos
the road in the forest
‘the road in the forest’
(locative only) | b. | de weg het bos in
the road het bos in
‘the road into the forest’
(directional only) |
|----|--|----|--|

Sometimes in circumpositional constructions (52) and constructions with postpositions (53) an overt Path incorporates into the verb:

- (52) a. dat zij gisteren onder de brug is **door gelopen**
 that she yesterday under the bridge is **through walked**
 ‘that she walked under the bridge yesterday’
 b. dat zij snel achter het konijn zijn **aan gelopen**
 that they quickly behind the rabbit be **at walk**
 ‘that they chased the rabbit’

- (53) omdat zij het bos (*door*) is (**door**) gelopen
 because she the forest through is **through** walked
 ‘because she walked through the forest’

Thus, a simplified list of directional PP scenarios in Dutch as proposed in Koopman (2000) is:

- Prepositional phrases with motion verbs; null Path incorporated (49)
- Postpositional phrases with non-unergative verbs and even NPs; Path is overt (lexicalized by P raising to it) and can further incorporate into V (53)
- Circumpositional phrases with non-unergative verbs; Path is overt and also can incorporate into the verb (52)

Remembering the parallel I drew between Germanic particles and Russian lexical prefixes, the paradigm above could be applicable to the Russian verbal-prepositional

material as well. An important point here concerns the incorporation of null Path into the verbs of motion. Den Dikken (2003) however notices that the generalization in (47) fails to capture the fact that not all motion verbs in Dutch allow prepositional PPs with the directional interpretation:

- (54) Jan liep/ rende **in het bos**.
 J.NOM. walked/ ran **in the forest**
 ‘Jan walked/ ran in the forest.’ LOCATIVE only

Maybe what systematically splits the Russian motion verbs into directed and non-directed pairs also arbitrarily splits the Dutch motion verbs into directed and non-directed paired verbs, like *springen* ‘jump’ - directed, *lopen* ‘walk’ non-directed. The borderline between motion verb types is thus drawn by the incorporating null Path in directed and non-incorporating overt Path in non-directed tokens (cf. also Zubizarreta and Oh (In press)).

Interestingly, in Dutch only non-nergative verbs are compatible with any sort of Path, both incorporated (49-a) and not incorporated (49-b). As is seen from (50) unergatives are ungrammatical with Path-denoting postpositions.

If this state of affairs in Dutch is compared to the Russian facts, I would have to assume that directionality in unprefixated directed motion verbs originates in the incorporated Path. Indeed, we have seen the effect DMVs have on otherwise neutral symmetrical prepositions and locative ‘extended location’ PPs ((20), (21-a), (22-a)). It is comparable to the effect some Dutch motion verbs produce on otherwise locative prepositional phrases (49-a). Assume Russian prefixes represent the overt Path head, like Dutch postpositions. In this case they are still compatible with directed motion verbs similarly to the Dutch example in (49-b).

Unergatives (or non-directed motion verbs in our case) do not support directionality in any way: they do not carry inherent directional meaning as can be seen from the impact they have on the interpretation of symmetrical prepositions ((21-b), (22-b)) and they do not combine with lexical prefixes = overt paths. The situation is comparable to the Dutch counterpart as well (50).

There are two problems in this speculative comparison of Russian and Dutch:

- Problem 1: ‘ergative shift’ (Hoekstra and Mulder (1990)) is possible in Dutch and impossible in Russian
- Problem 2: path incorporates into motion verbs differently in Dutch and Russian

In Dutch, even the verbs that might be ‘directed’ judging by their ability to impose a directional interpretation onto the prepositional PPs, behave like unergatives in the absence of adpositions. As is known, the ‘unergative’ vs ‘unaccusative’ behavior is

diagnosed with the help of auxiliary co-occurring with the verb. To remind, I repeat the Dutch part of (35) from section 2.3.2 below:

- (55) a. Jan **heeft** gesprongen.
 Jan **have** jumped.PPP
 ‘Jan has jumped.’
 b. Jan **is in de sloot** gesprongen.
 Jan **is in the ditch** jumped.PPP
 ‘Jan has jumped into the ditch.’
 (from Arad (1998))

As one can see from (55) adding a prepositional phrase to the unergative verb leads to change of auxiliary. Hoekstra and Mulder (1990) call this phenomenon ‘ergative shift.’ According to them, a directional preposition heading a small clause is an ‘ergativizing’ device and its presence is crucial for the argument structure of the verb: it is in the Small Clause that the argument of unaccusatives is introduced. Recall that, likewise, lexical prefixes originate in the Small Clause structure. However, the situation looks different from that in Dutch: in Russian it is not possible to change the argument structure of an intransitive just by merging a directional PP with the verb. Even lexically prefixed unergatives do not become ‘ergativized’ and easily take a PP. On the other hand, if lexical prefixes do not merge with unergatives in a PP, there is no SC structure and the grammatical subject of the whole construction can be introduced only by *v*, but not by the head of the SC. Thus, Russian unergatives seem to resist the merge of a Small Clause. Either way, it is a mystery why unergative structures in Russian cannot follow the Dutch pattern, take directional PPs and be ‘ergativized’ through their presence.

The second problem might be connected with the first, since it also deals with the split between the two types of motion verb, although at this point it is not possible to state the precise relation between these problems. As Russian is a morphologically rich language, any process of syntactic derivation tends to be reflected in the morphological shape of the derivational product (cf. Déchaine (2003)). Given that the visible distinction is observed between the roots of directed and non-directed motion verbs but not between the roots of prefixed and unprefixed DMVs, it seems premature to conclude that something actually incorporates into DMVs apart from lexical prefixes. In Dutch we also observed an overt Path incorporation ((52), (53)), which is supposedly complementary with a silent Path incorporation (see also den Dikken (2003) on genuine incorporation discussed in Chapter 2). If the morphological shape of DMVs were already a reflection of incorporated silent Path, the verbs shaped like this would not be able to incorporate one more, now overt, Path (= a prefix).

In the coming sections I am going to look into the types of path discovered earlier and the nature of their connection with motion verbs. As the discussion unfolds, it will become clear why Russian motion verbs do not behave in a Dutch way.

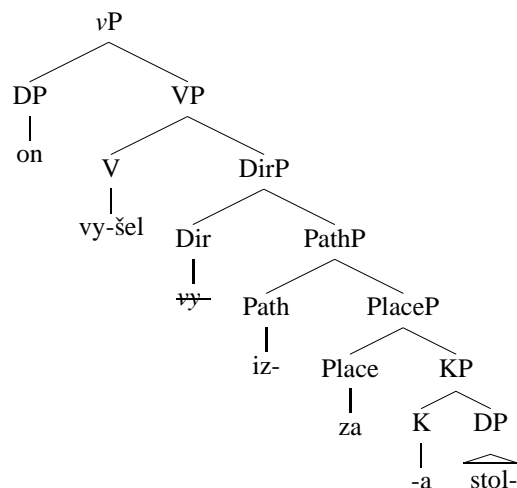
3.4.2 Different types of path

Thus, lexical prefixes lexicalize a Path head in the sense of Koopman (1997) leaving Place to lexical prepositions (Koopman (1997), den Dikken (2003), Svenonius (2006), etc.). However, in Chapter 2, I claimed that spatial lexical prefixes head the little *p* projection. The presence of little *p* in the structure is detectable, for example, from the accusative case on the Ground of the preposition. In this chapter I have considered prepositions with accusative objects representations of adjacent linear path structures. Thus, if a PP contains an accusative Ground, and is characterized by the possibility of lexical prefixation and compatibility with directed motion verbs, it must contain an adjacent non-branching and non-crossing path structure. Taking the analogy between the little *p* and the little *v* further allows me to think that the little *p* may contain an array of functional heads. This is similar to some researchers' suggesting that *v* consist of CAUS and VOICE projections (Pylkkänen (2002), Markman (2003)). In this view Path lexicalized by prefixes is a part of *pP*¹¹.

¹¹There might be other projections in addition to Path in *pP*. For example, one way to account for complex prepositions in Russian is offered in Rojina (2004). It involves an additional projection, DirP (cf. also Svenonius (2006)):

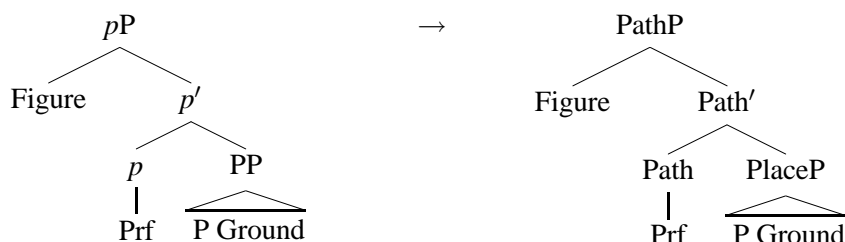
- (i) a. On **vyšel iz-za** stola.
 he.NOM. **out-walked^P**.dir.sg.fem. **out.of-behind** table.GEN.
 'He came out from behind the table.'

b.



So, the functional structure used to represent prepositional phrases in Chapter 2 is preserved here but with different labels which describe the spatial relations inside the PP in a more precise and concrete way:

(56)



Researchers have reached a consensus on the relative position of Path and Place: Path dominates Place. This hierarchy is accounted for in Svenonius (2006): Paths are oriented wrt the location expressed by PlaceP and can be represented by abstract directions TO, FROM and VIA. In other words, Path indicates whether motion originates in Place (from), ends in Place (to) or intersects Place (via). Below I demonstrate how different paths operate in Russian.

As is seen from the accusative marking of the Ground in (57), the path leads ‘the ball’ TO ‘the goal’:

- (57) Mjač katilsja v vorota.
 ball.NOM. rolled^I.dir.sg.ms.sja in gates.ACC.
 ‘The ball was rolling into the goal.’

The VIA Path crossing or piercing the PlaceP location also suggests the presence of accusative on the object of the preposition:

- (58) Mjač katilsja čerez pole.
 ball.ACC. rolled^I.dir.sg.ms.sja across field.ACC.
 ‘The ball was rolling across the field.’

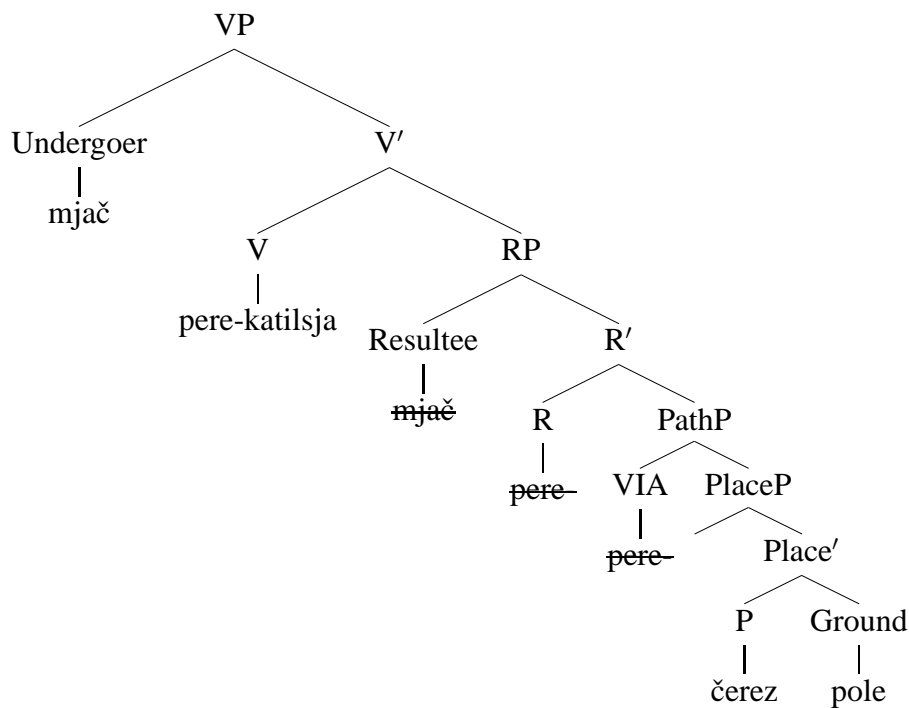
In Russian the path orientation FROM the location described by PlaceP is systematically traceable from the genitive marking on the Ground argument:

- (59) Mjač katilsja iz vorot.
 ball.NOM. rolled^I.dir.sg.ms.sja out.of gates.GEN.
 ‘The ball was rolling out of the goal.’

Lexical prefixes can lexicalize these abstract TO, FROM and VIA paths by merging in PathP:

- (60) a. Mjač vkatilsja v vorota.
 ball.NOM. in-rolled^P.dir.sg.ms.sja in gates.ACC.
 ‘The ball rolled into the goal.’
- b. Mjač perekatilsja čerez pole.
 ball.NOM. across-rolled^P.dir.sg.ms.sja across field.ACC.
 ‘The ball crossed the field.’
- c. Mjač vykatilsja iz vorot.
 ball.NOM. out-rolled^P.dir.sg.ms.sja out.of gates.GEN.
 ‘The ball rolled out of the goal.’

(61)



Basing my assumptions on the relevant literature and generalizations drawn from the Russian data, I am going to employ the following theoretical machinery within and beyond *pP*:

- PlaceP is immediately dominated by PathP
- Lexical prefixes merge as Path heads lexicalizing three abstract Paths: TO, FROM and VIA
- PathP is the complement of VP (*procP*) in DMV (unless the verb is prefixed, in which case PathP is the complement of RP)

Remember that all motion verbs have a path argument, which means that non-directed motion verbs should also take PathP. Remember also that extended location PPs contain a set of paths that can be connected into a Zwartsian path, which is non-adjacent, non-linear, branching, crossing and reversing. In such a case, the question is: are locative PPs also decomposable into the PlaceP and the PathP? If so, what kind of Path can dominate Place in locative prepositional phrases? In fact, Svenonius (2006) has an answer to this question. He postulates the existence of the fourth abstract path: AT. According to Peter Svenonius (p.c.), ‘AT Path is one in which all points (universal quantification) are located in PlaceP. This is trivial if there is just one point to the Path. But it also allows e.g. ‘dancing around’ or ‘running in circles’ to have Paths.’

The AT-path has overt morphological realization in some languages, like Finnish, Lezgian or Zina Kotoko (Svenonius (2006), Svenonius (to appear), Svenonius (2004b)). If you decompose spatial case endings into internal vs external location on the one hand, and the direction of the path, on the other, in Finnish AT coexists on a par with TO and FROM. I present the external location paradigm in the table below. The examples of adessive (63-a), allative (63-b) and ablative (63-c) cases are given in (63):

	AT	TO	FROM
(62)	-l-lA	-l-le	l-tA

- (63) a. Asun **Venäjä-l-lä**.
live^I.pres.1sg. Russia.ADE.
‘I live in Russia.’
- b. Tulin **Venäjä-l-le** kuukausi sitten.
came.1sg. Russia.ALL. month since
‘I came to Russia a month ago.’
- c. Matkustan **Venäjä-l-tä** Norjaan ehkä keväällä.
travel.pres.1sg. Russia.ABL. Norway.ILL. perhaps spring.ADE.
‘I’ll probably travel from Russia to Norway in spring.’

Interestingly, I claimed earlier that non-directed motion verbs pick out, roughly speaking, Zwartsian paths exactly from the denotation of the locative PPs: that is, this sort of paths are contained in the location represented by the preposition and its Ground. For example, in (64) the trajectory of the bird’s motion could have covered all the points contained in the location ‘above the nest’:

- (64) Ptica letala nad gnezdnom.
bird.NOM. flew^I.ndir.sg.fem. over nest.INSTR.
‘The bird was flying (around) above the nest.’

However, the Zwartsian path (Z-path) describing the event shape of non-directed motion

verbs is different from Svenonius' AT-path, even if they share some characteristics. The main property of Z-path is that it consists of a set of subpaths that can be crossing, overlapping, circular or going back to where they start. As far as I know, AT-path can have any shape as long as all its points are contained within the denotation of PlaceP. And this is the second distinction: Z-path does not have to be fully contained within the space outlined by PlaceP, as I will show below. Z-path just glues together the type of motion ('a shape of event' in the terminology of Zwarts (2006)) expressed by non-directed motion verbs with the set of trajectories contained in the locative PlaceP. Remember that the path traversed with the help of the DMV-type motion does not always have to be directional; sometimes it can be contained within the PlaceP region (20). Thus, it is the shape of a path, but not its orientation with respect to PlaceP, that determines the subdivision of motion verbs in Russian into two groups. In the light of this observation, the terms 'directional' and 'non-directional' seem to be misleading. Yet, I will continue using them for the sake of convenience, just like I will employ TO, FROM and VIA paths from Svenonius (2004b) and Svenonius (2006) to reconcile the shape of a directed motion event with an accusative (or genitive) Ground of the preposition¹².

Yet, postulating a co-occurrence of PathP with any type of motion verb leads to a paradox. Remember that Path is a constituent inside *pP*, and as we know, non-directed motion verbs are unergatives. As was demonstrated in Chapter 2, unergatives never take *pP* complements. How to resolve this paradox?

¹²There is an alternative account for Ps with accusative Grounds (directionals) and Ps with locative/instrumental Grounds (locatives). It belongs to Medová and Taraldsen (2005). Inspired by Zwarts (2005) and Ramchand (2006), Medová and Taraldsen (2005) have undertaken a task of showing how the augmented denotation of the event is actually mapped on the set of paths represented by a preposition. Directional prepositions represent more complex paths than locative prepositions (the data is from Czech):

- (i) a. $v = \text{LOC}_1, do = [\text{DIR} [\text{LOC}_1]]$
 b. $na_{\text{LOC}} = \text{LOC}_2, na_{\text{ACC}} = [\text{DIR} [\text{LOC}_2]]$

By the formula in (ii), prepositional paths can be matched to the shape of events via the trace function. Thus, the role of the verbal DIR 'subpath' is played by the *Proc* augment of the event structure, and LOC 'subpath' by the *Res* augment.

- (ii) $[[\text{PP VP}]] = \{ e \text{ in } [[\text{VP}]]: \tau(e) \text{ in } [[\text{PP}]] \}$ (Zwarts (2006))

This system beautifully predicts that only resultative verbs having a processual subpart in their event structure will combine with directional PPs. If the verb lacks one of the arguments in its event structure, it is incompatible with directional PPs.

3.5 Analysis. Paths within

Before I put forward any accounts, let us look again at the list of motion verbs:

(65)

DMV	NDMV	
<i>id-ti</i>	<i>xod-i-tj</i>	‘walk, go’
<i>jex-a-tj</i>	<i>jezd-i-tj</i>	‘go by a vehicle’
<i>bež-a-tj</i>	<i>beg-a-tj</i>	‘run’
<i>let-e-tj</i>	<i>let-a-tj</i>	‘fly’
<i>ply-tj</i>	<i>pla-va-tj</i>	‘swim’
<i>polz-ti</i>	<i>polz-a-tj</i>	‘crawl’
<i>lez-tj</i>	<i>laz-i-tj</i>	‘climb, creep’
<i>tašč-i-tj</i>	<i>task-a-tj</i>	‘drag’
<i>nes-ti</i>	<i>nos-i-tj</i>	‘carry, wear’
<i>ves-ti</i>	<i>vod-i-tj</i>	‘walk (tr.), drive’
<i>vez-ti</i>	<i>voz-i-tj</i>	‘transport’
<i>kat-i-tj</i>	<i>kat-a-tj</i>	‘roll’
<i>gna-tj</i>	<i>gonj-a-tj</i>	‘chase’

As can be seen from the table, most directed and non-directed roots have slight differences¹³.

The stem alternations we could observe in the table in (65) are:

¹³The *-a-* in the directed and non-directed counterparts of ‘run’ is an exponent of a different conjugation class as can be seen from comparing tensed forms of both stems in (i) and (ii):

- (i) Conjugation paradigm of the verb *bežatj* ‘run^I.inf.dir.’

	Singular	Plural
1P.	beg-u	bež-i-m
2P.	bež-i-š	bež-i-te
3P.	bež-i-t	beg-ut

- (ii) Conjugation paradigm of the verb *begatj* ‘run^I.inf.ndir.’

	Singular	Plural
1P.	beg-aj-u	beg-aj-em
2P.	beg-aj-eš	beg-aj-ete
3P.	beg-aj-et	beg-aj-ut

It seems that in (i) some present Tense forms (like 1Sg. and 3Pl. - compare them to the corresponding forms in (ii)) have no thematic vowel at all.

- C(onsonant)-stem of directed motion verbs alternating with *-i-* of non-directed motion verbs as in *vez-ti - voz-i-tj* ‘transport, carry’
- C-stem alternating with the thematic vowel *-aj-* as in *polz-ti - polz-a-tj* ‘crawl’
- Thematic vowels like *-a-* or *-e-* alternating with *-i-* or *-aj-* (*jex-a-tj - jezd-i-tj* ‘go, travel’; *let-e-tj - let-a-tj* ‘fly’)
- *-i-* in transitive directed motion verbs alternates with *-aj-* in transitive non-directed motion verbs (*tašč-i-tj - task-a-tj*)

Different explanations have been offered for the phenomenon of thematic vowels. The most extensive account is given in Jabłońska (2006). She bases the account on the views by Déchaine (2003) summarized below in (66) (compare it also to Marantz (1997) cited in section 2.3.4):

(66)

The way the root merges with a syntactic configuration is reflected in the morphology

Jabłońska (2006) develops this view to cover thematic vowels in Slavic verbs, which she calls ‘verbalizers’. Thus, verbalizers are exponents of the syntactic configuration in which the verbal root is embedded. As the idea with the verbalizers is still speculative although intuitively pointing the right direction, I will restrict its use to supporting the claim that more complex morphology of most non-directed motion verbs reflects more complex syntactic structures they appear in.

At first it may sound paradoxical, since we know that, at least on the outward non-directed motion verbs do not combine with much structure: they cannot appear with directional PPs including Path-heads (lexical prefixes), exactly like other unergatives. From subsection 3.4.1 we know that directional PPs co-occurring with unaccusatives and not co-occurring with unergatives is not specific to Russian. In such languages as Dutch (and Italian) the argument structure of an intransitive verb is determined by the presence or absence of a directional PP. The presence or absence of a directional PP in the syntactic environment of such verbs not only determines the argument structure of the verbs, but also influences the auxiliary choice (see subsection 3.4.1). Remember that in this connection two problems in comparing Russian to Dutch arose: 1) unlike in Dutch, there is no evidence for silent Path incorporation into the stems of directed motion verbs in Russian; 2) unlike in Dutch, there is no ‘ergative shift’ in Russian, that is, adding a directional PP to unergatives is just impossible.

In this section I will put forward a proposal solving these two problems simultaneously.

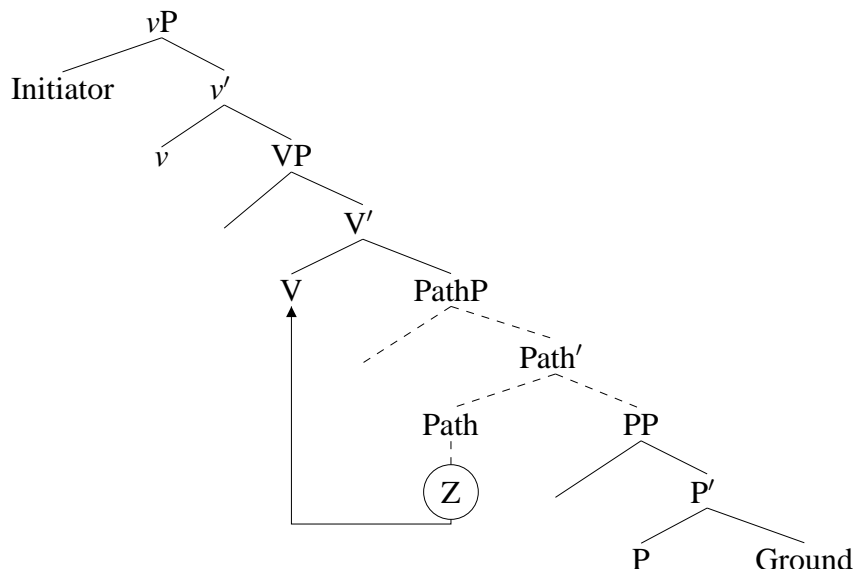
3.5.1 Z-path incorporation

I assume that both, directed and non-directed motion verbs have a *ProcP* in their event structure. However, for some reason these two *proc* verb types differ morphologically: in some cases ((i) and (ii) in footnote 13) the thematic vowel of a non-directed motion verb obviously looks more complex than the thematic vowel of a directed motion verb. The reason for this difference lies in the presence of incorporated material within the stem of NDMV. This element is a Path head. As follows from the previous discussion, non-directed motion verbs encode motion along the Zwartsian paths, that is, paths that overlap, cross and go back. We also agreed that directional paths are usually lexicalized by spatial prefixes. The question raised in subsection 3.4.2 was: how can non-directed motion verbs co-occur with any Path at all, even though it is mappable on the type of motion they encode, since Path is a part of the little *p* projection? Here is the answer:

(67)

Non-directed motion verbs incorporate silent Z-path making it impossible for overt paths to merge

(68)



The analysis employing Path-incorporation fares better at explaining the differences between directed and non-directed motion verbs than its potential alternatives, like the analysis based on different selectional requirements of the two types of motion verb. The selection-based analysis fails to explain why the properties that must be satisfied

under selection (directionality) are recoverable from the head even in the absence of any complements. What I mean here is that a) motion verbs of a particular type encode motion along a path with a particular shape and no PPs are obligatory for that (69); b) motion verbs of the two types have the same roots but different suffixes (see the discussion above).

- (69) a. On **plaval** šestj časov.
 he **swam^I.ndir.sg.ms.** six hours.GEN.
 ‘He was swimming for six hours.’ = He was swimming in different directions, sporadically, or repeating the same rout, for example, training in the swimming-pool or bathing in a lake.
- b. On **plyl** šestj časov.
 he **swam^I.dir.sg.ms.** six hours.GEN.
 ‘He was swimming for six hours.’ = He was swimming to a particular destination along a linear path, for example, crossing the English Channel.

Native speakers do not need to have a PP next to the verb of motion to know what path is being traversed.

In addition, the selection-based analysis misses the generalization I arrived at in Chapter 2: the behavior of non-directed motion verbs is no different from the behavior of other unergatives. This implies that it is the structural makeup of *vP* that is responsible for its syntactic distribution rather than selectional requirements of lexical items that constitute it.

Thus, I consider the path-incorporation analysis to be closer to the real state of affairs in Russian than the selection-based analysis (see also footnote 14).

Now I can explain the (un)grammaticality of some examples from the beginning of this chapter. I repeat (17) and (18) below as (70-a) and (70-b):

- (70) a. V prihožej **letala** babočka.
 in corridor.LOC. **flew^I.ndir.sg.fem.** butterfly.NOM.
 ‘A butterfly was flying in the corridor.’
- b. ??Babočka **letajet** na kuxnju.
 butterfly.NOM. **flies^I.ndir.** on kitchen.ACC.
 ‘The butterfly is flying to the kitchen.’

Accusative marking on the Ground argument of the preposition is an indication of the presence of Goal. As the conflated Z-Path contains no Goal (or Source) specification, no accusative (or genitive) is usually assigned to the Ground arguments of PPs following NDMVs. The absence of accusative (or genitive) on the Ground of the preposition is linked to the non-directional interpretation of the PP. However, as we could see from

(38), repeated below as (71-a) and (71-b), non-directionality of a PP is not a decisive factor in its compatibility with NDMVs:

- (71) a. Rektor **xodil** v striptiz-bar za sčēt
 rector.NOM. **walked^I.ndir.sg.ms.** in strip-bar.ACC. behind expense.ACC.
 vuza.
 high.school.GEN.
 ‘The rector attended the strip-bar at the university’s expense.’
- b. Naši samolëty **letali** iz Vladivostoka i v sovjetskoje
 our planes.NOM. **flew^I.ndir.pl.** out.of V.GEN. and in soviet.ACC.
 vremja.
 time.ACC.
 ‘Our planes used to fly from Vladivostok during the Soviet times as well.’
 (kapital.zrpress.ru/imageall/2004/0603.asp)

This was a puzzle before: a pluractional reading of non-directed motion verbs with directional PPs as other instantiations of pluractionality could be explained by postulating some higher aspectual head AspP with the corresponding denotation. This head would take a singular event and iterate it. I argue that what happens has the opposite nature: iteration (and pluractionality at large) is induced by the constituent occupying lower domain of the tree. This constituent is PathP. We know by now that Z-path consists of multiple subpaths, making it ‘plural’ in a way. Now remember my claim that Z-path does not have to be fully contained inside the PlaceP region. In the case under discussion (71-a), PlaceP contains only the end-point of the Z-path, the rest of the path lies outside the region denoted by PlaceP. Multiple subpaths in this case are created by going back and returning to the end-point an indefinite number of times. As paths are always homomorphically mapped onto the event shape of the verb (Zwarts (2006)), we get a pluractional interpretation on the non-directed motion verb combining with the Goal (or Source) PP. Thus, Z-Path induces pluractionality of non-directed motion verbs with directional PPs¹⁴.

The behavior of the Z-path is subject to a cross-linguistic variation. Whereas in Russian it incorporates into non-directed motion verbs, in Norwegian it is overt: the division between directional and non-directional VPs is encoded by the ‘aspectual’ preposition *på* ‘at’ (Ramchand and Tungseth (to appear)):

¹⁴The mechanism underlying the derivation of pluractional verbs of motion is another piece of evidence against the selectional theory that could be alternatively offered for explaining different behaviors of DMVs and NDMVs. Assuming NDMVs had a selectional requirement in solely locative PPs, easy combinability of non-directed motion verbs with directional PPs would fall short of satisfying it. Similarly, if we assume, that in their turn DMVs have a selectional requirement in strictly directional PPs, the assumption is turned invalid by the co-occurrence of DMVs with locative PPs (20).

(72)

- | | | | |
|----|---|----|--|
| a. | Vi dyttet vogna.
we pushed cart.the
'We pushed the cart.' | b. | Vi dyttet på vogna.
we pushed at cart.the
'We pushed the cart (around).' |
|----|---|----|--|

Non-surprisingly, the sentence in (72b) is even incompatible with *rundt og rundt* 'round and round.' The explanation is straightforward: 'round' lexicalizes the same path, AT, which is already expressed by the preposition *på*.

However, in Russian there is one prefix with the same meaning, *o-* 'around' that can attach to non-directed motion verbs:

- (73) a. On **oplaval** vse morja.
he **around-swam**^P.sg.ms. all seas.ACC.
'He has swum around all the seas.'
- b. Naša sobaka **oblazila** vse pomojki.
our dog.NOM. **around-crawled**^P.sg.fem. all scrapyards.ACC.
'Our dog has checked all the garbage-bins.'

In Chapter 2 I discussed *o-* as the only passivizing prefix combining with unergatives. Remember that this combination was claimed paradoxical: if the prefix heads a pP_{pass} , but no pP co-occurs with non-directed motion verbs, what actually happens here? Suppose *o-* does not merge in p . Suppose it merges in P. Usually prefixes and prepositions constituting the same extended projection have the same semantics. The preposition meaning 'around' would be a direct analogue of the Z-path. In addition, the objects of *o-*prefixed NDMVs look like Grounds of prepositions¹⁵. In a way, it does not seem to be a coincidence that *o-* is the only prefix co-occurring with NDMVs in particular and unergatives in general. It corroborates the idea of the Z-path conflated with unergative verbs.

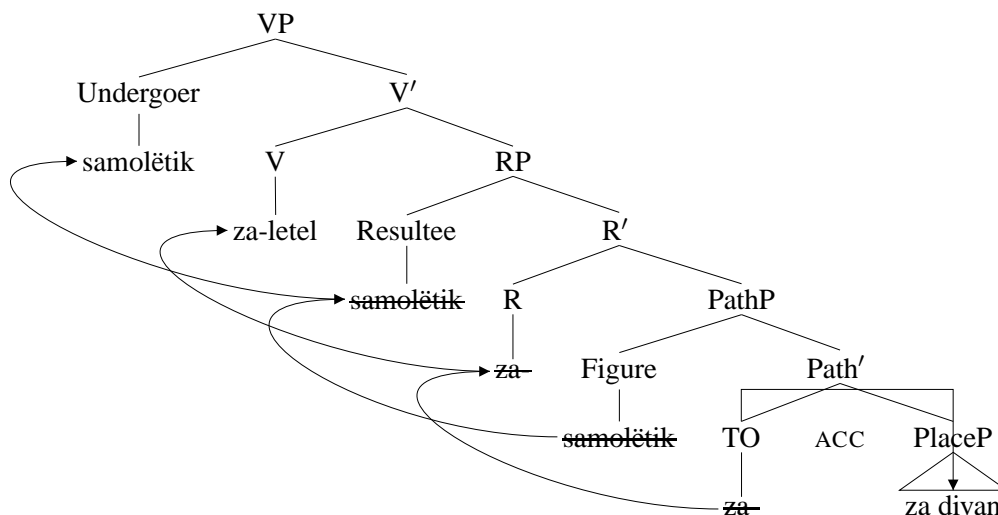
Earlier in this chapter I mentioned another prefix that can attach to non-directed motion verbs and other unergatives, namely, *vy-*. Some other prefixes can also behave like *vy-* productively combining with unergatives. This is unexpected. If *vy-* and *vy-*-like prefixes are path expressions, they should not co-occur with non-directed motion verbs and unergatives in general, because the presence of an overt path is impossible with the conflation mechanism. I cannot give the same analysis to *vy-* and *vy-*-like prefixes as

¹⁵As an option, we could also suppose that *o-* moves from P, lexicalizes the Z-path head and then incorporates into the verb, Dutch-style (cf. Koopman (2000)). However, it is unclear how to implement this, since I claimed that Z-conflation is reflected in the thematic vowel of NDMVs, and *o-*prefixed NDMVs would contain both, the Z-path thematic vowel and the Z-path prefix. Thus, I choose to analyze *o-* as P alone.

they do not introduce the Ground argument. Therefore, I have unfortunately no account for the structure in which *vy-* combines with unergative predicates. Since it is the only prefix that attaches to NDMVs and since there are just few others that can co-occur with other unergatives, they can involve an independent analysis. As the generalization that arose in Chapter 2 shows to a different direction, I am making a decision to put the discussion of unergatives with *vy-* and *vy-*-like prefixes aside.

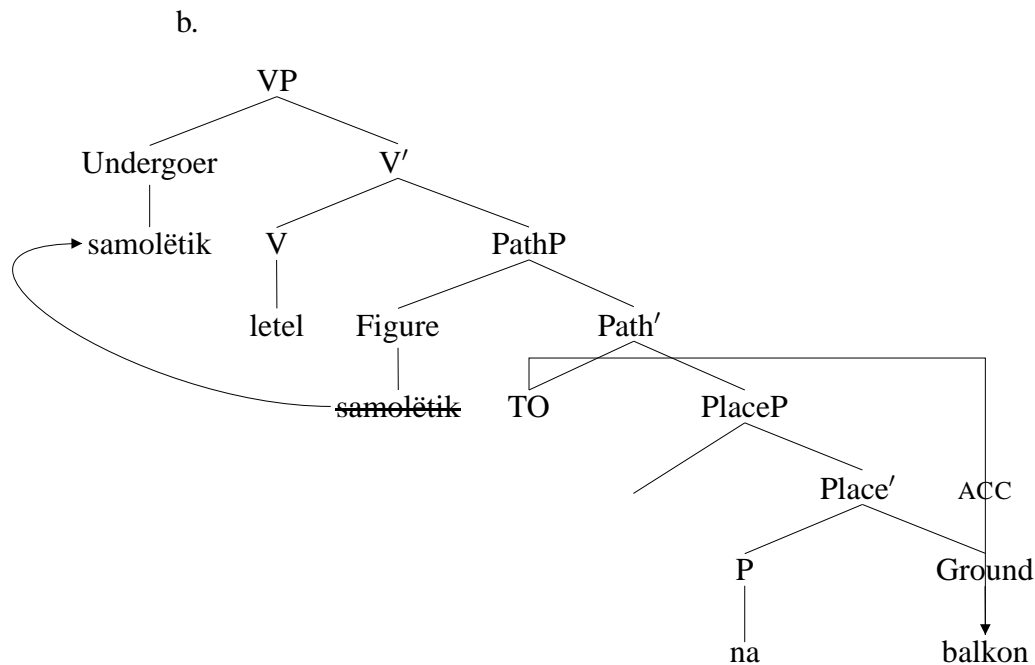
The Z-conflation analysis also accounts for the behavior of directed motion verbs. While directed paths TO, FROM and VIA are never incorporated into DMVs, they can be overtly lexicalized by spatial prefixes (60), (74-a).

- (74) a. Samolëtik zaletel za divan.
 plane.NOM. behind-flew^P.sg.ms. behind sofa.ACC.
 ‘The paper plane ended up behind the sofa.’
 b.



Even when the TO, FROM and VIA paths are not lexicalized by prefixes, they do follow directed motion verbs and represent an active *p* assigning accusative to the Ground of the preposition (75-a).

- (75) a. Samolëtik letel na balkon.
 plane.NOM. flew^I.dir.sg.ms. on balcony.ACC.
 ‘The paper plane was flying to the balcony.’



The presence of overt path with directed motion verbs also explains their poor compatibility with ‘phase’ and some modal verbs. The PP complement of DMVs implies resultativity: the Figure is supposed to traverse a certain path to end up in the location described by PlaceP¹⁶.

Thus, the analysis of motion verbs based on Z-path conflation with NDMVs and overt paths with DMVs explains:

- why unprefixed non-directed motion verbs have the meaning component ‘around’
- why non-directed motion verbs do not take spatial prefixes
- why non-directed motion verbs do not take directional PPs

Now let us see how we get unergativity from the Zwartsian path incorporation.

¹⁶Notice, however, that unlike perfectives, directed motion verbs are not truly ungrammatical in the environment of ‘phase’ verbs:

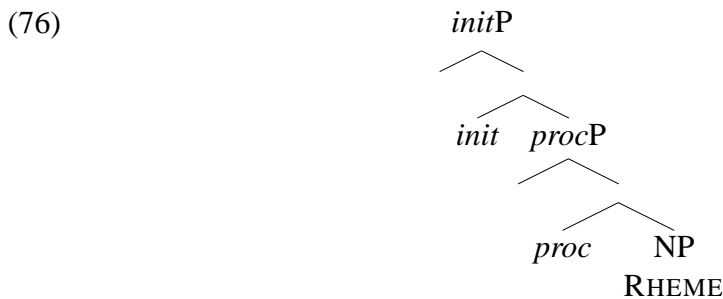
- (i) Podnjalasj volna, i my načali bežatj k gostinice.
 raised^P.sg.fem.sja wave.NOM. and we started^P.pl. run^I.dir.inf. to hotel.DAT.
 ‘A wave raised, and we started running towards the hotel.’

3.5.2 Conflation and unergativity

The analysis proposed for non-directed motion verbs is certainly extendable to other unergatives judging by their distribution with respect to prepositional phrases and prefixes like *vy-*. The question is,

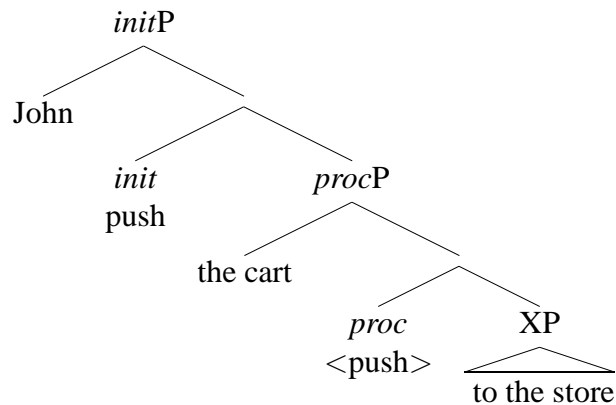
- why do we get unergativity when a path is conflated with the verb?

The correlation between unergativity and path conflation is not accidental. Ramchand (2006) postulates that Paths are Rhemes, or complements of (usually) *ProcP*:



The Rheme material is incremental and mappable on the *procP* of the verb, therefore not only NPs can be Rhematic¹⁷, but also PPs denoting paths:

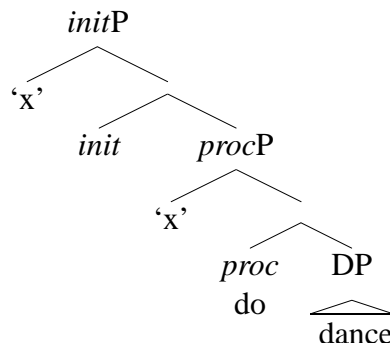
- (77) a. John pushed the cart to the store.
b.



Following Hale and Keyser (1993) Ramchand (2006) claims that verbs like *dance* ‘arise from rhematic material being conflated from complement position into the head. So, in the case of the verb *dance* below, the nominal ‘dance’ can be thought of as the RHEME of the generalized *do* process’:

¹⁷Only those NPs can be Rhemes that represent Incremental Themes, like creation/consumption objects

(78)



Considering that a lot of conflation verbs belong to the class of unergatives, like *dance* above, my claim must be on the right track. The difference between the present analysis and the analysis proposed in Hale and Keyser (1993) and developed in Ramchand (2006) is in what conflates with the verb. Here the Rhematic material is the Z-Path both in non-directed motion verbs and in other unergatives. Whatever material is conflated, all conflation verbs have one characteristic in common:

Verbs with conflated material always have the initiator argument.

I will call the generalization above ‘Chapter 3 Generalization’ for now. Similar to Burzio’s generalization, which states that accusative is possible only in the presence of external argument, the generalization above does not have a straightforward explanation. It just reflects a systematic pattern characteristic of non-unaccusative verbs. In the absolute majority of cases the pattern describes intransitive predicates whose only argument is introduced by the little *v*P. They are unergative predicates. There are also six transitive NDMVs that demonstrate the syntactic distribution similar to that of unergative verbs. As we know, they certainly project the little *v*P as well. Conflation can be compared to antipassivization in some sense: the object of the verb gets ‘deprived’ of its status of the internal argument. As a result, it does not participate in its original syntactic configuration. Recall, that as a result of Burzio’s generalization just one case remains available with passive verbs. As a result of the Chapter 3 generalization, conflation verbs are left with just one argument. This only argument is the initiator.

The conflation generalization leads to an interesting prediction. Remember the discussion of Affectedness Constraint in Chapter 2. According to this constraint, PPPs formed from affected object verbs are not acceptable without modification implying the presence of the external argument:

- (79) napisannaja *(Kandinskim) kartina
 painted.PPP.sg.fem. K.INSTR. picture.NOM.
 ‘picture painted by Kandinsky’

Recall that effected objects are Rhematic complements of the verb, as opposed to Resultees or Undergoers. In Chapter 4 I will discuss effected objects in more detail and will propose after von Stechow (2000) that they are opaque complements. As stated in Van Geenhoven and McNally (2005), opaque complements of the verb are not individual-type, but property-type arguments. Thus, effected objects are also property-type arguments. According to Van Geenhoven and McNally (2005), such arguments undergo the process of semantic incorporation, as can be seen from the absence of the transitivity marker in some West Greenlandic verbs with property-type complements. The prediction is: verbs with effected objects are similar to conflated verbs and therefore the external argument is obligatory with them. It even cannot be omitted with Past Passive Participles formed from effected object verbs, which reflects an aspect of the Affectedness Constraint.

3.6 Conclusion

In search of solution for the problems that arose in Chapter 2 I appealed to the class of motion verbs. As the problems dealt with lexical prefixation patterns on the verbs with different argument structures, motion verbs suited the purpose of untangling them well for the following reasons:

- both groups of motion verbs, directed motion verbs and non-directed motion verbs, are imperfective and thus, on the one hand, do not complicate the picture by aspectual differences, on the other, as a class, can take all types of prefix;
- the distinction between DMV and NDMV is also the distinction between unaccusative and unergative motion verbs respectively (transitive MVs aside);
- motion verbs allow to study the concept of Path in great detail, since motion is trivially associated with traversing a path

The choice of this class of verb turned out to be right. In the process of investigating motion verbs I arrived at the following generalizations describing each group in particular:

	DMV	NDMV
shape of path	Krifkan	Zwartsian (Z)
Prefixation	Lexical, spatial	Superlexical or non-spatial
compatible PP	directional (with ACC (GEN) Ground)	locative (with LOC/INSTR Ground)

As one can see, the event shape of a motion verb homomorphically mapped on the type of path it describes, determines the distributional properties of the verb.

Directed motion is the motion along an adjacent, non-branching, non-crossing and non-reversing paths (Krifka (1998)), often expressed by the abstract directional Path-heads TO, FROM and VIA. These directed paths are lexicalized by spatial lexical prefixes. When a Goal or a Source are specified by the PlaceP, a structural case (accusative or genitive) is assigned to the Ground of the preposition, which renders the whole PP a directional interpretation. However, as compatibility of DMVs with locative prepositional phrases suggests, directionality of a path does not play a crucial role in isolating directed motion verbs into a class.

Non-directed motion happens along a set of paths, which can cross, branch, go back and be traversed many times (Zwarts (2006)). In syntax it is represented by the silent Z-Path head. This Path head gets conflated with the verb, which blocks merge of spatial prefixes. When NDMVs co-occur with directional PPs, the set of subpaths constituting the Z-path have the same end- (or beginning-) point. Such a path implies multiple traversing of the same trajectory. When it is homomorphically mapped onto the event shape of the verb, we get a pluractional interpretation of the event. Thus, non-directionality is again not crucial for isolating non-directed motion verbs into a separate class.

The DMV-NDMV distinction is determined by a) the shape of the path they encode; b) its overtness.

The conflation of a Path head has deep consequences for treating unergatives in Russian. When the path conflates, the *initP* (*vP*) is obligatory in the structure of the verb and so is its Specifier, the Initiator argument. In this way the unergative (or sometimes transitive) argument structure is derived.

Chapter 4

Superlexical *na-* and event quantity

4.1 An overview of superlexical prefixes

Recall that there are two types of perfective. Lexical prefixes create perfective verbs whose event structure contains the result augment (RP) yielding atomic events. The other class of prefix, called superlexical, represents another way of creating atomic events. Roughly speaking, by measuring mass-like events they produce an atomic ‘package.’

According to Isačenko (1960), the modifier-prefixes, as he termed superlexicals, do not interfere with the lexical semantics of their host verbs; they just modify it following two different patterns. In pattern one they pick out and delimit a subevent; like the initial part of the event in the case of *za-*:

- (1) *govoritj* ‘speak^I’ - *zagovoritj* ‘start speaking^P’

In pattern two they ‘modify’ some inherent characteristics of the event (Isačenko (1960): 223), like its ability to distribute over arguments in the case of *pere-*:

- (2) *mytj posudu* ‘wash^I dishes.ACC.’ - *peremytj (vsju) posudu* ‘wash^P (all) the dishes (one after another)’

Isačenko (1960) does not label prefixes, he labels ‘aktionsarts’ yielded by their attaching to the verb. The number of the latter amounts to 16 eventualities, and each of them is formed by the combination of the verb with one or several prefixes.

Prefixes receive their interpretation from the structural position they merge in. There is often a direct correlation between Isačenko’s ‘aktionsarts’ and prefixes inducing them, therefore, for the ease of presentation, I expand the terminology coined in Isačenko (1960) for labeling eventualities to also cover the relevant prefixes. Now, the termi-

nology goes like follows: the inceptive ‘aktionsart’ in (1) is a result of attaching the inceptive prefix *za-* to the verb. Even if the ability to distribute the event over the arguments might not come directly from the distributive prefix, as I will show below, I will stick to the ‘aktionsart’ labels of the superlexical prefixes. For future reference, I introduce the most common prefixes and their labels here:

- (3)
- a. Inceptive (INCEP) *za-* picks out the initial subpart of the macroevent, rendering its left boundary salient: *zabegatj* ‘start running around’; *zaigratj* ‘start playing’
 - b. Accumulative (CUM) *na-* delimits a large portion of the macroevent; the measuring is fulfilled either by the direct object or by some other means - for details see the following section: *nasažatj smorodiny* ‘plant a lot of currants’
 - c. Terminative (TERM) *ot-* is the antonym of *za-*, picks out the very final subpart of the event (usually with no possibility for the event to resume), it creates the right boundary of the macroevent: *otbegatj* ‘stop running (for good)’
 - d. Delimitative (DEL) *po-* picks out a random (usually small) portion of the macroevent and renders both left and right boundary to it; it delimits the otherwise indeterminate event the way a measure phrase (‘a bucket’) delimits a mass noun (‘of water’): *pobegatj* ‘run for a while’; *poigratj* ‘play for a while’
 - e. Attenuative (ATT) *pri-*, *pod-*, *po-* add a light intensity reading to the (usually) bounded event: *podprostytj* ‘catch a slight cold’; *poprivyknutj* ‘get slightly used’
 - f. Distributive (DIST) *pere-*, *po-*, like accumulative *na-*, delimit a large portion of the macroevent, which ideally must contain iterated subevents, in their turn distributed over the relevant arguments of the verb; *pere-* (*po-*) closely cooperate with the universal quantifier (see the following section): *pootkryvatj vse okna* ‘open all the windows (one after another)’; *perebitj vse tarelki* ‘break all the plates (one after another)’

Babko-Malaya (1999) suggests that lexical and superlexical prefixes should be syntactically distinguished: the former incorporate into the verb presyntactically, the latter adjoin the Asp and incorporate into the verb by head movement. The proposal about syntactic positions of lexical and superlexical prefixes in Babko-Malaya (1999) was further developed in Romanova (2004a), Romanova (Forthcoming), Svenonius (2004a) and now it seems natural to assume that superlexical prefixes originate high in the structure, whereas lexical prefixes merge much lower (c.f. Chapters 2, 3 for the treatment of the

latter). The verbs with superlexical prefixes demonstrate a number of special characteristics (Romanova (2004a)). The most noticeable are that they usually do not form secondary imperfective (4-a) and do not undergo any valency change (4-b).

- (4) a. *petj* ‘sing^I’ - *popetj* ‘DEL-sing^P’ - **popevatj* ‘DEL-sing^I’ = ‘sing for a while’
 b. *petj* (*pesnju*) ‘sing^I (song.ACC.)’ - *zapetj* (*pesnju*) ‘INCEP-sing^P (song)’ = ‘start singing (a song)’

The high merging position of superlexical prefixes results in their ability to stack (5):

- (5) *guljatj* ‘walk^I’ - *vyguljatj* ‘out-walk^P’ = ‘take for a walk’ - *vygulivatj* ‘out walk^I’
 2IMPF - *povygulivatj* ‘DEL-out-walk^P’ = ‘walk (trans.) for a while’

As can be seen from (5), most superlexical prefixes select for the imperfective stem of the verb they attach to¹.

In the next two chapters I am going to investigate two superlexicals that attach to imperfective stems in detail - accumulative *na-* and distributive *pere-*. They are of importance here because of the apparent effect their presence has on the direct objects of the host verbs: with both prefixes under discussion, the host verbs are allowed to have only plural or mass objects. In addition, the attachment of *na-* seems to result in the genitive partitive case on plural and mass objects. However, this constraint on the shape of the object does not cancel the selectional requirement of the prefixes in question for the imperfectivity of the verbal stem they incorporate into.

4.2 Previous accounts of *na-*

4.2.1 *Na-* introduced

The term *accumulative* as referring to one of the aktionsarts of the Russian verb was coined in Isačenko (1960). As it is superlexical prefixes that induce different aktionsarts (using the traditional terminology underlying Isačenko’s works), and as the correlation between specific prefixes and specific aktionsarts is systematic, I expanded the term *accumulative* to also cover a morphosyntactic inducer of the *accumulative* ‘aktionsart’, phonologically realized as the prefix *na-*².

¹Some superlexicals like attentuative *pri-* can also attach to perfective stems:

(i) *otkrytj* ‘open^P’ - *priotkrytj* ‘ATT-open^P’ = ‘open a bit’.

²Isačenko (1960), Isačenko (1962) distinguishes between four different accumulative aktionsarts: saturative, when *na-* and the reflexive clitic *-sja* cooccur on a verb and all together yield an interpretation ‘to

- (6) a. **nadelatj** mnogo ošibok
‘CUM-do^P lots mistakes.GEN.’
‘to make a lot of mistakes’
- b. **narvatj** cvetov
‘CUM-pick^P flowers.GEN.’
‘to pick (a lot of) flowers’
- c. Taksi **najezdilo** sto rublej.
taxi.NOM. CUM-rode^P.ndir.nt hundred roubles.GEN.
‘The taxi trip has amounted to 100 roubles.’
(Isačenko (1960):248)

For Isačenko (1960) ‘accumulative’ literally means that an event has resulted in something that has been accumulated and therefore can be measured. In (6-a) there is an overt measure phrase, *mnogo* ‘a lot of’; in (6-b) there is no concrete measure, the object is marked partitive genitive; in (6-c) there is a precise quantity of money the taxi ride ‘accumulated’.

Most *na*-verbs have internal arguments. The verbs in (7), (8) and (9) are all originally transitive, but not all of them are (originally) creation/consumption/destruction (=incremental) verbs. The examples in (8) are evidence that not just ‘incremental’ events can be measured out:

- (7) a. **nakopatj** kartoški
CUM-dig^P.inf potatoes.GEN.
‘dig a lot of potatoes’
- b. **nakolotj** orexov
CUM-crack^P.inf nuts.GEN.
‘crack a lot of nuts’
- c. **narezatj** kolbasy
CUM-cut^P.inf sausage.GEN.
‘cut (a lot of) sausage’
- d. **nanositj** vody
CUM-bring^P.inf water.GEN.
‘bring a lot of water (in several goes)’

do sth to one’s heart’s content’; accumulative proper, when *na*- attaches to intransitive verbs, like verbs of motion, and requires a concrete measure (‘100 kilometers’); partitive-accumulative, the most common result of *na*- prefixation, when the direct object of the *na*- verb is marked partitive genitive (see the coming sections); and accumulative-distributive, when the distributive *po*- stacks on top of the accumulative *na*-. However, for the sake of clarity I will use only one word, accumulative, for characterizing the superlexical *na*-

- (8) a. nadaritj podarkov
 CUM-give^P.inf presents.GEN.
 ‘give a lot of presents’
- b. nasažatj svėkly
 CUM-plant^P.inf beet.GEN.
 ‘plant a lot of beet-roots’
- c. nastavitj bankomatov
 CUM-stand^P cash.machines.GEN.
 ‘install a lot of cash machines’

All the arguments in (7) and (8) are marked with partitive genitive (Franks (1995)), which with *na-* on the verb yields a large quantity interpretation to the noun. Note that all the nouns measured are either plural or mass. When a measure phrase is there, it is assigned accusative and the contents of the measure instantiation is still partitive genitive:

- (9) a. nadaritj kuču podarkov
 CUM-give^P.inf heap.ACC. presents.GEN.
 ‘give a heap of presents’
- b. nagladitj goru belja
 CUM-iron^P.inf mountain.ACC. bedsheets.GEN.
 ‘iron a pile of bedsheets’
- c. nakopatj tonnu kartoški
 CUM-dig^P.inf ton.ACC. potatoes.GEN.
 ‘dig a ton of potatoes’
- d. nakolotj kilogramm orexov
 CUM-crack^P.inf kilo.ACC. nuts.GEN.
 ‘crack a kilo of nuts’
- e. narezatj tazik salata
 CUM-cut^P.inf bowl.ACC. salad.GEN.
 ‘cut a bowl of salad’ etc.

A single argument of unaccusative verbs can also get a partitive genitive marking³:

- (10) *listjev napadalo* ‘leaves.GEN. CUM-fell’

Thus, I use *na-* on intransitive verbs as a test for unaccusativity. As was stated in Chapter 3 which presented a detailed discussion of motion verbs, directed motion verbs behave

³The nominative case is also possible on the unaccusative subjects, so far I am leaving this alternation aside

as other unaccusatives according to this test, that is, they usually have genitive or measure phrase subjects:

- (11) a. (Mnogo) žučkov naletelo.
 (many) beetles.GEN. CUM-flied^P.dir.def.
 ‘There arrived a lot of beetles by flying.’
 b. Košek nabežalo!
 cats.GEN. CUM-ran^P.dir.def.
 ‘What a lot of cats have come!’

Common unergatives (*sleep, laugh, sing, dance*) almost never have *na-*; whenever it attaches to such a verb, the latter becomes a neologism. However, non-directed motion verbs are unergative, as was demonstrated in Chapters 2 and 3, and they can be prefixed with *na-*. Unlike the verbs in (11), non-directed motion verbs with *na-* can never have genitive subjects:

- (12) a. *Sportsmenov nabegalo v etom sorevnovanii!
 sportsmen.GEN. CUM-ran^P.ndir.def in this.LOC. competition.LOC.
 intended ‘In this competition there ran a lot of sportsmen’
 b. *Žučkov naletalo!
 beetles.GEN. CUM-flied^P.ndir.def
 intended ‘What a lot of beetles have gathered!’

Non-directed motion verbs require a measure phrase of a different sort, and it must be either temporal or spatial in nature, like 100 hours or 5000 kilometers:

- (13) nabegatj, naletatj, naplavatj *(100 časov/
 CUM-run^P.ndir.inf, CUM-fly^P.ndir.inf, CUM-swim^P.ndm.inf (100 hours/
 5000 kilometrov)
 5000 kilometers)
 ‘to have accumulated 100 hours/ 5000 kilometers by running/ flying/ swim-
 ming’

Due to this systematic correlation between the presence of *na-* and the presence of some measurable entity expressed through one of the above means and accumulated in the run of the event, this prefix has got especially much attention in literature.

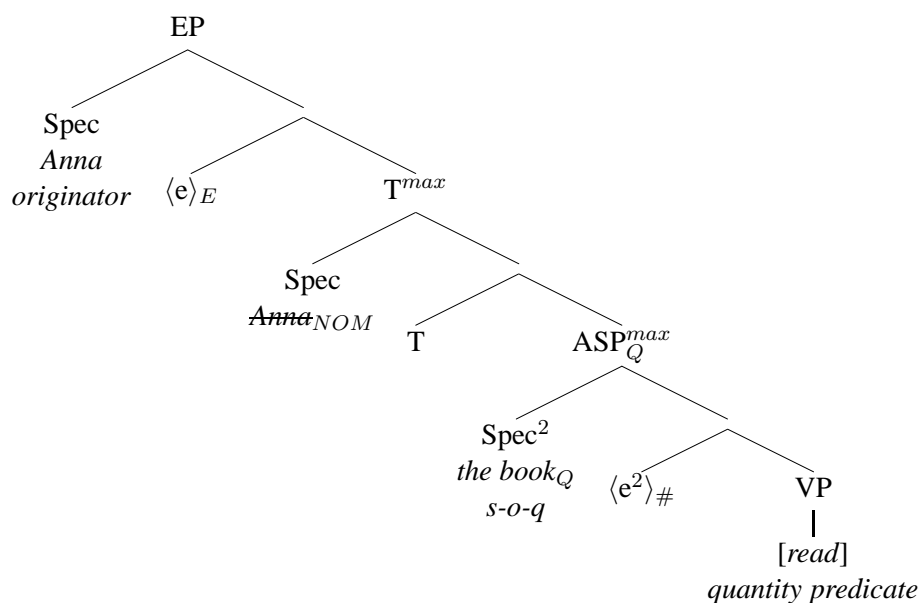
There are two main approaches to treating cumulative *na-* as a measure prefix with respect to events and the arguments of the verb:

- The event is measured directly, the object indirectly (Borer-style approach)
- The object is measured directly, the event indirectly (Filip-style approach)

4.2.2 Measuring events directly, objects indirectly

The main proponent of the approach where events are measured by *na*- directly and objects indirectly is Borer (2005). In Borer's system quantity arises as the relation between the nominal structure and the verbal structure. In English-like languages it involves range assignment to open values within the verbal projection by nominal projections with required features raised there - thus the compositionality of aspect is achieved. Consider the following example:

- (14) a. Anna read the book (in two hours).
b.



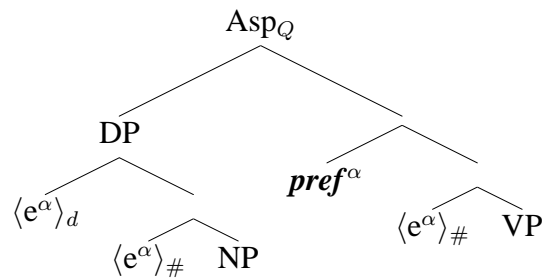
In (14-b) Verkuyl's generalization is illustrated structurally. Verkuyl's generalization given in Borer (2005):II, p.73:

- (15) Telic interpretation can only emerge in the context of a direct argument with property α

By 'property α ' the quantized reading of the direct argument is understood (i.e., definite or quantified somehow else). In (14-b) the argument *the book* does have the property α , as the subscript Q demonstrates; the abbreviation *s-o-q* stands for the 'subject-of-quantity': 'the book' is in the specifier of the AspP of the quantity predicate VP *read*. In Slavic languages range to the variable in ASP can be assigned directly - by a prefix. As the nominal structure in most Slavic languages has no determiners, there are no direct

range assigners to $\langle e \rangle_D$; thus it happens indirectly, range is assigned by the prefix in [Spec, ASP] to the variable inside the DP of the nominal projection raised to the ASP for case, via specifier-head agreement:

(16)



Borer (2005) does not make any structural distinction between lexical and superlexical prefixes. Thus, *na-* is also a direct range assigner to $[_{Asp_Q} \langle e \rangle_{\#}]$. *Na-* for Borer (2005) performs a double role: 1) directly assigns range to the aspectual variable mentioned above that gives rise to quantity-telic interpretation, and 2) binds the variable in DP, which results in the interpretation ‘a lot, a batch of’.

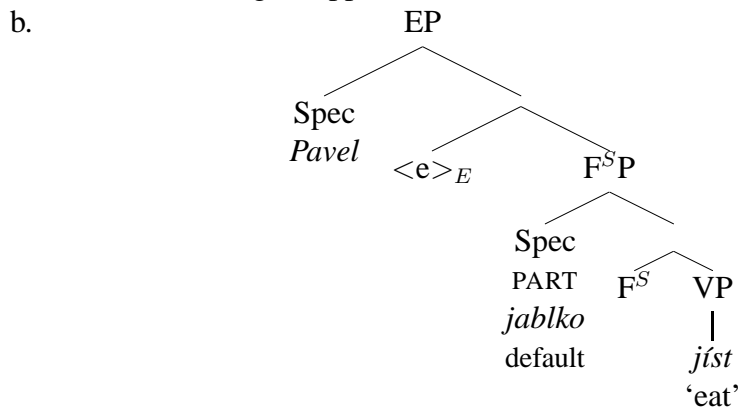
Borer’s system makes a number of fairly strong predictions. Below I will list them and explain why they do not work.

In Borer’s system when a prefix is present in the structure, it performs a double role and directly assigns range to $_{Asp_Q} \langle e \rangle_{\#}$ and indirectly to $\langle e \rangle_{\#}$ of the nominal structure which moves to [Spec, Asp_Q]. However, since bare mass nouns and plurals lack the quantity projection #P, their occurrence in [Spec, Asp_Q] is prohibited. Thus, for Borer there can be two ways to treat *na-* verbs. The first way is to assume that the mass or plural nominal arguments of *na-* verbs are not bare, project #P and end up in [Spec, Asp_Q]. Below I will show that this is not so and the genitive case on mass and plural arguments of *na-* verbs reflects the absence of #P in the nominal structure. The second way is to suppose that only direct range assignment takes place, that is Asp_Q is projected and contains the variable $_{Asp_Q} \langle e \rangle_{\#}$, which *na-* binds, just like it happens with intransitive prefixed semelfactives. Unfortunately for the theory under critique, such a scenario does not extend to transitive prefixed perfective verbs: ‘bare NPs in the context of the perfective are never interpreted as bare plurals’ (Borer (2005), II:163). Borer (2005) seems to assume that a prefix induces the quantity structure onto a nominal, but it is not the case with *na-*verbs.

Another prediction Borer (2005) makes is connected with the previous one and claims that in the presence of telic structures (and *na-* is one of the quantity creating prefixes), partitive case can never occur. If we assume that the genitive marker on bare mass and plural nouns is the so-called *partitive* genitive always assigned to the complements of measure phrases, the prediction does not seem to work either. Borer’s account

for the occurrence of partitive in the structure involves postulating a special shell projection F^{SP} devoid of any syntactic properties. F^{SP} is projected in atelic (non-quantity) structures for licensing the direct object since Asp_Q is absent. As accusative can be assigned to the object only in the context of Asp_Q , nominals in F^{SP} structures are marked partitive. In Slavic, imperfective verbs will come equipped with this special projection (Borer (2005), II:161, the example is from Czech, cited from Filip (1999)):

- (17) a. Pavel jíst jablko.
 P.NOM. eats^I apple.ACC.
 ‘Pavel is eating an apple.’



Such an analysis seems to be quite stipulative, since in the Czech example above we do not see overt partitive marking on the noun. Yet, partitive genitive is not Russian specific and occurs on nouns in right contexts also in other Slavic languages including Czech (to a much lesser degree, though). See the following Czech examples where NPs are marked partitive genitive:

- (18) a. Nalej mi vina.
 Prf-pour^P.imper. me.DAT. wine.GEN.
 ‘Pour me some wine.’
 b. Sníhu napadlo.
 snow.GEN. CUM-fell^P.def.
 ‘A lot of snow has fallen.’
 (Pavel Caha, p.c.)

The point is that, paradoxically, partitive genitive nouns appear in some Slavic languages (even Czech) with perfective verbs, including those with the prefix *na-*, and never with imperfective verbs, contra the expectation in Borer (2005).

There is an additional problem. As a superlexical prefix, *na-* can stack:

- (19) Ja ponimaju, čto imeja pod rukoj
 I understand^I.1sg.pres. that having.CONV.pres. under hand.INSTR.
 knigu možno **na-vy-děrgivatj** citat.
 book.ACC. possible **CUM-out-pull**^P.**inf.** quotations.GEN.
 I understand, that having a suitable book handy, one can pull out of it lots of
 quotations.’
 (<http://www.rsdn.ru/Forum/Message/757422.htm>)

The cases of stacking of *na-* remain mysterious under Borer’s account as well: if $\langle e \rangle_d$ is assigned range by the lexical prefix, attachment of *na-* leads to vacuous quantification.

Unfortunately, the neat system presented in Borer (2005) creates big problems for treating *na-*. I am forced to immediately reject the analysis in 4.2.2 as these predictions are not borne out.

4.2.3 Measuring objects directly, events indirectly

Filip (2000), Filip (2005) treat *na-* as an (extensive)⁴ measure function⁵. She analyzes the following paradigm (Filip (2005):3):

- (20) a. V kotelke on varenje **varil**.
 in pot he jam.ACC. **cooked**^I.**3sg.ms.**
 ‘He was cooking (the/some) jam in the pot.’
 b. On kak-to varenja **na-varil** - iz čerešni -
 he somehow jam.GEN. **CUM-cooked**^P.**3sg.ms.** - from cherry.sg.GEN. -
 žutj kak mnogo: desjatj věder.
 horror how much ten buckets.GEN.
 ‘Once he made a (relatively) large amount of jam - from cherries - boy,
 did he make a lot of it: ten buckets!’

⁴Krifka (1998):200 gives the following explanation of the notion of ‘extensive’ as referring to measure functions:

Measure functions in general are functions that relate an empirical relation, like ‘be cooler than’, for physical bodies, to a numerical relation, like ‘be smaller than’, for numbers. Extensive measure functions (like liter, kilogram, or hour) are in addition based on operation of *concatenation*, which is related to arithmetical addition. Another property of extensive measure functions is *comensurability*. It ensures that the measure of the whole is commensurate with the measure of the parts.

⁵Piñón (1994) has the same opinion about *na-* in Polish

Filip (2005) claims that ‘first, *na-* has direct effects on the interpretation of the bare nominal argument ‘jam’, related to its quantitative and referential interpretation. Second, by *directly* measuring the volume of jam, *na-* *indirectly* measures the cooking event.’ *Na-* patterns with nominal measure phrases like ‘a (relatively, sufficiently) large quantity’ and like ‘one liter’, ‘so far as it takes homogeneous predicates as its input.’ If *LITER* is taken for an extensive measure function, it takes individuals as its input and returns pseudopartitives:

- (21) direct measurement of individuals: $x \rightarrow \mu(x)$
 $\llbracket \text{one liter of wine} \rrbracket = \lambda x[\text{WINE}(x) \wedge \text{LITER}(x) = 1]$, where *LITER* = measure function

The indirect measuring of events by the extensive measure functions of the type described in (21) happens, naturally, via homomorphism from objects to events presented in detail in the works by Krifka. ‘There is a range of functions that homomorphically map eventualities to part-whole structures appropriate for their measurement. Such part-whole structures are based on concrete objects like apples, temporal traces or path structures.’ (Filip (2005)):

- (22) indirect measurement of events $e \rightarrow h(e) \rightarrow \mu(h(e))$
 h: free variable over functions from eventualities to part-whole structures (e.g., temporal trace function τ , path trace function π)
 μ : free variable over measure functions (e.g., HOUR, MILE)

Thus, Filip (2005) doesn’t think that *na-* as a measure function can apply directly to events; rather it applies to an individual argument, a temporal trace or a spatial path of an event, specified in the lexical entry of a verb representing it. There can also be a ‘satisfaction’ scale, where different degrees of satisfaction can be measured - usually, in case of the *na-* verbs with the reflexive clitic *-sja* (Filip and Rothstein (2005))⁶.

Na- is different from other measure function prefixes, like attenuative prefixes. However, the only difference is in the relation between the contextually specified number of

⁶It is natural to assume that whenever the verb is reflexive it is intransitive in the usual sense:

- (i) a. narabotatsja
 CUM-work^P.self
 ‘have had enough work’
 b. najestsja
 CUM-eat^P.self
 ‘have satisfied hunger’
 c. nabegatsja
 CUM-run^P.self
 ‘have run to one’s heart’s content’

measure units (n_C) and the contextually specified standard of comparison (C_C). With *na-* the former meets/exceeds the latter:

$$(23) \quad NA_{CUM} \rightarrow MS\{\lambda x[\mu_C(x) = n_C]\} \wedge n_C \geq C_C,$$

with the presupposition that C_C must be a high estimate⁷

The views put forward in Filip (2005) and Filip and Rothstein (2005) strongly correlate with the theory by Kennedy and Levin (2002). The latter postulate the existence of the degree of change argument, ‘*d*-much’. This degree of change argument varies depending on the type of verb it is predicated of. The types of verbs taking ‘*d*-much’ arguments are:

- degree achievements

However, as noticed in Pereltsvaig (2006), some reflexive verbs allow a genitive object, but never an accusative measure phrase:

- (ii) a. najestjsja xleba
 CUM-eat^P.self.inf bread.GEN.
 ‘eat a lot of bread’
- b. *najestjsja baton xleba
 CUM-eat^P.self.inf loaf.ACC. bread.GEN.
 intended ‘eat a loaf of bread’
- c. napitjsja soka
 CUM-drink^P.self.inf juice.GEN.
 ‘drink a lot of juice’
- d. *napitjsja litr soka
 CUM-drink^P.self.inf liter.ACC. juice.GEN.
 intended ‘drink a liter of juice’

In motion verbs, only non-directed ones allow cumulative prefixation if they have a reflexive clitic:

- (iii) a. naplavatjsja
 CUM-swim^P.self.ndm
 ‘swim to one’s heart’s content’
- b. *naplytjsja
 CUM-swim^P.self.dm
 intended ‘swim to one’s heart’s content’

Unfortunately, I am not going to discuss reflexive verbs with cumulative prefixes in any more detail.

⁷MS stands for ‘maximal separated entity’, based on the notion of adjacency from Krifka (1998) (cf. (85) in section 4.4.1). Thus, the formula in (23) is translated like follows:

Minimally separated sums of x to the amount of some contextually specified number n_C such that there are n_C of contextually specified measure units μ_C and n_C meets/exceeds ... the contextually specified standard of comparison C_C (Filip (2005))

- verbs of directed motion
- verbs of creation/destruction

Depending on the lexical specifications of a verb, a measure phrase can be specified - 10 meters, 200 kilos, 5 hours etc.

There is one more account of *na-* which makes the same prediction: *na-* quantifies directly over the nominal arguments of the verb. This is the account given in Pereltsvaig (2006). Unlike Filip's system, which is solely semantic, Pereltsvaig's analysis applies to the syntax of *na-* and explains the quantificational character of the prefix by its selectional properties. *Na-* selects for Small Nominals, or the nominals that lack full structure. The full structure of nominals is represented in the following example:



In (24) QP is a Quantity Phrase. It hosts quantifiers (*mnogo* 'many, much', *boljšinstvo* 'majority', *neskoljko* 'several'), numerals and quantity nouns (*kuča* 'heap, pile', *more* 'sea' in their quantitative meaning). It can also have a null Q head. Whenever the Q head is null, the object of the *na-* verb receives the genitive case (25-a). When a quantity phrase merges in Q, it always receives the accusative case ((25-b) and (25-c)):

- (25)
- a. Oleg nasobiral cvetov.
 O. CUM-picked^P.sg.ms. flowers.GEN.
 'Oleg picked lots of flowers.'
- b. Oleg nasobiral [QP{buket/ oxapku/ kuču} cvetov].
 O. CUM-picked^P.sg.ms. bunch.ACC. armful.ACC. heap.ACC. flowers
 'Oleg picked a {bunch/ armful/ heap} of flowers.'
- c. *Oleg nasobiral [QP{buketa/ oxapki/ kuči}]
 O. CUM-picked^P.sg.ms. bunch.GEN. armful.GEN. heap.GEN.
 cvetov].
 flowers.GEN.
 intended: 'Oleg picked a {bunch/ armful/ heap} of flowers.'

According to Pereltsvaig (2006), Small Nominals, or QPs:

- have no specific interpretation
- have no partitive interpretation

- have no scopal force
- cannot control PRO
- cannot be antecedents in binding
- can display approximative inversion

All these characteristics are demonstrated by the objects of *na-* verbs, as is shown by a number of tests. In addition, *na-* selects for mass or mass-like plural nouns⁸; count nouns are disallowed from its environment:

- (26) a. Antoška kopal {kartošku/ klad}.
 A. dug^I.sg.ms. potato.ACC./ treasure.ACC.
 ‘Antoška was digging {potatoes/ treasure}.’
- b. Antoška nakopal {kartoški/ *klada}.
 A. CUM-dug^P.sg.ms. potato.GEN./ *treasure.GEN.
 ‘Antoška dug a lot of {potatoes/ treasure}.’

That plurals must be exactly mass-like is shown by the following example with the word *mnogočislennyj* ‘numerous’, which can occur only with count plural nouns:

- (27) *Oleg nasobiral mnogočislennyx cvetov.
 O. CUM-picked^P.sg.ms. numerous.GEN. flowers.GEN.
 ‘Oleg picked lots of flowers.’

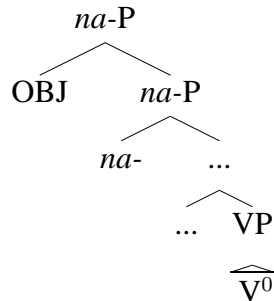
Pereltsvaig (2006) concludes that as *na-* selects a QP as its argument, it is merged locally, that is in the Spec-of-*na*-P. Meanwhile, *na-* itself attaches outside the VP, because:

- *na-* verbs do not form secondary imperfectives (so *na-* is higher than the Aspectual projection);
- *na-* verbs cannot be nominalized (so *na-* is higher than the site of nominalization)
- *na-* can stack (so *na-* is higher than lexical prefixes)

From all above it follows that if *na-* is outside the VP and if its QP argument is merged in the specifier of *na*-Phrase, the object of the *na-* verb also merges outside the VP:

⁸Possibly, what Pereltsvaig (2006) means by ‘mass-like’ is that such a plurality is not perceived as a set of individual members, but as a part-of structure constituted by partitions. More on sets and partitions will be said in Chapter 5.

(28)



Thus, the idea expressed semantically by Filip is supported syntactically by Pereltsvaig: the object is in fact an argument of the prefix and they form a strictly local configuration (the argument is merged in the specifier of *na-P*).

In spite of the general attractiveness and depth of the analyses described above, there are several problems in the idea of *na-* measuring directly over the object of the verb.

First, the prefix itself cannot be a cardinal (weak) quantifier as proposed by Filip (2005). If it were, it would be unclear why overt quantifiers or measure phrases are possible or sometimes even obligatory with *na-*:

- (29) a. Za šestj mesjacev ja najezdil *(šestjsot)
 for six months.ACC. I.NOM. CUM-drove^P.sg.ms. six.hundred
 kilometrov.
 kilometers.GEN.
 'For six months I have driven 600 kilometers.'
- b. Dlja dvux xudejuščix dam ja narezala
 for two dieting.pl.GEN. ladies.GEN. I.NOM. CUM-cut^P.sg.fem.
 ?(goru) fruktovogo salata.
 mountain.ACC. fruit.ADJ.GEN. salad.GEN.
 'For two ladies on the diet I has cut a pile of salad.'

Second, there is a small group of verbs that do not and cannot have an overt measurable nominal argument, a scalar path, although the implication of accumulation is present in the context, as is demonstrated by the sentences in (30). If according to Filip's and Pereltsvaig's analyses *na-* selected for the direct object of the verb as the measure scale, the facts in (30) and other examples of objectless *na-*verbs (e.g. (55-b)) would be difficult to account for:

- (30) a. *nadyšatj* ‘CUM-breath’ (=breath a lot, so that it becomes warm in some closed space)
 b. *natoptatj* ‘CUM-trample’ (= trample a lot, so that the floor becomes dirty)
 c. *nakuritj* ‘CUM-smoke’ (=smoke a lot, so that the air becomes fuggy)
 d. *naboletj* ‘CUM-ache’ (=ache (psychologically) a lot, so that the emotion has to be let out)

In addition, scalar paths can vary, especially with the verbs which do not usually take any arguments; sometimes they do not look like traditional measure phrases at all:

- (31) a. *nabegatj na rekord* ‘CUM-run for a record’ (= to have practice running for such a long time and with such high intensity that all that results in a record)
 b. *naplavatj detej po vsemu miru* ‘CUM-swim children.GEN. all over the world’ (= to have been at sea and, especially, on shore, for such a long time and with such high productivity that all that results in many children born in different areas of the world)

The existence of such constructions directly contradicts the prediction made by Filip (2005) and Pereltsvaig (2006) about syntactic and semantic constituency of *na-* and direct objects.

Another point is connected with the scope relations between the object with an overt measure phrase and the object with a covert measure phrase on Pereltsvaig’s approach: remember that Pereltsvaig analyses partitive genitive as a marker of a complement of a covert Q.

It is known for a fact that Russian nouns do not have overt quantifiers of the article type. Therefore, it is often difficult to demonstrate if they have some covert quantifiers akin to definite or indefinite articles or not. The same difficulty emerges with English bare plural nouns: it is hard to see if they are indefinite and have the covert article *a* or if they are just bare NPs. Carlson (1977b) offers persuasive tests demonstrating that English bare plurals are not plural analogies of indefinite singular nouns. Applying at least one of these tests to the Russian partitive genitive that occurs under *na-* yields the same results as in corresponding English cases. Here I am comparing the former to the latter.

1. Opacity phenomena

- (32) English
- a. Minnie wishes to talk with a young psychiatrist.
 - b. Minnie wishes to talk with young psychiatrists.
(Carlson (1977b):38)

The interpretation of (32-a) is given in (33-a) and (33-b), and the interpretation of (32-b) in (33-c):

- (33)
- a. $\exists x$ (young psych.(x) & M. wishes M. talk with x)
 - b. M. wishes ($\exists x$) (young psych.(x) & M. talk with x)
 - c. M. wishes ($\exists x$) (young psych-s(x) & M. talk with x)

Thus, (32-a) is ambiguous between readings in (33-a) and (33-b), and (32-b) is not, it gets the unambiguous interpretation in (33-c). Compare the above to the Russian data⁹:

- (34) Russian
- a. Maša priglasila molodogo psixiatra.
M. invited^P.sg.fem. young.sg.ms.ACC. psychiatrist.ACC.
'Maša has invited a young psychiatrist.'
 - b. Maša priglasila molodyx psixiatrov.
M. invited^P.sg.fem. young.pl.ACC. psychiatrists.ACC.
'Maša has invited young psychiatrists/ some young psychiatrists.'
 - c. Maša napriglašala molodyx psixiatrov.
M. CUM-invited^P.sg.fem. young.pl.GEN. psychiatrists.GEN.
'Maša has invited young psychiatrists.'

The interpretation of both (34-a) and (34-b) is two ways ambiguous, as in (33-a) and (33-b), so the plural object in (34-b) is not bare, by this reasoning. At the same time, the interpretation of (34-c) is unambiguous, in the spirit of (33-c), so the object in (34-c) is a bare plural.

⁹As is seen from (34-b) and (34-c), accusative on animate NPs is homophonous with genitive.

2. Scopelessness

Chierchia (1998) suggests that bare plurals remain in situ as is seen from (35):

(35) I didn't see spots on the floor. (Chierchia (1998):369)

The interpretation for (35) is given below¹⁰:

(36) $\neg\exists y[\text{spots on the floor}(y) \wedge \text{see}(I)(y)]$

This is the interpretation the Russian sentence in (37-a) gets, as opposed to (37-b), where the existential quantifier has a wider scope over the negative operator:

- (37) a. Ja ne videl **pjaten** na polu.
 I not saw^I **spots.GEN.** on floor.LOC.
 'I didn't see spots on the floor.'
- b. Ja ne videl **pjatna** na polu.
 I not saw^I **spots.ACC.** on floor.LOC.
 'I didn't see the spots on the floor.'

The last example didn't include any *na-* verbs, because they have genitive objects in any case. What they were called for, is to show that genitive does occur on bare plural nouns as opposed to the quantified accusative in (37-b)¹¹. However, when the scope of a partitive genitive object of a *na-*verb is compared to that of an accusative measure phrase merged as a complement of the same verb, we get the result similar to that in (37): NP with an overt measure phrase invariably has wide scope whereas the same NP without an overt measure phrase is scopeless. The scope of object NPs in question is assessed with respect to quantified subject NPs according to the hierarchy proposed in Hallman (2004). Hallman (2004) distinguishes two positions for indefinite NPs depending on their specificity and one position, always higher, for definite NPs. There is an interesting twist in his system: a definite object DP can end up higher than an unspecific subject NP (Hallman (2004):743):

¹⁰I am leaving out Chierchia's notation for the operation of DKP, derived kind predication.

¹¹The uniform analysis of genitive of negation and genitive partitive of *na-* verbs would be a welcome addition to this work; unfortunately it is beyond its scope. There are ideas in literature that actually genitive of negation is an instantiation of non-definiteness (Babyonyshev (2002))

- (38) [D_{SUBJ} . . . [d_{SUBJ} . . . [D_{OBJ} . . . [∂_{SUBJ} v [d_{OBJ} . . . [∂_{OBJ} V]]]]]]

In (38) D stands for definite, d for specific indefinite and ∂ for non-specific indefinite (in a very simplified retelling). Most quantifiers in Hallman (2004) are hard to define with respect to the interpretation they induce:

- (39)

[D . . .	[d . . .	[∂ . . .]]]
a	a	a
three	three	three
several	several	several
the		
most		
every		
both		

Suppose, ‘three cooks’ in (40) stands for a non-specific subject (∂_{SUBJ}), ‘bare’ object NP in (41-a) is ∂_{OBJ} and the object NP with an overt measure phrase in (41-b) is D_{OBJ}. It is expected then that D_{OBJ} will outscope ∂_{SUBJ} (38). Indeed, in (41-a) a narrow reading of the object is possible, but in (41-b) only a wide reading is available. In addition to Hallman (2004) a lot of other authors (Diesing (1992), Chierchia (1998), Butler (2005)) hold that weak NPs reconstruct to their original position and are interpreted *in situ*, hence the narrow scope of bare plurals:

- (40) a. Tri povara navarili kaši.
 three cook.GEN. CUM-cooked^P.pl. porridge.GEN.
 ‘Three cooks cooked^P a lot of porridge.’
 Possible: cooks > porridge; porridge > cooks
- b. Tri povara navarili vedro/kuču kaši.
 three cooks CUM-cooked^P.pl. pail.ACC./pile.ACC. porridge.GEN.
 ‘Three cooks have cooked a pail/ a lot of porridge.’
 Possible: porridge > cooks; but ?cooks > porridge

To feel the truth of the prediction, compare now (40) to (41) below with a strong DP as a subject and no possibility for the object NPs to take wide scope, irrespective of the presence or absence of the measure phrase:

- (41) a. Oba povara navarili kaši.
 both cook.GEN. CUM-cooked^P.pl. porridge.GEN.
 ‘Both cooks cooked a lot of porridge.’
 both.cooks > lots.of.porridge; *lots.of.porridge > both.cooks
- b. Oba povara navarili vedro/kuču
 both cook.GEN. CUM-cooked^P.pl. pail.ACC./pile.ACC.
 kaši.
 porridge.GEN.
 ‘Both cooks have cooked a pail/ a lot of porridge.’
 both.cooks > pile.of.porridge; ??pile.of.porridge > both.cooks.

Thus, from the facts above I conclude that genitive NPs mark bare plural or bare mass nouns. Bare genitive NPs are different from Q, lexicalized by overt measure phrases, otherwise both overt and covert QPs would behave in the same way wrt scope (see also Filip (2005) for scopelessness of non-specific arguments of *na-*verbs). This empirical fact makes treating bare genitive objects of *na-*verbs as a complement of a null Q less plausible than it would be desirable.

In addition, the distributional facts describing *na-* show that the event structure of a verb crucially determines whether *na-* can or cannot attach to it. This would be surprising if *na-* was connected only with the nominal part of the VP. In the following section I will present evidence for the claim that event structure is directly relevant to the interpretation of *na-*.

4.3 Distribution of *na-*

4.3.1 Quantification at a distance as measuring the event directly

Obenauer (1984-85) noticed that QAD phenomenon (Quantification at a Distance) in French is possible only with some verbs. This immediately made him reject the QP Reconstruction Hypothesis, according to which Q should reconstruct to its original NP-internal position and be interpreted there. The QP Reconstruction Hypothesis simply fails to account for the differences between the data in (42) and (43):

- (42) a. Max a beaucoup vendu de papier/de livres
 M. has much/many sold of paper/of books
 ‘Max has sold a lot of paper/books.’
- b. Max a trop mangé de moutarde
 M. has too.much eaten of mustard
 ‘Max has eaten a lot of mustard.’

- c. Max a (très) peu composé de sonates
M. has (very) few composed of sonatas
'Max has composed (very) few sonatas.'
- (43) a. *Le critique a peu apprécié de films
the critic has few appreciated of films
'The critic appreciated few pictures.'
- b. *Son regard a beaucoup impressionné de minettes
his glance has many impressed of girls
'His glance impressed many girls.'
- c. *La réorganisation a beaucoup accéléré de procédures.
the reorganization has many accelerated of procedures
'The reorganization has sped up many procedures.'
- d. *La nouvelle a beaucoup inquiété d'experts.
the news has many worried experts
'The news worried many experts.'

Interestingly, the sentences in (43) become grammatical when Qs are NP-internal:

- (44) French:
- a. Le critique a apprécié peu de films
the critic has appreciated few of films
'The critic appreciated few pictures.'
- b. Son regard a impressionné beaucoup de minettes
his glance has impressed many of girls
'His glance impressed a lot of girls.'
- c. La réorganisation a accéléré beaucoup de procédures.
the reorganization has accelerated many of procedures
'The reorganization has sped up many procedures.'
- d. La nouvelle a inquiété beaucoup d'experts.
the news has worried many of experts
'The news worried many experts.'

Obenauer (1984-85):159 postulates an alternative hypothesis:

- (45) A. it is the S-structure position of the QP that distinguishes (43) and (44); B. the restriction(s) on the verb follow from A.

Thus, he assumes that there is a rule interpreting the separate QP *in situ*.

When the QP is used as an 'adverb', it still gets different interpretations depending on the verb it combines with. In (46) *beaucoup* is understood as 'often', and in (47)

beaucoup has the meaning of ‘intensely’:

- (46) a. Il a beaucoup vendu ce modèle.
he has much sold this model
‘He sold this model a lot.’
b. J’ai beaucoup rencontré Jean-Pierre.
I’ve much met J.-P.
‘I met Jean-Pierre a lot.’
c. Il a beaucoup photographié Linda.
he has much photographed L.
‘He photographed Linda quite often.’
- (47) a. J’ai beaucoup apprécié ses conseils.
I’ve much appreciated his advice
‘I have appreciated his advice a lot.’
b. Son regard m’a beaucoup impressionné.
his glance me.have much impressed
‘His glance impressed me a great deal.’
c. Cela a beaucoup accéléré la procédure.
that has much accelerated the procedure
‘That sped the procedure up a lot.’

Obenauer (1984-85) concludes that the QP-adverb can have two possible interpretations: ‘often’-type (46) and ‘intensely’-type (47) and the verbs of the *apprécier*-class (47) ‘select the ‘intensely’-type interpretation, to the exclusion of the other’ (p.161). He also notices that the same pattern holds of English:

- (48) a. During that year, I saw Mary a lot.
b. I appreciated his advice a lot. (p.162)

The generalization Obenauer (1984-85) makes is:

- (49) The verbs that do not allow QAD are those whose meanings impose the ‘intensely’-type interpretation for *beaucoup*, *peu*, etc., excluding at the same time the ‘often’-type interpretation. ...QAD is conditioned by the quantifiability’ of the verb meaning, i.e., the ability to lend itself to an ‘X TIMES V’ interpretation when combined with a QP.’

The generalization above allows Obenauer (1984-85) to postulate the Verb Quantification Hypothesis (VQH):

- (50) In the structure: . . . QP V [_{NP}[_{QPe}] de \bar{N}] . . .
 the quantified interpretation of [_{NP}e de \bar{N}] is obtained through
 quantification of V (in terms of ‘X TIMES’).

The French data in (42) and (43) are comparable to the Russian *na-* data in the sense that *na-* attaches to the verbs that allow QAD in French and does not attach to the verbs that disallow QAD in French¹²:

- (51) a. Maks napokupal (mnogo) bumagi/knig
 M. CUM-bought^P (much/many) paper.GEN./books.GEN.
 ‘Max has bought a lot of paper/books.’
 b. Maks nasočinjal mnogo sonat
 M. CUM-composed^P many sonatas.GEN.
 ‘Max has composed a lot of sonatas’¹³
- (52) a. *Kritik nacenil mnogo filmov
 K. CUM-appreciated^P many films.GEN.
 ‘The critic has appreciated a lot of films.’¹⁴
 b. *Jego vzgljad navpečatljal mnogix devušek
 his glance CUM-impressed^P many.pl.ACC. girls.GEN.
 ‘His glance impressed a lot of girls.’¹⁵
 c. *Novostj nabespokoila mnogix ekspertov
 news CUM-worried^P many experts.GEN.
 ‘The news worried a lot of experts.’

The stative verbs in Russian (52) are grammatical when quantifiers apply directly to NPs, just like they are in French (43). One should also pay attention to the shape of the quantifier ‘many/much’ in (51) and (53). In (51) ‘many/much’ does not carry agreement morphology with the object whereas in (53) the quantifier displays adjectival agreement in number with its complement, non-agreeing version being ungrammatical¹⁶:

¹²The verbs *pitj* ‘drink’ and *jestj* ‘eat’ are notoriously ‘odd’ in Russian in that they do not behave as the majority of other transitive and incremental verbs. So they do not take *na-*, unless reflexivized.

¹³*Na-* usually presupposes a big quantity of measuring material.

¹⁴The example is ungrammatical, unless the critic increased the prices of the films, which situation reflects the meaning of the lexical *na-*.

¹⁵The combination of *na-* and this stem is possible in the presence of *-sja*.

¹⁶In their turn, the sentences in (51) are ungrammatical with agreeing quantifiers (see also the example from Pereltsvaig (2006) (27)):

- (i) a. *Maks nakupil mnogix knig.
 M. CUM-bought^P many.pl.GEN. books.GEN.
 ‘Max has bought a lot of books.’

(53) Russian:

- a. On cenil mnogije filjmy/ *mnogo filjmov
 he appreciated^I.sg.ms. many.pl.ACC. films.ACC./ many.def. films.GEN.
 etogo režissëra.
 this.ms.GEN. director.GEN.
 'He appreciated a lot of films by this director.'
- b. Jego vzgljad vpečatljal mnogix devušek/ ??mnogo devušek.
 his glance impressed^I many.pl.ACC. girls.ACC./ many.def. girls.GEN.
 'His glance impressed a lot of girls.'
- c. Novostj bespokoila mnogix ekspertov/ *mnogo eksperrov.
 news worried^I many.pl.ACC. experts.ACC./ many.def. experts.GEN.
 'The news worried a lot of experts.'

Thus, Russian data complies with the generalization and VQH in Obenauer (1984-85). Following the line of reasoning developed there, I claim that *na-* and associated with it quantifiers in (51) measure the event directly. This also explains why the adverbial 'many/ much' in Russian does not agree with the NP and why *na-* and QAD require the verb to represent a specific event structure, namely, activity ('quantifiable' in terms of 'X TIMES V'). Consider more examples from Obenauer (1984-85):164. In (54) we face a punctual event and as predicted QAD is not possible in its context. In (54-c) the same event is iterated and allows QAD:

- (54) a. Dans cette marmite il a trouvé beaucoup de pièces d'or.
 in this pot he has found much of pieces of.gold
 'In this pot he found many gold coins.'
- b. *Dans cette marmite il a beaucoup trouvé de pièces d'or.
 in this pot he has much found of pieces of.gold
 'In this pot he found a lot of gold coins.'
- c. Dans cette caverne il a beaucoup trouvé de pièces d'or.
 in this cave he has much found of pieces of.gold
 'In this cave he kept finding a lot of gold coins.'

In Russian unprefixated aspectual pairs only the imperfective member can take accumulative *na-*¹⁷:

-
- b. *Maks nasočinjal mnogix sonat.
 M. CUM-composed^P many.pl.GEN. sonatas.GEN.
 'Max has composed a lot of sonatas.'

¹⁷There are a couple of exceptional cases, where *na-* attaches to both stems. Unfortunately, it is often impossible to tell the difference in the interpretation:

- (55) a. Sudji snizili Pluščenko ocenki za dopolniteljnyje
 judges lowered^P.pl. P.DAT. marks.ACC. for additional.pl.ACC.
 elementy - **naprygal/** #**naprygnul**
 elements.ACC. **CUM-jumped^P.sg.ms./ CUM-jumped.once^P.sg.ms.**
 lišnego.
 extra.ADJ.GEN.
 ‘The referees lowered Pluščenko’s results for additional elements - he has

-
- (i) a. napust-i-tj dymu - napusk-a-tj dymu
 CUM-let.P^P.inf smoke.GEN. - CUM-let.I^P.inf smoke.GEN.
 ‘let in a lot of smoke’
 b. nakup-i-tj diskov - napokup-a-tj diskov
 CUM-buy.P^P disks.GEN. - CUM-buy.I^P disks.GEN.
 ‘buy a lot of CDs’
 c. nasad-i-tj klubniki - nasaž-a-tj klubniki
 CUM-plant.P^P strawberry.GEN. - CUM-plant.I^P strawberry.GEN.
 ‘plant a lot of strawberries’

The difference in interpretation is better demonstrated by the transitive motion verbs with *na-*. When the prefix attaches to the directed motion verb, the resulting interpretation is supposed to be ‘deliver a lot of stuff in one go’ (Isačenko (1960)); whereas when it attaches to non-directed motion verbs, iteration is implied and the accumulation of stuff arises as a result of this iteration:

- (ii) a. nanesti grjazi
 CUM-carry^P.dm.inf dirt.GEN.
 ‘Bring a lot of dirt (in one go?)’
 b. nanositj vody
 CUM-carry^P.ndm.inf water.GEN.
 ‘Bring a lot of water (by fetching its portions)

I do not share Isačenko’s intuitions. For me, the difference in interpretation between these two examples is in non-agentivity of the directed version vs agentivity of the non-directed version (cf. Chapter 3 Generalization):

- (iii) a. Prilivom naneslo/ *nanosilo vodoroslej na
 high.tide.INSTR. CUM-carried^P.dir.def./ CUM-carried^P.ndir.def. seaweed.GEN. on
 bereg.
 shore.ACC.
 ‘The high tide dragged a lot of seaweed onto the shore.’
 b. Olja *nanesla/ nanosila vody v
 O.NOM. CUM-carried^P.dir.sg.fem./ CUM-carried^P.ndir.sg.fem. water.GEN. in
 dom.
 house.ACC.
 ‘Olja has carried water to the house.’

This issue is beyond the subject matter of this work.

jumped too much.’

(www.vremya.ru/2003/233/11/87270.html)

- b. Intervju udalosj na slavu - ja
 interview.NOM. managed.sja^P.sg.ms. on glory.ACC. I
 nazadavala idiotskix voprosov, a diakon
 CUM-asked^P.sg.fem. idiotic.pl.GEN. questions.GEN. and deacon.NOM.
 na nix **naotvečal/** ***naotvetil.**
 on them.ACC. CUM-answered^P.sg.ms./ CUM-answered.once^P.sg.ms.
 ‘The interview turned out to be great - I asked a lot of stupid questions,
 and the deacon answered them.’
 (anya-g.livejournal.com/187030.html)

It is natural to suggest at this point that *na-* attaches to mass-like plural predicates¹⁸. Part-of structures are the only measurable structures. In subsection 4.2.3 I showed that the part-of structures *na-* selects for are represented by verbs and not by their arguments: *na-* can attach to objectless verbs. As we have seen in this section, the event structure of the verb matters for *na-*-prefixation: *na-* and associated with it quantifiers apply only to the verbs that represent part-of events, that is, imperfective non-stative verbs or the verbs the event structure of which contains the processual augment.

I conclude that the main condition for the attachment of *na-* is the presence of *proc* in the event structure of the host verb rather than the presence of the internal argument in its argument structure.

4.3.2 Quantification variability effects

The effect of quantification the attachment of *na-* has on the direct objects of the verb, which Obenauer (1984-85) explained by Quantification of the Verb Hypothesis, nowadays is accounted by the mechanism labeled ‘Quantification Variability Effect’ (see Nakanishi and Romero (2004)). As was noticed by Obenauer, crosslinguistically, due to the non-selective nature of some quantifiers there is a certain variation in the entity chosen by them for measuring. Schwarzschild (2006) proposes four different measurable scales in verbal contexts (remember that Obenauer discusses only ‘degree’ - ‘intensely’-type interpretation, - and ‘amount of events’ - ‘often’-type interpretation - out of the list below):

- degree

¹⁸See the discussion of pluractionality in Chapters 1 and 5. In subsection 4.4.1 of this chapter I will explain why the denotation of the verbal predicate must be mass-like.

- range
- amount of events
- amount of stuff

A *degree* is a point on a scale; a *range* is a set that contains two degrees on a particular scale as well as all the degrees that lie in between them; an *amount* is a kind of range, including a zero-point and involving mapping from portions of stuff to ranges on a scale. *Like* is a degree verb in Schwarzschild's system, *expand* is a range verb, *run* or *smoke cigarettes* are amount-of-event verbs, whereas *eat* can encode an amount of stuff. There is one more possible scale for measuring mentioned in Schwarzschild (2006), but not discussed by him in detail: the duration scale (56-e). Crucially, all the verbs above can co-occur with *a lot* (see also (48) from Obenauer (1984-85)):

- (56) a. Jack likes Jill a lot.
 b. His vocabulary has expanded a lot.
 c. Jack runs a lot.
 d. Jack ate a lot.
 e. Jack slept a lot last night. (the last three examples are taken from Schwarzschild (2006))

A lot in (56-a) measures the degree or the intensity of the event; *a lot* in (56-b) measures the range of expansion; *a lot* in (56-c) measures the amount of event (can be paraphrased with *often*); *a lot* in (56-d) measures the amount of stuff (*a lot of food*) and, finally, *a lot* in (56-e) measures the duration of sleep. Some sentences can be ambiguous between the amount of event and the amount of stuff reading:

- (57) Jack ate a lot at home.

When *a lot* is clause-final such ambiguity does not arise and only the amount-of-event reading is available:

- (58) Jack ate at home a lot.

In the previous section the examples from Obenauer (1984-85) demonstrated that pre-verbal quantifiers in French can measure a) an amount of events (46); b) an amount of stuff (42) and c) the intensity of events (47). *Beaucoup* 'a lot' yields the intensity reading only with some stative verbs. When *beaucoup* and other quantifiers combine with eventive predicates with internal arguments denoting measurable stuff (mass and plural nouns), the measure interpretation is ambiguous between the amount of event and the amount of stuff, like in (57):

- (59) a. Max a beaucoup vendu de papier/de livres
 M. has much/many sold of paper/of books
 A. ‘Max has sold a lot of paper/books.’
 B. ‘Max sold paper/books many times’
- b. Max a trop mangé de moutarde
 M. has too.much eaten of mustard
 A. ‘Max has eaten a lot of mustard.’
 B. ‘Max ate mustard many times.’
- c. Max a (très) peu composé de sonates
 M. has (very) few composed of sonatas
 A. ‘Max has composed (very) few sonatas.’
 B. ‘Max composed sonatas few times.’

Finally, *beaucoup* combined with an appropriate predicate results in the temporal span quantification (Isabelle Roy, p.c.):

- (60) Il a beaucoup photographié de fleur.
 he has much photographed of flowers
 ‘For the most part, he photographed flowers.’

In English expression *for the most part* induces the quantification variability effect. Nakanishi and Romero (2004) argue that *for the most part* applies to the verbal domain as opposed to *most of the NPs*. When the verb has no plural arguments, *for the most part* allows readings other than QVE over an NP:

- (61) Quantification over times reading
 Q: What tasks did Jon perform last month?
 A: For the most part, he cooked.
 ≈ Most of the times he performed a task, the task consisted of cooking.
- (62) Temporal span reading
 Q: What did Amy do yesterday?
 A: For the most part she was building a sand castle.
 ≈ Most of yesterday was spent by Amy in building a sand castle. (Nakanishi and Romero (2004))

When the verb has a plural argument, the latter can have only a distributive reading (63-a) unlike the argument in (63-b) for which the collective reading is also available:

- (63) a. For the most part, the linguists from the East Coast came to NELS.
 b. Most of the linguists from the East Coast came to NELS.

Compare (63) to the French sentences without QAD and with QAD below. Exactly like (63-b), (64-a) with the NP-internal Q can have both, a collective and a distributive interpretation, whereas, similar to its English counterpart in (63-a), the sentence with QAD in (64-b) has only a distributive reading:

- (64) a. Le maire salué beaucoup de sportifs.
 the mayor greeted many of sportsmen
 'The mayor greeted many sportsmen.'
- b. Le maire beaucoup salué de sportifs.
 the mayor many greeted of sportsmen
 'The mayor greeted many sportsmen.'
 (Obenauer (1984-85):166)

The data above provide me with two important non-language-specific generalizations:

1. Different types of predicate offer different measurement scales; thus, the same quantifiers yield different interpretations depending on the predicate they combine with
2. When a quantifier applies to the event with measurable internal argument (mass or plural noun), the internal argument seems to be affected by this unrestricted quantifier, thus appearing to be a quantified entity (this effect will be explained in subsection 4.4.3)

I will return to the first generalization later in the chapter. The second observation serves to demonstrate that *na-* and quantifiers associated with it seem to measure the direct object of the verb. However, this observation will lead me to the other direction and help me show that *na-* and quantifiers apply to the event argument.

4.3.3 *Na-*verbs as creation verbs

One of the criteria for distinguishing lexical prefixes from superlexical prefixes is the ability of the former and the inability of the latter to (co-)select for the direct arguments of the verb (Romanova (2004a)). As you will see from what follows, *na-* seems to invalidate this generalization. For example, when unprefixed the verb *grabitj* 'rob' selects for the animate object, say, *proxožix* 'passers-by.ACC.'; however, when *na-* attaches to this verb, animate objects are ungrammatical:

- (65) a. *grabitj proxožix*
rob^I.inf. passers-by.ACC.
 ‘rob passers-by’
 b. **grabitj denjgi*
rob^I.inf. money.ACC.
 ‘*rob money’
- (66) a. **nagrabitj*
CUM-rob^P.inf.
proxožix
passers-by.GEN.
 ‘rob a lot of passers-by’
 b. *nagrabitj*
CUM-rob^P.inf.
deneg
money.GEN.
 ‘steal a lot of money’

Another verb, *kopatj* ‘dig’, can take varying arguments when unprefixed, indefinite mass, like *zemlju* ‘soil.ACC’ or plural with existence presupposition, like *grjadki* ‘patches.ACC.’ (see also (26) in section 4.2.3). When *na-* attaches to *kopatj*, the object with existence presupposition yields ungrammaticality to the VP:

- (67) a. *kopatj zemlju*
dig^I.inf. soil.ACC.
 ‘dig soil’
 b. *kopatj grjadki*
dig^I.inf. patches.ACC.
 ‘dig patches’
- (68) a. *nakopatj zemli*
CUM-dig^P.inf. soil.ACC.
 ‘dig a lot of soil’
 b. **nakopatj grjadok*
CUM-dig^P.inf. patches.ACC.
 ‘dig a lot of patches’

*Na-*verbs express the creation of a new pile of stuff, like ‘soil’ in (68a). If you create patches by digging in (68b), the sentence is perceived as grammatical.

Originally non-incremental objects are possible with *na-*verbs, but the cumulated ‘pile’ is always incremental, as was shown in (8) in section 4.2.1. It looks like a proper part of the object *x* gets reanalyzed on the attachment of *na-* as non-atomic, ‘pile’ itself being a mass entity:

- (69) *nadaritj podarkov*
CUM-give^P.inf. presents.GEN.
 ‘give a lot of presents’

However I would argue that what outwardly looks like the ‘selection’ of the direct object by *na-* is the selection of a particular scale. Direct objects are used as scalar paths for measuring the event only when they are available in the structure, for example, with

unaccusative and transitive verbs. When the verb has no internal arguments, the measure phrase can combine with an extensive measure of time, *for X time* (examples are from the Russian search engine Яndex):

- (70) a. Ja za četyre dnja **narabotala** **pjatjdesjat časov.**
 I for 4 day.GEN. CUM-worked^P.sg.fem fifty hours.GEN.
 ‘I have worked 50 hours in 4 days.’
- b. Za vyxodnyje on **naspal** **boleje tridcati**
 for weekend.ACC. he CUM-slept^P.sg.ms. more thirty.GEN.
časov.
hours.GEN.
 ‘He has slept more than thirty hours during the weekend.’

The best way to compare two different possibilities is to use motion verbs as an example. Directed motion verbs have unaccusative syntax and the internal argument of the verb should be accessible to the quantificational power of *na-* and associated quantifiers (71). Non-directed motion verbs have unergative syntax and therefore *na-* and quantifiers make use of available scales, which can be either temporal or spatial in case of motion verbs (72). Below I repeat (11) and (13) from section 4.2:

- (71) a. (Mnogo) žučkov **naletelo.**
 ‘(many) beetles.GEN. CUM-flied^P.dir.def.’
 ‘There arrived a lot of beetles by flying.’
- b. Košek **nabežalo!**
 ‘cats.GEN. CUM-ran^P.dir.def.’
 ‘What a lot of cats have come!’
- (72) nabegatj, **naletatj,** **naplavatj** *(100 časov/
 CUM-run^P.ndir.inf, CUM-fly^P.ndir.inf, CUM-swim^P.ndir.inf (100 hours/
 5000 kilometrov)
 5000 kilometers)
 ‘to have accumulated 100 hours/ 5000 kilometers by running/ flying/ swim-
 ming’

Sometimes the amount measured is represented by a different entity than the original object of the verb:

- (73) a. *menjatj marki na otkrytki*
 change^I.inf. stamps.ACC. on cards.ACC.
 ‘trade stamps for cards’
- b. *namenjatj otkrytok*
 CUM-change^P.inf. cards.GEN.
 ‘get a lot of cards by trading’

Na-verbs with no direct objects also express events which amount to a creation of some quantity of stuff, the meaning of which is implied by the meaning of the verb. I repeat (30) below:

- (74) a. *nadyšatj* ‘CUM-breath’ entity accumulated: WARMTH
 b. *natoptatj* ‘CUM-trample’ entity accumulated: DIRT
 c. *nakuritj* ‘CUM-smoke’ entity accumulated: SMOKE

Thus, the pretheoretic conclusion at this point is:

Regardless of the argument structure of the unprefixated verb, to which *na*- attaches, *na*-verb is always a creation verb. It combines with a path argument (implicit or explicit) which represents an increasing accumulation of X, where X is stuff/ time/ space/ property. The entity created by a *na*-verb is thus ‘a pile of X’.

The change of structure on prefixation is not a problem under the present view. In subsection 4.4.3 I will demonstrate its consistency with the constructionist approach adopted in this dissertation.

4.4 Analysis of *na*-

From what has been said so far, *na*- has the following characteristics:

1. measures the event depending on the available scale
2. as a main condition for measuring the event, attaches to imperfective *proc* verbs (see the following subsection for more detailed explanations)
3. turns all types of verb into ‘creation’ verbs

Below I am going to develop each point in detail.

4.4.1 The choice of a scale by *na-*

Let us return to the discussion of the analogues of *na-* in other languages, like Quantification at a Distance in French, or ‘a lot’ quantification in English. QAD and ‘a lot’ seems to pick out different scales provided by the event for measuring: with psych verbs it is the intensity scale, with intransitive eventive predicates it is the temporal representation of the event, with (some) transitive verbs it is the scale expressed by the Incremental Theme. I repeat the scalar notions discussed in Schwarzschild (2006):

- degree (75-a)
- range
- amount of events (75-b)
- amount of stuff (75-c)

- (75) a. He likes her a lot.
 b. He runs a lot.
 c. He eats a lot.

As I said at the beginning of this chapter and as should be clear by now, *na-* is not an extended measure function over objects. It is one of the superlexical prefixes that measure the event along the available scale. *Na-* seems to be perfectly applicable to all kinds of scale: temporal, spatial, thematic and sometimes even intensity-scale:

***Na-* operating on the temporal scale (provided by unergatives):**

- (76) narabotal sto časov
 CUM-worked^P.sg.ms. 100 hours.GEN.
 ‘accumulated 100 working hours’

***Na-* operating on the spatio-temporal scale (Lasersohn (1995)) provided by non-directed motion verbs.**

- (77) najezdil tysjaču kilometrov
 CUM-drove^P.ndir.sg.ms. thousand.ACC. kilometers.GEN.
 ‘drove cumulatively 1000 kilometers’

The measure phrase in (77) can in fact be substituted for *sto časov* ‘one hundred hours’:

- (78) najezdil sto časov
 CUM-drove^P.ndir.sg.ms. hundred.ACC. hours.GEN.
 ‘drove cumulatively 100 hours’

Na- operating on the participant-scale (provided by unaccusative and transitive verbs):

- (79) a. nabežalo detej
 CUM-ran^P.dir.def. children.GEN.
 ‘arrived a lot of children’
 b. nabrosal kamnej
 CUM-threw^P.sg.ms. stones.GEN.
 ‘threw a lot of stones (in a pile)’

What scale is measured by *na-* when there is no overt measure phrase with the above functions involved, like below?

- (80) Priděš - u nejě kak “proščanije slavjanki”.
 by-come^P.pres.2sg. at her.GEN. like farewell.NOM. Slav.GEN.
 Nagrustit, xotj eksportiruj.
 CUM-be.sad^P.pres.3sg. though export^I.imper.2sg.
 ‘Whenever you pop by her place, she is down. Makes such a lot of blues, you can export it.’
 (Aleksej Ivanov, *Geograf globus propil*, Azbuka-klassika, St.Petersburg, 2005, p.37)

If we assume that the precise nature of scale for measuring does not have to be explicitly represented in grammar, but is a part of the encyclopedic information provided by the verbal stem, the importance of the question above immediately fades away. A more relevant approach to scalar structures is offered in Schwarzschild (2006), involving degrees, ranges and amounts. Schwarzschild (2006) subdivides all the ‘magnitude’ adverbials into two big classes: degree operators and range predicates. *Very, too, so* are degree operators, *much, a lot, a little* and measure phrases are range predicates. Some expressions can be both (for example, *enough*, and possibly, *a lot*). Degree operators are of the type $\langle\langle d, t \rangle, t\rangle$, for they combine with the predicates of the type $\langle d, t \rangle$, which is the type of gradable adjectives, for example:

- (81) Jack is too heavy \Rightarrow too λt_d Jack [t_d heavy] (Schwarzschild (2006))

As range includes several degrees on the scale, range predicates have a different type - $\langle r, t \rangle$, where *r* is the type of ranges. Schwarzschild (2006) compares ranges to pluralities of type *e* (which is consistent with the plurality of events in question).

Taking all the above into consideration, *na-* operates on ranges rather than degrees, as is seen from the overt adverbials and measure phrases *na-*verbs combine with, irrespective of the type of scale involved:

- (82) a. Mnogo/ *siljno/ *očenj narabotal-to?
 much/ strongly/ very CUM-worked^P.sg.ms.-prt
 ‘Has your work amounted to a lot?’
- b. Mnogo/ *očenj nabegal za vesnu?
 much/ very CUM-ran^P.sg.ms. for spring.ACC.
 ‘Have you run a lot (of kilometers/ hours) during the spring?’

Objectless *na*-verbs can sometimes seem to be exceptions, but this is not dangerous for the generalization:

- (83) a. Vse eti ljudi tak mnogo/ *očenj/ ??siljno nadyšali i
 all these people so much/ very/ strongly CUM-breathed^P.pl. and
 napoteli, što v vozduxe stojal počti tuman.
 CUM-sweated^P.pl. that in air.LOC. stood^I.sg.ms. almost mist.NOM.
 ‘All these people breathed and sweated so much that it was almost misty.’
 (anya-ups.livejournal.com)
- b. Zdesj siljno/ očenj/ ??mnogo nakurili.
 here strongly/ very/ much CUM-smoked^P.pl.
 ‘There is a lot of smoke here after people’s smoking.’

Thus, following the system by Schwarzschild (2006), *na*- is a range predicate along with adverbials like *much*, *a lot*, *a little* and measure phrases. Following the system by Krifka (1998) (and consequently, Filip (2000), Filip (2005)), *na*- is an extensive measure function. Recall the definition of the latter from Krifka (1998) given in section 4.2.3, footnote 4:

- (84) Measure functions in general are functions that relate an empirical relation, like ‘be cooler than’, for physical bodies, to a numerical relation, like ‘be smaller than’, for numbers. Extensive measure functions (like liter, kilogram, or hour) are in addition based on operation of *concatenation*, which is related to arithmetical addition. Another property of extensive measure functions is *comensurability*. It ensures that the measure of the whole is commensurate with the measure of the parts.

In fact, it looks like *range predicate* is another term for *extensive measure function*.

Consider the way Krifka (1998):202 expands on his definition of extensive measure functions:

- (85) It seems that the function of measure phrase like *two kilograms* is to ‘cut out’ entities of a certain size from the extension of a predicate like *apples* in which we find a continuum of entities of various sizes. This condition can be described as follows: *two kilograms of apples* applies to individuals x that fall under *apples* and that have a weight of 2 kg provided that every proper part of x with respect to the concatenation function for kg (which is simply $<_P$ in the present case) falls under *apples*, and that there are such proper parts.

The concatenated ‘continuum of entities’ Krifka (1998) speaks about is a scale in the understanding of Schwarzschild (2006), and *two kilograms* ‘cut off’ a portion of this continuum otherwise called *range*.

So, if *na-* is an extensive measure function as stated in Filip (2000) and Filip (2005), what is the difference of the present approach to treating this prefix from the approach in Filip (2000)? The answer has been given already: the entity directly measured by *na-* is the event itself.

4.4.2 *Na-*verbs as opaque predicates

Na-, being a range predicate in the sense of Schwarzschild (2006), measures an amount of event mapped onto quantifiable entities such as time, space or stuff. The measured range includes all the degrees in between the two degrees specified by *na-* and overt adverbials and measure phrases it combines with, hence the effect of continuity. Thus, *na-* is predicated of a set of degrees, Δ , present in the event, E , along the available scale, translated as τ , K or Θ , with the resulting weak cardinal reading of the VP. The weak cardinal reading usually stands for a contextually large amount of events/ stuff (see Filip (2000)). The plurality of degrees is homomorphic with the event, therefore, the event must include subevents, or be non-atomic. From Chapter 1 we know that only imperfective events can be non-atomic. By measuring Δ , *na-* produces an effect of **creating** a relatively big amount of stuff, temporal occasions or space coverage. Thus, measuring performed with *na-* comes with a side-effect and we know now that this prefix:

- selects for the verbs representing cumulative events, since only non-atomic events contain the argument Δ
- measures the event along an available scale containing the degrees in Δ
- has a contextually specified weak cardinal reading translated as ‘a relatively big amount of’ (event)

- has an effect of *creation* of this amount

Thus, the modified version of (23) is:

$$(86) \quad \llbracket NA_{CUM} \rrbracket(\llbracket VP \rrbracket) = \lambda e \exists \Delta [VP'(e) \ \& \ \mu(\Delta) = n_C \ \& \ \text{degree-of-change}(e, \Delta)] \ \& \ n_C \geq C_C,$$

with the presupposition that C_C must be a high estimate

In (86) μ is a measure that is defined by a weak cardinal number n_C , where the subscript C stands for some contextual value; Δ is the set of degrees contained in e and measured by *na-*. Thus, *na-* is a partial function that applies only to predicates (VPs) with the degree-of-change argument.

If *na-* verbs are to be treated on a par with verbs of creation (see section 4.3.3), there is a serious theoretical consequence of this approach. It is known that verbs of creation differ from other verbs in that their argument does not exist throughout the denotation of VP, since it comes into existence as a result of the event represented by the VP. According to von Stechow (2000), the analysis in terms of predicate logic is then impossible; (87-a) cannot be represented as (87-b):

- (87) a. John built a house.
 b. $\exists x[x \text{ is a house at } t \ \& \ \text{John builds } x \text{ at } t]$

The problem with (87-b) is that ‘predicates of coming into existence are not temporally homogeneous: if something comes into existence at interval t , that thing doesn’t come into existence at any proper subinterval of t in the sense that the thing does not exist at the beginning of the subinterval but it does at the end’ (von Stechow (2000)). Von Stechow (2000) calls this behavior of verbs of creation ‘temporal opacity’.

The attempts to explain the behavior of verbs of creation as opaque predicates have not been very successful so far, as noticed by von Stechow (2000). According to him, the two theories that fared best belong to Krifka (1989) and Kratzer (1994). However, they can still ‘be refined’, as von Stechow (2000) puts it. In his influential theory based on Krifka (1989), Krifka (1992) offers to treat verbs of creation from the point of view of homomorphic mapping from events to objects and from objects to events¹⁹. He terms

¹⁹The notion of graduality introduced in Krifka (1992) is based on the following conditions:

- (i) $\forall P[\text{GRAD}(P) \leftrightarrow \text{UNI-O}(P) \wedge \text{MAP-O}(P) \wedge \text{MAP-E}(P)]$ (p.42)

uni-o is uniqueness of objects (ii-a), *MAP-O* is mapping to objects (ii-b) and *MAP-E* is mapping to events (ii-c).

- (ii) a. $\forall (R)[\text{UNI-O}(R) \leftrightarrow \forall e, x, x' [R(e, x) \wedge R(e, x') \rightarrow x = x']]$
 b. $\forall R[\text{MAP-O}(R) \leftrightarrow \forall e, e', x [R(e, x) \wedge e' \sqsubseteq e \rightarrow \exists x' [x' \sqsubseteq x \wedge R(e', x')]]]$

the objects of verbs of creation, among some other verb classes, ‘Incremental Themes’. The problem with Krifka’s notion of incrementality and homomorphism in the case of verbs of creation in general and *na*-verbs in Russian in particular is that the uniqueness-of-objects condition is not fulfilled. Like in other verbs of creation, in *na*-verbs $e' \not\subseteq e$, since the relation between the event expressed by the unprefix verb and its object is different from the relation between the verb prefixed with *na*- and its object.

Kratzer (1994) tries to solve the problem of verbs of creation by postulating a target state in the compositional semantics of events similar to the Result Phrase discussed in this work. The effected object is predicated of just this augment of the event, which is best expressed by the past passive participle formed of the corresponding verb. The problem with this approach for *na*-verbs, for example, is that perfect participles standing for the result state are not very natural when formed from them.

- (88) a. ??navarennaja kartoška
 CUM-boiled.PPP.sg.fem. potatoes.NOM.
 ‘a lot of boiled potatoes’?
 b. ??navjazannyje varežki
 CUM-knit.PPP.pl. mittens.NOM.
 ‘a lot of knit mittens’?

Notice that in (i-a) ‘a pile of jewelry’ comes into existence as a result of the relatively large amount of the event of ‘robbing passers-by’ and simultaneously, ‘a pile of jewelry’ serves to measure the macroevent. Recall that in the system developed in Kennedy and Levin (2002) Incremental Themes, spatial paths and increase or decrease in property of degree achievements are treated in a uniform way. These entities represent G_V , the gradable property associated with the verb²⁰, and are measured in d , the degree of change argument. The relevance of their system for verbs of creation is seen in the beginning and the end point on a scale: the beginning point corresponds to the beginning of the creation event, when its argument does not exist, and the end point corresponds to the end of the creation event, when the argument has come into existence. However, like it was with all the other theories having something to say about verbs of creation, the

c. $\forall R[\text{MAP-E}(R) \leftrightarrow \forall e, x, x' [R(e, x) \wedge x' \sqsubseteq x \rightarrow \exists e' [e' \sqsubseteq e \wedge R(e', x')]]]$

In the event of *drinking a glass of wine*, uniqueness of objects captures the thematic relation between the verb and its object: ‘a drinking of a glass of wine is related via the patient role to this glass of wine, and to nothing else.’ When ‘every part of a drinking of a glass of wine corresponds to a part of the glass of wine’, it is mapping to objects. And when ‘every part of the glass of wine being drunk corresponds to a part of the drinking event’, it is mapping to events.

²⁰In case of the verbs of creation this property is expressed by the result state holding of the created entity, say WRITTEN(x) or BUILT(x) (Kennedy and Levin (2002)).

formula proposed by Kennedy and Levin (2002) contains the same variable x at both ends of the scalar path. So, in a sense, they have the same problem:

- (89) a. $V_{\Delta} = \lambda x \lambda d \lambda e. \text{INCREASE}(G_V(x))(d)(e)$
 b. $\llbracket \text{INCREASE}(G(x))(d)(e) \rrbracket = 1$ iff $G(x)(\text{END}(e)) = G(x)(\text{BEG}(e)) + d$

I am going to pursue an alternative approach to this problem. It is based on the discussion of intensional predicates and does not treat effected objects as variables of the individual type.

Speaking of intensional opaque predicates like *seek* or *want*, Van Geenhoven and McNally (2005) follow Zimmerman (1993) and claim that opaque predicates ‘denote relations towards a property P . The verb *seek*, for example, is translated as follows:

- (90) $\text{seek} \Rightarrow \lambda P \lambda w \lambda x (\text{seek}_w(x, P))$ ’,

where P is the property mentioned above, w stands for the world of evaluation, x represents the external argument of the event.

‘The absence in (90) of an individual-type argument corresponding to the sought object is what is supposed to guarantee the lack of existential entailment...’ (p.889). Interestingly, ‘property-denoting nominal expressions can occur in ordinary argument positions.’ The underlying characteristics of property-type complements are non-specificity and narrow scope. Van Geenhoven and McNally (2005) explicitly compare such complements to bare plural and mass nouns discussed in Carlson (1977b) (cf. examples from (32) through to (34)). Non-specificity and narrow scope of the complement of the existential predicate are revealed with the help of negation: *many students* in (91) receives only the narrow scope with respect to the negation.

- (91) There aren’t **many students** in the library.
 i. ‘It is not the case that many students are in the library.’
 ii. # ‘There are many students such that it is not the case that they are in the library.’

Basing her proposal on true incorporation of narrow-scope arguments in opaque predicates in West Greenlandic, Van Geenhoven (1995, 1998) put forth the idea of semantic incorporation. The following example of semantic incorporation of the bare plural is cited in McNally (2005):

- (92) a. $\lambda P \lambda x \exists y [\text{eat}(x, y) \wedge P(y)]$
 b. $T(\text{eat cookies}) = \lambda P \lambda x \exists y [\text{eat}(x, y) \wedge \text{cookies}(y)]$

Van Geenhoven and McNally (2005) treat the property-type argument as a function (type $\langle s, \langle e, t \rangle \rangle$), not as an individual of type e . They claim that any predicate that usually describes ordinary individuals can also ‘compose semantically with property-type expressions that provide descriptions of the ordinary individual in question’ (McNally (2005)). Thus, to get an ‘opaque’ predicate with a property-type argument out of its transparent counterpart with an individual type argument, the argument should semantically incorporate into the predicate. As a result, a non-specific reading always arises (Van Geenhoven and McNally (2005):889).

Na-verbs and their non-specific objects can be characterized from the point of view of Van Geenhoven and McNally’s theory²¹. As I argued above following von Stechow (2000), *na*-verbs are verbs of creation with effected objects. Like other effected objects, the arguments of *na*-verbs cannot undergo Existential Exportation if the reference time is kept constant (but see footnote 28 on the difference between truly effected objects and the arguments of *na*-verbs). Compare the English verb of creation *draw* to the verb of motion on the one hand and the Russian *na*-verb on the other²²:

- (93) English Verb of Creation
- a. John drew a circle.
 - b. *There was a circle that John drew.

²¹Filip (2005) independently arrives at the conclusion that the objects of *na*-verbs are of property type $\langle e, t \rangle$. She bases her discussion on two articles by Carlson (2003): *Weak Indefinites* and *When Morphology... Disappears*. The formalism Filip (2005) uses is reminiscent of van Geenhoven’s ‘semantic incorporation’.

²²With *na*-verbs one can rob passers-by, and end up having a lot of jewelry (i-a), or trade stamps and end up having a lot of postcards (i-b):

- (i) a. Vanja grabil proxožix i nagrabil kuču
 V.NOM. robbed^I.sg.ms. passers-by.ACC. and CUM-robbed^P.sg.ms. pile.ACC.
 dragocennostej.
 valuables.GEN.
 ‘Vanja was robbing passers-by and stole a lot of jewelry.’
- b. Ljuba menjala marki na otkrytki i namenjala
 L.NOM. changed^I.sg.fem. stamps.ACC. on cards.ACC. and CUM-changed^P.sg.fem.
 goru otkrytok.
 mountain.ACC. cards.GEN.
 ‘Ljuba traded stamps for postcards, and got a lot of cards in exchange.’

I give the examples in (i-a) and (i-b) for the illustrative purposes only, for the cases where the stuff in the created ‘pile’ is different from the original argument of the verb are fairly rare. This difference is extreme in (i-a) and (i-b), possibly due to the world knowledge facts: one cannot create a ‘pile’ of passers-by by robbing them.

- (94) English Verb of Motion
- a. John pushed a cart.
 - b. There was a cart that John pushed.
- (95) Russian *na*-verb
- a. Vanja nagrabil dragocennostej.
V. CUM-robbed^P.sg.ms. jewelry.GEN.
'Vanja stole a lot of jewelry.'
 - b. *There is a lot of jewelry, such that Vanja stole it²³.

Along the lines of von Stechow (2000), I will state that *na*-verbs, being a variety of creation verbs, are temporally opaque predicates. As, in the absence of overt quantifiers, their bare plural and mass objects obligatorily bear narrow scope ((40) and (41)), they can be treated as property-type arguments with no existential entailment rather than individual-type arguments²⁴ (Van Geenhoven and McNally (2005), Filip (2005)). However, *na*-verbs are not intensional predicates with modal embedding requiring a world of evaluation in the denotation of their property-type arguments. Thus, the type of the arguments occurring with *na*-verbs can just be $\langle e,t \rangle$ (cf. Filip (2005)). In addition, while for Van Geenhoven and McNally (2005) the property argument modifies the corresponding individual argument described by the predicate in its transparent instantiation, in *na*-verbs the property-type argument represents the measurable property of the event.

The choice of this approach presents me with several advantages:

- I do not run into the problem of existence of effected objects throughout the run

²³In this example 'it' does not refer to the 'pile of jewelry', therefore the intended reading is infelicitous. As was noted to me by Gillian Ramchand, the sentence in (95) is comparable with English: He stole a lot of booty \nRightarrow There is a lot of booty, such that he stole it. (Something cannot be 'booty' until after you've stolen it.)

²⁴This is not the only case where Russian NPs can be taken to represent property-type arguments. See, e.g., Partee (2005) about the hypothesis that Genitive of Negation in Russian is an example of property-type complementation. Another note should be made of some complements of intensional verbs (verbs of absence, in terminology of Van Geenhoven and McNally (2005)) in Russian: bare plural and mass nouns and nouns standing for abstract notions (*happiness, support* etc.) in this position are usually genitive marked, especially with *want*:

- (i) a. On iskal deneg na novyj projekt.
he sought^I.sg.ms. money.GEN. on new.ACC. project.ACC.
'He was seeking money for a new project.'
- b. Ona xotela mesti/*mestj.
she wanted^I.sg.fem. revenge.GEN./revenge.ACC.
'She wanted to take revenge.'

time of the event

- I have an account for the obligatory narrow scope of unquantified objects of *na*-verbs
- The event property status ascribed to complement NPs allows them to serve as measure scales

And here I seem to have a problem: how do I marry the argument structure of the verb prior to prefixation, where VP (*procP*) has an UNDERGOER (individual-type) argument, with the structure it acquires after the attachment of *na*-? In the light of the latest developments in syntactic theory describing argument and event structure, the problem does not look so serious.

4.4.3 Syntax of *na*-

The change of the syntactic representation of the event structure follows merge of the functional element changing the syntactic environment of the verb. This is not an unusual procedure under the constructionist approach to syntax-semantics interface (Pylkkänen (2002), Arad (1998), Borer (2005), Folli and Harley (2005), Ramchand (2006) and others). One of the famous examples of such a change was noticed by Hoekstra and Mulder (1990) and cited in Arad (1998):45 (see also Chapter 3 of this work): it concerns the motion verbs in some languages (e.g., Italian and Dutch), which, on merging a directional PP as their complement, are used with a different auxiliary:

(96) Dutch

- a. Jan **heeft** gesprongen.
Jan **have** jumped.PPP
'Jan has jumped.'
- b. Jan **is in de sloot** gesprongen.
Jan **is in the ditch** jumped.PPP
'Jan has jumped into the ditch.'

(97) Italian

- a. Gianni **ha** corso.
Gianni **have** run.PPP
'Gianni ran.'
- b. Gianni **è** corso **a casa**.
Gianni **is** run.PPP **to home**
'Gianni ran home.'

The constructionist approach allows researchers successfully solve otherwise unexplainable puzzles like below. Absolutely the same passive construction in Japanese is unacceptable with the inanimate affectee and grammatical with the animate affectee (Pylkkänen (2002):64):

- (98) Japanese
- a. ??Chiimu-ga coochi-ni nak-are-ta.
team.NOM. coach.DAT. cry.pass.past
'The team was affected by its coach crying.'
 - b. Taro-ga coochi-ni nak-are-ta
Taro.NOM. coach.DAT. cry.pass.past
'Taro's coach cried on him.'

Another interesting illustration of animacy requirement with a twist can be found in Folli and Harley (2005): verbs of consumption in English and Italian cannot have inanimate subjects without additional adjustments of their syntactic environment.

- (99) English
- a. *The sea ate the beach.
 - b. The sea ate away the beach.
- (100) Italian
- a. *Il mare ha mangiato la spiaggia.
the sea has eaten the beach
'*The sea ate the beach.'
 - b. Il mare si è mangiato la spiaggia.
the sea REFL is eaten the beach
'The sea ate away the beach.'

All the phenomena above are solved by the researchers structurally²⁵. In addition to briefly demonstrating the area of application of the constructionist approach above, I have been using it myself throughout this work. Chapter 2 and Chapter 3 dealt with

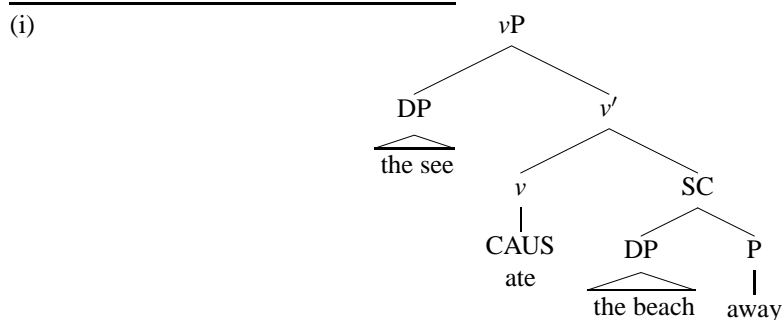
²⁵Basically, in all the minimal pairs sited the arguments are introduced in different sites. The case from Hoekstra and Mulder (1990) was discussed in Chapter 3: the argument of the PP-taking verb is introduced within the PP and therefore the whole structure turns into unaccusative. The case from Pylkkänen (2002) is explained by the existence of two different applicative heads (which she glosses as passive morphemes), high and low. The low applicative head cannot occur on unergatives, hence the ungrammaticality of a non-agentive inanimate argument. In the case from Folli and Harley (2005) two flavors of the little *v* are postulated: agentive and causative. If the Spec-of-*v* is occupied by Agent, the result-less construction is possible. If the Spec-of-*v* is occupied by Cause, the change of state is triggered and the verb selects a SC as its complement:

massive argument structure variation solved with the help of the First Phase Syntax framework (Ramchand (2006)). In Chapter 2 I showed that spatial lexical prefixes originate as the heads of pP , a predicates in its own right. The little p is compared to the little v and among other similar things between them, is their function of introducing an argument into the structure. The little p introduces the Figure argument which then moves to become a Resultee.

A question arises in this connection: is *na-* a superlexical prefix if it behaves like lexical ones with respect to the argument structure variation (see also Romanova (2004a))? The answer is: *na-* does not introduce any arguments. It makes use of a certain property of the verb which can be measured along the available scale returning a bound set of degrees Δ . Ramchand (2006) proposes a function from property of an entity x (both objects and extended locations) to sets of measures d . She adds a relation of linear order into the denotation of the function μ , since μ operates only on part-of structures with monotonic properties. This relation makes the relation between properties and degrees richer than in Kennedy and Levin (2002), since it also captures graduality of the change in d . The set of measures is related to the event via the rhematic relation. In the spirit of Krifka (1992), it reflects a ‘Measure-to-Event Mapping’ and ‘Event-to-Measure Mapping’:

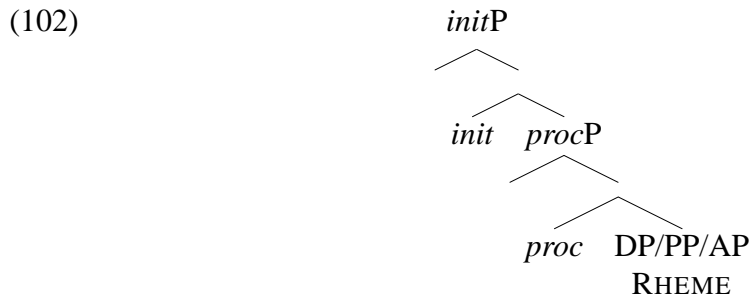
$$(101) \quad \text{PATH}(x, e) =_{def} \exists R \exists D_x [\forall e, d, d' [R(e, d) \ \& \ d' \leq d \rightarrow \exists e' [e' \subseteq e \ \& \ R(e', d')]] \\ \text{(mapping to measures) \ \& } \\ \forall e, e', d' [R(e, d) \ \& \ e' \subseteq e \rightarrow \exists d' [d' \leq d \ \& \ R(e', d')]] \text{ (mapping to events)}$$

I will not speculate more on non-applicability of (101) to verbs of creation caused by misrepresenting the Rhematic material as an individual-type variable. This flaw is already familiar from the approaches cited above²⁶. Instead I would like to draw the attention of the reader to the syntactic position proposed for the Rheme (PATH, property) in Ramchand (2006) (see also Chapter 3 where I briefly mentioned the structure).



²⁶In neither of them is it taken into account that verbs of creation are opaque predicates and, as a consequence, the complements of such verbs carry no entailment of existence throughout the run-time of the event.

According to Ramchand (2006), the Rhematic material combines with the event introduced in the process head via the head-complement relation, and the structure looks like the following (p.39):



Representing the property of the event, RHEME does not even have to combine with a transitive verb. This is true of West Greenlandic (103-b)²⁷, this is true of Russian (104-b):

(103) West Greenlandic (Van Geenhoven and McNally (2005):892)

- a. Juuna-p aruagaq ujar-p-a-a.
 J.ERG. book.sg.ABS. look.for.IND.[+trans].3sg.3sg.
 A. 'Juuna is looking for **the book**.'
 B. 'Juuna is looking for **a specific book**.'
- b. Juuna atuakka-mik ujar-lir-p-u-q.
 J.ABS. book.sg.INSTR. look.for.AP.IND.[-trans].3sg.
 'Juuna is looking for **any book**.'

(104) Russian

- a. Dunja s'jela xleb.
 D.NOM. Prf-ate^P.sg.fem. **bread.ACC.**
 'Dunja ate **the bread**.'
- b. Dunja najelasj xleba.
 D.NOM. CUM-ate^P.sg.fem.refl. **bread.GEN.**
 'Dunja ate **enough bread**.'

Thus, the complement position containing RHEME with *na*-verbs is filled with an appropriate material sometimes independently of the argument structure of the verb, therefore the undergoer of the unprefix verb and the RHEME of the verb with *na*- can be differ-

²⁷As I said above, according to Van Geenhoven and McNally (2005), nonspecific complements are 'semantically incorporated' into the verb and represent a property.

ent as in footnote 22²⁸. *Na-* merges above the verb, which has been decomposed into *initP* (vP), *procP* (VP) and *resP* (SC) throughout this work. However, the site of its attachment has no influence on the subject, for example, because the prefix does not ‘care’ about the true arguments of the verb. From the previous discussion, we know that *na-* is a range predicate operating on a certain scale. What it needs is the concatenated set of degrees Δ on the scale provided by the event, or, rather, a variable over the set of degrees, which it can bind. This range is available only in cumulative events, in other words, the events, whose composition includes the process part, expressed by *procP* (VP). If the verb representing such a cumulative event is transitive or unaccusative, the property measured is represented by an NP occupying the Rhematic position. *Na-* selects the VP standing for the cumulative event with a path complement. As only cumulative NPs (mass and plural) can represent a measurable scale-path, the object of a transitive or unaccusative verb also has to be cumulative, otherwise the derivation with *na-* does not converge. The attachment of *na-* seems to change the relation between the host verb and its arguments. Prior to prefixation this relation can be Undergoer-*process*, but with *na-* it becomes *process*-Rheme. However, this is not a problem, because I am assuming the following:

- There is no argument structure information stored in the lexicon
- Merge is free, the interpretation follows from the structural position
- *Na-* requires a variable over degrees

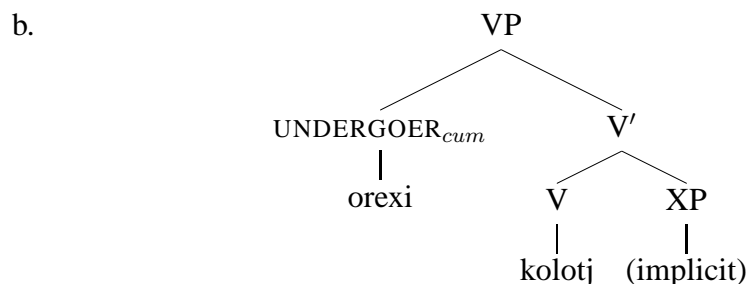
The degree variable can be bound in the Undergoer position. In this case *na-* does not merge for the danger of vacuous quantification:

- (105) a. kolotj orexi
 crack^I.inf. nuts.ACC.
 ‘crack nuts’

²⁸By prediction, verbs of creation will have a Rhematic complement even without *na-*. The Rheme of *na-* verbs is different from those. Compare the sentences below:

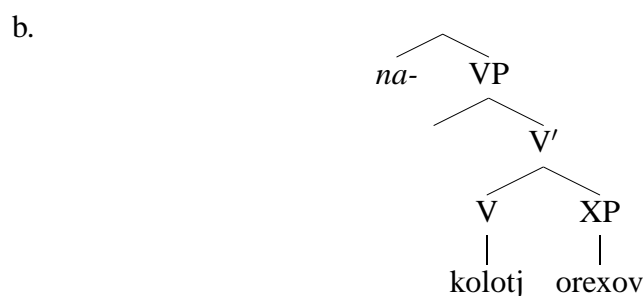
- (i) a. Ona vjazala sviter.
 she knit^I.sg.fem. sweater.ACC.
 ‘She was knitting a sweater.’
 b. Ona navjazala sviterov.
 she CUM-knit^P.sg.fem. sweaters.GEN.
 ‘She knit a lot of sweater.’

The Rhematic complement of *na-* verbs reflects the creation of a certain indefinite quantity, not an entity, like in (i-a).



In its turn, the true Undergoer cannot merge with *na*-verbs. With transitive and unaccusative verbs, the path is an XP, containing the explicit Rhematic material mappable onto the *procP*²⁹:

- (106) a. nakolotj orexov
 CUM-crack^P.inf nuts.GEN.
 ‘crack a lot of nuts’



As I argued in Chapter 3, unergatives have a conflated Rhematic path, which means that it will always be implicit. However, when *na-* attaches to the verb, the implicit path argument of the verb should be available and serve a variable. For this reason the Undergoer cannot be merged, because it will make the degree-argument inaccessible to *na-*. By binding this variable *na-* will measure the event represented by V (107-c). In many

²⁹Here the following question might arise: What happens when *na-* stacks on top of a lexical prefix, since the latter originates in RP, and RP takes the place of Rhematic XP? For example:

- (i) gnatj - vy-gnatj - vy-gon-jatj - na-vy-gon-jatj
 chase^I.inf. out-chase^P.inf. out-chase^I.inf. CUM-out-chase^P.inf.
 ‘chase 1Impf - chase out Perf - chase out 2Impf - chase out a lot of (people)’

As we know from Chapters 1 and 2, attachment of a lexical prefix to an imperfective verb turns the latter into an atom, from the lattice-theoretic point of view. Secondary imperfective morphology, in its turn, changes the structure into non-atomic, gradable, again; it introduces the new degree variable that can be bound by *na-*. The study of the syntactic mechanisms corresponding to this operation is outside the scope of this thesis, therefore right now I cannot offer a detailed answer to the question above. This issue is well worth further investigation.

cases the events represented by unergative verbs are measured along temporal or spatial scales, which always receive a concrete cardinal expression ((107-a) and (107-b)). So, ‘40000 kilometers’ does not behave the same way as the real Rhemes of Rheme-taking verbs, which are just bare NPs. The obligatory measure phrases of *na*-prefixed NDMVs are thus modifiers of the whole VP.

- (107) a. On **naplaval** *(sorok tysjač) kilometrov na
 he **CUM-swam**^P.sg.ms. forty thousands.GEN. kilometers.GEN. on
 podvodnyx lodkax.
 underwater.pl.LOC. boats.LOC.
 ‘His trips by submarines amounted to forty thousand kilometers.’
 (modified from http://www.5-tv.ru/?cat=p_9&key=2)
- b. GTA-6RM NPO ‘Saturn’ uspešno
 GTA-6RM scientific-industrial-company.GEN. S. successfully
narabotal *(dvadcatj pjatj tysjač) časov.
CUM-worked^P.sg.ms. twenty five thousands.GEN. hours.GEN.
 ‘The gas-turbine assembly 6RM produced by the Saturn corporation man-
 aged to yield as much as 25000 hours of work.’
 (<http://yaroslavl.finam.ru/?fid=61&f=vnw&itm=7126>)
- c. Kto zdesj **natoptal**?
 who here **CUM-tramp**^P.past.sg.ms.
 ‘Who left such a lot of dirty footmarks?’

Transitive and unaccusative *na*-verbs can also co-occur with overt quantifiers. However, there is a certain restriction on the kind of overt quantifiers co-occurring with *na*- (see also Filip (2005)). Empirically, *na*- is a weak cardinal quantifier expressing the vague meaning of Large Amount (or ‘some’), set by the context. *Na*- is not compatible with strong quantifiers, like *all*, *the majority*, *most* etc.:

- (108) *Ona nabrala vsex/ boljšuju častj
 she CUM-picked^P.sg.fem. all.GEN./ bigger.sg.fem.ACC. part.ACC.
 gribov.
 mushrooms.GEN.
 ‘She picked all/ the majority of the mushrooms.’

Overt quantifiers merge above *na*- and attract the NP, which is reflected in no agreement between Q and N (compare (109) to (110)):

- (109) a. On cenil mnogije filjmy/ *mnogo filmov
 he appreciated^I.sg.ms. many.pl.ACC. films.ACC./ many.def. films.GEN.
 etogo režissëra.
 this.ms.GEN. director.GEN.
 ‘He appreciated a lot of films by this director.’
- b. Jego vzgljad vpečatljal mnogix devušek/ ??mnogo devušek.
 his glance impressed^I many.pl.ACC. girls.ACC./ many.def. girls.GEN.
 ‘His glance impressed a lot of girls.’
- c. Novostj bespokoila mnogix ekspertov/ *mnogo
 news worried^I many.pl.ACC. experts.ACC./ many.def.
 eksperrov.
 experts.GEN.
 ‘The news worried a lot of experts.’
- (110) a. *Maks nakupil mnogix knjig.
 M. CUM-bought^P many.pl.GEN. books.GEN.
 ‘Max has bought a lot of books.’
- b. *Maks nasočinjal mnogix sonat.
 M. CUM-composed^P many.pl.GEN. sonatas.GEN.
 ‘Max has composed a lot of sonatas.’

Interestingly, the agreement between Q and N is obligatory under negation, if Q is to refer to the noun it quantifies over (111-a). The reading obtained with a non-agreeing quantifier reflects a different scopal relation between the negative operator, Q and N. In (111-b) the negation scopes only over the quantifier. If the quantifier and the noun made a constituent (like in (111-a)), this mismatch wouldn’t occur:

- (111) a. Maks ne čital mnogix knjig.
 M.NOM. not read^I.sg.ms. many.pl.GEN. books.GEN.
 ‘Max did not read many books.’
 = There are a lot of books that Max didn’t read
- b. Maks ne čital mnogo knjig.
 M. NOM. not read^I.sg.ms. much books.GEN.
 ‘Max did not read many books.’
 = There are books that Max read, but their number is small

In addition, the high position of the quantifier co-occurring with *na-* would explain the wide scope of QP over the subject of the verb:

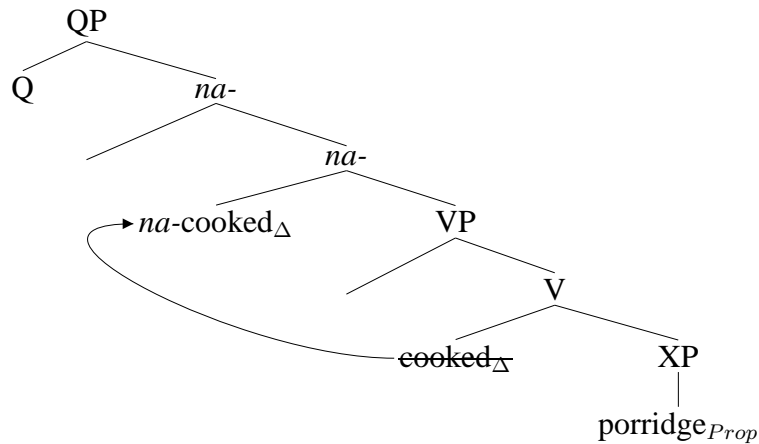
- (112) Tri povara navarili vedro/kuču kaši.
 three cooks CUM-cooked^P.pl. pail.ACC./pile.ACC. porridge

‘Three cooks have cooked a pail/ a lot of porridge.’

Possible: lots.of.porridge > three.cooks; but ?three.cooks > lots.of.porridge

Overt quantifiers make the cardinality of the event more specific, thus, in a way, they modify *na-*. So, the object noun of the *na-*verb with and without a quantifier will have different PF positions. The QP position is clear, the NP Rhematic position reflects the relation between the event and its property. QPs modifying *na-* are not NP-internal, since they do not agree with the nouns in case (110). Without *na-* non-agreeing quantifiers are ungrammatical with NPs (109). This is evidence that QPs modifying *na-* are base generated above the VP. Without Q present on the noun, NP obligatorily gets a narrow scope (40), which is consistent with its being a property (cf. Van Geenhoven and McNally (2005)).

(113) The structure for *na-*verbs:



The syntactic structure proposed here reflects the semantic relation between the verb prefixed with *na-* and its ‘object’, if any. This approach does not create a mismatch between semantics and syntax observed in Pereltsvaig (2006) and characteristic of the works by Filip, who says that measure prefixes:

when they measure individuals introduced by nominal arguments, are semantically composed with these arguments, even if they do not form syntactic constituents with them.

(Filip (2005):22)

We have seen now that *na-* combines with the entity it measures both semantically and syntactically.

4.5 Conclusion

In this chapter I investigated one of the most discussed superlexical prefixes, *na-*. In spite of the general consensus found in the literature on the nature of *na-* as a measure prefix (Filip (2000), Filip (2005), Filip and Carlson (2001), Piñón (1994), Filip and Rothstein (2005), Pereltsvaig (2006), Borer (2005) etc.), two distinct approaches to treating it can be singled out. The first approach advocated in Borer (2005) describes *na-* as a prefix directly quantifying over the event represented by its host verb and indirectly over the objects of the verb. The second approach (Filip (2000), Pereltsvaig (2006)) states that *na-* directly quantifies over the objects of its host verbs and only indirectly over the event expressed by the verb. Paradoxically, even if I argued against the views developed in Filip (2000) and Pereltsvaig (2006), their insights in the way *na-* works turned out to be closer to mine than those in Borer (2005). First, Filip (2000) and Pereltsvaig (2006) take into consideration a special status of *na-*, whereas Borer (2005) does not; second, Filip (2000) notices contextual conditioning of the meaning of *na-*; third, Filip and Rothstein (2005), Filip (2005) point out the variability of the scales *na-* can measure; and, fourth, Filip (2005) treats the arguments of *na-* verbs as property-type semantic objects rather than individual-type variables.

Studying some quantificational phenomena in French and English, I concluded that *na-* is not unique in the effect of simultaneously measuring over the event argument and the internal argument of the verb. Quantification at a Distance in French demonstrates that the same adverbial, *beaucoup* ‘a lot’, can yield ambiguity as to whether it quantifies over the amount of event or the amount of stuff - exactly like ‘a lot’ in English (Schwarzschild (2006)). Nakanishi and Romero (2004) term this type of ambiguity Quantification Variability Effect. In the case of *na-* the object NPs get the appearance of being measured due to their relation to the verbal event: they are Rhematic paths representing the property of the measured event. When an overt measure phrase is present, it occupies a functional projection above VP and attracts the argument of the verb; the resulting QP cannot reconstruct, since Q was base generated high, hence the wide scope of the quantified object.

What happens to *na-* verbs without objects? In fact, the same. I took the object of a *na-* verb to be a participant-scale, one of many measure scales. The presence of the participant-scale implies that the event represented by the *na-* verb can be measured with the help of the NP property representing a Rhematic path. When the scale provided by the verb is temporal or spatial or unspecified, Rhematic XP is absent and the event is measured via its run-time with the help of function τ , via the space map with the help of spatial-temporal function K (Laserson (1995)) or directly via the scalar range, Δ , the event in question is mapped onto. The existence of such ‘bare’ scales makes it possible to unify the whole analysis of *na-* as a measure prefix and say that what *na-* always

measures is the amount (a special type of range) of the event. The scale provided by the verb is a matter of encyclopedic information linked to every lexical entry and does not need to be directly grammatically encoded.

Thus, the first big example of the second type of perfective was given in this chapter. It was demonstrated in detail how atomic ‘packaging’ of mass-like events works. In fact, it works in the same way as the ‘packaging’ of mass entities in the nominal domain:

- | | | | |
|-------|---|-------|---|
| (114) | a. <i>moloko</i> ‘milk’ - MASS | (115) | a. <i>dyšatj</i> ‘breath ^I ’ - MASS |
| | b. <i>litr moloka</i> ‘a liter of milk’ | | b. <i>nadyšatj</i> ‘CUM-breath ^P ’ - |
| | - COUNT/ATOM | | ATOM |

Na- provides a ‘package’ whose denotation is contextually defined as ‘a large amount’. So, the event quantity measured by *na-* is fairly vague. Other superlexical prefixes can differ from *na-* in two respects: a) a type of scale they use for measuring the event; b) a type of ‘package’ they provide for the event. The following chapter is going to discuss one such prefix, namely, distributive *pere-*. *Pere-* measures the event by providing a ‘package’ at the supremum level of \mathcal{E} -lattice.

Chapter 5

Superlexical *pere-* and pluractionality

5.1 *Pere-* introduced

In this chapter I will look further into behavior of superlexical prefixes and their properties connected with event quantification. This time the prefix under investigation is going to be *pere-*. I will show below that *pere-* is different from *na-* in a number of respects, and, yet, in spite of their differences, the two prefixes demonstrate structural and conceptual similarities uniting all the superlexical prefixes into a separate class.

Some common properties lie on the surface. Thus, *pere-*, like *na-* and most other superlexical prefixes, obligatorily attaches to imperfective verbs, and the arguments of *pere-*verbs are necessarily plural or mass, too.

However, the interpretation of *pere-*verbs and their arguments is fairly different from that of *na-*verbs and their arguments. Isačenko (1960) terms the aktionsart this prefix induces ‘distributive’. He characterizes the effect of the distributive prefixes in the following way (p.287):

- (1) 1) not just several objects (or subjects) are affected by the event, but preferably all (or many) objects or all (or many) subjects. It is unacceptable to use a distributive verb in the combination **perekusatj dvux proxožix* ‘bite two passers-by (one after another)’
2) separate subevents within the macroevent follow one another¹.

¹The translation is mine. The original text is:

1) dejstvije vpolnjajetsja ne prosto po otnošeniju k neskoljkim ob’jektam (ili ne prosto neskoljkimi sub’jektami), a preimuščestvenno po otnošeniju ko *vsem* (ili mnogim) ob’jektam, sootnositeljno, so *vsemi* (ili mnogimi) sub’jektami;
2) otdeljnije fazisy kompleksnogo dejstvija soveršajutsja odin za drugim

Isačenko (1960) subdivides distributivity yielded by attachment of the prefixes above into ‘object’ (2-a) and ‘subject’ (2-b) distributivity:

- (2) a. Sobaka **perekusala** vsex detej.
dog **DIST-bit^P.sg.fem.** all.pl.ACC. children.ACC.
‘The dog bit all the children (one after another).’
- b. Vse deti **pereboleli.**
all children.NOM. **DIST-got.sick^P.pl.**
‘All the children were sick (not necessarily simultaneously).’

However, his ‘subject’ distributivity refers to the subjects of unaccusatives (cf. (2-b)), of which he could not be aware, of course, therefore the word ‘affected’ used with respect to both objects and subjects in the definition in (1) is legitimate².

When the verb with *pere-* has direct objects over which the event is distributed, the

²There is another prefix inducing the ‘distributive’ aktionsart in the sense of Isačenko, namely, *po-*. *Po-* is different from *pere-* in a number of ways:

- while *pere-* productively attaches to underived imperfectives, according to Isačenko (1960), distributive *po-* attaches to only a tiny number of them (i)
 - *po-* is a stacking prefix (it attaches on top of a lexical prefix or even *na-*); *pere-* is not (ii) (p.290).
 - Crucially, *po-* can scope over agentive subjects of the clause, which is not possible with *pere-* (iii)
- (i) a. pereprobovatj/ #poprobovatj vse snarjady
DIST-try^P.inf./ Prf-try^P.inf. all.pl.ACC. apparatuses.ACC.
‘test all the apparatuses’
- b. perečitaj/ *počitaj vse knigi
DIST-read^P.inf./ DEL-read^P.inf. all.pl.ACC. books.ACC.
‘read all the books’
- (ii) a. spisatj - spisyvatj - pospisyvatj/ *perespisyvatj
from-write^P.inf. - from-write^I.inf. - DIST-from-write^P.inf./ DIST-from-write^P.inf.
‘copy PERF - copy 2IMPF - copy everything successively’
- b. vytolknutj - vytalkivatj - povytalkivatj/ *perevytalkivatj
out-push^P.inf. - out-push^I.inf. - DIST-out-push^P.inf./ DIST-out-push^P.inf.
‘push out PERF - push out 2IMPF - push everyone out one after another’
- (iii) a. Vse pougadyvali rezultat matča.
all.NOM. DIST-guessed^P.pl. result.ACC. match.ACC.
‘Everyone guessed the result of the game.’
- b. Vse turisty povybrasyvali čemodany.
all tourists.NOM. DIST-out-threw^P.pl. suitcases.ACC.
‘All the tourists threw out their suitcases.’

I will not touch upon *po-* here.

direct object also receives a specific interpretation.

In that *pere-* verbs differ from *na-* verbs: they cannot have indefinite non-specific effected objects, which means they are not ‘creation’ verbs. Moreover, *pere-* is incompatible with creation verbs in the first place (3), and creation verbs do not allow the distributive reading with *pere-*:

- (3) napeč pirogov - perepeč pirogi
 CUM-bake^P.inf pies.GEN. - PERE-bake^P.inf. pies.ACC.
 ‘bake a lot of pies’ - ‘over-bake the pies, bake the pies to the excess’, but ‘*bake all the pies (in several goes)’

Pere- operates on the arguments of the verb that existed prior to prefixation. Thus, in (4) *na-* presupposes a creation of a new pile of firewood by chopping the raw material into pieces; *pere-* presupposes the existence of a ready-made pile of firewood and chopping all of it into even smaller pieces:

- (4) **nakolotj** drov - **perekolotj** drova
CUM-chop^P.inf firewood.pl.GEN. - **DIST-chop^P.inf** firewood.pl.ACC.
 ‘chop a lot of firewood’ - ‘chop all the firewood’

So, the macroevent expressed by a *pere-*verb clearly has a different relationship with the distributed argument than *na-*verbs have with the accumulated stuff argument: unlike with *na-*, with *pere-* an argument variable is introduced.

One would wonder about the source of the distributive effect of *pere-*. Can this prefix be the Russian variant of the D(istributive)-operator? The answer will take shape in this chapter as I study the relationships between *pere-*, the event argument and the nominal arguments of the verb it attaches to.

5.2 *Pere-* as an NP-oriented distributive quantifier

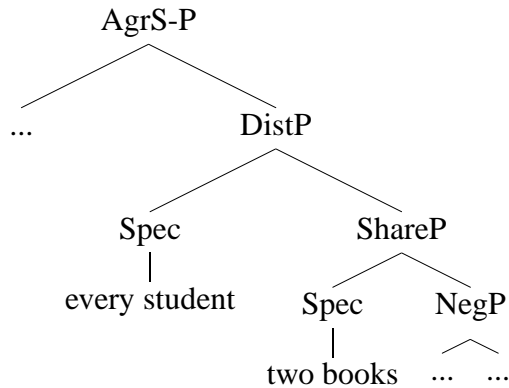
According to some authors (Scha (1981), Beghelli and Stowell (1997), Winter (2000)), distributivity can arise as the result of universal quantification. The universal quantifier can (but need not to) be present on the NP. Scha (1981) lists ‘each’, ‘every’ and ‘all’ among such quantifiers:

- (5) $(\lambda X: (\lambda P: \forall x \in X : P(x)))$

The system in Beghelli and Stowell (1997) is reminiscent of that in Scha (1981) in that the presence of a strong distributor in the structure, typically the pronoun ‘each’ or ‘every’, always triggers distributivity. In the syntactic structure of quantifiers developed

by Beghelli and Stowell (1997) ‘each’ or ‘every’ in DistP (Distributor Phrase) usually scope over the distributed share occupying ShareP and representing the stuff distributed over:

- (6) a. Every student read two books.
b.



5.2.1 Hypothesis A based on distribution of *pere-* wrt NPs

As I argued above, the objects of *pere*-verbs must be plural or mass, or, in other words, represent measurable part-of structures. Below I compare some verbs prefixed with *pere-* to the verbs with resultative prefixes. The verbs with resultative prefixes in (21-b) and (22-b) can be used with singular objects, whereas the verbs with *pere-* in (21-a) and (22-a) cannot:

- | | |
|--|---|
| (7) | (8) |
| a. *perelomatj igrušku
DIST-break^P.inf. toy.ACC.
'*break a toy (one after another)' | a. *perebitj tarelku
DIST-beat^P.inf. plate.ACC.
'*break a plate (one after another)' |
| b. sloimatj igrušku
Prf-break^P.inf. toy.ACC.
'break a toy' | b. razbitj tarelku
Prf-beat^P.inf. plate.ACC.
'break a plate' |

I also mentioned earlier that objects of *pere*-verbs carry existence presupposition, which results in their strong interpretation. In addition, according to the citation from Isačenko (1960) in (1), one of the main consequences of *pere*-prefixation is that the event expressed by a *pere*-verb affects *all* (or *many*) objects. This generalization is drawn from a vast set of relevant data, of which I give just a couple of examples below. In (9) the interpretation of direct objects of *pere*-verbs seems to contain implicit universal quantification:

- (9) a. Rebënok **perelomal** svoi igruški.
 child.NOM. DIST-broke^P.sg.ms. self's toys.ACC.
 'The child has broken **all** his toys'
- b. Xišnik **perebil** posudu, s'jel
 predator DIST-broke^P.sg.ms. kitchen-ware.ACC. Prf-ate^P.sg.ms.
 pripasy.
 stores.ACC.
 'The predator has broken **all** the plates, ate the stored food.'
- c. Ja toljko čto na kuxne porjadok navela,
 I just on kitchen.LOC. order made^P.sg.fem.
peregladila beljè i budu sejčas probovatj
 DIST-ironed^P.sg.fem linen.ACC. and will.1sg now try^I.inf
 novyj recept.
 new.sg.ms.ACC. recipe.ACC.
 'I have just cleaned the kitchen, ironed **all** the linen and now will try a new recipe.'

Universally quantified NPs must carry a wide scope in the clause, as in Beghelli and Stowell (1997). This is true of the objects of *pere*-verbs:

- (10) Tri xiščnika perebili tarelki.
 three predators.GEN. DIST-beat^P.pl. plates.ACC.
 'Three predators broke all the plates.'
 Possible: plates > predators, but *predators > plates

Considering the facts about *pere*- summarized below, this prefix seems to be a strong quantifier over NPs:

- *pere*- selects for verbs with plural or mass (part-of structure) objects
- the objects of *pere*-verbs always carry existence presupposition
- the objects of *pere*-verbs have wide scope in the clause

- (11) Hypothesis A

Pere- is a strong quantifier over NPs inducing distributivity of the whole VP.

5.2.2 Criticism of Hypothesis A

Unfortunately, the facts above do not constitute sufficient evidence in favor of Hypothesis A. In addition, there are two phenomena that work against this hypothesis: a) arguments of *pere*-verbs can co-occur with overt quantifiers; b) the influence of *pere*- is restricted to a certain syntactic position (for example, internal arguments).

Co-occurrence of *pere*-verbs with overt quantifiers immediately undermines the validity of the argument in favor of *pere*- as a quantifier over NPs (see the discussion of *na*- and overt quantifiers in Chapter 4):

- (12) a. Tak, nastrosjenije podnjalosj - **peremerila** *(vse) džinsy,
 so mood.NOM. rose.refl^P.sg.nt DIST-tried^P.sg.fem all jeans.ACC.
 *(vse) platja - soboj dovoljna.
 all dresses.ACC. self.INSTR. satisfied.ADJ.short.sg.fem
 ‘Now, my mood has improved - I’ve tried on all the jeans, all the dresses -
 very satisfied with myself.’
- b. Ja **pereprobovala** *(mnogo) sredstv
 I DIST-tried^P.sg.fem many means.GEN.
 ‘I have tried a lot of things.’
- c. Teatr byl našim domom, a v dome
 theater was^I.sg.ms our.INSTR. home.INSTR. and in house.LOC.
perebyval *(vesj) teatr.
 DIST-was^P.sg.ms whole theater.NOM.
 ‘The theater was our home, and the whole theater have visited our home.’

Moreover, the event represented by *pere*-verbs can be distributed just over the internal arguments of the verb. Quantificational power of *pere*- does not extend to the external arguments³:

- (13) a. *Vse amerikanskije turisty **pereigrali** v
 all american.pl.NOM. tourists.NOM. DIST-played^P.pl. in
 ruskuju ruletku.
 russian.fem.ACC. roulette.ACC.
 ‘All the American tourists played the Russian roulette (one after another).’
- b. *Vse moi druž’ja **peresmotreli** etot film.
 all my friends^P.pl. DIST-watched^P.pl. this.ms.ACC. movie.ACC.
 ‘All my friends have watched this movie (one after another).’

³The ungrammaticality star in the examples below refers only to the reading of *pere*- discussed here (distributive).

Notice also that the internal arguments here do not necessarily mean ‘direct objects’. Objects of prepositions and quirky objects also fall under the influence of *pere-*:

- (14) a. Ona **perejezdila** na vse_x modeljax Mercedes_a.
 she **DIST-rode**^P.sg.fem. on all.pl.LOC. models.LOC. M.GEN.
 ‘She rode all the Mercedes models.’
- b. Pereslušal vsju muzyku na svete i
 DIST-listened^P.sg.ms. all music.ACC. on world.LOC. and
perexodil na vse diskoteki.
DIST-walked^P.sg.ms. on all.pl.ACC. discos.ACC.
 ‘I have listened to all the music in the world and have been to all the discos.’
- c. Ona **perebyvala** u vse_x vračej.
 she **DIST-was**^P.sg.fem at all.GEN. doctors.GEN.
 ‘She has visited all the doctors.’

If *pere-* were the quantifier of the ‘each’ or ‘every’ type, I would have a very hard task explaining why it cannot combine with the external argument of the verb.

In addition, *pere-* does not attach to any verb, it selects for certain types of imperfective event, and as we know from the Chapter on *na-*, this testifies against combining a prefix with the object of the verb.

The conclusion at this point is that in spite of obligatory universal-like quantification and wide scope of the arguments of *pere-*verbs, the following factors speak against considering *pere-* a distributive quantifier over NPs:

- Co-occurrence of *pere-*verbs with overt quantifiers on their nominal arguments
- Restrictedness of quantification to the internal arguments of the verb
- Selectional properties of *pere-* with respect to the *event* type of the verb it attaches to

Considering the arguments against Hypothesis A, the predicament for *pere-* is:

- ♣ *Pere-* is not a distributive quantifier over NPs

Now I can try another theory of distributivity, the theory that places the D-operator directly into the verbal predicate. This can be a better solution in light of the event-orientedness of *pere-* similar to that of *na-*.

5.3 *Pere-* as a Distributive operator on V

Most authors (Link (1983), Schein (1993), Lasersohn (1995), Schwarzschild (1996), Winter (2000), Landman (2000), Brisson (2003), Kratzer (to appear)) apply the Distributive operator to the verbal predicate. In (15) the distributive predicate *Distr*(P) admits only atoms to its extension; thus the predicate *At* stands ‘for the property of being an atom in the model’. Given there is a union of x , if the distributive predicate P holds of x , *At* also holds of x , or, in simpler words, the members of the union of x are atoms:

$$(15) \quad \text{Distr}(P) \leftrightarrow \bigwedge x (P x \rightarrow \text{At } x) \text{ (Link (1983):309)}$$

I present the reasoning developed in Link (1983) in more detail below.

If a *pop star* a distributive predicate in the sense of (15), the inference from a) to b) in (16) is possible:

- (16) a. John, Paul, George, and Ringo are pop stars.
b. Paul is a pop star.

‘In this case the extension of $\ast P$ is closed under non-zero i-parts, so every atom of an i-sum which is $\ast P$ is itself $\ast P$, hence it is a P’⁴:

- (17) a. $\ast P(a \oplus b \oplus c \oplus d)$
b. *Distr*(P)
c. $\text{b} \Pi a \oplus b \oplus c \oplus d$
d. $\ast P b$
e. P b

The same result is yielded by the distributive predicate *die* expressed by Q in (18-b) (where P stands for *animal*, $\sigma x P x$, the sum of the P’s, is the supremum of all objects that are $\ast P$):

- (18) a. The animals died. So every animal died.
b. $\ast Q(\sigma x P x) \Rightarrow \bigwedge x (P x \rightarrow Q x)$

According to Schwarzschild (1996), the presence of the Distributive operator on the predicate is responsible for the distributive reading of its argument as opposed to the collective reading arising in the absence of D. When *John and Mary* in (19-a) is understood collectively, it means that *John and Mary* moved the car as a group; if there

⁴In Link (1983) i-sums are sums of individuals, consequently i-parts are proper parts of i-sums; \ast is an operation on one-place predicates P where the extension of $\ast P$ is ‘a complete join sub-semilattice’. Π in (17) stands for an i-part relation.

is distributive operator in the structure, *John* moved the car and *Mary* moved a car as separate individuals:

- (19) a. John and Mary moved the car.
 b. moved-the-car' COLL
 c. D(moved-the-car') DIST (Schwarzschild (1996):61)

Pere- demonstrates quite a few characteristics typical of the D-operator postulated in the literature.

5.3.1 Hypothesis B based on behavior of *pere-* with verbs

Pere- shows strong selectional preferences with respect to the event shape of the verb it combines with. For example, out of two groups of motion verbs, it attaches only to non-directed:

- (20) Za nedelju my **perejezdili/** *pereježali i
 for week.ACC. we **DIST-drove^P.ndir.pl.** across-drove^P.dir.pl. and
pereplavali/ *pereplyli na vsëm, čto
DIST-swam^P.ndir.pl. aross-swam^P.dir.pl. on everything.LOC. what
 dvižetsja.
 moves^I.refl.
 'In a week we drove and swam everything that can move.'
 (gorb.by.ru/files/2003_2.htm)

As I argued in Chapter 4 for *na-*, this is an indication that the prefix performs certain operations directly on the verbal predicate and its influence on the arguments of the verb is indirect.

Another argument in favor of *pere-* as the V-internal Distributive operator hinges on the discussion of Schwarzschild (1996) and his example in (19-a). Russian *pere-* verbs induce obligatory distributive interpretation of their arguments. This makes them different from both English ambiguous examples like (19-a), and Russian verbs with other prefixes. Compare some of the sentences from (12) repeated below to their non-distributive counterparts:

- (21) a. Rebënok **perelomal** (vse) svoi igruški,
 child.NOM. **DIST-broke^P.sg.ms.** (all) self's toys.ACC.
 *upav na nix s krovati.
 falling.CONV.past on them.ACC. off bed.GEN.
 'The child has broken all his toys (gradually), *having fallen on them from

- the bed.'
- b. Rebėnok **slomal** (vse) svoi igruški, upav
 child.NOM. **Prf-broke^P.sg.ms.** all self's toys.ACC. falling.CONV.past
 na nix s krovati.
 on them.ACC. off bed.GEN.
 'The child broke all his toys (simultaneously), having fallen on them from
 the bed.'
- (22) a. Xišnik **perebil** tarelki, *uroniv
 predator.NOM. **DIST-broke^P.sg.ms.** plates.ACC. dropping.CONV.past
 ix v dverjax.
 them.ACC. in doors.LOC.
 'The predator has broken the plates (one after another), *having dropped
 them while entering.'
- b. On **razbil** tarelki, uroniv ix v
 he **Prf-broke^P.sg.ms.** plates.ACC. dropping.CONV.past them.ACC. in
 dverjax.
 doors.LOC.
 'He broke the plates (simultaneously) having dropped them while enter-
 ing.'

The third argument is also familiar from Chapter 4 and refers to the syntactic constituency of the prefix and the verb: the Prf-V combination make a more natural unit than the Prf-N combination, since the prefix appears on the verb but not on the noun. In addition, in the previous section I showed that nominal arguments of *pere*-verbs can co-occur with overt quantifiers. The situation is, thus, fully reminiscent of what we observed with *na*-.

(23) Hypothesis B

Pere- is the Distributive operator on the verbal predicate

5.3.2 Criticism of Hypothesis B

The first objection against Hypothesis B is the same as I had against Hypothesis A, namely, restrictedness of distributive interpretation to certain syntactic positions. As the example in (19-a) demonstrates, the event expressed by the verb with the D-operator is distributable in English over the external argument. In fact, most English examples repeat this pattern, which makes one believe that the D-operator is actually always subject-oriented:

- (24) a. Three boys carried the piano upstairs. (Landman (2000):149)
 b. John and Mary are asleep.

Luckily, trying to save the situation for objects, Lasersohn (1998) postulates the existence of generalized distributive operators that can apply to any constituent at all, under the condition that this constituent is an expression of a conjoinable type, or, in other words, the constituent to which the D operator can apply. The distributive reading is then received by the argument with which this constituent combines first. In (25-a) the distributive operator will produce a distributive reading for the subject, in (25-b) for the direct object and in (25-c) for the object of the preposition:

- (25) a. The first-year students ^D[took an exam].
 b. John ^D[summarized] the articles.
 c. John learned ^D[about] the impressionists.

Adopting Lasersohn's views on the generalized Distributive operator could help me explain what happens when *pere-* distributes the event over the internal arguments of its host verb, but then the ban for distribution over the external arguments of *pere-*verbs is still a problem that requires a different solution than Lasersohn (1998).

The second objection, paradoxically, stems from the argument for event-orientedness of *pere-*. If *pere-* were the D-operator, it would not care for the shape of the event expressed by the verb before it attaches to it. The Distributive marker is supposed to change the type of any predicate into distributable. This is not the case with *pere-*. Let us take the verb with two stems, a single event stem and a pluractional stem, like *brositj* - *brosatj* 'throw':

- (26) a. *brosatj* *kamni*
 throw^I.inf. stones
 A. 'throw stones' (different stones for each subevent)
 B. 'throw stones' (the same set of stones for each subevent)
 b. *brositj* *kamni*
 throw^P.inf. stones
 'throw the stones (once)'

Given this choice, distributive *pere-* attaches to the imperfective stem *brosatj* and does not attach to the perfective stem *brositj*:

- (27) a. *perebrosatj* *kamni*
 DIST-throw^P.inf. stones.
 only 'throw stones distributively (different stones for each subevent)'

- b. perebrostitj kamni (čerez kryšu)
 across-throw^P.inf. stones.ACC. across roof.ACC.
 ‘throw the stones over the roof (once)’

This is surprising. If *pere-* is a D-operator, on its attachment *brostitj* ‘throw once’ should acquire a distributive reading. Yet, when *pere-* attaches to this form, it has a clearly spatial reading indicative of the low origin of the prefix. The interpretation of the object remains collective:

As one can see from the example in (26-a), the imperfective stem *brostatj* ‘throw repetitively’ is already distributive in a sense. Reading A implies that the object was spread across the subevents. At the same time, the verb in (26-a) can also induce a collective reading on its argument, as in B, where the same object participates in all the subevents. Recall that the analogous interpretational ambiguity in English made a number of researchers (Scha (1981), Lasersohn (1995), Schwarzschild (1996), Landman (2000) etc.) explain the distributive reading by the presence of the null D(istributive) operator in the predicate, whereas the collective reading is explained by its absence (cf. (19-a)):

- (28) John and Bill carried a piano upstairs.
 A. John and Bill ^Dcarried a piano separately.
 B. John and Bill carried a piano together (no D-operator)

If the same logic is applied to (26-a), the A reading with different stones for each subevent looks like the consequence of the presence of the null D-operator. Thus, *pere-* is not necessary for inducing distributivity. In addition, if *pere-* and the null D in *brostatj* ‘throw’ performed the same operation, they would be in complementary distribution, but they are not (27-a).

Thus, in spite of clear event-orientedness of *pere-*, the following factors are evidence against treating *pere-* as the D-operator:

- distributive interpretation induced by *pere-* is too restricted to certain arguments, whereas distributive interpretation induced by the generalized D-operator can arise on any argument that first combines with the predicate (Lasersohn (1998))
- the attachment of *pere-* does not make all predicates distributive (27-b)
- distributivity is available to the VPs without *pere-*, and *pere-* can co-occur with such distributive verbs (27-a)

Considering the objections against hypothesis B, the verdict for *pere-* seems to be:

- ♣ *Pere-* is not the Distributive operator on verbal predicates as described in the literature

However, *pere-* does contribute to the distributive reading of the object of its host verb. For example, in (27-a) when *pere-* attaches, the object retains only a distributive interpretation out of two readings available prior to prefixation. *Pere-* seems to divide the macroevent expressed by this verb into subevents carried out on a portion of the object. There is an alternative to the approach on which distributivity arises as a result of the presence of the generalized Distributive operator. Distributivity in this alternative theory is always object-oriented in transitive verbs, a welcome solution for *pere-*verbs.

5.4 Pluractionality

The term ‘pluractionality’ was coined by Paul Newman who has been working on Chadic languages. Now the term is widely used by the linguists studying African and North American languages, as the phenomenon of pluractionality abounds there.

As a semantic phenomenon, pluractionality or verbal plurality (Corbett (2000)) can be encountered in all the languages of the world. Sometimes, in case with semelfactives and achievements, pluractionality is expressed with the help of aspectual operators like in (29-a). At other times, it is coerced by applying frequency adverbials to the verbs standing for plural events (29-b):

- (29) a. John was kicking the door.
 ‘John kicked the door again and again.’
 b. Bill sang the anthem once in a while/ frequently/ every now and then.
 (Van Geenhoven (2005):118, 120)

In addition to adverbial and aspectual ways of encoding pluractionality, there are language-specific morphological ways. Cusic (1981) distinguishes between a) reduplication (30-a); b) affixation (30-b) and c) suppletion (30-c):

- (30) (Cusic (1981):73)
- a. Cuna: *pioke* ‘beat’
 pi-pioke ‘beat and beat’
 - b. Yuma: *a:dapk* ‘he makes an incision’
 a:-c-da:pk ‘he makes several incisions’
 - c. Klamath: *dewy* ‘fire a gun once’
 yo ‘shoot many times’

In the following subsections I am going to give a more detailed presentation of how morphological encoding of pluractionality works in the languages of the world.

5.4.1 Pluractionality in African and North-American languages

Below I demonstrate some Hausa pluractional verbs from Newman (2000) (unfortunately the author does not give glosses for the sentences, so I am doing it myself with the help of the online resource on <http://maguzawa.dyndns.ws/>). The reduplication of the stem in (31-a) signals pluractionality and is responsible for the additional meanings of the sentence, like *one by one* or *in and out*; the absence of reduplication in (31-b) reflects no pluractionality in the verb:

- (31) a. mutànē sun fīřfita
 men 3pl.past PA.go.out
 ‘The men went out (one by one or going in and out).’
 b. mutànē sun fita
 men 3pl.past go.out
 ‘The men went out.’

Pluractional verbs in Hausa do not just appear with plural arguments, as you can see in (32). The pluractionality of the verb in (32) is yielded by reduplication of the stem *mīke* ‘stretch out.’ This is evidence against considering pluractional marking on the verb as a reflection of agreement with the arguments:

- (32) Yanà mimmīke à kân gadō
 3sg.ms.cont. PA.stretch.out in upon bed
 ‘He is sprawled out all over the bed.’

Another piece of evidence for pluractionality being a special verbal number is given in Crevels (2006) (who quotes Comrie (1982) quoting Grimes (1964)). The verbs in (33) carry both subject and object agreement markers (= nominal number), and (in (33-b)) the marker of the verbal plurality, which is detectable from the stem alternation between its singular variant *-mie* (33-a) and plural *-qii* (33-b):

- (33) Huichol (Uto-Aztecan)
 a. Wan maria maa-ti me-neci-mieni.
 Juan María and-S 3pl-1sg-kill.sg.
 ‘Juan and María are killing me.’
 b. Nee wan maria maa-me ne-wa-qini,
 I Juan María and-NON.S. 1sg-3pl.-kill.pl

‘I am killing Juan and María.’

Notice that the pluractional stem in (33) is employed only when the object is plural. According to Crevels (2006), it is always the case with transitive verbs: the selection of a stem reflects the number of objects.

So far we observed two ways of forming pluractionality mentioned in Cusic (1981): by reduplication and by stem alternation (suppletion). Crevels (2006) claims these two operations turning singular event verbs into their pluractional counterparts prevail in the languages of the world that have pluractionality. In a number of languages (34) it is always the same morpheme that carries pluractionality, though in others, like Klamath, a language of Oregon, (Barker (1964)) different morphemes are used for different types of pluractionality. How pluractional morphemes and their meanings are classified depends on an author, and I am not going to discuss it here.

(34) Karok (a language of Northern California)

- a. *θivru·htih* ‘(one object) to be floating’
θivru hti·h-va ‘(several objects) to be floating’
- b. *pasnáp-iš(rih)* ‘to glue down (one)’
pasnapi šri·h-va ‘to glue down (several)’
- c. *taknah* ‘to hop’
takná·-va ‘to play hopscotch’
- d. *ví·k-paθ* ‘to weave around (once)’
vikpá·θ-va ‘to weave around and around’
(from Mithun (1988) citing Bright (1957))

5.4.2 Pluractionality in some other languages

Contrary to the popular view that pluractionality is a phenomenon characterizing only African and North-American languages, more and more facts have been appearing from other geographical areas. Corbett (2000):245 mentions the following families containing the phenomenon of pluractionality:

four major families of Africa... It is also found in certain Paleoasiatic languages..., various languages of the Caucasus..., in the South Central Dravidian group of languages of southern India..., in some Austronesian languages, for instance in Tokelauan..., and in Papuan languages.

To make the picture more rounded, I will give some examples from Chechen (a Nach-Dagestanian language of the Caucasus) cited in Yu (2003). Chechen employs stem alternations as a way of marking pluractionality on the verb:

- (35) *d.aat* ‘rip’ - *d.iet* ‘rip repeatedly’

The same pluralizing morphology on the verb can also yield a distributive reading, but only under one important condition: the verb’s arguments should be plural or mass. Like Crevels (2006), Yu (2003) considers the number of the absolutive argument to be crucial for distributivity to arise:

- (36) *ghoattu* ‘get out of bed’ - *ghyttu* ‘get out of bed (several subjects)’
(Yu (2003):295)

The third possible reading of the Chechen pluractional verbs is durative and such verbs are translated exactly like Russian delimitative verbs:

- (37) *ghurtu* ‘attempt’ - *ghiarta* ‘attempt for a while’
xowzhu ‘ache’ - *xiizha* ‘ache for a while’

Predictably, the interpretation of pluractional verbs with singular arguments is ambiguous between durative and habitual. One or the other reading obligatorily gets under the scope of negation in negative contexts, which indicates the low position of the pluractional operator:

- (38) as *takhana hara mashian ca khikhkira*
1sg.ERG. today this car.ABS. NEG drive.PA.WP
A. ‘I didn’t drive this car many times today’
B. ‘I didn’t drive this car for a long time today.’

Šluinskij (2005):206 cites Nedyalkov and Sverčkova 1989 on Evenk, a Manchu-Tungus language of Siberia, where *-de-* is a pluractional marker, glossed as PA below:

- | | | | | |
|------|----|---|----|---|
| (39) | a. | nuᅇan mikčan-ča-n.
he jump-past-3sg
‘He jumped (once).’ | b. | nuᅇan mikčan-de-ča-n.
he jump-PA-past-3sg
‘He jumped (up and down).’ |
| (40) | a. | nuᅇan ulle-ve
he meat-ACC.
lovan-če-n.
hang-past-3sg
‘He hang the meat.’ | b. | nuᅇan ulle-ve
he meat-ACC.
lovan-de-če-n.
hang-PA-past-3sg
‘He hang the pieces of meat
around.’ |

Examples of pluractional markers reflecting both the multiplicity of events and the multiplicity of participants can also be found in Nenets, a Samoyedic language of the Malaya Zemlya tundra and Yamal peninsula (here a Malaya Zemlya tundra dialect is used):

- (41) a. wan^ja ŋuda-mda latra.
 Vanja hand-ACC. jam.3sgS
 ‘Vanja jammed his hand (in the door?).’
 b. wan^ja xusuwej jal^ja ŋuda-mda ltr-or-na.
 Vanja every day hand-ACC. jam-FREQ-3sgS
 ‘Vanja jams his hand every day.’
- (42) a. wan^ja tiŋz^ja-m? paŋgal-ŋa.
 Vanja net-ACC..sg. plait-3sgS
 ‘Vanja made a net.’
 b. wan^ja tiŋz^ja-ʔmna paŋgal-or-ŋa.
 Vanja net-PROL.pl. plait-FREQ-3sgS
 ‘Vanja makes nets (professionally).’
 c. *wan^ja tiŋz^ja-m? paŋgal-or-ŋa.
 Vanja net-ACC.sg. plait-FREQ-3sgS
 ‘*Vanja makes a net.’

As you can see, the list of language families with pluractional morphology given in Corbett (2000) is definitely not exhaustive (see Crevels (2006) on Itonama, an isolate of lowland Amazonian Bolivia, or Šluinskij (2005) on a vast typology of many language families of the Caucasus, European Russian North, Siberia and the Far East). Pluractional verbs crosslinguistically display a lot of similar behavior. A stock of pluractional readings was taken by Cusic (1981), extensively cited in Lasersohn (1995). Cusic (1981) divides all the pluractional meanings into four parameters:

- the phase/ event occasion (or event ratio)
- the relative measure parameter
- the connectedness parameter
- the distributive parameter

The phase/ event occasion parameter is not relevant for the subsequent discussion, so I will not dwell on it here. The relative measure parameter includes, among others, such readings as *augmentative* reading (43), *cumulative* reading (44), *durative-continuative* reading (45), *duplicative* reading (46), *reversative* reading (47) and *discontinuative-dispersive* reading (48):

- (43) the amount of activity increases, and possibly also the amount of ‘substance’ implied as being acted upon
(Cusic (1981):85 and Lasersohn (1995):246)
- (44) repetition leading to a result
(Cusic (1981):86 and Lasersohn (1995):246)
- (45) repetition gives over to continuity and the increased quantity of action becomes an increase in the time it occupies
(Cusic (1981):87 and Lasersohn (1995):246; here the reading was exemplified in (37) and (38))
- (46) a single action is repeated once on the same or a different occasion
(Cusic (1981):89 and Lasersohn (1995):246)
- (47) this usually concerns the verbs of motion and indicates return by the original agent along a path to some point of origin
(Cusic (1981):91 and Lasersohn (1995):247; here the reading was exemplified in (31-a))
- (48) the action is repeated sporadically a small number of times, or is scattered in space
(Cusic (1981):92 and Lasersohn (1995):247; the example of this reading here can be in (32))

The connectedness parameter ‘fixes the degree of continuity between the repeated actions, or the relative prominence or importance ascribed to the bounds of the individual repetitions’ (Lasersohn (1995):247). The connectedness parameter overlaps with the relative measure parameter in, for instance, the durative-continuative reading, all the others being less *connected*.

The distributive parameter can have four possible values: *distributive in time*, *distributive in time and/or space*, *non-distributive*, and *collective*. Cusic (1981) does not list the number of participants as a separate distributive value, because, according to Lasersohn (1995), he conflates it with the distribution in space-and-time. Lasersohn (1995) himself does distinguish between distribution to times, locations and participants. As we have seen in this subsection ((33-b), (34-b), cf. Crevels (2006)), the participants whose number is relevant for the distributive reading of pluractional transitive verbs are always expressed as internal arguments of the verbs. This is one of the crucial pieces of information for the present purposes.

Lasersohn (1995) unifies the analysis for time-, space- and participant-distributive verbs by applying special functions to events: the temporal function τ , mapping the event on its run-time, the spatio-temporal function K , mapping the event on the locations

it covers, and the thematic function θ expressing the relation between the event and its subparts on the one hand and its participants, on the other. Thus, the pluractionality analysis is three-fold in Lasersohn (1995):251-253:

- (49) a. $V\text{-PA}(X) \leftrightarrow \forall e, e' \in X[V(e) \ \& \ \neg\tau(e) \ \circ\tau(e')] \ \& \ \mathbf{card}(X) \geq n$ TIME DISTRIBUTIVITY
 b. $V\text{-PA}(X) \leftrightarrow \forall e, e' \in X[V(e) \ \& \ \neg K(e) \ \circ K(e')] \ \& \ \mathbf{card}(X) \geq n$ (TIME OR) SPACE DISTRIBUTIVITY
 c. $V\text{-PA}(X) \leftrightarrow \forall e, e' \in X[V(e) \ \& \ \neg\theta(e) \ \circ\theta(e')] \ \& \ \mathbf{card}(X) \geq n$ PARTICIPANT DISTRIBUTIVITY

In (49), PA stands for the pluractional marker, $\neg\circ$ for the relation of non-overlap, $\mathbf{card}(X) \geq n$ for the cardinality of the events more than a certain number n . The non-overlap relation does not contradict the situation with continuous events, the subevents of which can be adjacent to each other, yet have no gaps in between. I have discussed this situation from different points of view (Rothstein (2004), Krifka (1998)) and I will return to it again.

Object distributivity is thus a subclass of pluractionality. Subject distributivity is not attested in pluractional environments (Crevels (2006), Yu (2003)). Could this be what is going on with *pere*-?

5.4.3 Pluractionality in Russian

Russian also contains some verb classes where pluractionality is encoded in the stem. These are:

- semelfactives (cf. Isačenko (1960), Šluinskij (2005))
- motion verbs
- verbs like ‘throw’: *brositj* - *brosatj*⁵

Just like ‘throw’ and motion verbs previously discussed in this work, Russian semelfactives have different verbalizing suffixes. Punctuality - or atomicity - of events is encoded in the suffix *-nu-*, whereas activity stems all have the familiar verbalizer *-aj*⁶.

⁵There are a few more verbs of this type whose aspectual characteristics change as a consequence of suffixation rather than prefixation: *vstrečatj* ‘meet^I’ - *vstretitj* ‘meet^P’, *poseščatj* ‘attend^I’ - *posetitj* ‘attend^P’, *rešatj* ‘solve^I’ - *rešitj* ‘solve^P’ etc. (examples from Isačenko (1960)).

⁶That it is *-aj*- and not, for example, *-a-* is seen from finite forms of the activity stem verbs:

- (i) *pryg-aj-u* ‘jump^I.1sg.pres.’

(50)

semelfactive stem	activity stem	translation
pryg- nu -tj	pryg- a -tj	'jump'
mig- nu --tj	mig- a -tj	'wink'
p- nu -tj	pin- a -tj	'kick'
max- nu -tj	max- a -tj	'flap, wave'
ki- nu -tj	kid- a -tj	'cast'

I suggest that *brosatj* 'throw' be treated as a pluractional verb as well, as opposed to its single event counterpart, in spite of a higher chance of a 'slow-motion' reading it can yield than, say, *migatj* 'wink repetively'. Such verbs as *brosatj* display the following pluractional behaviors, along the lines of Lasersohn (1995):

- iteration: a repetition of an event with a singular or plural individual as an object;
- closely connected with the previous behavior, time distributivity: compatibility with frequency adverbs, like *frequently* or *every now and then* (see Van Geenhoven (2005));
- participant distributivity: distributing the event over the members of the plurality constituting the object;
- space distributivity: distributing the event over different locations

In the table below I compare the single-event variant of 'throw' to its pluractional counterpart:

mig-aj-ut 'wink^I.3pl.pres.'
pin-aj-eš 'kick^I.2sg.pres.'
kid-aj-et 'cast^I.3sg.pres.'

(51)

Pluractional behavior	Sg. <i>brositj</i> 'throw ^P '	Pl. <i>brosatj</i> 'throw ^I '
iteration	✗	✓
frequency adverbs	*často brosil kamni often threw ^P .sg.ms. stones	často brosal kamni often threw ^I .sg.ms. stones
participant distribution	✗	✓
space distribution	*jexal na (mnogije) kurorty traveled ^I .dir. to many resorts	jezdil na (mnogije) kurorty traveled ^I .ndir. to many resorts

As was mentioned earlier, there is one more way to encode pluractionality, employed in languages like English and for verb classes in Russian that have no morphological distinction between singular and plural events expressed by the same unprefixated verbal root. This way involves adverbial modification of the verb. Van Geenhoven (2005) distinguishes between frequency adverbials (52-a) and cardinal temporal adverbials (52-b) in English, on the one hand, and frequency adverbials and adverbials of quantification (52-c), on the other. One way to distinguish frequency adverbials from the rest is to check whether they fall in the scope of 'for x time':

- (52) a. Mary discovered a flea on her dog **regularly/ every now and then** for a month.
 b. Mary discovered a flea on her dog ***twice/ several times** for a month.
 c. Mary discovered a flea on her dog ***always/ usually** for a month.

Cardinal temporal adverbials operate on bounded events and yield clear cardinal readings of the event (53-b):

- (53) a. John sang the anthem once in a while/ frequently/ every now and then.
 b. John sang the anthem twice/ several times/ many times.

The adverbs of quantification '*always, usually*' are proportional quantifiers that trigger a tripartite structure. Frequency adverbs are the adverbial counterparts of nonquantificational expressions that express vague cardinality in the nominal domain.'

This is only natural that frequency adverbials are compatible with verbs carrying the pluractional marker:

- (54) As **kestkesta** hara jish **liiqira**
 1sg.ERG. **often** this song **sing.PA.WP**
 ‘I sang this song often.’ (Chechen, from Yu (2003):298)

I will consider this compatibility with frequency adverbials one of the tests for pluractionality. In the light of what was said above on the existence of pluractional marking in Russian and on adverbial modification of pluractional events, the opinion that some Slavic prefixes are pluractional markers is not correct. Such an opinion was first voiced in Filip and Carlson (2001) with respect to the distributive prefix *po-* in Czech. They say (p.426):

The distributive prefix *po-* manifests all the hallmarks of ‘pluractional markers’. ...Such morphemes are common in Slavic languages...

It is true that the sentences with *po-*verbs have a distributive reading:

- (55) a. Děti se schovaly.
 children refl. hid^P.3pl.
 ‘The children hid.’ (collective-distributive)
 b. Děti se **PO**-schovaly.
 children refl. DIST-hid^P.3pl.
 ‘The children hid.’ (distributive)
 (Filip and Carlson (2001))

However, the prefixed forms discussed in Filip and Carlson (2001) fail to demonstrate two important characteristics of pluractional predicates: iteration, which makes it possible for the predicate to combine with a singular object, and time distribution, which makes it possible for the predicate to combine with frequency adverbials:

- (56) a. *Děti často se pochovaly.
 children often refl. DIST-hid^P.3pl.
 ‘The children often hid.’
 b. *Děcko se pochovalo.
 child self.refl. DIST-hid^P.3sg.nt
 ‘The child hid.’

I will argue, contra Filip and Carlson (2001), that *pere-* is not a pluractional marker. However, the important thing for the distribution of *pere-* is that it selects for pluractional stems.

5.5 Analysis

I will follow Landman (2000) in treating groups as atoms as opposed to sets of individuals. From Link (1983) and Kratzer (to appear) I will adopt pluralizing operator \times .

I will assume that *brositj kamenj* ‘throw^P a stone’ is a predicate such as $P \in \text{ATOM}$, like a, b or c in Figure 5.1⁷:

- (57) a. *brositj kamenj*
 throw^P.inf. stone.ACC.
 ‘throw a stone (once)’
- b. *brositj kamni*
 throw^P.inf. stones.ACC.
 ‘throw the stones (once)’

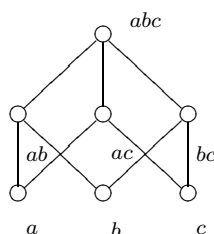


Figure 5.1: A semi-lattice representation of atomic entities

Brositj ‘throw^P’ can only be a predicate with a singular denotation. As can be seen from (57-b), the object ‘stones’ in *brositj kamni* ‘throw^P stones.ACC.’ can only get a group interpretation, which is atomic according to Landman (2000). Thus, the VP above represents a single event of throwing several stones simultaneously.

The situation changes when the verb is not perfective. *Brosatj kamenj* ‘throw^I a stone’ refers to an iterative throwing of the same stone and is a representation of a sum of atoms. Thus, ‘throw a stone’ is a predicate such that $P \in \times \text{ATOM}$, with the supremum excluded; in other words, *brosatj kamenj* ‘throw^I a stone repetitively’ = \times *brositj kamenj* ‘throw^P a stone once.’ The compatibility of *brosatj* with a singular object justifies its treatment as a pluractional verb rather than a verb with the Distributive operator applied to it.

However, unlike in Russian, in English even a singular nominal can participate in a distributive situation, representing a different object for each subevent (reading ii of (58)). Van Geenhoven (2005) distinguishes the object interpretation depending on the

⁷According to Rothstein (2004), telic events are atomic, and according to Landman (2000):156 ‘plural predicates by their nature take sums in their extension, singular predicates, by their nature only take atoms in their extension.’

level of application of the pluractional operator (cf. Kratzer (to appear)). If \times is applied at the level of V, the object is interpreted as ‘non-spread’ over time, i.e. the same throughout the event. If \times is applied at the level of VP, there can be two readings of the object: either ‘non-spreadable’, or ‘a different object’ reading:

- (58) John hit a golf ball into the lake every five minutes for an hour.
 i. ‘There is a golf ball such that for an hour John hit it into the lake every five minutes.’
 ii. ‘For an hour, John hit every five minutes a different golf ball into the lake.’
 (Van Geenhoven (2005):119)

To get the reading on which a singular or group plural object is interpreted as a different one for every subevent in Russian, one would have to appeal to the distributive preposition *po*:

- (59) Lancelot každyj denj ubivajet ?drakona/ po drakonu.
 L. every day kills^I dragon.ACC./ po dragon.DAT.
 ‘Lancelot kills a dragon every day.’ (Šluinskij (2005):209)

The noun without *po* in (59) is acceptable on the following scenario: ‘Lancelot kills the dragon every day, but at night the dragon returns to life again’ (from Šluinskij (2005)). As the distributive preposition *po*- serves for partitioning of a plurality of objects into singularities dependent on the plurality of the verb, its presence must reflect the same phenomenon as does the presence of a plural or mass internal argument of a pluractional verb, namely, the application of \times at the level of VP. The effect of iteration - throwing the same (set of) stone(s) or killing the same dragon throughout the pluractional event - is the outcome of direct pluralization of the predicate. Two similar situations are described in Kratzer (to appear): in (60-a) pluralization operator \times applies only to the verb, the argument of the verb remaining outside its scope, in (60-b) the pluralization operator applies to the whole phrase:

- (60) a. $\lambda e \exists x [\text{ball}(x) \ \& \ \times \text{bounce}(x)(e)]$ - one ball, many bouncing events
 b. $\times \lambda e \exists x [\text{ball}(x) \ \& \ \times \text{bounce}(x)(e)]$ - many balls, many bouncing events
 (Kratzer (to appear):20)

To summarize,

- Pluractional events are discontinuous in Russian, judging by the effect of iteration they produce. Lasersohn (1995) describes such events by the following formula, where V-PA is a pluractional verbal predicate, X is a macroevent, \circ is the relation of overlap, $\tau(e)$ is the temporal trace function of events, **card**(X) is the cardinality

of the predicate:

$$(61) \quad \text{V-PA}(X) \Leftrightarrow \forall e, e' \in X[\text{V}(e) \ \& \ \neg\tau(e) \circ\tau(e') \ \& \ \exists t[\mathbf{between}(t, \tau(e), \tau(e'))] \\ \& \ \neg\exists e''[\text{V}(e'') \ \& \ t = \tau(e'')]] \ \& \ \mathbf{card}(X) \geq n$$

- The verb with the pluractional marker expressed morphologically in Russian, always stands for a plural event irrespective of the plurality of its arguments
- When the star operator applies at the level of VP, the internal argument of the verb is also affected by it, and the plural event gets distributed over the plural or mass NP
- The \ast cannot appear higher than VP (cf. (38))

Thus, VP-internal distributivity arises as a consequence of applying the \ast operator contained in the pluractional (PA) marker at the level of VP. *Pere-* obligatorily selects for pluralized VPs. In the following subsections I will tell why and how it happens.

5.5.1 The interaction between \ast -operator and the VP-internal arguments

The argument of the pluractional operator \ast depends on the constituent it applies to. When the constituent is V, the only argument available for \ast is e , when \ast applies at the level of VP, it is not just e that gets under its scope; the VP-internal DP argument is also affected by the operator. Assume, we have a homomorphic relation between the event and the object in the pluractional VP. However, this cannot be a one-to-one map: it does not involve a singular participant per singular subevent. The picture is even more problematic with mass noun objects. We know, though, that both bare plural and mass terms are part-of structures, so subevents can be mapped onto partitions. Schwarzschild (1996):63 cites the words by Katz (1977:127):

The units of attribution can be individuals, pairs, triplets, and so on, up to the entire membership of the set $\text{DES}(t_i)$ [roughly, the denotation of the relevant argument of the attributed predicate]. The frequently discussed notions of the *distributive* and *collective* features of quantifiers represent two extremes of this range of possible units.

Basing his analysis on similar ideas inspired by a number of other researchers (Higginbotham (1981), Langendoen (1978), Gillon (1987)), Schwarzschild (1996) comes up with the notion of *cover*. Cover defines the way a part-of structure is partitioned:

- (62) C covers A if:
1. C is a set of subsets of A
 2. Every member of A belongs to some set in C
 3. \emptyset is not in C (p.69)

Schwarzschild (1996) incorporates Cov, a free variable over sets, into the denotation of the Distributive operator and specifies that ‘the value of Cov is determined by the linguistic and non-linguistic context’ (p.70):

- (63) $x \in \parallel D(\text{Cov})(\alpha) \parallel$ iff $\forall y[(y \in \parallel \text{Cov} \parallel \wedge y \subseteq x) \rightarrow y \in \parallel \alpha \parallel]$

A couple of notes are due here. As is pointed out in Brisson (1998), Brisson (2003) covers can be ‘ill-fitting’ and ‘good-fitting’. Brisson (1998):82 claims that ‘the values assigned to Cov are covers of the universe of discourse, not just the DP denotation.

- (64) The boys are hungry.

- (65) $\forall x[x \in \parallel \text{Cov}_i \parallel \ \& \ x \subseteq \parallel \text{the boys} \parallel \rightarrow x \in \parallel \text{hungry} \parallel]$
 $U = \{a, b, c, s, t, \{a, b\}, \{a, c\}, \{a, s\}, \{a, t\}, \{a, s, t\}, \dots\}$
 $\parallel \text{the boys}' \parallel = \{a, b, c\}$
 $I = \{\{a\}, \{b\}, \{c\}, \{s, t\}\}$
 $J = \{a\}, \{c\}, \{b, s, t\}$
 $K = \{\{a, b, c\}, \{s, t\}\}$
 $L = \{\{a, b\}, \{c, s, t\}\}$

If the context assigns I to Cov_i , the sentence is interpreted distributively; if it assigns K, where the boys occupy a single cell, the sentence has a collective interpretation. In the cover J ‘Bill does not occupy a singleton cell: he is in a cell with the two non-boys, Sue and Tina.’ Brisson (1998) calls J an ill-fitting cover for Cov_i , because ‘there is no set of cells whose union is equivalent to the set of boys.’ In the opposite situation, that is, something like I we have a ‘good-fitting cover’, or, according to Schwarzschild (1996), the set containing all the subsets of the set in question is a cover of itself. Thus, covers perform a double function: a) they partition the set in question in a particular way; b) they, literally, cover a part or the whole of the set in question. Objecting to Lasersohn’s objection against covers, Schwarzschild (1996) argues that we cannot interpret *John and Mary went to school* as true even if Mary stayed home. The reason is that ‘pathological values for domain of quantification variables should be ruled out pragmatically’ (p.77). For the story developed below a cover set will be considered as having a ‘pathological’ value when it contains two or less members of the set or when it is trivial, that is, when it puts all the members of the set into one cell.

Following Schwarzschild (1996), suppose that A is a set or a part-of structure representing the \ast VP-internal DP argument. Schematically described in lattice-theoretical terms, such a structure has neither bottom nor top element since the star operator does not carry definite cardinality and we deal with an indefinite argument of an imperfective verb:

(66)

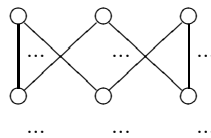


Figure 5.2: The lattice describing the \ast VP-internal DP argument, part-of structure A

As claimed above, the pluractional event can be represented by the structure A' homomorphic to A . Remember that pluractional events contain internal atoms:

(67)

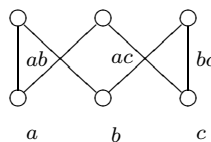


Figure 5.3: The lattice describing the pluractional event, set of atoms A'

To define the relation between atoms in A' and partitions or sets of subsets in A we need cover Cov partitioning A into ‘lumps’. As our Cov is operative simultaneously in A and A' , it is reminiscent of the ‘paired-cover’, discussed in Schwarzschild (1996):84.

- (68) T is a **paired-cover** of $\langle A, B \rangle$ iff:
 there is a cover of A , $C(A)$, and there is a cover of B , $C(B)$, such that:
- i. T is a subset of $C(A) \times C(B)$.
 - ii. $\forall x \in C(A) \exists y \in C(B): \langle x, y \rangle \in T$
 - iii. $\forall y \in C(B) \exists x \in C(A): \langle x, y \rangle \in T$

If T is a paired-cover of $\langle A, A \rangle$
 then T is a paired-cover of A

As Schwarzschild's example on p. 86 demonstrates, it is not a necessary requirement of the paired-cover that the set A is partitioned exactly in the same way as the set B. Notice that 'the domain is partitioned into pairs of adjacent entries' and some of the pairs have non-singleton sets as members:

(69) The fiction books in the chart complement the non-fiction books.

Fiction	Non-fiction
Alice in Wonderland	Aspects; Language (Bloomfield)
Fantastic Voyage	Gray's Anatomy
David Copperfield, Hard Times	Das Kapital The Wealth of Nations
Oedipus Rex, Agamemnon	Freud's Intro to Psychology
Richard III	Machiavelli's The Prince

This is a welcome analogy for describing the relation between subevents and subsets of pluralities or part-of structures in the DP domain.

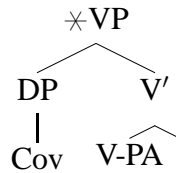
Suppose the \times operator takes the cover set Cov containing internal objects from the set A'. Without definite quantification we have no information as how much of the set or the part-of structure is covered by Cov; however, Cov partitions the nominal domain into 'chunks' mappable onto atomic subevents from the verbal domain. Thus, we get the homomorphic pair $\langle A, A' \rangle$. Due to this homomorphism between the nominal domain A' and the domain of events A, we can build a bi-conditional into the denotation of \times . By using the bi-conditional, I capture the intuition of 'paired cover' from Schwarzschild (1996):

(70) $\llbracket \times \rrbracket = \lambda P \lambda e [\times P(\text{Cov})(e) \ \& \ \forall x [x \in \llbracket \text{Cov} \rrbracket \rightarrow \exists e' [P(e') \ \& \ \text{Rel}(e', x)]] \ \& \ \forall e' [P(e') \rightarrow \exists x [x \in \llbracket \text{Cov} \rrbracket \ \& \ \text{Rel}(e', x)]]]$

The bi-conditional reflects obligatory cross-mappability of the event and the object, thus any quantification will also go both ways. Predicate P in (70) and (71-a) stands for the pluractional VP, thus we get the following semantic and syntactic picture (V-PA in (71-b)

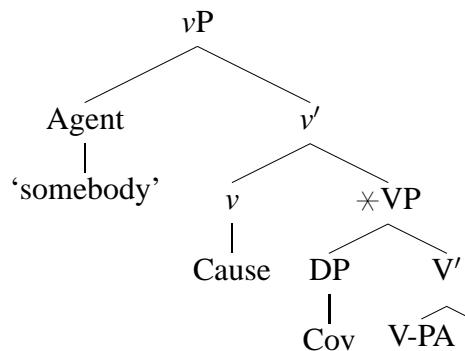
is a verb with a pluractional marker):

- (71) a. $\llbracket * \rrbracket (\llbracket VP \rrbracket) = \lambda e[\ast VP'(Cov)(e) \ \& \ \forall x[x \in \llbracket Cov \rrbracket \rightarrow \exists e' [VP'(e') \ \& \ Rel(e', x)]] \ \& \ \forall e'[VP'(e') \rightarrow \exists x [x \in \llbracket Cov \rrbracket \ \& \ Rel(e', x)]]]$
 b.



As was mentioned above, pluractionality is a strictly VP-internal phenomenon. Thus, the next step in syntactic derivation, namely, adding the little *v* projection, does not interfere with the pluractional reading of the VP. Instead, it introduces the causing subevent *e'* and the external argument ‘somebody’ into the structure of the verb, which before this step contains the V (*proc*) subevent *e''*. The relationship between the pluractional event and the cover set constituted by the internal argument remains unchanged:

- (72) a. $\lambda P \lambda e \exists e' \exists e'' [P(e'') \ \& \ Cause(e', e'') \ \& \ e = \langle e', e'' \rangle \ \& \ Agent(e', \text{‘somebody’}) \ \& \ \ast VP'(Cov)(e'') \ \& \ \forall x[x \in \llbracket Cov \rrbracket \rightarrow \exists e''' [VP'(e''') \ \& \ Rel(e''', x)]] \ \& \ \forall e''' [VP'(e''') \rightarrow \exists x [x \in \llbracket Cov \rrbracket \ \& \ Rel(e''', x)]]]$
 b.



As we know, *pere-*, like other superlexical prefixes, attaches above *vP*. However, *pere-* does interact with the pluractional event. After the attachment of *pere-* we get the quantificational power we lacked before and, thus, Cov can be interpreted as a definite quantity.

5.5.2 *Pere-* as the measure function over pluractional events

‘Distributive’ *pere-* can be defined as a partial function that applies only to pluractional VPs. At this point we know that pluractional VPs are such that they contain a) a pluractional verb and b) a plural or mass internal argument; and the relation between the verb and the argument is determined by the (paired-)cover. *Pere-* as a measure prefix binds off the part-of structure of a plural event. Unlike *na-*, *pere-* creates the top element of the \mathcal{E} -semilattice. In a way, *pere-* is comparable to ‘all’ in the nominal domain:

(73)

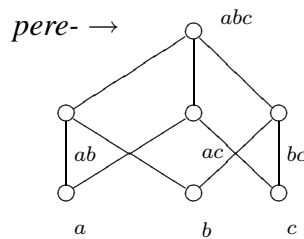


Figure 5.4: ‘Packaging’ the lattice with *pere-*

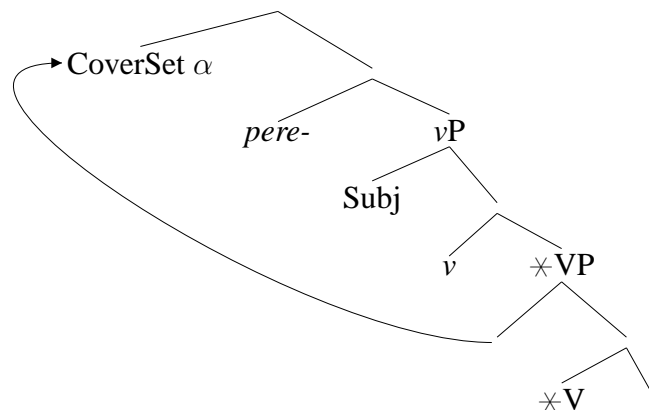
What happens to the relation between the pluractional event and its internal argument after the attachment of *pere-*? *Cov* receives a definite interpretation. The prefix takes the pluractional event as its argument. The cover set is the restrictor of *pere-*. As *pere-* introduces the supremum of the lattice, *Cov* covers all the members of the \mathcal{O} -lattice. \mathcal{O} -lattice is homomorphic to \mathcal{E} -lattice, irrespective of the way the lattice of the nominal domain is partitioned. Thus, *Cov* gets its denotation in two steps: first, \times partitions the internal argument DP depending on the context and sets the relation between the event and the argument; second, *pere-* measures the pluractional event by giving *Cov* a definite upper bound. The denotation of *pere-* informally is:

(74) $\llbracket \textit{pere-} \rrbracket = \lambda R \lambda e [R(e)]$,
 where *pere-* is a partial function applying to verbal predicates with nominal covers, such that *Cov*(e), and $\llbracket \textit{Cov} \rrbracket$ denotes a lattice with the top element.

Adopting the tripartite quantificational structure from Heim (1982)-Diesing (1992), the restrictor of the quantifier (*pere-* in our case) is the Specifier of this quantifier. The restrictor only operates on pluractional events that have a cover set. This cover set containing the plural or mass participant of the distributive event obligatorily moves to the measure position above *pere-* with an empty or overt quantifier. Because of the

mutual mapping between the event parts and object parts that \ast yields, the cover set α also measures the event:

(75)



Distributivity in *pere*-verbs arises due to two operators: the star operator \ast and the measure prefix *pere*-.

The star operator makes sure that

- the verb represents a plural event decomposable into subevents
- the subevents within the plural macroevent are discontinuous and isolatable
- with the right shape of an argument (plural or mass) and due to the presence of Cov variable, the participant is partitioned in such a way that participant distributivity emerges
- distribution participant is just the internal argument (since \ast attaches low)

'Distributive' *pere*- makes sure that

- a pluractional event is selected as its argument
- all the individuals participating in the distributive event have been affected (by assigning a definite value to Cov)

Both together contain characteristics ascribable to the distributive operator. Thus, it looks like in the case of *pere*-verbs the distributive operator is decomposable into a lower part (\ast) and a higher part (*pere*-).

5.5.3 Predictions

Pere- with overt quantifiers

Remember that the fact that *pere-* can co-occur with overt quantifiers helped me argue against treating it as a distributive quantifier on NPs. As I have established now (cf. subsection 5.5.1), the universal quantification reading does not come directly from *pere-* but is a default reading the event bound at the supremum yields to the set of participants of the event. The participants of the event constitute the measure scale of this event. When all of them are used up, all the subevents within the macroevent have been exhausted as well. The event, thus, has the cardinality represented by its participants.

In this respect, the compatibility of *pere-* with overt quantifiers is not surprising: then the assignment of Cov does not necessarily reflect a lattice with the supremum; it has a different, but still concrete denotation. With *nearly all* Cov covers sets of sets and individuals bound at the level lower than the supremum (76-a), with *half* it has a value that equals 50 percent of the set members (76-b), with *most* it is a value that is greater than 50 percent of the set members (76-c) etc. Simultaneously, as we know, *pere-* does not care what argument appears to fall under its quantification, whether it is a direct argument of the verb (76-b), a quirky argument (76-a) or event the adjunct modifying the quirky argument (76-d):

- (76) a. S tex por on **perebyval** uže čutj li ne
 from those.GEN. times.GEN. it **pere-was^P.sg.ms.** already just PRT not
 vsemi modifikacijami DVR-111.
 all.INSTR. modifications.INSTR. DVR-111.GEN.
 ‘Since then it has turned into nearly all the modifications of DVR-111.’
 (<http://forum.ixbt.com/topic.cgi?id=31:23091-10>)
- b. Krys **pereproboval** polovinu salatov.
 rat.NOM. **pere-tried^P.sg.ms.** half.ACC. salads.GEN.
 ‘The rat has tasted half of the salads.’
 (<http://zhurnal.lib.ru/d/demonstudent/animals.shtml>)
- c. Ja **perečital** boljšuju častj našej
 I **pere-read^P.sg.ms.** biggest.fem.sg.ACC. part.ACC. our.sg.fem.GEN.
 domašnej biblioteki.
 home.ADJ.GEN. library.GEN.
 ‘I have read most books in our home library.’
 (www.is.svitonline.com/alweb/al_2.htm)
- d. Ja uže **perebyval** agentom praktičeski vsex
 I.NOM. already **pere-was^P.sg.ms.** agent.INSTR. practically all.pl.GEN.

razvedok mira.
 intelligences.GEN. world.GEN.
 ‘I have already been an agent of almost all the world secret services.’
 (www.dnepr.info/~spetskor/art_045.php)

‘Excess’ *pere-*

If *pere-* is similar to *na-* in its event-measuring capacity, an interesting prediction can be made about *pere-* attaching to non-pluractional verbs or verbs expressing cumulative events. Uniform treatment of ‘distributive’ *pere-* attaching to pluractional verbs and ‘excess’ *pere-* attaching to verbs standing for continuous events implies that we are dealing with the same prefix in different syntactic and semantic environments. The discussion of *pere-* offered here can serve as a starting point in the analysis unifying most superlexical prefixes under the term ‘measure functions’. I leave this general idea for further discussion. Now let us have a closer look at the ‘excess’ *pere-*.

As we know from the chapter on *na-*, the measure of cumulative events can be represented in a certain amount of degrees (range Δ) along the available scale or with respect to a certain degree δ on this scale. Consider the following examples:

- (77) a. Vsě prosto, **pereprygal**, **perelazil**, a
 all simple **over-jumped**^P.act.sg.ms. **over-climbed**^P.ndir.sg.ms. and
 na utro nogi otkazyvajut.
 on morning.ACC. legs.NOM. refuse^I.pres.pl.
 ‘Everything is simple; jumped too much, climbed too much, and the next
 morning your legs don’t work.’
 (www.parkour-lv.be/parkour/posting.php?mode=quote&p=326
 &sid=9dd52955a81cfc35e145879556952dce)
- b. Džejms **perebrosal** Arenasa i prinës pobedu
 D. **pere-threw**^P.sg.ms. A.ACC. and brought^P.sg.ms. victory.ACC.
 “Klivlendu”.
 K.DAT.
 ‘James outdid Arenas (in a basketball match) and led “Cleveland” to vic-
 tory.’
 http://www.rambler.ru/db/sport/msg.html?mid=7798326&s=210
- c. Po-mojemu, ty **peresmotrel** **filjmov** s boljšim
 along-mine you **pere-watched**^P.sg.ms. **movies**.GEN. with big
 količestvom nasilija.
 quantity.INSTR. violence.GEN.
 ‘In my opinion, you have seen too many films with high degree of vio-

lence.’

(<http://crash-zone.net/2005/07/19/13/feed/>)

As you can see from (77), the ‘excess’ reading of *pere-* is connected with degree-verbs, since it expresses the situation of crossing a contextually set boundary, after which the event is perceived as excessive. The scale this reading operates on is contextually variable. Thus, the interpretation of *Ja pererabotala* ‘I worked too much’ can be either temporal (‘overtime’) or intensity-connected (‘worked too much and now I am tired’). In (77-b) the degree δ is set more distinctly by the amount of casts made by Arenas, and everything beyond this degree is in a way an ‘excess.’ Thus, the prediction above is borne out and the ‘excess’ *pere-* can be considered a degree modifier (see Chapter 4 and the discussion of degrees and ranges based on Schwarzschild (2006)). It is different from the ‘distributive’ *pere-* in that it does not operate on discontinuous events. All it selects for is a degree argument on a scale provided by the event. Interestingly, as it was with *na-*, the excess *pere-* requires that a transitive verb have a plural or a mass object ((77-c), (78)). Even more interestingly, after the prefixation the objects of excess *pere-*verbs are assigned genitive case, like it was with the objects of *na-*verbs:

- (78) On **perejel** **mjasa.**
 he **pere-ate^P.sg.ms. meat.GEN.**
 ‘He ate too much meat.’

As the excess *pere-* operates on the same argument as *na-*, δ , (with the only difference that *na-* applies to sets of δ , constituting a range Δ), the Incremental Theme occupies the same syntactic position in the structure with the same case assigned to it as a consequence.

The ‘excess’ *pere-* is comparable to the adverbs of quantification discussed in Van Geenhoven (2005) as separate from frequency adverbs, operating on pluractional predicates. Thus, both instantiations of *pere-* are measure functions, but the distributive version operates on discontinuous events, whereas the ‘excess’ variant binds continuous events. Hence the difference in the relationship between the two types of *pere-*predicate with their internal argument.

5.6 Conclusion

In this chapter I continued the discussion of the second type of perfective verbs. It demonstrated that ‘packaging’ of a part-of structure event by superlexicals can vary depending on a prefix. At the same time, it demonstrates certain regularities detectable from the behavior of *na-* and *pere-*.

For example, like *na-*, *pere-* creates an impression of being tightly connected with the object of its host verb via nearly obligatory universal quantification on the argument. This impression, again, has been shown to be a result of measuring the event itself. The tight connection between the event and its argument arises due to the presence of the (paired-)cover.

Unlike *na-*, *pere-* operates only on the participant scale and requires discontinuous events.

The term ‘distributive’ as referring to the prefix is not very accurate, as *pere-* carries only part of the properties of the Distributive operator. In this chapter I showed that a distributive reading can arise without attachment of *pere-*, if the shape of the event predicate and its argument is right and consists of proper parts. In addition, the argument in question is always internal, which is also unexpected with Generalized D. I showed that distributivity operative on just internal arguments stems from applying the plural operator \times at the VP level. \times VP is headed by a pluractional verb and contains a plural or mass object. This is the type of VP that *pere-* attaches to.

Being a measure function *pere-* measures the event expressed by a pluractional verb with the help of the argument of V. Rather than having an ‘in-built’ universal quantifier, *pere-* serves as a quantifier ‘packaging’ the ε -lattice at the supremum with the help of the participants of the event. All the participants of the event do not usually include all the individuals of the domain of individuals, but constitute a coverset defined either by *pere-* alone or also by overt quantifiers modifying *pere-*verbs. The subevents are ‘counted’ through distribution over all the event participants, unevenly divided into portions with the help of the contextual Cov variable.

Interestingly, there is another *pere-* conveying the meaning of excess. That one operates on the continuous event scale and if it makes use of the object for measuring the event, the object behaves as with *na-*: it occupies the Rhematic XP position and gets assigned genitive case.

There are several more superlexical prefixes, some of which are also claimed to be measure functions. The way they ‘package’ the event might be different from that of *na-* and *pere-* and its exact implications need further investigation. However, by prediction, their behavior should comply with certain regularities discovered through the study of *na-* and *pere-*. First, they should measure the event itself, whatever an impression its objects can produce. Second, the object used in measuring the event can be only of two types: either an individual argument distributed share (like with *pere-*), or a scalar property containing no individual type variable (like with *na-* and ‘excess’ *pere-*).

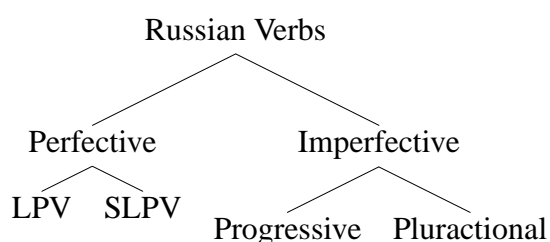
Chapter 6

Conclusion

6.1 Introduction

As was stated in Chapter 1 and demonstrated throughout the dissertation, Russian verbs come in two big varieties: perfective and imperfective. Perfective and imperfective verbs are not internally uniform. We have observed the picture outlined in (1), where perfective verbs were subdivided into lexically-prefixed perfective verbs (LPV) and superlexically-prefixed perfective verbs (SLPV); and two major readings of imperfectives were singled out: progressive and pluractional.

(1)



This thesis has also demonstrated that neither the big classes themselves nor the subclasses constituting them bear clear morphological distinctions. Perfective verbs can be prefixed (2-a) and unprefixed ((2-b)), which makes it impossible to distinguish perfectives from imperfectives on this characteristic alone. Within the class of perfectives, lexically prefixed and superlexically prefixed verbs can look exactly the same (3), which makes it impossible to distinguish one subclass from the other just by their appearance. Below I repeat some of the examples from Chapter 1 ((1) as (2-a) and (3) as (2-b)):

- (2) a. za-pisatj, pro-čitaj, po-sidetj, vy-učitj
 in-write^P.inf Prf-read^P.inf DEL-sit^P.inf out-learn^P.inf
 ‘write down, read completely, sit for a while, learn (by heart)’
 b. brositj, datj, kupitj. rešitj
 throw^P.inf give^P.inf buy^P.inf solve^P
 ‘throw, give, buy, solve’
- (3) a. Timur **zabil** gvozdj v stenu.
 T.NOM. **in-beat^P.sg.ms.** nail.ACC. in wall.ACC.
 ‘Timur hammered a nail into the wall.’
 b. Časy **zabili**, i Timur upal ot
 clock.NOM. **INCEP-beat^P.pl.** and T.NOM. fell^P.sg.ms. from
 neožidannosti.
 unexpectedness.GEN.
 ‘The clock began striking, and Timur started and fell.’

Imperfective verbs can also be prefixed (4-a) and unprefixed (4-b). It means, as was said above, that prefixation cannot underlie the distinction between the two verb classes in Russian. Most imperfectives can display progressive or pluractional characteristics depending on a situation (5).

- (4) a. zapisyvatj, perečityvatj, vysiživatj
 in-write^I.inf re-read^I.inf out-sit^I
 ‘write down, re-read, hatch’
 b. pisatj, čitatj, sidetj, učitj
 write^I.inf read^I.inf sit^I.inf learn^I.inf
 ‘write, read, sit, learn’
- (5) a. Kogda ja vošla, on **otkryval** okno.
 when I in-walked^P.sg.fem. he **apart-covered^I.sg.ms.** window.ACC.
 ‘When I entered, he was opening the window.’
 b. Každoje utro on **otkryval** okno.
 every morning.ACC. he **apart-covered^I.sg.ms.** window.ACC.
 ‘Every morning he opened the window.’

Thus, lexically prefixed and superlexically prefixed perfectives, on the one hand, and progressive and pluractional readings of imperfectives, on the other, can be separated only with the help of their distributional patterns. However, there is one group of imperfective verbs that expresses the distinction between progressive and pluractional instantiations morphologically. This group is motion verbs: directed motion imperfectives yield a progressive reading, non-directed motion imperfectives yield a pluractional

reading. Perfectives within this group are split into subclasses equally clearly: directed motion verbs are lexically prefixed (LPV), non-directed motion verbs are superlexically prefixed (SLPV). This clear split suggests that the type of imperfectivity the verb conveys is crucial for the type of prefix this verb can take. The dissertation shows that this point is correct. In addition, it discusses particular correlations between verbal stems, prefixes and internal arguments of the verbal predicate. Below I summarize the main issues raised in each chapter.

6.2 Summary of the thesis

Chapter 2 investigated the first type of perfective - perfectives with lexical prefixes - in detail. In the course of investigation two general patterns were detected involving prefixes, their host verbs and prepositional phrases with shared arguments:

1. [Figure/Theme] PRF-V [Figure/Theme] P Ground
2. PRF-V Theme

The first pattern was characteristic of just transitive and unaccusative verbs, the second was the only one occurring with unergative verbs. These two patterns suggest that prefixes can have different structural origin, which has consequences for their interpretation and the interpretation of the arguments they share with the preposition and the verb. In the first pattern, the prefixes originate as little *p* heads and move to RP in the process of derivation, in the second pattern they should immediately be inserted in the RP with transitives and unaccusatives and elsewhere with unergatives, the explanation for which comes in Chapter 3. Thus, in the first pattern the Theme argument of the verb is originally a Figure of the preposition, whereas in the second pattern it is just a Resultee or a Theme, depending on the origin of the prefix. There is the third construction available: the one with a demoted or no Figure. This is the structure with passivizing prefixes or the deficient little *p* that cannot assign case to the Ground of the preposition, the preposition itself remaining unpronounced.

One of the main generalizations arrived at in the chapter was that unergatives do not ever combine with *pP*. As the passivizing prefixes originate in *pP* as well, by prediction, most of them are unavailable on unergatives. The prediction is borne out. The only passivizing prefix occurring on unergatives is an incorporating preposition, as is shown in Chapter 3.

Some other predictions are connected with the interpretation of the direct objects of lexically prefixed verbs. If a prefix originates as the head of *pP*, it introduces its external argument that undergoes change in location throughout the event and ends up at some

position relative to the Ground argument of the preposition. The Figure argument is the specifier of *pP*. If a prefix originates in RP, its argument, often affected object, is a specifier as well. Being specifiers, Change-in-location and affected objects are specific and carry existence presupposition. They are both juxtaposed to effected objects that occupy a Rhematic, complement, position of VP. Effected objects do not carry existence presupposition and are non-specific indefinites. The other name for Rheme is ‘path’. Paths are arguments of the motion verbs discussed in Chapter 3.

Chapter 3 developed the issues raised in Chapter 2 by analyzing a concrete group of verbs with their special arguments: motion verbs and paths. Even if all motion verbs are imperfective, they display rather different behaviors. On the one hand, it is expected, since in Chapter 1 it was shown that imperfectives are not uniform. On the other hand, some of the behaviors of both, directed and non-directed motion verbs are quite unexpected, like the poor ability of DMVs to follow the phase verbs and some auxiliaries and modals or the obligatorily pluractional reading of NDMVs occurring with directed path PPs. Another distinction concerns the types of prefix attaching to directed and non-directed motion verbs. The types of prefix differ depending on the type of motion verb: directed motion verbs take lexical prefixes, non-directed motion verbs take superlexical prefixes. This is not as surprising as some other behaviors though: with respect to argument structure, directed motion verbs pattern together with unaccusatives and non-directed motion verbs pattern together with unergatives. What this means is that prefixes for directed motion verbs originate inside the prepositional phrase: and we know that part of the lexical prefixes do; and prefixes for non-directed motion verbs must merge elsewhere. The empirical fact that the prefixes on unergative verbs are not of the prepositional origin has not yet been explained in the previous chapters. The explanation is attempted here, in Chapter 3. It bears on the detailed structure of the PP with a finely grained sequence of functional heads. One such head dominating the rest is PathP (known from Chapter 2 as little *p*). I follow Svenonius (2006) in assuming that PathP can lexicalize abstract Paths TO, FROM and VIA, and lexicalization is fulfilled by prefixes. However, the fourth abstract Path from Svenonius (2006), AT, looks different both from the other abstract Paths and from the path traversed with the help of non-directed motion in Russian. I call the latter Z-path. Its trajectory can cross, overlap, go in circles and return all the way back, unlike the trajectory covered by directed motion. It is different from AT in that it is not obligatory for Z-path to be fully contained in the PlaceP. Z-path incorporates into non-directed motion verbs and renders them the power of universal quantification over multiple paths it encodes. Once PathP is used up, there is no way to lexicalize it by prefixes. Thus, non-directed motion verbs can take only superlexical prefixes merging above VP. This analysis is extendable to other unergatives. In a way, incorporation of Z-Path is reminiscent of conflation proposed by

Hale and Keyser (1993) for unergative verbs. An interesting generalization describing unergatives then emerges: when a verb contains conflated material, the *vP* and the external argument are required in its structure.

Chapters 4 and 5 looked into the superlexical prefixes. In fact, only two of them were studied in detail: *na-* and *pere-*. The interesting characteristics shared by these two prefixes concern their choice of verbs expressing specific event shape, and their influence on the shape of the object of their host verbs. Superlexical *na-* and *pere-* attach to imperfective verbs with mass or plural objects. Comparing the distribution of *na-* to some phenomena occurring in other languages, I concluded that *na-* and these phenomena (French Quantification-at-a-Distance, or Quantification Variability Effects carried out by *for the most part* or *a lot* in English) are related to each other and represent a universal grammatical device called for measuring the event. The requirement of *na-* for a specific shape of the object is explained by the close connection between verbs and some types of object. As *na-* verbs are, in principle, creation verbs, the objects of *na-* verbs must be effected Themes, thus incremental, thus participating in measuring the event. That the objects of *na-* verbs are just properties providing a scale for measuring the event is supported by the existence of other scales: at least, temporal and spatial. The presence of one of the latter allows a *na-* verb to be objectless.

Chapter 5 concentrated on *pere-*, whose syntactic distribution is different from that of *na-*: it selects for imperfective verbs with mass and plural objects but with existence presupposition, which means that arguments of *pere-* verbs introduce an individual type variable. In addition, attaching *pere-* to the verb results in what looks like universal quantification over the object. The universal quantification is considered to be quite a common by-product of applying the distributive operator to the structure. However, I showed that *pere-* is not a generalized distributive operator. As a consequence, the event expressed by *pere-* verbs cannot be distributed over their subjects. It is always the object that is involved in distribution. Moreover, the distribution of the event over the object is achievable even without *pere-*. Unprefixed verbs can have objects of different shapes: singular or plural, but object distributivity arises only when the event itself has the right shape. *Pere-* attaches to such verbs with the right event shape and with plural (mass) objects. They are reminiscent of pluractional verbs common in North American and African languages, but occurring also in a number of European and Asian languages. When the object is singular or collective, such verbs are interpreted iteratively. When the object is plural, such verbs are interpreted as distributive. In languages with pluractional markers distribution of the event in transitive verbs is also always object-oriented. The problem is that the plural objects of unprefixed ‘pluractional’ verbs can have either a collective or a distributive interpretation; but when *pere-* attaches only the distributive

reading is available. The explanation lies in the selectional properties of *pere-*. It attaches only to the VPs, that are headed by the pluractional verb and contain some plural noun, which can be a direct object, an indirect object, or the object of a preposition. Thus, the job of the distributive operator is divided between the plural operator \times that applies to VP in the case of *pere-* prefixation, and *pere-*. The star operator multiplies the event and its argument and makes participant distribution possible; whereas *pere-* binds the macroevent by existentially closing the coverset $\text{Cov}(e)$ that denotes the supremum of the o -lattice homomorphic to the ε -lattice. When *pere-* comes paired with quantificational adverbials, the latter cancel the default specificity that *pere-* induces on its own and introduce a more specific cardinality for the measured event. The quantifiers obligatorily attract internal arguments (direct objects, quirky objects and PPs) of *pere-* verbs that acquire a wide scope and participate in measuring the event in a slightly different manner from *na-* verbs.

6.3 Some questions from Chapter 1 revisited

Chapter 1 dealt with the general issues of aspect in Russian. The problems it raised concerned non-uniformity within two big grammatical classes of verb: perfective and imperfective. Perfective verbs can have lexical and superlexical prefixes attached to them. Lexical prefixes create telic interpretations of their host verbs, superlexical prefixes can vary in this respect. Imperfective verbs have a great number of readings, which actually boil down to progressive and pluractional. The grammatical evidence for distinguishing between two clear readings of imperfectives comes from two sources:

- incompatibility of progressive imperfectives with quantified NPs
- the existence of motion verbs, one group of which combines with directed paths and doesn't combine very well with the phase verbs and certain auxiliaries and modals; the other expressing motion 'spread' either in space or in time

The generalization that there are two distinct and grammatically relevant readings of imperfective verbs has a lot of formal representation in the literature. I represent them as in (6): either as an atomic semi-lattice with no supremum (6-a), or as an atomless part-of structure with no supremum (6-b):

- (6) a. Pluractional event
 $\{a\} \{b\} \{c\} \dots \{n\} \rightarrow \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\} \dots \{a, b, n\}$
- b. Progressive event
 $\{\dots\} \{\dots\} \{\dots\} \rightarrow \{\dots\}$

Concatenated events with no gaps in between have received more attention, since they can form homomorphic relations with their internal arguments, which, in its turn, leads to compositionality of aspect. I applied the analyses proposed in Rothstein (2004), Krifka (1998) and Lasersohn (1995) to treating such events. The notion of S-cumulativity developed in Rothstein (2004) (see Chapter 1) and the notions of path developed in Krifka (1998) (Chapter 2) and modified in Ramchand (2006) (Chapter 4) capture the continuous character of such events.

As the dissertation showed (Chapters 4 and 5), whether the imperfective bears a continuous or a discontinuous character has linguistic importance. Continuous events contain the set of degrees (a scale) that are mapped onto the event. Thus, such events can be measured. Paths and Incremental Themes represent measure scales (cf. Hay et al. (1999), Kennedy and Levin (2002)). By this logic, they cannot have their own quantification, distinct from that of the event. According to Van Geenhoven and McNally (2005), such objects are property-type arguments semantically incorporated in the verb. Their semantic type is, respectively, $\langle s, \rangle \langle e, t \rangle \langle \rangle$. Quantificational phrases cannot denote this (intensional) type; the type of generalized quantifiers, for instance, is $\langle e, t \rangle, t \rangle^1$.

(7) Incremental Theme objects

- a. *Maša jela vsju kašu.
M.NOM. ate^I.sg.fem. all.fem.ACC. porridge.ACC.
'*Maša was eating all the porridge.'
- b. *Jonny sočinjal mnogo stixotvorenij, kogda ja
J.NOM. composed^I.sg.fem. many poems.GEN. when I
vošla v komnatu.
in-walked^P.dir.sg.fem. in room.ACC.
'Jonny was writing many poems when I entered the room.'

¹In English, for example, quantified complements of intensional verbs and verbs of creation are allowed:

- (i) a. Alan is seeking each comic book. (Van Geenhoven and McNally (2005))
b. Jenny knit fifteen sweaters.

Concerning the example in (i-a) Van Geenhoven and McNally (2005) notice that it can have only a transparent reading and the verb 'seek' here is non-incorporating. I do not consider such examples for Russian here. As for (i-b), the Russian counterpart of this example will contain a perfective verb, since the English sentence is quantized. However, for some reason Russian progressive imperfectives with incremental themes can only have a non-transparent interpretation. They are reminiscent of West Greenlandic examples discussed in Van Geenhoven and McNally (2005), where the opacity of the predicate and the type of its argument depend on the verbal morphology.

The problem of object quantification does not arise with non-incremental themes (8-a) or discontinuous imperfectives (8-b):

- (8) a. Sveta katila vse svoi teležki, scepennyje parovozikom.
S.NOM. rolled^I.sg.fem. all self's carts.ACC. linked.PPP.pl. train.INSTR.
'Sveta was rolling all her carts connected in a train.'
- b. On sočinjal mnogo stixov každyj raz, kogda jemu
J. composed^I.sg.ms. many poems.ACC. every time when him.DAT.
bylo ploxo.
was bad.ADV
'He wrote a lot of poems every time he felt down.'

These differences are accounted for by different relation between the verb and its object reflected in the First Phase Syntax. Paths and Incremental Themes are Rhematic XPs of type $\langle s, \rangle \langle e, t \rangle \langle \rangle$, whereas change-in-location objects (8-a) and objects of pluractional verbs (8-b) denote individual variables of type *e*.

Another important factor is that prefixation works differently with different imperfectives. When pluractionality is overtly expressed in the verbal stem, lexical prefixes do not attach to it, but superlexical prefixes do. The reason is different selectional characteristics and a different attachment position of lexical and superlexical prefixes.

The decomposed perfective event expressed by an originally pluractional verb does not contain RP. Thus, RP is not crucial for creating perfectivity, but it usually builds a telic event. Superlexical prefixes add a different flavor to perfectivity: they 'package' an event expressed by continuous or discontinuous pluractional imperfective. However, both types of perfective stand out as decomposable event representations, which explains their similar behavior with respect to presupposition tests.

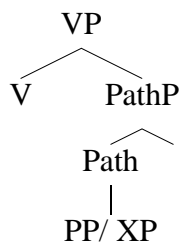
Object interpretation with perfectives also depends on the structural position of a prefix. Lexical prefixes form predicational relations with their arguments, which also happen to be the objects of the verb. Being subjects of predicates, the arguments of lexical prefixes usually receive a specific reading. Superlexical prefixes use the arguments of the verb for measuring the event. Depending on their final position, the arguments of SLPV can have both, specific and non-specific interpretation. Notice that on some recent approaches (e.g., Borer (2005)), the non-specific interpretation is not available to the object of a perfective verb, whereas on this approach it is not a problem at all: for example, the objects of *na*-verbs are Effected Themes and as we know, Effected Themes are Rhematic.

All the different aspectual instantiations of the Russian verb and its arguments have been explained structurally. I present schematic descriptions of progressive imperfectives (PROG), pluractional imperfectives (PA), lexically prefixed verbs (LPV) and su-

perlexically prefixed verbs (SLPV):

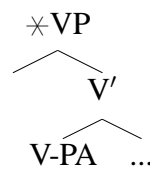
(9) Imperfective structures

PROG



Non-atomic unbounded

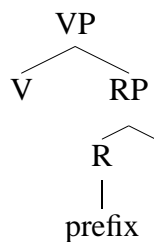
PA



Atomic unbounded

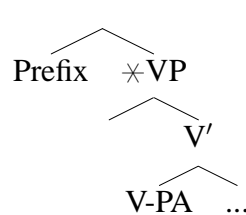
(10) Perfective structures

LPV



A single atom (bounded)

SLPV



Internally atomic or non-atomic, bounded

As can be seen from (9) and (10), the heterogeneity of the internal structure in both imperfectives and perfectives plays no role in the distinction between the two big classes, determined by (un)boundedness. However, it is crucial for the choice of prefix, and this is the part of the system that would be hard to explain solely by syntactic means, especially by means of a single aspectual projection.

One structure is not attested in (10): unergative verbs with prefixes. As I showed in Chapters 2 and elaborated in Chapter 3, unergatives cannot take lexical prefixes at all, since they have conflated Z-path. I admitted that I have no account for rare cases of lexical-like prefixation of unergatives. Of course, this is not the only problem left unsolved in the dissertation. In the following section I offer a short discussion of what could be touched upon and developed more.

6.4 Open questions

Not all the questions raised in this dissertation received equal attention. Some of them could not be addressed at all, for the lack of time and due to their being beyond the scope of this work. One thing that should be investigated further, is superlexical prefixes. To find out whether the analysis adopted here for *na-* and *pere-* is extendable to other superlexicals, I would need another two hundred pages.

In addition, it would be interesting to look into the relation between lexical and superlexical prefixes, since all Russian prefixes are of prepositional origin (Matushansky (2002)).

6.4.1 Research directions for the other superlexicals

As I said in the introduction to Chapter 4, the group of superlexical prefixes is rather vast and is not restricted to *na-* and *pere-* by far. It is also a pretty versatile pool of prefixes. We could have a closer look at the so-called ‘delimitative’ *po-* and compare it to the so-called ‘attenuative’ *po-*; at perdurative *pro-* on two instantiations of motion verbs and see whether it is structurally the same; or at superlexical prefixes with reflexive verbs.

Recall that we can consider *na-* and *pere-* quantificational prefixes measuring the event with the help of either an available scale or the distribution of the event over the existing participants/ locations etc. Recall that *na-* carries the presupposition ‘a relatively large amount’ and *pere-* existentially binds the coverset and states that it has the supremum. There is another *pere-* that can be considered a degree modifier by the standards of Schwarzschild (2006). All these prefixes select for cumulative events with different specifications. This returns us to the beginning of this chapter where I discussed continuous and discontinuous cumulative events. Only the latter did I consider to be pluractional: they are selected for by the ‘universal’ *pere-*. The ‘excess’ *pere-* operates rather on continuous events.

It would be enlightening to look into the behavior of two *po-* prefixes, delimitative and attenuative, and to check if they occupy the same position or two different ones. The second choice seems to be more valid. Delimitative *po-* operates on the run-time of the event, elicited with the help of the trace function τ (11-a), thus it selects for cumulative continuous events. Attenuative *po-* usually modifies bound events expressed by perfective verbs (11-b)². When attenuative *po-* attaches to transitive verbs, their direct objects follow already familiar pattern of ‘semantic incorporation’ typical of transitive verbs with measured events, which can be discerned from the genitive marking on such

²That *po-* is attached to the perfective stem is seen from another prefix present and no secondary imperfective morphology

objects (11-c):

- (11) a. poguljatj pered snom
 DEL-walk^P.inf. before sleep.INSTR.
 ‘walk a little before sleep’
 b. poprivyknutj k xolodu
 ATT-get.used^P.inf. to cold.DAT.
 ‘get used to cold a bit’
 c. pojestj moroški
 ATT-eat^P.inf. cloudberry.GEN.
 ‘eat a bit of cloudberryes’

Notice, that in all instantiations *po-* has a presupposition of a ‘small amount’, expressed in Filip (2000):62 similarly to the *na-* presupposition. Moreover, *po-* operates on the run-time of the event, represented as τ in (12):

$$(12) \quad \llbracket po- \rrbracket = \lambda P \lambda \tau [P(\tau) \wedge m_c(\tau) \leq s_c]$$

If the analysis proposed for *na-* is extended to *po-*, we can infer that τ just represents a temporal scale along which the event is measured. The next question would be whether *po-* is applied to different scales with the same set of degrees δ constituting them or different instantiations of *po-* select for different measure entities. If *moroški* in (11-c) can be a representative of the participant scale with the same set of δ measured by *po-*, the verb in (11-b) is not even cumulative, so it is not clear what is measured there. A (hopefully) helpful hint: PRF-V in (11-b) is reminiscent of the partitive construction *some of the N* as opposed to *some N* comparable to PRF-V in (11-a).

Another interesting direction for research is ‘phase’ prefixes, that is, superlexical prefixes like inceptive *za-* and terminative *ot-*, which do not seem to be measuring anything. Instead they duplicate phase verbs, like *begin* and *finish*. Why such redundancy in the language? On a closer look the existence of these prefixes will not appear to be redundant. Hopefully, this closer look will be taken in the future.

6.4.2 The relation between lexical and superlexical prefixes

As one can see throughout the dissertation, lexical and superlexical prefixes massively overlap. As I stated in Chapter 4, there is only one phonological representation of each prefix stored in the lexicon. The encyclopedic information connected with it is fairly vague and the prefix receives its interpretation from the syntactic position it merges in: *pP*, *RP* or some *VP*-external position. In the former case, the prefix is interpreted spatially, when it originates in *RP*, it gets a resultative or an idiosyncratic reading, and

when it attaches above VP, it has a consistent measure-function interpretation.

There is an alternative scenario for the interpretational pattern of lexical and superlexical prefixes. Suppose, there are two distinct groups of prefixes in the lexicon whose phonological shape coincides but conceptually they diverge. They might have undergone a certain historical development, similar to the development of the metaphor. Only in this case, the abstractness of the meaning typical of superlexical prefixes has become so high that SLPs can serve as functional heads.

Take for example the prefix *pere-*, whose analogue in the prepositional domain does not have the same phonological form, though looks related and sounds *čerez* ‘across, over’. As a lexical prefix *pere-* also means ‘across, over’:

- (13) a. *perebežatj* *čerez dorogu*
 across-run^P.inf. across road.ACC.
 ‘cross the road running’
 b. *pereprygnutj* *čerez zabor*
 over-jump^P.inf. over fence.ACC.
 ‘jump over the fence’

The idiosyncratic *pere-* carries the meaning developed from ‘across’:

- (14) *perebitj* ‘across-beat^P.inf.’ = ‘interrupt’

There is another *pere-* meaning the same as the prefix *re-* in English:

- (15) *perečitaj* *roman*
 pere-read^P.inf. novel.ACC.
 ‘reread a novel’

And, as was shown in Chapter 5, the superlexical *pere-* can get at least two interpretations depending on the scale provided by its host verb: distributivity-related *pere-* and ‘excess’ *pere-*:

- (16) a. *perespatj* *vo vsech oteljax Pariža*
 pere-sleep^P.inf. in all.LOC. hotels.LOC. Paris.GEN.
 ‘sleep in all the Parisian hotels’
 b. *perespatj*
 pere-sleep^P.inf.
 ‘sleep too much’

Now compare *pere-* to one English preposition-particle, namely, *over*. *Over* and *pere-* have some meanings in common:

- (17) a. He jumped over the fence.
 b. He read this novel over and over again.
 c. He overslept.

Thus, whatever scenario for describing the connection between lexical and superlexical prefixes one chooses, the interpretations they carry do not seem accidental. However, this must be left for further research.

6.4.3 Secondary imperfective

Secondary imperfective is another issue that got little attention in the dissertation, although it was mentioned several times throughout the discussion. Secondary imperfective is a derived imperfective form of usually a lexically prefixed verb:

- (18) rvatj - oto-rvatj - ot-ryvatj
 tear^I.inf. aside-tear^P.inf. aside-tear^I
 ‘tear 1Impf - tear off Perf - tear off 2Impf’

Secondary imperfective verbs are not basically different from primary imperfectives in the array of readings they convey. They can definitely be pluractional (19-a) and progressive (19-b) as well:

- (19) a. On v detstve **otryval** muxam nogi.
 he in childhood.LOC. **aside-tore^I.sg.ms.** flies.DAT. legs.ACC.
 ‘He tore off legs of flies in his childhood.’
 b. On **otryval** nomer ot ob’javlenija, kogda
 he **aside-tore^I.sg.ms.** number.ACC. off announcement.GEN. when
 propal svet.
 disappeared^P.sg.ms. light.NOM.
 ‘He was tearing off a piece with the telephone number off the ad, when the electricity went off.’

The event represented by a secondary imperfective can also be measured with the help of superlexical prefixes stacking on top of lexical prefixes³:

- (20) a. Konduktor uže **naotryvala** biletikov.
 ticket-seller.NOM. already **CUM-aside-tore^P.sg.fem.** tickets.GEN.
 ‘The ticket-seller has prepared a lot of little tickets by tearing them off the roll.’

³Remember that a stacking variety of the distributive prefix sounds *po-*.

- b. On **pootryval** vse listki u novogo
 he **DIST-aside-tore^P.sg.ms.** all sheets.ACC. at new.GEN.
 kalendarja.
 calendar.GEN.
 ‘He tore off all the pages from the new calendar.’

Thus, it is clear that the lattice-theoretic structure of events expressed by secondary imperfective verbs does not contain an external bound, since it can be ‘packaged’ by superlexical prefixes; yet, as well as with primary imperfectives, their internal structure can be both atomic (pluractional) and non-atomic (progressive).

I just briefly outlined the problem of secondary imperfectivization here. In my opinion, the important question to be studied further is how ‘cancellation’ of the atomic structure of lexically-prefixed verbs is performed by secondary imperfective morphology in syntax and semantics⁴. This question is non-trivial and presents another persistent challenge the aspectual system of Russian abounds with.

6.5 Conclusion

In this dissertation I investigated the dominant way of constructing perfectivity in Russian, namely, prefixation. The prefixes of the Russian language do not constitute a blurry mass, on the one hand, or a set of highly distinct individuals, on the other. Prefixes can be grouped into two big classes on the basis of their syntactic distribution. In fact, the classification of prefixes into lexical and superlexical has existed for decades (cf. Isačenko (1960)). This classification is justified not only semantically, but also structurally.

Both, a verb and a prefix head predicational structures. Thus, parallel to studying different types of prefix on different types of verb, I gradually unraveled the problem of another relationship potentially relevant for the aspectual composition: between the prefixed verb and its object.

In the constructionist framework followed here we actually find that the semantic interpretation of prefixes⁵ follows their syntactic distribution. Assume that all the prefixes in the lexicon carry very vague meaning hues which are fully colored only when the prefix merges in a certain position provided by the functional sequence of the clause. Assume that a number of positions available for prefixes is limited since the variety of functional projections that can be lexicalized by the item traditionally labeled a ‘verb’ is also restricted. I did not look into the possibility that prefixes can combine with any

⁴For example, it would be interesting to find out whether a special aspectual projection (AspP) is responsible for this cancellation or it happens elsewhere.

⁵We can be talking about prepositions here with few exceptions.

syntactic category, including nouns and adjectives, so I do not deny this possibility. Focusing on the verb, though, only the following positions were available to prefixes (incorporating prepositions):

- spatial: head of PathP
- resultative/ idiosyncratic: head of RP
- quantificational: head of some functional projection above the VP

Whatever a type of prefix is, its effect on imperfective verbs is always the same: it turns the latter into an atom. Two ways of ‘atomizing’ an otherwise cumulative event correspond to the two prefix types: lexical prefixes are R-heads or BECOME-predicates isolate single indivisible \mathcal{E} -atoms, superlexical prefixes are joins of a set of atoms or partitions from the part-of \mathcal{E} -semilattice. The ‘atomizing’ solution immediately explains the existence of unprefixated perfective verbs. In this case the verbal stem itself lexicalizes R and by doing so turns its event representation into an atom. The co-occurrence of lexical spatial prefixes with (v -)V-R verbs is not a contradiction, since we know that such prefixes merge as p -heads below R.

Prefixes were found to closely interact with the internal arguments of the verb. In the lower syntactic domains both the verb and the prefix represent predicational structures. So, lexical prefixes either share the pre-existing arguments with the verb, or introduce their own (and then share them with the verb). In the higher syntactic positions superlexical prefixes make use of the arguments of the verb for measuring the event. The relation of the verb and its internal argument can be important for superlexical prefixes even before they attach to their host if these prefixes select for the whole VP with particular characteristics. Cases when superlexical prefixes just select for V were not discussed in this work, however they certainly exist (delimitative *po-*). Irrespective of a prefix type, there can only be two general structural positions for the arguments: specifier and complement. The complement (Rheme) position contains material mappable onto the event, therefore a type of a path is crucial for determining the type of a motion verb. The specifier position is always assigned a specific role (Figure, Resultee, Undergoer etc.).

Treating prefixation and perfectivity within the present framework has clear advantages over a case-by-case study. It allows making predictions about what constructions are going to be produced by attaching prefixes at different levels of different argument structures and what interpretations these constructions are going to yield, whereas on a case-by-case basis one remains overwhelmed by a high variety of prefixes, meanings, telicity patterns, object readings. For example, the fact that prefixes can attach to already perfective verbs made Filip (2000) claim that prefixes are not markers of perfectivity. However, we know from the discussion above that they are not *just* markers of perfectivity and when R is already lexicalized, lexical prefixes might incorporate into their

host verbs directly from *pP*. Otherwise, prefixes always mark the change from an imperfective into a perfective verb by turning the mereological properties of the event. At the same time, at the level of event structure even an atomic event is decomposable into three subevents, which gives us the predictive power in analyzing similar constructions.

Thus, this work has demonstrated that aspectual problems characteristic of the Russian grammar clearly represent a system, which can be studied as such. In approaching these problems I appealed to a number of recently developed theories, like the Lattice Theory or the constructionalist view, and these theories, in their turn, helped me sort out and even explain seemingly messy patterns of prefixation and argument structure derivation. While untangling aspectual puzzles, I raised a lot of new questions. These new mysteries dug up in the process of work are a good indication of the depth of the excavations.

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