

Unifying Prepositions and Prefixes in Russian: Conceptual structure versus syntax

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Abstract

At first glance, the variety of possible denotations of a given prefix might appear a chaotic set of idiomatic meanings, e.g. the prefix *za-* may refer to the beginning of an action, movement to a position behind an object, a brief deviation from a path, or completion of an action.

I propose a unified analysis of prefixes, where the differences in meaning are claimed to arise from different syntactic positions, while the lexical entry of a prefix remains the same. The main focus is on the verbs of motion due to the consistent duality displayed by the prefix meanings when added to directional and non-directional motion verbs. It turns out that prefixes modify path when added onto a directional motion verb and refer to movement in time with non-directional motion verbs. This semantic distinction corresponds to distinct sets of syntactic properties, characteristic of the lexical and superlexical prefixes.

Furthermore, a tripartite division emerges in each set of prefixes, corresponding to source, path, and goal of motion (FROM, VIA and TO) for lexical prefixes and to beginning, duration and completion for superlexical prefixes. This leads to the suggestion that the same prefix with a consistent conceptual meaning, shared with the corresponding preposition, receives part of its denotation from its position in the syntactic representation.

The separation of conceptual meaning from the structural meaning allows the polysemy to arise from position, rather than from arbitrary homophony. Thus, conceptual structure is unified with syntax.

1. Introduction

The assumption in this paper is that Russian verbal prefixes fall into two classes, which correspond to the lexical vs. superlexical distinction (Isačenko (1960), Romanova (2004), Svenonius (2004a)). According to Romanova (2004), the lexical prefixes attach mostly to perfective or telic stems (if the verb is supplied with both), allow the verb to form secondary imperfectives, cannot stack, do not measure over objects, and can change the

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argument structure of the verb. This behavior corresponds to a low prefix position inside VP (*pere-* in (1a), *vy-* in (1b), *nad-* in (1c)).

Superlexical prefixes attach to imperfective or atelic stems, do not allow the verb to form secondary imperfectives, can stack, can measure over events or objects, do not change the argument structure of the verb. The examples below illustrate the superlexical prefixes (*ot-*, *pro-*, *po-*) stacking over the lexical prefixes:¹

- (1) a. *Ot-pere-biral ty bumagi. ...Uvoljnajut tebjja.*
 OT-PERE-*take*^I *you papers-ACC. ...Fire-3PL you-ACC*
 ‘You are done with sorting papers. They are firing you’²
- b. *Pro-vy-dergival morkovk-u poldnja.*
 PRO-VY-*pull*^I *carrot-ACC half.day*
 ‘He spent half a day pulling out carrots’
 ((1a,b) are adopted from Beliakov (1997))
- c. *A čto ne sjem, to po-nad-kušu!*
and what not eat that PO-NAD-bite
 ‘And whatever I cannot eat, I will bite slightly one by one’

In (1a) and (1b) the first, superlexical prefix, attached to the prefixed imperfective stem, refers to time of the event, without affecting the meaning of the main verb. *Ot-* in (1a) refers to the permanent completion of the event, while *pro-* in (1b) refers to duration. *Po-* in (1c) is an example of the distributive reading. The lexical prefixes are closer to the root and change the lexical meaning of the verbal stem, rather than barely modifying the time. Crucially, the same prefix may act both as lexical and superlexical, with interpretations different enough to provoke a suspicion of homophony. E.g. the superlexical prefixes in (1) (*ot-*, *pro-*) may act as lexical prefixes with the same verbs, when adjacent to the root:

- (2) a. *ot-bira-tj bumagi*
 OT-*take-INF papers-ACC*
 ‘to take away (from smb., by force) / to select the papers’
- b. *pro-dergiva-tj nitku v igolku*
 PRO-*pull-INF thread-ACC in needle-ACC*
 ‘to pull the thread through the needle’

Not only can a prefix have two meanings depending on whether it is used as a lexical or superlexical prefix, but most of them also coincide to prepositions. The table below lists some of the uses of prepositions, and lexical and superlexical prefixes with motion verbs.

¹Romanova (2004) defines two more classes of superlexical prefixes: cumulative *na-*, which measures over objects, and prefixes like *pri-* and *pod-*, which measure over events, describing degree of intensity of the action. I assume that these prefixes (*na-*, *pod-*, *pri-*) occupy a higher syntactic position, which will remain outside of the scope of this paper.

²*I* stands for imperfective, see appendix for the full list of abbreviations

(3) **Lexical and Superlexical Prefixes with Corresponding Prepositions.**

Prefix	Meaning of Lexical Prefix	Meaning of Superlexical Prefix	Meaning of Corresponding Preposition
do-	adlative	completive	up.to
za-	occlusive	inceptive	behind
ot-	ablative	completive	from.near
s-	superrelative	‘there and back’	from.on
pro-	perdurative	duration	about
po-	inceptive	limited duration	along, according to
pere-	translative	excessive duration	preposition <i>pere</i> does not exist (corresponds to <i>čerez</i> ‘across’)

This list is limited to the uses of prefixes and prepositions compatible with motion verbs. The motion verbs display a directional vs non-directional distinction, where the directional verbs combine with lexical prefixes and the non-directional ones combine with the superlexical prefixes. As I will show, the homophony is far from sporadic. The lexical prefixes, cooccurring with directional verbs, and the superlexical prefixes, cooccurring with non-directional verbs, are in complementary distribution. Besides, the motion verbs are compatible with the spatial prepositions which coincide with the prefixes. The fact that all the three groups in question (prepositions, lexical and superlexical prefixes) are compatible with the motion verbs, and the clear cut complementary distribution of prefixes depending on the directionality of the verb, makes the class of motion verbs a perfect candidate for exploring the semantics of the prefixes.

In the table below there is the nearly exhaustive list (adopted from Janda (2006)) of the motion verbs characterized by the presence of both directional and non-directional forms. The directional verbs involve a path and a goal, e.g. *bežatj* means ‘to run in a certain direction’. The non-directional verbs describe sporadic or repetitive movement, e.g. *bégatj* means ‘to run around, or to run back and forth, or to run regularly’.

(4) **Motion Verbs: Directional and Non-directional**

Meaning	Directional	Non-directional
run	bežatj	begatj
walk with difficulty	bresti	broditj
carry (by vehicle)	vezti	voztj
lead	vesti	voditj
drive, chase	gnatj	gonjatj
ride	exatj	ezditj
walk	idti	xoditj
roll	katitj	katatj
climb	leztj	lazitj/lazatj
fly	letetj	letatj
carry (on foot)	nesti	nositj
swim, sail	plytj	plavatj
crawl	polzti	polzatj
drag	tasčitj	taskatj

The prefixes with the directional verbs are lexical. They allow secondary imperfectivization (5), and modify path.

- (5) a. pro-bežatj pjatj kilometrov.
through-run^{dir, P} five kilometers.
 ‘to run five kilometers’
- b. pro-begátj pjatj kilometrov každoe utro.
through-run^{dir, SI} five kilometers every morning.
 ‘to run five kilometers every morning’

With non-directional verbs, the prefixes are superlexical and are not susceptible to secondary imperfectivization (6b). The non-directional verbs do not involve a path to be modified, so the prefix refers to time; e.g. *pro-*, which refers to the length of path when lexical, refers to the time duration when it is superlexical.

- (6) a. pro-bégatj pjatj časov
PRO-run^{non-dir, imp} five hours
 ‘to walk for five hours’
- b. *pro-xaživatj pjatj časov každoe utro
PRO-walk^{non-dir, SI} five hours every morning
 (‘to walk for five hours every morning’)³

The following section gives examples of lexical and superlexical usage of each of the prefixes, arguing for a single meaning of each. The examples, unless otherwise stated, come from my native speaker intuition. Many examples were also obtained by searching through the National Corpus of

³*xoživatj* is the irregular secondary imperfective of the verb *xoditj* ‘to walk’

Russian language (www.ruscorpora.ru).

2. Lexical and superlexical prefixes and their interpretation

This section describes the identical lexical and superlexical prefixes as manifestations of a single lexeme, comparing the meaning to the coinciding prepositions. A central meaning for each lexeme emerges, and it turns out that lexical usage corresponds to path modification, while the superlexical usage belongs to the time domain.

2.1. Perdurative *pro-* and *pere-*

The prefix *pere-* refers to crossing a boundary, which may be a boundary in space for directional verbs, or a temporal boundary (e.g. after which swimming is too tiring in (7b)) for non-directional verbs.⁴ This usage is similar to the English preposition ‘over’, which may also be used to refer to crossing a boundary both in space (‘the bridge over the river’) and in time (‘to spend over an hour’).

- (7) a. pere-plytj rek-u
 PERE-swim^{dir} river-ACC
 ‘to swim across a river’
 b. pere-plavatj v bassejne
 PERE-swim^{non-dir} in swimming pool
 ‘to swim too much in the swimming pool’

The prefix *pro-* ‘about, through’ is a measure of distance with directional verbs, and a measure of time with non-directional verbs:

- (8) a. pro-jti pjatj kilometrov
 PRO-walk^{dir} five km
 ‘to walk for five kilometers’
 b. pro-xoditj vesj denj
 PRO-walk^{non-dir} all day
 ‘to walk (around) all day’

The corresponding preposition, however, has a very different meaning: ‘about’. Yet, in Russian there are two prepositions with a rather close meaning to ‘about’, and the comparison between them might shed light on the similarity of the preposition *pro-* to the corresponding prefix.

⁴There are, of course, more uses with verbs other than verbs of motion, where the crossing of the boundary refers to quality, with the meaning ‘to outdo someone’, e.g. *pere-xitritj* ‘outwit’. Another use is distributive over objects, e.g. *pere-streljatj* ‘to shoot all one by one’. These are measure and distributive domains, occupying a node above space and time, which I am not including in the present discussion, though the parallel can be drawn for most prefixes. For a discussion of these prefixes see Romanova (2007) and Součková (2004a)

- (9) a. *govoritj pro lingvistik-u*
 talk about linguistics-ACC
 b. *govoritj o lingvistik-e*
 talk about linguistics-LOC

The usage of the preposition *pro-* implies a deeper discussion of the topic from inside, while the preposition *o-* in (9b) implies a conversation about linguistics as a science (possibly, by non-linguists). Cf. English ‘a talk on linguistics’ and ‘a talk about linguistics’. Thus, compared to *o-*, the preposition *pro-* implies a more thorough penetration, so the uniting schema would be piercing of space, time, or a topic from beginning to end.

There is also a third, low colloquial and usually ironic translation of ‘talking about something’ with the preposition *za-* ‘behind’, which refers to movement behind a ground when used as a lexical prefix, and inception when used as a superlexical prefix:

- (10) *govoritj za žiznj*
 talk about life.ACC
 ‘to talk about life’.

As opposed to the previous prepositions *o* and *pro*, the preposition *za* in the meaning ‘about’ implies neither thorough penetration into the topic like *pro* (and is mostly used with things hardly susceptible to an exhaustive discussion, such as love and life), nor does it imply a conversation from outside about a topic as a whole like *o* does.

Thus, *govoritj o žizni* could refer to a philosophic discussion about the meaning of life, *govoritj pro žiznj* would be more appropriate of a conversation about the events of a particular piece of one’s life, while *govoritj za žiznj* would be used of a long pointless discussion of life’s strangeness and complication, often accompanied by large amounts of alcohol. So, with *za* such topics as love and life are usually discussed from the inside, i.e. the talkers’ own love or life, so the preposition *za* refers to entering a large topic, similar to entering a certain space in the lexical meaning, and entering an activity in the inceptive superlexical meaning. Thus, time, space and conversation topics are united.

2.2. Completive *ot-* and *do-*

Do- ‘up to’ refers to movement or persistence of activity up to a certain point (usually the goal, as in (11a), (11b), or unpleasant consequences with reflexive verbs as in (11c) and (11d)). The point reached can be a point in space for directional verbs (the shore in (11a)), or a point in time for non-directional verbs (the end of the trip in (11b)). In both cases overcoming of some considerable distance, time, or difficulty is involved.

- (11) a. do-plytj do bereg-a
 DO-swim^{dir} up.to shore-GEN
 ‘to swim up to the shore’
- b. do-plavatj rejs
 DO-swim^{non-dir} trip-ACC
 ‘to sail up till the end of the trip (and then quit)’.
- c. ‘do-umyval-sja’ - skazal Ia-ia.
 DO-washed-REF - said Eeyore
 ‘So much for washing’- said Eeyore.’ (A. A. Milne ‘Winnie-the-Pooh’, translation by B. Zakhoder)
- d. Do-igral-sja do togo, čto ego vygnali iz domu.
 DO-play-REF till that that him kicked.out from house.
 ‘He played around to the point that they kicked him out of the house’.⁵

For directional verbs, *ot-* ‘from near’ refers to movement away from a point, where the distance separating the figure (the boy in (12a)) from the ground (the fire in (12a)) is increasing, while for non-directional and non-motion verbs the time, separating the figure from the past event (flying in (12b), talking in (12c)) is increasing.

- (12) a. Maljčik ot-skočil ot kostra.
 boy OT-jump^{dir} from fire
 ‘The boy jumped away from the fire’
- b. IL-76 svoe ot-letal.
 IL-76 its OT-fly^{non-dir}
 ‘(The plane) IL-76 has done its flying (and will never fly again)’
- c. Ot-govorila roscha zolotaja...
 OT-talked grove golden.
 ‘The golden grove finished talking’. (i.e. winter came)
 (S. Esenin)

Thus, the lexical usage of these two prefixes is rather different: *do-* refers to reaching a certain point, while *ot-* refers to moving away from it. In the superlexical usage, the domain is time, and the end of the event corresponds to the goal in space: thus, *do-* refers to reaching the completion, while *ot-* refers to moving (in time) away from the achieved goal. Both prefixes refer to completing event, though from opposite angles: *do-* stresses the effort in reaching the end, while *ot-* stresses its permanent irreversible completeness.

⁵Note the reflexive suffix *-sja* in (11c) and (11d); the meaning of ‘reaching unpleasant consequences for oneself’ comes from the combination of the prefix *do-* and the suffix *-sja*

2.3. *za-*: occlusive and inceptive

The preposition *za* means ‘behind’, referring both to occlusion (13d) and sequences (13e), in addition to other meanings ‘for’ and ‘after’. The prefix *za-* is notoriously versatile, and the whole diversity of its meaning may hardly be discussed in the limited space here, yet there is the path-time parallel present as well. With directional verbs the prefix modifies path, so that the figure enters an occluded area, e.g. (13a). With non-directional verbs the subject enters a new state, e.g. the clock enters the working state in (13b), or the uncle enters a jumping state in (13c). As a lexical prefix, *za-* means occlusion, while as a superlexical prefix it gives rise to an inceptive meaning.

- (13) a. *Za-jti v magazin; za-jti za magazin / pod*
ZA-walk^{dir} in store ZA-walk^{dir} behind store / under
naves.
cover
 ‘to pop by the store; to walk to behind the store/ under the cover’
- b. *Časy za-xodili.*
clock ZA-walked^{non-dir}
 ‘The clock started to work’
- c. *Djadja za-prygal ot radosti.*
uncle ZA-jumped from joy
 ‘The uncle started jumping from joy’
- d. *za dom-om*
za house-INS
 ‘behind the house’
- e. *Gosti odin za drugim razošlisj.*
guests one behind other left
 ‘The guests left one by one’.

The inceptive use of the prefix *za-* displays an interesting contrast, pointed out in Dobrushina (2001): with verbs like ‘work’, the inceptive meaning is only possible with inanimate subjects:⁶

- (14) a. *motor za-rabotal.*
motor ZA-worked
 ‘The motor started to work’
- b. **Petja za-rabotal.*
Petja ZA-worked
 intended: ‘Petja began working’ (but grammatical under idiomatic reading: ‘Petya earned some money’, in which the

⁶Note, however, that the animate subjects are possible with verbs of motion and sound, e.g. *za-petj* ‘to start singing’, *za-prygatj* ‘to start jumping’. Perhaps the reason for the contrast is that the motor usually makes a lot of noise while working, while the person does not stereotypically.

prefix is lexical)

Dobrushina (2001) explains this contrast as arising from the interpretation of *za-* as a deviation from a previous state. Thus, a motor or a clock has two states: either working or not, while such a simple opposition is not salient for human subjects. This contrast provides support to the view of inception as a figure entering a new state. Predictably, the inceptive prefix is incompatible with transitive verbs such as *krasitj* ‘to paint’, where the change of the agent is not as radical as the change inflicted upon the patient.

- (15) a. **za-krasitj zabor.*
 ZA-paint fence
 (‘*To begin painting the fence’)
 (ungrammatical with superlexical meaning, ok under the reading in (b), where the prefix is lexical.)
- b. *za-krasitj nadpisj na zabore.*
 ZA-paint inscription on fence
 ‘To cover with paint the graffiti on the fence’

Dobrushina does not explain how human subjects are possible with such verbs as *zapatj* ‘start singing’, *zagovoritj* ‘start talking’, *zabegatj* ‘start running around’. Yet, the idea that the change of state inflicted upon the subject is decisive for grammaticality may help to understand this contrast. The verbs possible with human agents are intransitive, thus the agent enters a perceptibly new state (e.g. characterized by noise, visible sporadic movement or smell) as opposed to inflicting changes upon the patient.

2.4. Superrelative *s-*

The prefix *s-* (with the corresponding preposition ‘from.on’) involves a slight deviation from the normal path (16c) or location (16a) and (16b) in case of directional verbs (cf. ‘off’), and a brief deviation from one’s regular and expected location, with subsequent return, in case of non-directional verbs (16d).

- (16) a. Platok s-polz s ee golovy.
shawl s-crawled^{dir} from.on her head
 ‘The shawl displaced from her head’
- b. Sumasšedšij s-bežal iz lečebnicy.
insane s-ran^{dir} from hospital
 ‘The insane man ran off from the hospital’
- c. poezd so-shel s reljs.
train s-walked from rails
 ‘The train derailed’
- d. S-begaj za pivom!
s-run^{non-dir} for beer
 ‘Run get some beer (quickly, and then return)’

Two components are common for *s-* with directional verbs of motion:

- There is a sense in which the figure is expected to stay at the origin (the shawl is supposed to stay on a head, the insane man is supposed to be in the hospital, the train has an expected path, which coincides with the rails.)
- Short distance: the shawl did not even fall to the ground, the distance does not matter in escaping as long as one manages to get out, the train did not go very far without the rails. The prefix *u-* would be used if a longer distance was involved.

With non-directional motion verbs, what is relevant is that the trip does not take a long time, parallel to short path with directional verbs, and the figure returns to the starting point, i.e. the normal location.

2.5. Limitative *po-*

The preposition *po* means ‘along’ (17c), ‘according to’ (17d), ‘after’ (17e) and can also denote reason, specialization, domain and distribution. The prefix *po-* produces an inceptive reading with directional verbs, and delimitative reading with non-directional verbs. There are also ‘super-superlexical’ prefixes, with a meaning different from superlexical use. One of them scopes over plural undergoers (17f) (preceding the lexical prefix ‘*vy-*’), and the other one scopes over the degree of intensity of the event (17g) (preceding the lexical prefix ‘*ob-*’). These fall with the interpretation of *po-* as limitative, as in the first case the event is limited by the number of participants, and in the second case the degree of intensity is limited.

- (17) a. po-bežatj
PO-run^{dir}
 ‘to start running’

- b. po-bégatj
PO-run^{non-dir}
'to run for a little bit'
- c. bežatj po dorog-e
run along path-DAT
'to run along the path'
- d. My dialektiku učili ne po Gegelj-u
we dialectics learned not according.to Hegel-DAT
'We learned dialectics not according to Hegel'. (Majakovsky)
- e. Zapiski, ostavšiesja po smert-i knjagin-i,
notes, remaining after death-DAT princess-GEN
opublikovali nasledniki.
published heirs
'The heirs published notes which remained after the death of
the princess'
- f. Vse starushki v derevne po-vy-merli.
all old.women in village PO-VY-die
'All the old women in the village have died out one by one'
- g. Sapožki za zimu po-ob-nosilisj.
boots in winter PO-OB-wear
'The boots became a little worn out over the winter.'

Importantly, both *po*-s pattern more with superlexical prefixes, thus breaking away from the general pattern where the lexical prefix appears with the directional motion verbs and the super-lexical prefix appears with non-directional verb. Like a lexical prefix, the inceptive *po*- attaches to the telic stem and cannot stack, but like a superlexical prefix does not allow secondary imperfectives. The delimitative *po*- attaches to the atelic stem, does not allow secondary imperfectives, and can stack - like a typical superlexical prefix. There is also a super-superlexical *po*-, which scopes over the plural undergoers (17f), or over the degree of an achievement (17g).

2.6. Summary

Thus, a clear distribution emerges of lexical and superlexical prefixes, where the lexical prefixes, occurring with directional motion verbs, belong to the spatial domain, modifying the movement of figure in space with respect to a certain ground. The superlexical prefixes, occurring with non-directional motion verbs, shift the central prefix meaning into the time domain, describing the movement of figure in time with respect to the event. The prefix meanings discussed are summarized in the table below:

(18) **Prefix Meanings**

	Preposition	Prefix with directional verbs (SPACE)	Prefix with non-directional verbs (TIME)
<i>pere-</i> 'over'	N/A	crossing a boundary	exceeding
<i>pro-</i> 'through'	'about'	distance	duration
<i>do-</i> 'up.to'	'up to'	reaching a location	reaching a state
<i>ot-</i> 'away from'	'away from'	movement away from a point	state after an end state movement away in time
<i>s-</i>	'off'	slight deviation/displacement	leave and come back
<i>za-</i>	'behind'	behind	inceptive
<i>po-</i>	'along'	inceptive	delimitation

It becomes apparent from table (18) that while for most prefixes, the common meaning is straightforward, the last three prefixes *s-*, *za-* and *po-* demand additional explanation.

3. Analysis**3.1. Conceptual vs. structural content**

There are several logically possible directions of analysis. The least desirable alternative is homophony, where there are several idiomatic meanings per prefix, and the fact that they sound the same is historically grounded, but synchronically irrelevant. An exhaustive list of all the uses is descriptively adequate, e.g. in the classic Ožegov (2001) dictionary, as well as in Shvedova (1980) grammar, all the prefixes and prepositions are listed with at least two meanings. Yet, these meanings are interrelated, and the relations between them are predictable. Treating the polysemy as homophony does not allow one to capture any generalizations about these relations. However, it seems that these generalizations are too omnipresent to be attributed to mere coincidence.

An analysis attributing polysemy to homophony has no predictive value, so any meaning of a prefix would be equally expected while their use is not arbitrary. Homophony would also present a problem for language acquisition: if a child, encountered with two identical morphemes, which have some overlap in meaning, is free to assume homophony, one would be free to hypothesize the existence of a homophone with a close meaning but slightly different properties for every word, leading to completely unacquirable chaos. An ideal solution, on the other hand, would unite prepo-

sitions and prefixes, so that each prefix would have one meaning, which would vary predictably depending on its function.

I assume that one part of the meaning comes from the lexicon and another part of the meaning comes from the syntactic structure (cf. Borer (2005), Ramchand (2008)). The ‘generative-constructivist’ view taken in Ramchand (2008) is that the reason syntactic structures have meaning is that they are “systematically constructed as part of a generative system (syntactic form) that has predictable meaning correlates”. Borer (2005) argues that the structural position is the source of syntactic and argument structure information such as transitivity in (19a), (19b) or the distinction between mass and count nouns (19c), (19d), or proper vs. common names (19e), (19f), or even part of speech (20).

- (19)
- a. The alien stared at Kim.
 - b. The alien stared Kim out of the room.
 - c. This is too little carpet for the money.
 - d. There are three wines in the cellar.
 - e. Cat came. (proper name interpretation)
 - f. The three Kims I met yesterday were all tall. (common name interpretation)
- (examples from Borer (2005))

The syntactic structure, as evidenced by functional words, morphology and word order, contributes meaning. For example in (19b) *stare* obtains a new causation meaning, not present in its substantive listeme, due to the fact that it is used as a transitive verb.

A substantive listeme is a unit of the conceptual system, and its meaning never interacts with the computational system, according to Borer. Thus, the use of any particular substantive listeme (e.g., *stare*) will return a meaning based fundamentally on its conceptual value (e.g. ‘to look intensely’). ‘A grammatical structure will return an interpretation as well, based on combinatorial, computational principles of interpretation assignment, together with the structural properties of functional vocabulary and syntactic structure’ (Borer 2005: 11). E.g., the transitive syntactic structure in (19b) adds the causative meaning, which is not a part of the substantive listeme *stare*. The two outputs, according to Borer, are compared in a cognitive place which is neither the grammar nor the conceptual system, where the meaning of the entire sentence emerges.

The following range of examples is offered by Borer for the English verb ‘siren’, which significantly is also compatible with nominal syntactic structure. Here, *siren* is a verb not because it is thus listed, but because it is embedded within a specific functional projection which ‘verbalizes’ it.

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- (20) a. The fire stations sired throughout the raid.
 b. The factory sired midday and everyone stopped for lunch.
 c. The police sired the Porsche to a stop.
 d. The police car sired up to the accident.
 e. The police car sired the daylights out of me. (from Borer 2005).

A similar Russian example of argument structure and meaning determined by the structural position of a verb in a sentence (21) is brought up in Rakhilina (1998). While (20) shows the flexibility of one root, whose meaning is affected by structure, (21) shows the productivity of one construction or frame for several roots. In the construction below, practically any imperfective verb denoting manner of motion, or noise accompanying the motion, may replace ‘move’:

- (21) a. Diližans exal /plyl /skoljzil /pilil /česal čerez
vehicle drove /floated /glided /sawed /brushed through
 derevnju.
village
 ‘The vehicle drove /floated /glided /sawed /brushed through
 the village’
 b. Diližans molotil /uxal /xljupal /uljuljukač čerez
vehicle hammered /hooted /sloshed /screamed through
 derevnju.
village
 ‘The vehicle hammered /hooted /sloshed /screamed through
 the village’

However, the ‘making noise along the way’ interpretation is not available with potentially addressed noise production such as:

- (22) a. *Maljčik pel /kričal /uljuljukač čerez derevnju.
boy sang /shouted /screamed /through village
 ‘*The boy sang /shouted /screamed (while walking) through
 the village’, but available interpretation: ‘The boy sang /shouted
 /screamed (to smb.) across the village’.

Another case of structure giving rise to a linguistically relevant distinction is the contrast between monotonic and non-monotonic measurable properties, as described by Schwarzschild (2002). In (23) what is measured is determined solely by whether the prepositional phrase or a compound is used, and does not depend on the lexical entries of the lexemes involved. The degree of ‘monotonic’ properties, like length, is a reflection of amount, while the degree of ‘non-monotonic’ properties, like temperature, is not. Thus, the contrast below emerges:

- (23) a. a foot of cable
 b. quarter inch cable
 c. seven pounds of potato
 d. seven pound babies

The measurement in (23a) refers to length, which, as a monotonic property, decreases if we take less cable, while the measurement in (23b) refers to the diameter of the cable, which, as a non-monotonic property, does not change with the amount of cable in question. Thus, it is the structure that allows one to distinguish between the monotonic and non-monotonic properties. The lexical entries of the words used are unlikely to be the source of the contrast, as they are the same except the presence of the preposition ‘of’, whose lexical entry cannot possibly contain the distinction.

The same distinction is used by Součková (2004a), who analyzes the prefixes *na-* and *po-* in Czech as measure functions, applied both to homogeneous and quantized predicates. In this view a directed motion verb introduces the path, which acts as the monotonic scale measured by the prefix *po-*, while in the absence of other scales the time becomes the domain of the measure function. I.e. one aspect of meaning of *po-* remains constant, and that meaning (e.g. ‘a little’) is the contribution of the conceptual listeme *po-*, which may scope over path, time, or degree, depending on structure.

Then, the interpretation of certain verbal prefixes as measure functions becomes parallel to the contrast of monotonic vs. non-monotonic properties, illustrated in (23), where the domain of the measure function depends on the structural position where it is introduced.

Similarly, as argued in this paper, the interpretation of a prefix may depend on the position where it is attached, allowing it to preserve its conceptual content as a single function, which scopes over different domains in different syntactic positions; thus both the lexical entries and the structure are brought together to derive the relevant meaning.

The position which I adopt here is that there is a non-structural component of meaning of a preposition/prefix, and each position in a syntactic representation has a specific, independently motivated meaning. For example, the unique meaning of *pro-* ‘through’ would combine with the meaning contributed by the position either in the path domain or in the time domain, to result in the reading of overcoming a certain distance (if *pro-* is attached at the path level) or lasting a certain time (if *pro-* is attached at the time level).

As the table (18) shows, for many prefixes, such as *do-*, *pro-*, *pere-* the superlexical meaning can be obtained by simply taking the meaning of the lexical prefixes and applying this same meaning to time. However, straightforward transfer of the conceptual meaning to time has limitations for the prefixes *po-*, *za-*, *s-* and, possibly, *ot-*.

For example, there is nothing about the spatial meaning of *za-* ‘behind’

that would correspond to inception. It could feasibly just as well be a completive prefix with the meaning ‘behind completion’ and a denotation similar to *ot-*. Moreover, for many transitive non-motion verbs *za-* does have a completive meaning, and the same verb with the same prefix *za-* may be ambiguous:

- (24)
- a. *schekotatj* ‘to tickle’
 - b. *za-schekotatj* ‘to tickle (to death, to hiccups, to unconsciousness, to extreme annoyance, etc.)’
 - c. *shipatj* ‘to pinch, bite (about frost)’ (transitive); ‘to hurt’ (intransitive)
 - d. *za-shipatj* ‘to pinch (to death, etc.)’ (completive)
 - e. *v glazu za-schipa-lo*
in eye.LOC ZA-pinch-PAST.3N
 ‘The eye started to hurt’ (inceptive, *lit.* ‘it started to hurt in the eye’)

This contrast between the uses of the same prefix shows that the association to a specific position is not driven by the conceptual entry, which remains constant across both uses of the prefix. So there must be some syntactically visible diacritic, which determines which prefix may occur in which position, and there must be something about the position that introduces the initiation vs. completion meaning. How this is achieved is the subject of the next section.

3.2. Lexical Prefixes

Once the existence of two classes of prefixes is established: lexical and superlexical (see introduction for references), it turns out that each class should be subjected to a tripartite division, supported by the similar syntactic behavior of the prefixes in each class (cf. Filip (2003) arguing for source-goal asymmetry displayed by Slavic prefixes).

I show in this section that the lexical prefixes are grouped into three types with contrasting syntactic properties: ‘FROM’, ‘VIA’ and ‘TO’ prefixes, respectively referring to the source, path, or goal of movement. The contrast between source and goal prefixes in Slavic languages has been widely discussed. In Czech, according to Filip (2003) and Součková (2004a), the contrast between Source and Goal prefixes is evident from their compatibility with measurement phrases (e.g. ‘a little’, and prefix *po-* with a similar meaning), where Source prefixes, as open scale predicates, are compatible with measurement phrases, while Goal prefixes, as closed scale predicates, are not.⁷ Filip (2003) also argues for a telicity contrast between Source and Goal prefixes.

⁷Note the similarity of such contrast to the compatibility of superlexical prefixes in section 3.3 with the time measurement phrases, determined by the closed vs. open scale interpretation

Similarly, Pantcheva (2007) considers a tripartite division of Bulgarian prefixes into source, path and goal, based on the compatibility of prefixes with verbs with different subeventual structure. Pantcheva (2007) divides the motion verbs into four classes, depending on which subeventual heads (*initiationP*, *processP* and *resultP*) they instantiate. It turns out that Source prefixes appear to be available only for motion verbs that do not instantiate *init*, i.e. lack an external ‘Initiator’ argument (e.g. *padam* ‘fall’, *butam se* ‘push oneself’). Similarly, the Goal prefix attaches only to motion verbs that have no *res* feature, i.e. do not lead to a particular result state (e.g. *tancuvam* ‘dance’, *butam se* ‘push oneself’).

The existence of separate source and goal nodes has also been widely used in analysis of adpositions, Axial Parts (Svenonius 2006) and Case (Caha 2007).

This section will show that contrasting syntactic properties of motion verbs with various lexical prefixes allow for a tripartite division (FROM, VIA and TO), which turns out to correspond to the semantic division of the prefixes into source, path and goal.

The ability to introduce a direct object which is not an argument of the verb separates the ‘VIA’ lexical prefixes from the others. Only the *pro-* and *pere-* prefixes, which involve movement through or across, introduce direct objects as in (25a) and (26a). In (25a) and (26a) the ability of the VIA prefixes to license a direct object is illustrated.

- (25) a. Avtobus *pro-exal* moju ostanovk-u.
bus PRO-*drove my-ACC bus.stop-ACC*
 ‘The bus drove past my stop’
- b. **exatj* ostanovk-u
drive-INF bus.stop-ACC
 intended reading ‘to drive a bus stop’, where the bus stop is a point along the path, is not available, but the sentence is grammatical if bus-stop is interpreted as a measure of distance between two bus stops.
- (26) a. Devočka *pere-plyla* rek-u.
girl PERE-*swam river-ACC*
 ‘The girl swam across the river.’
- b. **plytj* rek-u
swim-INF river-ACC
 (‘to swim a river’)

Compare the contrast in (26) with the behavior of the prefix *do-* in (27), which might appear to introduce a direct object in very limited contexts, usually with measurement phrases. Crucially, unlike in (26), the phrase in Accusative is just as grammatical with the intransitive unprefixed verb *plytj* ‘to swim’, and is most likely an adjunct:

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- (27) a. Do-*plytj* *ostavshiesja* *pjatj* kilometrov emu
 DO-*swim*.INF^P *remaining*.ACC *five*.ACC *km* *him*.DAT
pomeshali *volny*.
prevented^P *waves*.NOM.
 The waves prevented him from completing swimming of the remaining 5 kilometers. (he did not reach the goal)
- b. *Plytj* *ostavshiesya* *pjatj* kilometrov emu
swim.INF^I *remaining*.ACC *five*.ACC *km* *him*.DAT
meshali *volny*.
prevented^I *waves*.NOM.
 The waves were preventing him from swimming the last five kilometers. (but he still might have reached the goal)

Thus, the prefixes *pro-* and *pere-* are grouped together as introducing a direct object, and semantically they also belong together, as describing the path taken, rather than the departure point or the goal. Another property uniting them is the lack of corresponding prepositions: there is no preposition *pere*, and the preposition *pro* ‘about’ does not have a spatial meaning. These prepositions are set apart under the label VIA.

	VIA		FROM and TO						
	<i>pro-</i>	<i>pere-</i>	<i>v-</i>	<i>za-</i>	<i>pod-</i>	<i>do-</i>	<i>s-</i>	<i>vy-</i>	<i>ot-</i>
Dir. obj.	yes	yes	no	no	no	no	no	no	no
Preposition	no	no	yes	yes	yes	yes	yes	yes	yes

Markovskaya (2006) presents evidence from Russian in favour of the existence of a Goal and Source asymmetry based on the distribution of Goal and Source prefixes, which appears to be subject to the Identity Condition:

- (28) *Identity Condition* The verbal prefix corresponds to the type of the prepositional phrase it co-occurs with, where the type refers to the distinction between Goal and Source prefixes/prepositions. (Markovskaya 2006: 6)

As illustrated in (29), the combinations of the Source prefix *vy-* with the Source preposition *iz* are grammatical:

- (29) a. *My vy-šli* **v* *dom* /*iz* *doma*.
we OUT-*went* *in* *house*.ACC /*out* *house*.GEN
 We went (into the house/)*out* of the house.

The combinations of the Goal prefixes *v-*, *za-*, *pod-*, *do-* with the Goal prepositions *v-*, *k-*, *do-* are always grammatical as well. The prefix and the preposition do not need to be identical; simply belonging to the same type

(Source or Goal) is sufficient:

- (30) a. My vo-šli v dom /*iz doma.
we IN-went in house.ACC /out house.GEN
 We went into the house(/out of the house)
- b. Deti do-šli do doma /*ot kladbičsa v
children TO-went to house.GEN /from graveyard.GEN at
 polnoč
midnight
 The children reached the house(/from the graveyard) at mid-
 night (examples a-c from Markovskaya 2006: 6)
- c. My za-šli v dom /*iz doma.
we INTO-went in house.ACC /out house.GEN
 We went into the house(/out of the house)
- d. My podo-šli k domu /*ot doma.
we UP.TO-went to house.DAT /away house.GEN
 We went up to the house(/away from the house)

The co-occurrence of Goal prefixes with Source prepositions (30), and Source prefixes with Goal prepositions (29) yields ungrammaticality.

However, the Identity Condition is not so strict on Source prefixes, which may also cooccur with Goal prefixes in cases when the structure contains a Source PP in addition to Goal PP or where the source is clear from the context (31).

- (31) a. My vy-jehali v Saratov (iz Moskvy).
we OUT-went in Saratov..ACC out Moscow.GEN
 We left for Saratov (out of Moscow).
- b. My oto-šli ot doma /k domu /v tenj.
we FROM-went from house.ACC /to house.GEN /in shade.
 We went away from the house(/to the house)
- c. Deti s-katilisj s gorki /na pol.
children DOWN.FROM-slid down.from hill.GEN /on floor.ACC
 The children slid down from the hill /onto the floor.
- d. My vy-šli v sad.
we OUT-went in garden.ACC
 We went in the garden (from the house).

On the other hand, the Goal prefixes strictly obey the identity condition, and the presence of a source does not yield completely grammatical sentences:

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- (32) a. ??*Deti do-šli ot doma *(do kladbischa) v children TO-went to house.GEN from graveyard.GEN at polnoč. midnight*
 ‘The children reached the house from the graveyard at midnight⁸’
- b. **My v-jehali iz Moskvy (v Saratov). we into-went out Moscow.GEN in Saratov.ACC*
 We left Moscow for Saratov. (Markovskaya 2006: 6)

Thus, the following division emerges between non-VIA prefixes, according to their susceptibility to the identity condition:

	TO				FROM		
	<i>v-</i>	<i>za-</i>	<i>pod-</i>	<i>do-</i>	<i>s-</i>	<i>vy-</i>	<i>ot-</i>
Identity Condition	strict	strict	strict	strict?	no	no	no

The Source-Goal asymmetry is also present, and more visibly so, for the prepositions. Since Slavic prefixes are, with some minor exceptions, homophonous to spatial prepositions, the contrasting properties of the corresponding prepositions should bear upon the classification of prefixes.

It has been argued by Matushansky (2002) that prepositions and prefixes constitute a single category P and have the same morpho-phonological status (see also Pantcheva 2007). Svenonius (2004b) as well argues that the lexical prefixes in the Slavic languages should be understood as originating in a prepositional complement of the verb.

Thus, a preposition is a P head that has a DP or a CP complement. A prefix is a P head that takes a verbal projection as its complement. The prepositions can be classified on the basis of the case they assign to their DP complements. This classification turns out to coincide to some extent with the semantic division between Source and Goal prepositions and their homophonous prefix counterparts, and to the classification of prefixes based on Identity Condition in the table above.

The prefixes grouped under TO correspond to the prepositions ambiguous between static place, and dynamic place-to-which. The prefixes grouped under FROM are compatible with arguments in PPs in genitive.⁹

⁸Markovskaya (2006: 6) lists this sentence as borderline, though to myself and native speakers I consulted it sounds ok, especially with an added measurement phrase *za polčasa* ‘in half an hour’, or *bystro* ‘fast’. However, without any time modification it does feel somewhat incomplete, and without the Goal PP *do kladbischa* it is completely ungrammatical.

⁹Note that the prefix *do-*, surprisingly, patterns with FROM prepositions. As its meaning ‘up to a certain point’, involves overcoming a certain distance, rather than

	FROM			VIA		TO			
	<i>s-</i>	<i>vy-</i>	<i>ot-</i>	<i>pro-</i>	<i>pere-</i>	<i>do-</i>	<i>v-</i>	<i>za-</i>	<i>pod-</i>
Dir. obj.	*	*	*	yes	yes	*	*	*	*
Identity Condition	no	no	no	N/A	N/A	strict?	strict	strict	strict
Case assigned in PP	GEN	GEN	GEN	N/A	N/A	GEN	ACC LOC	ACC INS	ACC INS

The examples below illustrate the cases used with the prepositions corresponding to the prefixes discussed.

- (33) a. Koška *za-lezla* v ška**f** /*za* ška**f**
cat ZA-climbed in wardrobe-ACC /behind wardrobe-ACC
 /*pod* stol.
 /*under table-ACC*
 ‘The cat climbed into the wardrobe / behind the wardrobe /
 under the table’
- b. Koška *sidi*t v ška**f**u /*za* ška**f**om /*pod*
cat sits in wardrobe-LOC /behind wardrobe-INS /under
stolom
table-INS
 ‘The cat sits in the wardrobe / behind the wardrobe / under
 the table’
- c. Malyš *do-polz* **do** stola
child DO-crawled DO table-GEN
 ‘The child crawled (all the way) to the table’
- d. Malyš *s-vali*ljsja **s** divan-a.
child S-fell S couch-GEN
 ‘The child fell off the couch’
- e. Malyš *vy-lez* **iz** krovat**k**-i.
child VY-climbed from.in bed-GEN
 ‘The child climbed out of the bed’

Thus, three groups of lexical prefixes emerge: FROM, VIA and TO, corresponding to source, path and goal.

3.3. Superlexical Prefixes

The previous section displays and conceptually motivates the tripartition for the lexical prefixes. This section shows how the superlexical prefixes mirror the division in the temporal domain, falling into ‘inception’, ‘duration’ and ‘completion’. Crucially, however, the distribution of prefixes among these groups is not identical for lexical and superlexical prefixes,

barely arriving, it may display properties of both TO and FROM prefixes, which could be achieved by joint node occupation.

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but appears rather arbitrary. Some of the superlexical meaning of prefixes may be derived by simply applying the conceptual (spatial) meaning to time, which would suffice for *pro-*, *pere-* and *do-*. However, for the other prefixes, the addition of the structural component of inception, duration and completion is the only way to derive the superlexical meaning from the conceptual entry. This motivates the existence of the three levels on superlexical level as well, as well as the existence of diacritics, specifying to which structural position a given prefix may be inserted.

The superlexical prefixes may be divided into three groups on the basis of ‘in an hour’ and ‘for an hour’ tests. The data, summarized in the table below, suggests a tripartite (actually, quadripartite, counting the prefix *s-*) division of prefixes: those that allow no time modification, those that allow only ‘for two hours’ modification, *s-*, which allows only ‘in two hours’ modification, and the prefixes that allow both. The reason why *s-* is incompatible with ‘for an hour’ modification appears to be pragmatic, as it is a part of the meaning of *s-* that the trip has minimal duration.

Then, a tripartite division emerges, which I suggest analyzing in terms of division into inception, duration and completion. It turns out that the inceptive *po-* and *za-* pattern together as disallowing both modifications; *pro-*, *po-*, and *pere-*, which all refer to duration, pattern together allowing only modification of ‘for an hour’ type. *Do-*, *ot-*, and *s-*, all of which refer to completion also pattern together, allowing ‘in an hour’ modification.

	INCEPTION		DURATION			COMPLETION		
	<i>po-</i>	<i>za-</i>	<i>pro-</i>	<i>po-</i>	<i>pere-</i>	<i>do-</i>	<i>ot-</i>	<i>s-</i>
-dva časa (for two hours)	*	*	yes	yes	yes	yes	yes	*
-za dva časa (in two hours)	*	*	*	*	*	yes	yes	yes

The examples below present all the felicitous combinations. The completive prefixes *do-* and *ot-* allow ‘for an hour’ modification, where the time duration is an argument of the verb, along with ‘in an hour’ modification, where the temporal PP is a modifier with a freer syntactic position. The prefix *s-* allows only ‘in an hour’ modification, thus occupying an intermediate position, which could be explained by the fact that lack of duration is a part of the meaning of the prefix. In (34a) and (34b) ‘for an hour’ modification is illustrated.

- (34) a. Okazalosj tak tjaželo do-plavatj lišnie dvadcatj minut.
turned.out so hard DO-swim extra twenty minutes
 ‘It turned out so hard to finish swimming the extra twenty minutes.’

- b. Matrosy ot-plavali rejs.
sailors OT-swam trip.
 ‘The sailors completed sailing the trip (and will not sail again)’
 ‘The sailors completed sailing the trip (and will not sail again)’

All the completive prefixes *do-*, *ot-* and *s-* are compatible with ‘in an hour’ type of modification:

- (35) a. Za tri goda on do-plaval do kandidat-a v mastera
in three years he DO-swam till candidate-GEN in masters
sporta.
sports
 ‘In three years he swam enough to be a Candidate for Master of Sports’
 b. Devočka ot-plavala propuschennye zanjatija za dva časa.
girl OT-swam missed sessions in two hours
 ‘The girl finished swimming (what she was supposed to) for the missed sessions in two hours’
 c. Napugannaja gostj-a s-begala v apteku za pjatj
scared guest-FEM S-ran in pharmacy in five
minut.
minutes
 ‘The scared guest ran to the pharmacy (and back) in five minutes’

The duration prefixes are only compatible with ‘for an hour’ modification.

- (36) a. Čertko pro-plaval dva časa.
Čertko PRO-swam two hours
 ‘Čertko swam for two hours’
 b. Čertko po-plaval dva časa.
Čertko PO-swam two hours
 ‘Čertko swam (briefly) for two hours’

With *pere-*, ‘for an hour’ time modification is rather marginal, sampled by one example on Ruscorpóra, and the ‘extra ten minutes’ measures the duration of the excess compared to norm, rather than duration of the whole event:

- (37) Pora vyxoditj, a Čertko vse esche net, desjatj linix minut
time.to go.out but Čertko yet no, ten extra minutes
pereplaval.
PERE-swam
 ‘It is time to get out, but Čertko is still not here, he swam for ten extra minutes’

Thus, three groups of superlexical prefixes emerge with distinct semantic and syntactic behavior: inceptive, durational and completive. Inception introduces a point of transition, the starting point, which, as a point, has no length and cannot be measured, hence its incompatibility with any type of time modifiers. The ‘duration’ prefixes add duration to the activity, which can be measured by ‘for an hour’ measure phrase. The ‘completion’ prefixes introduce an end to an activity, turning a line into a closed measurable piece with a definite endpoint, hence compatibility with both types of time measure phrases, depending on whether the duration or completeness of the activity is emphasized. The verbs with the *s-* prefix (e.g. *s-begatj* ‘to run there and back’) are sometimes analyzed as semelfactive (Janda 2006) and are, as such, incompatible with ‘for two hours’ modification, as a part of the meaning of the prefix is lack of duration.

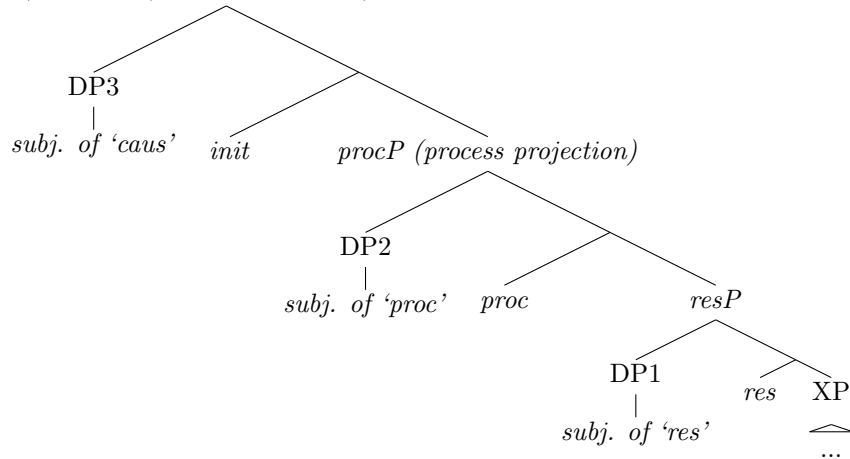
3.4. First Phase Syntax and Principle of Event Decomposition

On the basis of a cross-linguistic study of verb semantics and argument structure, Ramchand (2008) proposed a tripartite division into initiation, process and result. This order is motivated by the Principle of Event Composition (Ramchand 2008), where initiation leads to process and process potentially leads to a result state:

- (38) If a head X which introduces an eventuality variable e_x , embeds a projection YP where Y introduces the eventuality variable e_y , then the structure is interpreted as $e_x \rightarrow e_y$ (e_x ‘leads to’ e_y).

Thus, if the head X is initiation, and the head Y is the process, the initiation leads to the process, which, in the same fashion, leads to result. Each of these subevents is represented as its own projection, ordered in the hierarchical embedding relation as shown below in (39) (Ramchand 2008: 46).

(39) *initP* (causing projection)



Each subeventual head enters in a predicational relation with the specifier position. Thus, the three core projections suggested by Ramchand (2008: 48) are:

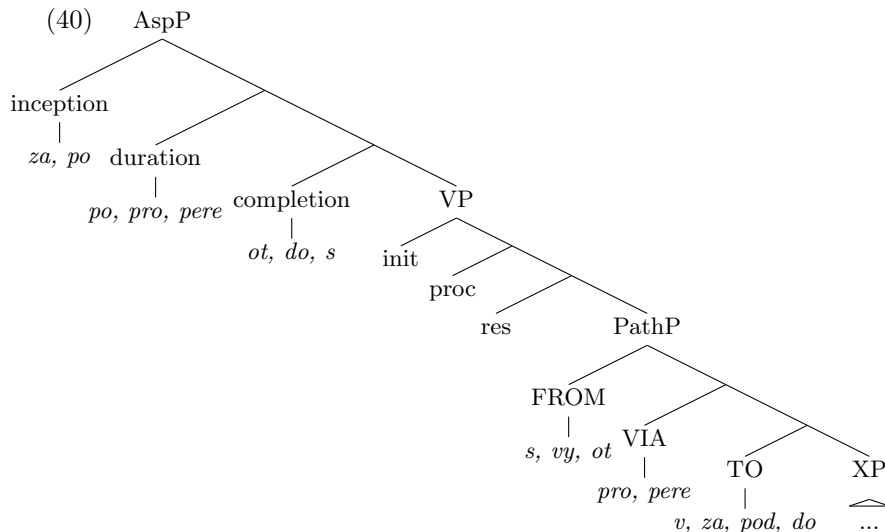
- *initP* introduces the causation event and licenses the external argument (subject of cause = INITIATOR)
- *procP* specifies the nature of the change or process and licenses the entity undergoing change or process (subject of process = UNDERGOER)
- *resP* gives the telos or result state of the event and licenses the entity that comes to hold the result state (subject of result = RESULTEE) (Ramchand 2008: 48)

Pantcheva (2007) shows that for lexical prefixes the same schema works, so that, according to the Principle of Event Composition (38), departing FROM the source leads to traveling VIA a certain path, which leads to arrival TO the destination point. Thus, each of these path subparts may be put into a separate projection in a Path phrase inside VP (Svenonius 2004b), with the hierarchical ordering: FROM → VIA → TO.

This would lead to two tripartitions instantiated by the grammar, one spatial tripartition for the lexical prefixes inside the Path Phrase, and another tripartition corresponding to the event decomposition. If this is correct, and if the superlexical prefixes can also be divided into three types as I suggested in section 3.3, it is conceivable that the subevent types also correspond to the structural tripartition of the structure above VP where the superlexical prefixes are located.

Thus, my claim is that there are three VP internal projections for lexical prefixes, and three VP external projections, possibly in AspP, for superlexical prefixes, which mirror the VP subeventual structure of *init*, *proc*, *res*,

proposed by Ramchand (2004). Yet, there must be higher positions for distributive prefixes, for prefixes that measure the extent of the event, and may be some others, so the picture is far from final, but merely a stipulation reflecting only the Russian motion verbs (cf. Pantcheva (2007) for related discussion of Bulgarian).



Interestingly, as is seen from the tree (40), there is no uniformity in association of prefixes to the positions, e.g. *ot-* is exclusively compatible with source node in the Path domain and with completion in the superlexical domain. The independence of the syntactic distribution of prefixes from the conceptual listeme, and the impossibility to derive the meanings by merely transferring the conceptual prepositional meaning to time domain, is another proof that both the lexical entry and syntactic position contribute to the meaning, independently of each other.

4. Prefixes united

The position I adopt is that both the lexicon and structure give rise to meaning. Thus, each prefix must have a central meaning in the conceptual-intentional system, which is combined with the the specific meaning of a different type, introduced by each node, compatibility with which is determined by the diacritics in the lexical entry.

However, even the combination of the structural and the conceptual meanings seems insufficient to derive such superlexical interpretations as complete stop of an activity denoted by *ot-* or the inceptive meanings of *za-* and *po-*. A feasible solution is that the structural positions for superlexical prefixes may contain empty DPs with the denotations Inception, Duration and Completion. The existence of empty DPs would follow logically from

the hypothesis about the identity of prefixes and prepositions, under which the ability of prefixes to combine with the silent DP complements is not surprising. The prefixes combining with the silent DPs, unlike lexical prefixes, have no effect on the complement PP of the verb, which would be explained by a stipulation that their requirements for a complement are satisfied by DPs in the position where the prefixes are introduced.

An empty DP would act as the ground, in respect to which a figure is moving in space. For example, the combination of the conceptual meaning of *ot-* ‘away from’ with the DP ‘completion’ would mean that the figure is moving in time away from the completion point, i.e. that the event is completely over. Such interpretation would be hardly available without the empty DP ‘completion’, in which case it would remain unclear what is the ground, away from which the movement takes place. This section concentrates on how the superlexical interpretation is derived from the combination of the conceptual structure with the empty DPs.

In order to unify the meaning in time and space, imagine a figure moving in time, and encountering an event, of which the figure is the initiator, as shown below. This is in line with the widely used ‘TIME is SPACE’ metaphor (Lakoff and Johnson 1980) where space is seen as the source domain for time.

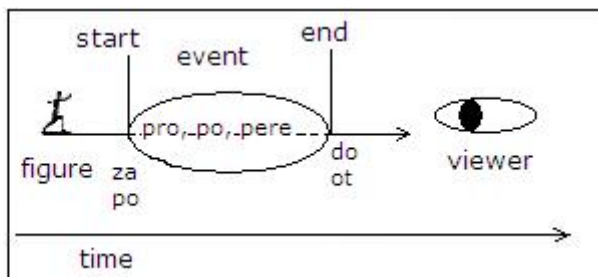


Figure 1:

4.1. Inception

The figure crosses the beginning edge of the boundary, thus starting the activity. Since the verb is either past, or future perfective, the viewer is imagined to look back. Even in the future tense, the verbs are perfective, thus the reference point is a time in the future after the beginning of the activity. Now the figure is behind the beginning, from the retrospective point of view, just like it is behind the ground when we are talking about the spatial *za-*. *Za-* is used with non-directional verbs, as well as other monotonous atelic activities, e.g. *telefon za-zvonil* ‘the phone started ringing’, or *motor za-rabotal* ‘the motor started working’. *Po-* is used with directional verbs

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of motion, and psych verbs such as to *po-kazatjsja* ‘seem’, *po-čuvstvovatj* ‘feel’ or *po-ljubutj* ‘to fall in love’. It denotes both the beginning of the activity and the fact that it took place. Now, recall that the preposition *po* means ‘along a path’, ‘according to an author’, or ‘after’. Thus, the figure proceeds along the telic activity, according to its beginning, and most likely reaching the goal.

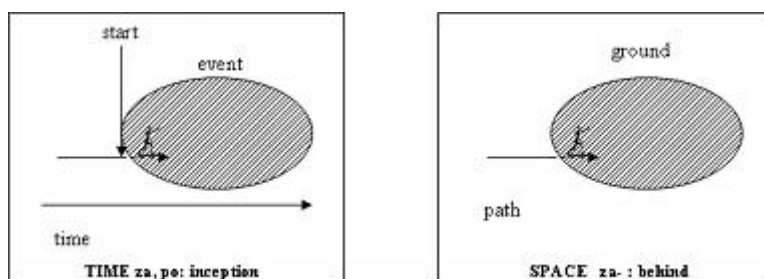


Figure 2:

Immediately, two questions arise. First, how such diverse meanings can be united, and second, tightly connected, what the reason for the distribution of *po-* and *za-* is.

The Conceptual Intentional content determines which prefix (*po-* or *za-*) is appropriate to denote inception with a particular verb. The fact that the superlexical interpretation involves inception (rather than completion, which is also a possible interpretation of both *po-* and *za-* prefixes with other non-motion verbs, see (24)) comes from the diacritic, which specifies that the prefix may be inserted into inception node, where it is combined with the silent Inception DP.

The conceptual meaning of *po-* is limitation: the activity is limited by time duration, or by the number of undergoers, where each undergoer is in turn affected by the event. In (17d) and (17e) the preposition *po* can also be argued to have a limitation meaning. In (17d) the PP limits the means of learning, and in (17e) the limitation is temporal sequence, which corresponds to the ingressive meaning of the prefix *po-*. The constructions where the preposition *po* means ‘after’ are rather limited and mostly archaic, and in all cases they delimit a transition to a point of no return: *po smerti* ‘after death’, *po pribytii* ‘upon arrival’, *po zaveršenii* ‘upon completion’, *po vozvrasčenii* ‘upon returning’, *po predjavlenii dokumenta* ‘upon showing the document’.

But how does the inceptive meaning fit in? Recall that there are two inceptive prefixes in Russian: ingressive *po-* with telic motion verbs and psych verbs such as ‘fall in love’, ‘get to know’, and inchoative *za-*, used with atelic motion verbs and monotonous intransitive verbs where the subject

goes through a considerable change of state. The diacritic that specifies that the prefix may be inserted into a particular node (Inception in this case) is identical for the two prefixes. The discussion below is dedicated to the differences between the two.

According to Zaliznyak (2005), the inceptive *za-* is used with verbs denoting homogenous situations, without distinct beginning, process and end. The inchoative phase is described as cutting out the beginning phase which allows to expect the whole process to look similarly. Most of the verbs denote perceptible events such as *za-šumetj* ‘to start making noise’, *za-bégatj* ‘to start running around’, *za-bespokoitjsja* ‘to start worrying’, *za-vonjatj* ‘to start smelling badly’, *za-beletj* ‘to become visible as white’. Zaliznyak (2005) uses this property to explain the grammaticality contrast of two uses of *za-zvonitj* ‘to ring’ below.

- (41) a. Telefon za-zvonil.
phone ZA-rang
 ‘The phone started ringing’.
- b. *Ona za-zvonila po telefonu.
she ZA-rang on phone.
 (‘She started calling (smb.) on the phone’)

According to Zaliznyak (2005), the phone ringing is a homogenous event, while a person calling goes through a sequence of different actions. This analysis could be, perhaps stretched to the example discussed in the previous section:

- (42) *Tom za-krasil zabor.
Tom ZA-painted fence
 intended meaning ‘Tom started painting the fence’, but only the result interpretation is available.

It could be argued that painting a fence is not a homogenous event, similarly to making a phone call in (41). The same contrast may be explained, as mentioned above, in line with Dobrushina et al. (2001) analysis (discussed in section 2.3) by the fact that the phone enters a new state when ringing, while the subject of calling does not go through any radical change of state while performing the act of calling. Thus, *za-* denotes the beginning of a monotonous action at the beginning of which the subject appears to enter a new state.”

The ingressive *po-*, on the other hand, is described by Zaliznyak (2005) as pointing to the fact that the action started, with an implication that it will finish. Thus, these verbs are used both to denote the beginning of an action and the fact that it took place. The prefix is compatible with the telic motion verbs *po-jti* ‘walk/go’, *po-letetj* ‘fly’, and with psych verbs *po-kazatjsja* ‘to appear/to seem’, *po-dumatj* ‘to think’, *po-ljubitj* ‘fall in love’, where the beginning of the process and the fact of it taking place are hard

to pull apart.

Crucially, the motion verbs with *po-*, often imply completion. Compare (43a), where the speaker did not get to the destination due to illness, and thus the verb refers to the beginning of walking, and (43b), where the speaker clearly arrived to the point of destination, to be caught by illness there, and thus the verb refers to the fact of both beginning and completion of the trip taking place.

- (43) a. Včera po-šla na lekciju; mne po doroge stalo
Yesterday PO-went on class me-DAT on.the way became
 ploxo.
bad
 ‘Yesterday I started walking to class, but felt sick on the way’
- b. Včera po-šla na lekciju; mne tam stalo ploxo.
Yesterday PO-went on class me-DAT there became bad
 ‘Yesterday I went to class, but felt sick there’

Also, either the beginning of the process, or just the arrival point may fall under the scope of negation. Ivan in (44a) stayed home, and never even started walking, while in (44b) he went in the direction of work, so the beginning portion did take place in spite of the negation, though he turned before getting to the destination.

- (44) a. Ivan za-bolel i na rabotu ne po-šel.
Ivan ZA-fell.sick and to work not PO-walk
 ‘Ivan fell sick and did not go to work’
- b. Ivan na rabotu ne po-šel, a svernul v kabak.
Ivan to work NOT PO-walked but turned in pub
 ‘Ivan did not go to work, but turned into a pub’

So, in a sense, limitation is also present in the ingressive meaning, where the beginning of the telic journey limits the figure to a certain path determined by the directional verb, and produces an implication of reaching the goal, thus resulting in a perfective meaning. With psych verbs, as well, the fact of beginning to love/seem/think makes loving/seeming/thinking inevitable.

Thus, *po-* in Russian is special as violating the consistent two-fold picture of lexical and super-lexical prefixes, where directional verbs combine with lexical prefixes with spatial meaning and non-directional verbs combine with super-lexical prefixes with a temporal meaning. *Po-*, on the contrary, refers to time with both directional and non-directional verbs, and seems to be superlexical in both cases.

The general picture would lead one to expect *po-* to refer to a short distance with directional verbs, parallel to short time with non-directional verbs. Indeed, according to Součková (2004b), in Czech, the opposition is as predicted by the path vs. time opposition: with directional verbs *po-* modifies path and derives ‘move a short distance’, while with non-

directional verbs *po-* modifies time and derives ‘walk for a short while’. Součková (2004b) then unifies the meanings of *po-* as ‘a little’, allowing it to contain a measure function, which fits ideally with the time vs. space dichotomy as presented for Russian.

Thus, while both prefixes *po-* and *za-* refer to beginning of an activity, their usage is rather different, and tightly connected to their basic conceptual meaning. Then the combination of the structural meaning of ‘inception’ with the conceptual prefix meaning derives the special variety of inception: either beginning of a homogeneous activity, or of a directed motion.

4.2. Duration and Completion

Figure 3 shows how the same *pro-* that measures the distance as a lexical prefix, measures the duration, when it is a superlexical prefix combined with the idiomatic DP ‘duration’. The *pere-*, which takes a boundary crossed as a complement when it is a lexical prefix, means crossing a normal duration, or the normal end boundary, when it is a superlexical prefix.

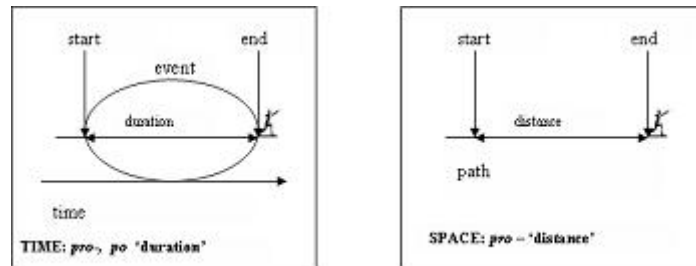


Figure 3:

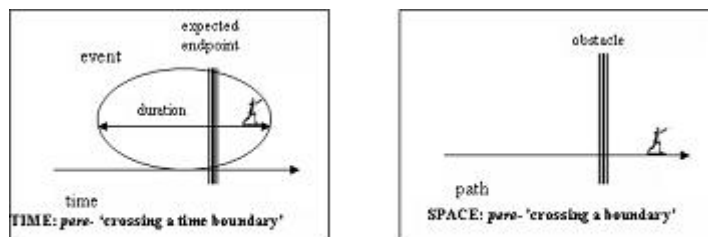


Figure 4:

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In Figure 5, *do-* is shown as the figure approaching the end point of the event, parallel to the figure approaching the ground in space, while *ot-* involves the figure moving on the timeline away from the endpoint of the event, parallel to moving away from the ground.

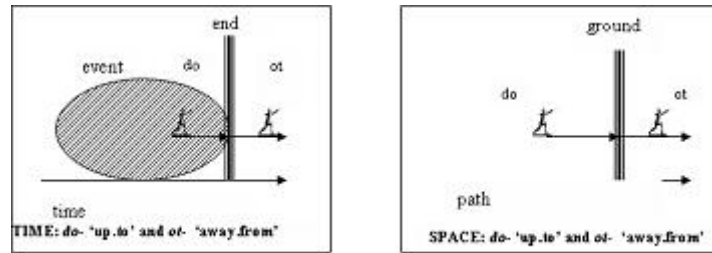


Figure 5:

In Figure 6, the challenging prefix *s-* is considered. The figure displaces from the normal location either for a short period of time, with subsequent return for superlexical prefixes, or for short distance for lexical prefixes.

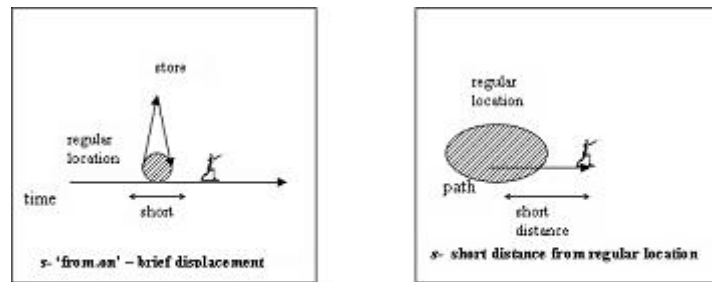


Figure 6:

Thus, the unifying schema for the prefix *s-* is short distance (paralleled by brief time on superlexical level) and presence of a basic location.

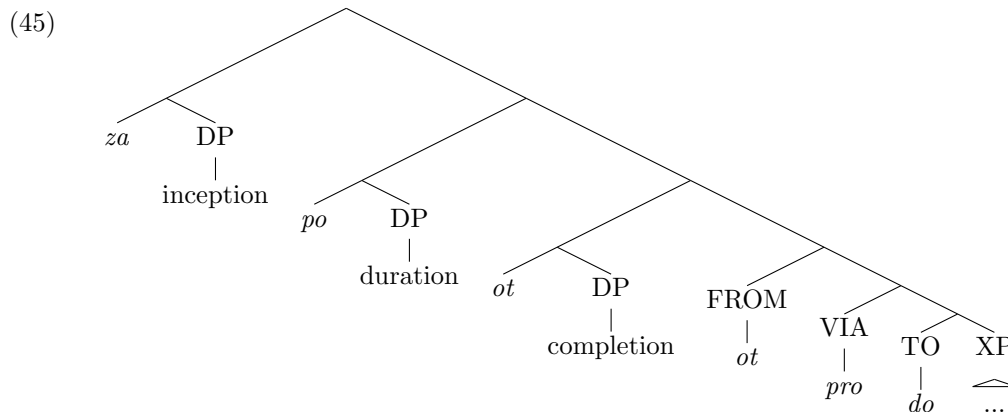
4.3. Summary

Below is a summary of the structural meanings combined with the preposition meanings deriving the verb interpretation. Each prefix is compatible with certain nodes, e.g. *za-* can appear as specifier of 'inception' or 'TO',

while *po-* is compatible with ‘inception’ and ‘duration’. This is supposedly achieved by formal syntactic properties which can only be ‘checked’ in the given syntactic position. This is possible along the lines of Borer (2005), who suggested the existence of robust syntactic properties resistant to coercion to rule out such constructions as ‘**too much carpets*’; and such properties contrast to lack thereof in lexical entry of coercible cases such as ‘*three wines*’.

- ‘Inception’ refers to the start boundary of the activity.
 - ZA- (behind) + inception = the figure is behind the beginning edge of the activity, i.e. started the activity.
 - PO- (boundedness, delimitation, according to) + ‘inception’ = the figure is limited by the beginning edge of the activity, i.e. has started the (telic) activity, and proceeds accordingly, and there is an implication that the activity will be finished.
- ‘Duration’ may be modified with a ‘for an hour’ phrase, obligatorily with PRO-, optionally with PO- (where it denotes a small time when empty), and rarely with PERE- (where it denotes excessive duration).
 - PRO- (through) + ‘duration’ = the figure goes through a certain duration of an activity (which must be specified) from beginning to end.
 - PO- (limitation) + ‘duration’ = the figure goes through a limited duration of an activity.
 - PERE- (crossing) + ‘duration’ = the figure crosses the normal duration of the activity.
- ‘Completion’ may be modified with ‘in an hour’ phrase, while the duration till completion may be modified with ‘for an hour’ phrase, hence the possibility of both modifications.
 - OT- (away from) + ‘completion’ = the figure, having completed the activity, is moving in time away from the activity (which leads to the implication of never repeating the activity).
 - DO- (untill) + ‘completion’ = the figure is moving towards the completion (and has reached it, if the verbs is in the past).
 - S- (from.on, a short deviation): the prefix patterns with completion prefixes, as allowing ‘in an hour’ modification, but disallows ‘for an hour’ modification as it involves no duration. The figure begins and finishes the activity in no time, and ends up at the starting point.

The figure (45) shows the tree uniting all the superlexical prefixes with their respective idiomatic DPs. The ‘inception’ DP does not allow any modification. It introduces the starting point, which, as a dot, has no length to be measured. The ‘duration’ DP allows ‘for an hour’ modification. It introduces a line, with no predefined endpoint, a piece of which can be measured out with the ‘for an hour’ type of modification. The ‘completion’ DP allows ‘in an hour’ modification. It introduces the endpoint to the line, thus resulting into a closed scale predicate, where the entire piece from beginning to end is measured. The basic meaning of lexical prefixes is spatial, and the temporal superlexical interpretation arises from the addition of the idiomatic DPs.



5. Conclusion

Though there is no direct evidence for this particular order of the nodes occupied by the prefixes, there is a range of data with a suspiciously familiar hierarchy, including related Slavic languages with stacking prefixes, case stacking, and Cinque (1999) adverb hierarchy.

Milićević (2004) talks about two distinct *iz*- prefixes in Serbian, a lexical and a superlexical one, and the ability of suffixes to stack in between the two leads to the conclusion that a more elaborate event structure would be necessary for a complete analysis.

Istratkova (2004) discusses a similar case of prefix stacking in Bulgarian, and shows that the fixed order of superlexical prefixes is reminiscent of Cinque’s (1999) adverb hierarchy. More evidence from Bulgarian is presented in Pantcheva (2007), where compatibility of verb sub-events with the prefixes containing various path sub-parts are explored.

The order of lexical prefixes is reminiscent of a common phenomenon (Finnish, Lezgian) where a ‘place to which’ interpretation is achieved by stacking of a location suffix onto a direction suffix. Indeed, the role of the prefixes is taken by the multitude of case suffixes in such languages, where

allative, ablative, illative, prolative etc. appear on the noun rather than on the verbs. Though these parallels demand much deeper investigation, it is clear that an elaborate structure is necessary to account for the usage of the Russian verbal prefixes.

The ‘time is space’ metaphor was shown to play a crucial role in interpretation of the prefixes. The contrast of the prefix meanings between the directional and non-directional verbs of motion gave an opportunity to describe a systematic variation of Russian prefixes from their prototypical meaning, allowing a step towards unification of prepositions and prefixes. For directional motion verbs the domain, modified by the prefix, is path, and movement is described in reference to a physical ground in space. The non-directional verbs lack path, and refer, rather, to movement of a figure in time, in reference to a point in time (beginning or end of an event) that acts as ground. This interpretation is derived by the combination of the prototypical preposition meaning with the idiomatic temporal DPs at a higher syntactic level, which leads to the differences in the syntactic behavior of these prefixes.

6. Appendix: Abbreviations

1	first person
2	second person
3	third person
acc	accusative
adj	adjective
Asp	aspect
DAT	dative
dir	directed
GEN	genitive
I	imperfective
INF	infinitive
init	initiation
INS	instrumental
LOC	locative
N	neuter
nondir	non-directed
nondir	non-directed
P	perfective
PL	plural
proc	process
REF	reflexive
res	result
sg	singular
SI	secondary imperfective

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