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Verbal prefixes in Russian: Conceptual structure versus syntax[1]

INNA K. TOLSKAYA

Center for Advanced Study in Theoretical Linguistics (CASTL), Tromsø University

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At first glance, the variety of possible denotations of a given prefix in Russian 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 Russian 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 goal, source and route of motion (TO, FROM, VIA, respectively) for lexical prefixes and to beginning, completion and duration 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

This paper addresses the problem of widespread polysemy of Russian verbal prefixes, particularly when occurring in motion verbs. I argue that seemingly different uses of a prefix share a core lexical meaning, but differ in their syntactic

[1] I am grateful to my supervisor Peter Svenonius for his advice and suggestions, to the two anonymous *Journal of Linguistics* referees and Marina Pantcheva for comments on previous versions of this paper, and to the participants in the Spring (2008) Seminar on Cross-categorial Scales and Paths and the audience at New Approaches to Russian Syntax, Groningen (June 2010) for their comments.

Abbreviations used in this paper are as follows: 1, 2, 3 = first, second, third person; ACC = Accusative; Asp = Aspect; DAT = Dative; dir = Directional; FUT = Future; GEN = Genetive; IMPF = Imperfective; IMPF2 = Secondary Imperfective; INF = Infinitive; *init* = Initiation; INSTR = Instrumental; non-dir = Non-directional; P = Perfective; PL = Plural; *proc* = Process; REF = Reflexive; *res* = Result; SG = Singular. The superscripts ^{dir} and $^{non\text{-}dir}$ mark directionality of the root.

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position. When added to a directional motion verb, prefixes behave as lexical, i.e. generated inside VP (see Romanova 2007: Chapter 3). In this case the meaning refers to the spatial domain. When the same prefix is added to a non-directional motion verb, it behaves as a superlexical prefix, i.e. is generated in a syntactically higher position, above Aspect, and its meaning is associated with the temporal domain.

Furthermore, the prefixes in the spatial and temporal domains demonstrate an intriguing parallelism: in the spatial domain, the prefixes may refer to beginning, duration and end of the path (i.e. source, route and goal) while, when applied to the temporal domain, the prefixes are associated with beginning, duration and completion of the event in time. For example, consider the prefixes in (1).

(1) (a) pro-jti pjatj kilometrov
PRO-walk^{dir} five kilometers
'to walk five kilometers'

(b) pro-xoditj pjatj chasov
PRO-walk$^{non\text{-}dir}$ five hours
'to walk for five hours'

(c) pere-plytj rek-u
PERE-swim^{dir} river-ACC
'to swim across the river'

(d) pere-plavatj v bassejne
PERE -swim$^{non\text{-}dir}$ in swimming.pool
'to swim too much in a swimming pool'

In (1a), *pro-* refers to the length of the path in space, while in (1b), the same prefix refers to duration of the activity; in (1c), the prefix *pere-* refers to crossing a boundary across the path in space, while in (1d), it refers to crossing a temporal boundary (e.g. after which swimming is inadvisable).

Prefix	Meaning of lexical prefix	Meaning of superlexical prefix
do-	adlative	completive
za-	illative	inceptive
ot-	ablative	completive
s-	superelative	'there and back'
pro-	perdurative	duration
po-	inceptive	limited duration
pere-	translative	excessive duration

Table 1
Lexical and superlexical prefixes.

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Table 1 lists some of the uses of lexical and superlexical prefixes with motion verbs.[2] This list is limited to the uses of prefixes compatible with motion verbs. The motion verbs display a directional vs. non-directional distinction, where the directional verbs denote movement to a goal, while non-directional verbs denote sporadic goal-less moving around. The directional verbs combine with lexical prefixes and the non-directional ones combine with superlexical prefixes.

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, for example, in the classic Ožegov (2001) dictionary, as well as in Švedova's (1980) grammar, the prefixes 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 the synchronic generalizations about these relations.

Homophony would also present a problem for language acquisition, as the historical data cannot be available to a language learner. A child encountering two identical morphemes which have some overlap in meaning should initially assume that it is the same lexeme, and try to establish rules for its distribution, rather than freely assume homophony. Thus, the preferable solution would unite the 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 (see Borer 2005, Ramchand 2008). The 'neo-constructivist' view taken by Ramchand 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' Ramchand (2008: 11).

The position which I adopt here is that there is a non-structural component of meaning of a prefix which comes from the lexicon, and that 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).

I adopt a 'neo-constructivist' viewpoint, in particular 'the first-phase syntax' of Ramchand (2008) and a cartographic approach to syntax, where syntactic trees

[2] As pointed out by an anonymous *JL* referee, *za-* can refer to a short side-trip with some of the verbs (e.g. *za-bežatj v magazin* 'to run by the store on the way'). However, the meaning still involves briefly entering some space, so I treat them as a subclass of occlusive meaning. The briefness of the visit seems to arise from context and pragmatic knowledge, as it appears only with certain goal complements, mostly stores and people visited, and is often explicitly stated by adding phrases like 'on the way' or 'for a second'.

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are built from individual atomic features. Furthermore, I rely crucially on the lexical/superlexical distinction in the first phase syntax framework (see Svenonius 2004a).

The lexical prefixes are grouped into three types with contrasting syntactic properties: 'Route', 'Source' and 'Goal' prefixes, referring, respectively, to the trajectory, source and goal of movement (see Zwarts 2005, Gehrke 2008, Pantcheva 2011).

The contrast between Source and Goal prefixes in Slavic languages has been widely discussed. In Czech, according to Filip (2003) and Součková (2004), 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.[3]

Furthermore, Pantcheva (2007) considers a tripartite division of Bulgarian prefixes into Source, Path and Goal, based on the compatibility of prefixes with verbs with different subevental structure. Pantcheva (2007) divides the motion verbs into four classes, depending on which subevental heads (*init*(*iation*), *proc*(*ess*) and *res*(*ult*)) 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* 'I fall', *butam se* 'I push myself'). 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* 'I dance', *butam se* 'I push myself'). Crucially, Pantcheva (2011) further argues for a decomposition of the Path head into Goal, Source, and Route, on the basis of cross-linguistic data showing that different types of paths are of different complexity and only syncretism of adjacent nodes is attested.

I argue for a parallel tripartite division of superlexical prefixes, into inception, completion and result (reminiscent of the homomorphism between an event and a generalized path introduced by Krifka 1998). Once the existence of the lexical and superlexical division, with a tripartite structure on each level, is established, I will show the meaning contribution of the structure, which will allow me to reduce 'homophonous' prefixes to a single lexical entry.

2. The framework

2.1 *Lexical and superlexical prefixes*

In this paper I adopt the division of Russian verbal prefixes into two classes, which correspond to the lexical vs. superlexical distinction (Isačenko 1960, Schoorlemmer 1995, Babko-Malaya 1999, Romanova 2004,

[3] Note the similarity of such contrast to the compatibility of superlexical prefixes with the time measurement phrases, determined by the closed vs. open scale interpretation.

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Svenonius 2004a). Lexical prefixes, as potential argument-structure modifiers, are generated in a position inside VP. Superlexical prefixes modify the event itself and do not change argument structure or the core meaning of the base verb and are therefore syntactically higher, above the Aspect head (Pereltsvaig 2006). According to Romanova (2004), the lexical prefixes attach mostly to perfective or telic stems (if the verb is supplied with the option), allow the verb to form secondary imperfectives, cannot stack, do not measure over objects, and can change the argument structure of the verb. This behavior corresponds to a low prefix position inside VP (*pere-* in (2a), *vy-* in (2b), *nad-* in (2c) below).

Superlexical prefixes attach to imperfective or atelic stems, do not allow the verb to form secondary imperfectives, can stack (though this is not a frequent phenomenon in Russian), can measure over events or objects, do not change the argument structure of the verb. The examples in (2) illustrate the superlexical prefixes (*ot-*, *pro-*, *po-*) stacking over the lexical prefixes ((2a, b) are adapted from Beliakov & Guiraud-Weber 1997):[4]

(2) (a) [$_{AspP}$ Ot-[$_{VP}$ pere-biral]] ty bumagi
COMPLETIVE-across-take.2IMPF you papers-ACC
uvoljnjajut tebja.
fire-3PL you-ACC
'You are done with sorting papers. They are firing you.'

(b) [$_{AspP}$ Pro-[$_{VP}$ vy-dergival]] morkovk-u poldnja.
DURATIVE-out-pull.2IMPF carrot-ACC half.day
'He spent half a day pulling out carrots'

(c) A čto ne sjem, to [$_{AspP}$ po-[$_{VP}$ nad-kušu!]]
and what not eat that DISTRIBUTIVE-slightly-bite
'And whatever I cannot eat, I will bite slightly one by one!'

In (2a) and (2b) the first, superlexical prefix, attached to the prefixed imperfective stem, refers to the time of the event, without affecting the meaning of the main verb. *Ot-* in (2a) refers to the permanent completion of the event, while *pro-* in (2b) refers to duration. *Po-* in (2c) 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 simply 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

[4] Romanova (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, and will remain outside of the scope of this paper.

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in (2) (*ot-*, *pro-*) may act as lexical prefixes with the same verbs, when adjacent to the root:

(3) (a) ot-bira-tj bumagi
away-take-INF papers-ACC
'to take away (from smb., by force)/to select the papers'

(b) pro-dergiva-tj nitku v igolku
through-pull-INF thread-ACC in needle-ACC
'to pull the thread through the needle'

While the position of the lexical prefixes in the result projection of the verb, i.e. as the verb complement and its derivation by movement, is relatively clear, both the position and the derivation of the superlexical prefixes is a matter of controversy.

Thus the first question is the position of the superlexical prefixes. Babko-Malaya (1999: 98) suggests that the 'superlexical prefixes are prefixes that are adjoined to Asp[ect] and incorporate into the verb as the result of head movement'. Pereltsveig (2006), on the contrary, uses the interplay of the superlexical prefixes with aspect suffixes to show that the superlexical prefixes must attach higher than IMPF2 (the Aspect head, containing secondary imperfective), which makes it impossible for secondary imperfective to scope outside of a superlexical prefix. Based on the evidence in Pereltsveig (2006), I assume that the superlexical prefixes are located between Tense and Aspect.

The second question is whether the superlexical prefixes originate in this position or are derived by movement. Julien (2002: 188) suggests two possibilities of prefix derivation: 'either the prefix originates in the complement of the lexical element and moves to the left of the lexical element (by head movement or XP movement) or the prefix originates to the left of the lexical element and there is no subsequent movement operation that alters the relative order of the two items'. I suggest that both of these possibilities are used by the Russian verbs: the first involves the lexical prefixes and the latter involves the superlexical prefixes.

The origin of the lexical prefixes inside the verb phrase explains the fact that the lexical prefixes can be idiosyncratic whereas the origin of superlexical prefixes above Aspect explains that the meaning of superlexical prefixes is stable and does not differ from one verb to another. Furthermore, the difference in the syntactic position explains the stress patterns, where the lexical prefixes are capable of changing the stress of the verb, while the superlexical prefixes do not affect the stress on the main verb (as in the contrast between *pro-bégatj* 'to run for a certain time' with a superlexical prefix and regular stress and *pro-begátj* 'to run by', the secondray imperfective with a lexical prefix and changed stress).

To sum up this discussion, I assume that the superlexical prefixes are base-generated in a functional projection between Aspect and Tense, while the lexical

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prefixes are base generated inside VP, and I will discuss the structure in detail in Section 3 below.

2.2 *Directional and non-directional verbs*

The list in Table 2 is a nearly exhaustive list (adapted from Janda 2006: 4) 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, to run back and forth, to run regularly'.

Meaning	Directional	Non-directional
Run	bežatj	begatj
walk with difficulty	bresti	broditj
carry (by vehicle)	vezti	vozitj
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	taschitj	taskatj

Table 2
Motion verbs: Directional and non-directional.

The prefixes with the directional verbs are lexical. As is shown in (4), they allow secondary imperfectivization and modify path.

(4) (a) pro-bežatj pjatj kilometrov
PRO-run^{dir}.P five kilometers
'to run five kilometers'

(b) pro-begátj pjatj kilometrov každoe utro
PRO-run^{dir}.2IMPF 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, as seen in (5b).

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(5) (a) pro-xoditj pjatj časov
PRO-walk$^{\text{non-dir.I}}$ five hours
'to walk for five hours'

(b) *pro-xaživatj pjatj časov každoe utro
PRO-walk$^{\text{non-dir.IMPF2}}$ five hours every morning
'to walk for five hours every morning'[5]

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 the path when lexical, refers to the time duration when it is superlexical.

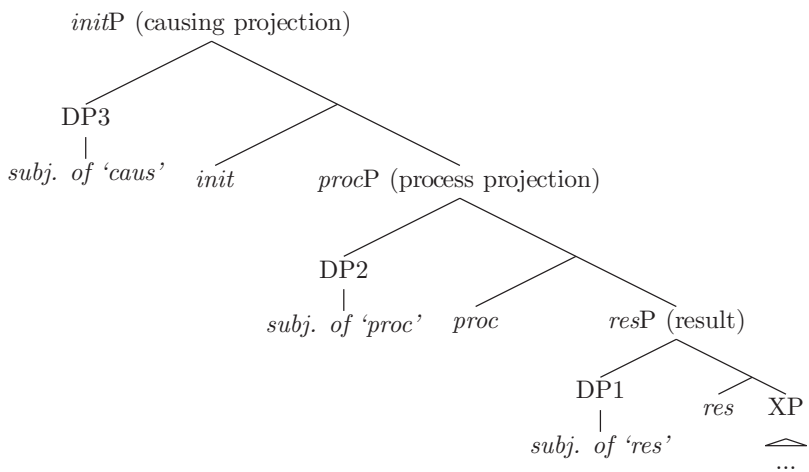
The following section provides an analysis of the directional/non-directional verb distinction and lexical/superlexical prefix distinction in the first phase syntax framework.

2.3 *Prefixes in first phase syntax*

On the basis of a cross-linguistic study of verb semantics and argument structure, Ramchand (2008) proposed a tripartite division of eventualities into initiation, process and result. Such decomposition is governed by the Principle of Event Composition (Ramchand 2008: 44), where initiation leads to process and process potentially leads to a result state.

Res and *init* projections are optional, e.g. unaccusative verbs lack the *init* projection, and unergative verbs lack the *res* projection. Each of these subevents, when present, is represented as its own projection, ordered in the hierarchical embedding relation as shown in (6) (from Ramchand 2008: 46).

(6)



[5] *Xaživatj* is the irregular secondary imperfective of the verb *xoditj* 'to walk'.

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

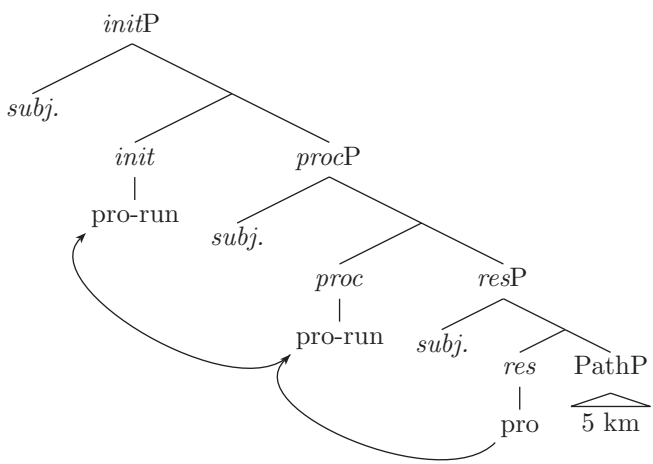
- *init*P introduces the causation event and licenses the external argument ('subject' of cause = INITIATOR)
- *proc*P specifies the nature of the change or process and licenses the entity undergoing change or process ('subject' of process = UNDERGOER)
- *res*P gives the 'telos' or 'result state' of the event and licenses the entity that comes to hold the result state ('subject' of result = RESULTEE)

Since verb meanings are compositional, there is no requirement that 'first-phase predications' be monomorphemic (Ramchand 2008: 138). This predicts productive processes of result augmentation. Therefore, lexical prefixes are treated as a morphological consequence of such result augmentation. Ramchand shows that the verbs with lexical prefixes contain a *res* projection, as evidenced by the changed semantic participation of the object, idiosyncratic interpretations and cooccurrence restrictions, and incompatibility with 'for an hour' adverbials. Since the natural result of directional motion verbs is change in location, the domain of lexical prefixes is space.

Babko-Malaya (1999) argues that the path is actually the argument of a motion verb, parallel to the patient of a real transitive verb, which further supports the tight connection of the *res* projection with the path.

With directional motion verbs, the subject is simultaneously the initiator, the undergoer and the holder of the result state (i.e. the new location, in the case of motion verbs). The 'result' of the directional verb is the location of the subject at the final point of the path specified (e.g. five kilometers from the initial location in (4a)), after having travelled that path. The diagram is (7) illustrates the composition of a directional verb with a lexical prefix and path in (4a) above.

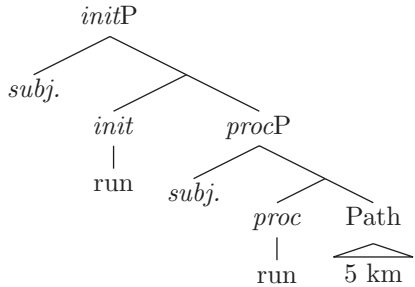
(7)



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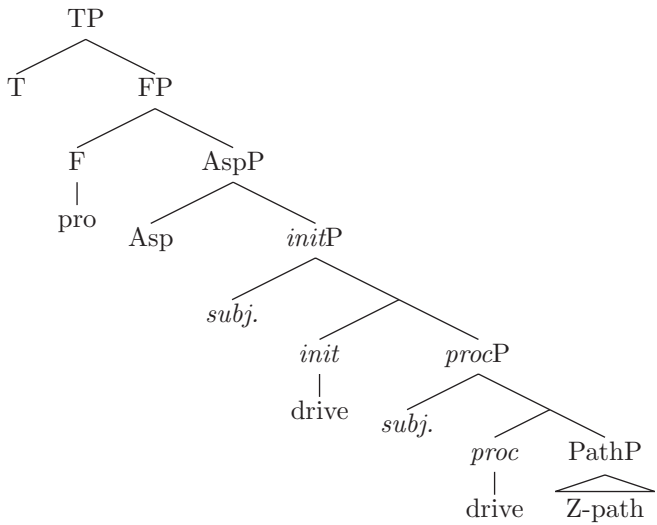
This contrasts with the unprefixed imperfective counterpart *bežatj pjatj kilometrov* 'to run.DIR five kilometers', which lacks the result projection and path is the complement of the *proc* head.

(8)



Romanova (2007) suggests that the non-directed motion verbs incorporate a silent Z-path, introduced in Rheme, in the complement of process. The Z-path stands for Zwartsian path, that is paths that overlap, cross and go back, which describes the sporadic movement without a goal, denoted by non-directional motion verbs. Thus, while both directional and non-directional motion verbs have *init* and *proc* heads, the incorporated path projection, which occupies the *proc* complement position, makes it impossible for overt paths, and hence lexical prefixes, to merge. Furthermore, the presence of an incorporated element accounts for the morphological complexity of the non-directional motion verbs, compared to the less complex directional verbs. The structure of a non-directional motion verb (*ezditj* 'to drive around') with a superlexical prefix (*pro-*) is illustrated in (9).

(9)



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At this point, it is important to clarify the distinction between telicity and perfectivity (see Borik 2006). An imperfective verb may be telic under habitual and episodic readings, thus telicity does not entail perfectivity:

(10) Petja (uže) pere-sek-a-l etot kanal za polčasa
Petja already PERE-cross-IMPF-PAST this channel in half.hour
'Petja used to cross this channel in half an hour.'
'Petja has already once crossed this channel in half an hour.'

The presence of the result projection with a lexical prefix in its specifier makes the verb in (10) telic. The secondary imperfective ensures that it is not perfective.

Similarly, Borik (2006: 78) shows that perfective verbs with superlexical *po-* and *pro-* prefixes are atelic, by adverbial modification, progressive entailment and conjunction tests, but confirms that they are perfective because they are ruled out in the complement position of the phase verbs, like regular perfectives. This is a typical situation for superlexical prefixes. Thus, telicity and perfectivity are distinct categories and do not entail each other.

Richardson (2007: 13) defines telicity in terms of cumulativity and divisiveness: 'if a predicate can be divided into both parts and sums and those parts and sums are not equivalent, the predicate is telic'. Perfective eventualities are limited in time and packaged as single unitary actions.

If the complement selected by *proc* is a path (or any scale of change in terms of Rappaport-Hovav 2008), this path makes the verb, so to speak, POTENTIALLY telic and select for a lexical prefix to measure it, and then the *res* projection can be the complement of *proc*, in which case the path becomes the complement of *res*.

If the complement of the *proc* contains conflated material, such as Z-path, the *res* projection cannot be attached because the *proc* complement position is occupied by material that is inseparable from the verb root in *proc*.

Superlexical prefixes are incompatible with verbs that select for a directed path (which is a subcase of a scale of change) because these verbs cannot be divided into parts and cannot be packaged as unitary action by perfective aspect. This operation applies only to atelic verbs.[6] In summing up the discussion in this subsection, the following two generalizations emerge:

(i) The lexical prefixes describe the movement of the resultee with respect to ground, attach inside the *res* projection, and hence require its presence and availability.

(ii) The superlexical prefixes attach to verbs above Aspect, and package atelic events into bounded chunks. Hence they are incompatible with telic events.

[6] Some superlexical prefixes are compatible with secondary imperfective of telic verbs, but only under the condition that a lexical prefix is present. In that case the lexical prefix satisfies the requirement of the path to be measured in the perfective, and the secondary imperfective makes the verb compatible with superlexical prefixes.

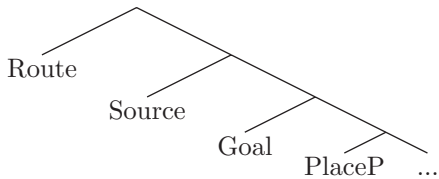
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3. Lexical and superlexical prefixes and their interpretation

The previous section explored the contrast between the two distinct syntactic positions where prefixes may be potentially attached: the lexical and the superlexical sites of attachment. This section describes the identical lexical and superlexical prefixes as manifestations of a single lexeme. 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.

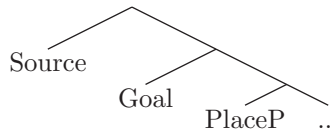
Once the existence of the two classes of prefixes is established, lexical and superlexical, it turns out that each class should be subjected to a tripartite division. Path is decomposed into Goal, Source and Route (Pantcheva 2011), where Route is syntactically the most complex projection, containing both Source and Goal:

(11)

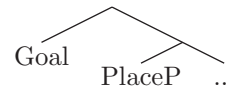


Source contains Goal and Place, and Goal is the simplest of the three, containing Place projection:

(12) (a)

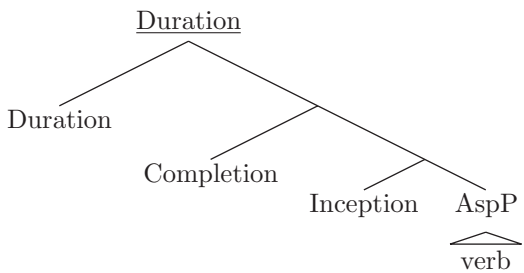


(b)



Similarly, I suggest that the superlexical projection, F, attached above AspectP, is subdivided into inception, completion and duration, as shown in the tree diagram in (13). The semantic contribution of each head is discussed in the subsequent sections. Duration, like Route, is the most complex.

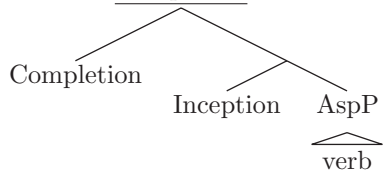
(13)



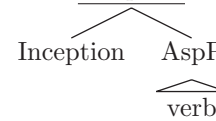
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Completion, parallel to Source, contains Inception. Inception is parallel to Goal as the simplest projection:

(14) (a)



(b)



Consider the visualization of Source, Goal, and Route suggested in Pantcheva (2011) (adapted from Zwarts 2005), where the pluses indicate being at a place, and minuses indicate not being there:

Goal	Source	Route
− − − +++	+++ − − −	− − − +++ − −−
0.....1	0.....1	0.....1

(Zwarts 2005: 34)

I show in this section that superlexical prefixes will fall under the same typology. Goal paths correspond to inception: there is one strictly punctual transition from not being in a certain location/activity to entering the location (with lexical) or an activity (with superlexical prefixes). Source prefixes, similarly, correspond to completion prefixes, as both indicate a plus-to-minus transition, i.e. from being at a location or involved in an activity, to not being there. Route prefixes, thus, correspond to Duration, involving two transitions: either both source and goal of a path or both beginning and end of an activity.

3.1 *Prefix za-: Goal and Inception*, − − − +++

The prefix *za-* is notoriously versatile, and the whole diversity of its meaning may hardly be discussed in the limited space here, yet if we limit ourselves to motion verbs, the time–space parallel is clear. With directional verbs, the prefix modifies path, so that the figure enters into some closed space, as in (15a) below.[7] With non-directional verbs the subject enters a new state, for example, the clock enters the working state in (15b) and the uncle enters a jumping state in (15c). As a lexical prefix, *za-* means movement into a goal, while as a superlexical prefix, it gives rise to an inceptive meaning.

[7] With non-directional transitive verbs, the patient enters the result state, hence the completive interpretation results. With intransitive verbs there is no patient and no result state, so the transition must happen to the initiator, hence the inceptive reading emerges.

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(15) (a) Čelovek za-šel v dom.
man ZA-walked^{dir} into house.ACC
'The man walked into the house.'

(b) Časy za-xodili.
clock ZA-walked$^{non\text{-}dir}$
'The clock started to work.'

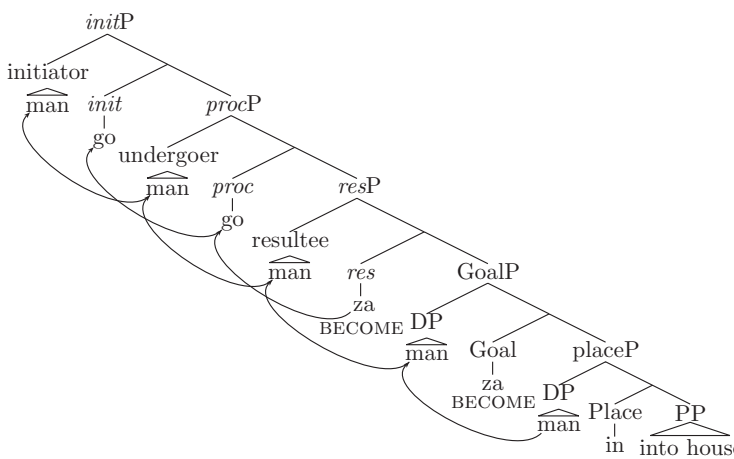
(c) Djadja za-prygal ot radosti.
Uncle ZA-jumped from joy
'The uncle started jumping from joy.'

Thus, *za-* in the spatial domain introduces a bounded path, which ends up in a certain place, i.e. at time 0 the figure is not at the place specified, while at time 1 it is inside the closed area. This type of transition corresponds to Dowty's (1979) BECOME operator or Wunderlich's (1991) CHANGE operator. As we can see in (16), the BECOME operator is conveniently universal and can be applied to path and time.

(16) [BECOME *x*] is true at an interval I iff (i) there is an interval J containing the lower bound of I such that ¬*x* is true at J, (ii) there is an interval K containing the upper bound of I such that x is true at K. . ., there is no non-empty interval I′ such that I′ ⊂ I and conditions (i) and (ii) hold for I′ as well as I. (Pantcheva 2011: 70)

The diagram in (17) presents the structure of example (15a) above, *Čelovek zašel v dom* 'The man walked into the house'.

(17)

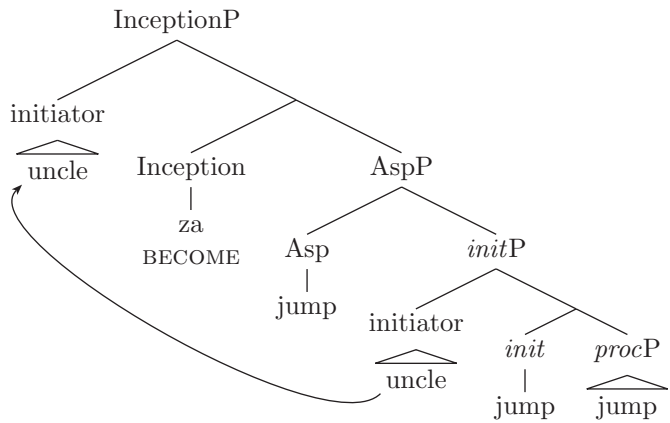


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The subject moves up consecutively through Place, Goal, Result and Process. The prefix *za-* lexicalizes both Place and Goal projections, and moves up to left-adjoin the verb. The Goal projection contains the BECOME operator, which takes the location ('in the house') as argument, i.e. *za-* means 'become-in'.

In the temporal domain, a similar picture can be drawn to mark the transition, where at the time of the initial boundary of the event, the actor (initiator) is not performing the activity while at time 1 the actor is involved in the event. Thus, inception is very similar to a 'goal' type of path, involving one punctual transition from not being to being. The argument of the BECOME operator is either the place projection, when we are in the path domain, or the Aspect projection for superlexicals, in which case *x* refers to the subject's involvement in the activity. Thus, *x* may be a place or a homogenous activity. The operator is not compatible with transitive verbs that do not provide an initiator and a homogenous property that may hold true or false of the subject at a certain interval. The structure of the inception projection in (15c) above, *Djadja za-prygal ot radosti* 'The uncle started jumping from joy' is given in (18) to illustrate this point.

(18)



In this case, *za-* is a superlexical prefix and is generated in the projection above Aspect. *Djadja* 'uncle', referring to the initiator co-indexed with the undergoer, moves to the specifier position of the inception head. The verb moves from the *proc* head to *init* and Aspect, and is preceded by the superlexical prefix.

3.2 *Prefixes ot- and s-: Source and Completion*, +++ – – –

The Source projection is syntactically more complex than Goal, and takes Goal as an argument. Source is the locus of a semantic reversal operation

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(Pantcheva 2011), i.e. it takes a minus-to-plus path and reverses it into a plus-to-minus monotransitional path, i.e. Source path. Thus, a path directed into a certain location becomes a path directed out of the location.

Similarly, the completion projection reverses the meaning of the inception projection, creating a new type of transition event. I do not claim that the completion head reverses time; time linearity is preserved, but the point of view is changed. While, in case of inception, the time flows into the event denoted by the verb stem, in case of completion, time flows out of it (towards the reference time). For the inception projection at the lower boundary of the interval the subject is not involved in the activity, and at the upper boundary it is; for completion the lower and upper bounds change places. The *x* denoting involvement in the activity is true at the lower bound and false at the upper bound.

For directional verbs, *ot-* 'from near' refers to movement away from a point, where the distance separating the figure (the boy in (19a) below) from the ground (the fire in (19a)) is increasing, while for non-directional verbs, the time separating the figure (initiator, the airplane in (19b)) from the past event (flying in (19b)) is increasing.

(19) (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$^{non\text{-}dir}$
'[The airplane] IL-76 has done its flying (and will never fly again).'

Both lexical and superlexical usages of this prefix involve a transition from being in a certain location or involved in an activity, to not being, which is visualized by pluses changing to minuses (see table).

Another prefix involving the same kind of transition is *s-*. The prefix *s-*involves displacement from a 'regular' location in case of directional verbs (a movement 'off course'), and a brief trip there and back, with subsequent return, in case of non-directional verbs. Let us consider the examples in (20).

(20) (a) poezd so-shel s reljs.
train S-walked from rails
'The train derailed.'

(b) S-begaj za pivom!
S-run$^{non\text{-}dir}$ for beer
'Run get some beer (quickly, and then return)!'

The path is of Source type, +++ − − −, i.e. the figure is at a location at the beginning of the path, and away from it at the final point. The initial relationship

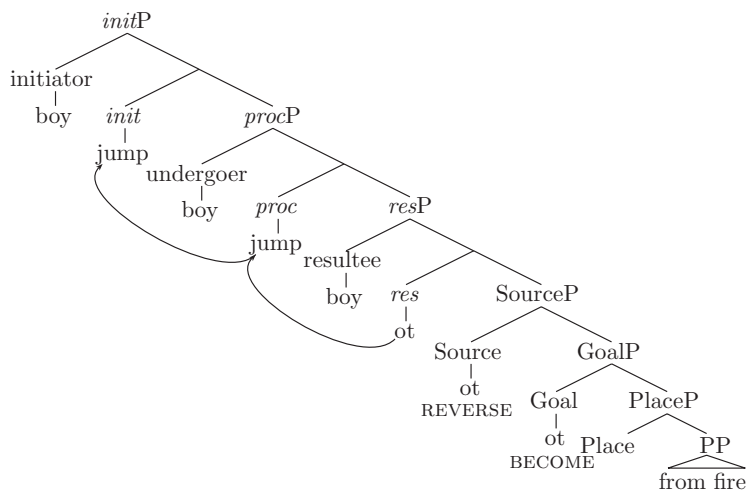
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between figure and ground ('near' in case of *ot-*, and 'on' in case of *s-*) must be a part of the lexical entry of the prefixes, and what makes them different, in spite of the shared path type features.

In the superlexical usage, illustrated in (20b), there is a punctual transition from running to get the beer to not running, i.e. a plus-to-minus type of transition. The lexical entry of the prefix contains information about the specific relationship between figure and ground preceding the displacement, as well as about the terminated activity (e.g. that it was a fast there and back trip), while the source/termination part of the meaning originates from syntax.

The tree diagram in (21) below illustrates how the source path is generated for lexical prefixes, as in (19a), *Maljčik ot-skočil ot kostra* 'The boy jumped away from the fire'.

(21)

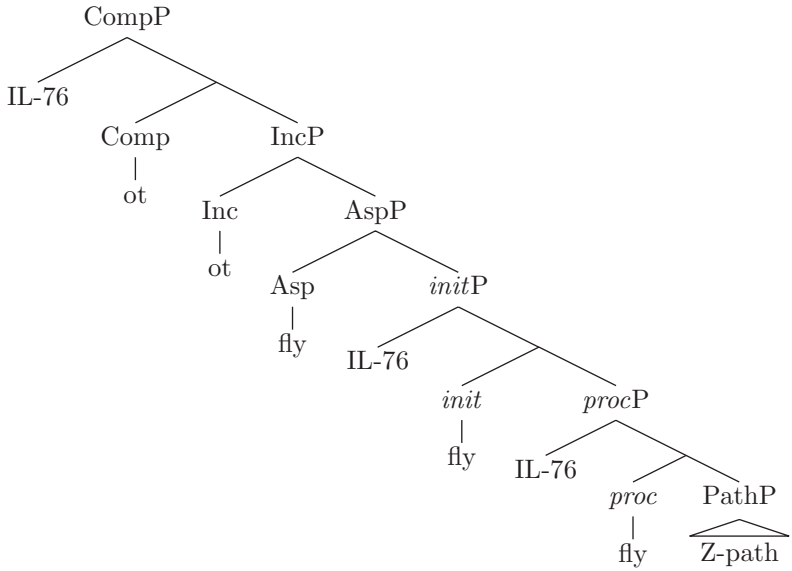


The Goal projection contains a TO-path, where the figure comes to be at the ground, the Source reverses the BECOME operator, so the figure comes to be away from the ground. Then the prefix moves to *res*, and to *proc*, where it left-adjoins to the *proc* head, lexicalized by directional 'jump', resulting in jumping away.

Similarly, completion is the reverse function of temporal operator BECOME, introduced by the inception node, as shown in diagram in (22), which illustrates the structure of example (19b) above, *IL-76 svoe ot-letal* '[The airplane] IL-76 has done its flying (and will never fly again)'.

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(22)



Thus, in this section we saw the similarity of the structure of Source and Completion prefixes. Both structures are complex and contain, correspondingly, Goal and Inception. Both projections take BECOME *x* as an argument and reverse it, creating an interval directed out of *x*, where *x* is either a place or an activity.

3.3 *Prefixes pro- and do-: Via, duration*, – – – +++ – – –

The prefix *pro-* 'through' is a measure of distance with directional verbs (as in 23a), and a measure of time with non-directional verbs (as in 23b). Two transitions are involved here: the beginning and end of a path or activity, and the distance/time between the two points can be measured.

(23) (a) pro-jti pjatj kilometrov
PRO-walk^{dir} five kilometers
'to walk five kilometers'

(b) pro-xoditj vesj denj
PRO-walk$^{non\text{-}dir}$ all day
'to walk (around) all day'

The prefix *do-* 'up to' refers to movement (24a) or persistence of activity (24b) up to a certain point:

(24) (a) do-plytj do bereg-a
DO-swim^{dir} up.to shore-GEN
'to swim up to the shore'

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(b) do-plavatj rejs
DO-swim$^{\text{non-dir}}$ trip-ACC
'to sail up till the end of the trip (and then quit)'

The prefix *pere-* 'over' 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 (25b) for non-directional verbs.[8] 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 overstay your welcome').

(25) (a) pere-plytj rek-u
PERE-swim$^{\text{dir}}$ river-ACC
'to swim across a river'

(b) pere-plavatj v bassejne
PERE-swim$^{\text{non-dir}}$ in swimming.pool
'to swim too much in the swimming pool'

The prefix *po-* produces an inceptive reading with directional verbs, as in (26a), and delimitative reading with non-directional verbs, as in (26b).

(26) (a) po-bežatj
PO-run$^{\text{dir}}$
'to start running'

(b) po-bégatj
PO-run$^{\text{non-dir}}$
'to run for a while'

Importantly, in both cases, *po-* patterns more with superlexical prefixes, thus breaking away from the general pattern where the lexical prefix appears with the directional motion verbs and the superlexical prefix appears with non-directional verbs. 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. The meaning does not allow for immediate classification, but the syntactic combinatoric features of these uses of *po-* pattern with – – – +++ – – – prefixes (see Table 2 above).

[8] There are, of course, more uses of the prefix *pere-* 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 Součková (2004) and Romanova (2007).

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The non-oriented paths, described above, are derived by the addition of a Route projection on top of the Source projection (Pantcheva 2011). Similarly, the duration can be derived by the addition of a Duration projection on top of completion. Both Source and Completion paths, as shown in the previous section, are monotransitional, where the first phase is positive. Route and duration paths are bi-transitional, and have the positive phase in the middle. Thus the highest, Route or Duration projection, is another transitional projection, which adds the transition to the positive phase.

The whole computation of a route path from Pantcheva (2011: 72) is given in (27).

(27) *The syntactic and semantic derivation of a Route paths*
- (a) [Place . . .]
- (b) merger of Goal →
- (c) [Goal [Place . . .]] representing a path of the shape − − − +++
- (d) merger of Source →
- (e) [Source [Goal [Place . . .]]] → reversal of Goal path +++ − − −
- (f) [Route [Source [Goal [Place. . .]]]] → adding a second transition → − − − +++ − − −

Duration in the superlexical domain is derived in a parallel fashion:

(28) *The syntactic and semantic derivation of duration*
- (a) [Aspect [init [proc]]] provides the activity and initiator
- (b) merger of Inception →
- (c) [Inception [Aspect . . .]] introduces the transition − − − +++
- (d) merger of Completion →
- (e) [Completion [Inception [Aspect . . .]]] → reversal of the previous transition: +++ − − −
- (f) [Duration [Completion [Inception [Aspect . . .]]]] → adding a second transition: − − − +++ − − −

To sum up this section, a clear parallel emerges between [Route [Source [Goal [Place]]]] and [Duration [Completion [Inception [Aspect]]]]. Every prefix is specified in the lexical entry with the corresponding abstract features, e.g. the prefix *za-* bears the [− − − +++] feature and thus can spell out either Inception or Goal nodes, but not or Completion. The prefixes *ot-* and *s* bear the [+++ − − −] feature (stacked on top of [− − − +++]) and can spell out corresponding Completion or Source nodes, while the prefixes *po-*, *pro-*, *pere-* and *do-* have two transitions [− − − +++ − − −] (on top of [+++ − − −] and [− − − +++]) and thus can spell out Duration or Route.

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4. Syntactic evidence

The previous section explored the semantic properties of a set of prefixes, separating the part of meaning that is provided by the lexical entry from the part provided by the structure. The present section focuses on the internal structure of the lexical and superlexical prefixes and introduces syntactic evidence for a parallel tripartite division at lexical and superlexical levels.

4.1 *Lexical prefixes*

An important piece of evidence for the parallelism of properties demonstrated by prefixes across space and time comes from considerations of the possibility of modifying each transition point with prepositional phrases.

Thus, if a lexical prefix contains the Goal projection, the verb may be modified by a Goal PP, as in (29) (see Markovskaya 2006). Crucially, the source is not available for specification with a PP.

(29) 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).'

However, with a Source prefix, both Source and Goal are available for modification:

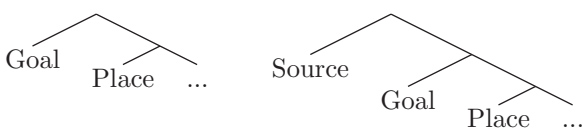
(30) (a) My vy-jehali (iz Moskvy) v Saratov.
we out-went out Moscow.GEN in Saratov.ACC
'We left for Saratov (out of Moscow).'

(b) My oto-šli (ot doma) k prudu/v tenj.
we from-went from house.ACC to pond.GEN/in shade
'We went away (from the house) to the pond/into shade.'

(c) Deti s-katilisj s gorki/ na pol.
chidren off-slid off slide.GEN/ on floor.ACC
'The children slid down from the slide/onto the floor.'

This asymmetry is predicted if the Source projection is more syntactically complex and contains the Goal projection, as Pantcheva (2011) argues with reference to the two structures in (31).

(31) (a) Goal prefix (b) Source prefix

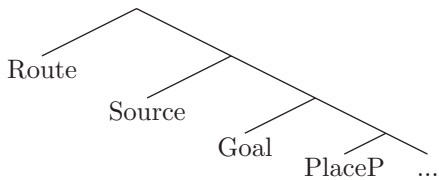


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A Goal prefix introduces only the Goal and place Projections, which can be further specified by additional prepositional phrases, as in (30a) above. The Source projection is not present, so it is not surprising that Source PPs are unacceptable. The Source projection, on the other hand, contains the Goal projection under it, so both source and goal may be specified, as in (30b) above. Furthermore, when both Source and Goal PPs are present, as in (30c) there is a strong preference for the Source PP to precede the Goal PP (an inversion is possible, but requires a pause and a slightly different intonation which suggests movement conditioned by information structure).

The Route projection is even higher, according to Pantcheva (2011), and contains both Source and Goal projections, and a possibility of specifying both source and goal, and to measure the route in addition, as illustrated in the following diagram:

(32)



The Route prefixes include *pere-*, *pro-*, *do-* and *po-*. The Route prefixes *pere-* and *pro-* are special as they do not have corresponding prepositions (though route prepositions do exist in Russian). The examples in (33) include the route prefix *pere-*. As seen in (33b), they may introduce a direct object referring to the route traversed, expressed by a DP complement.

(33) (a) Mnogie PERE-bežali iż odnogo lagerja v drugoj.
many PERE-ran from one.GEN camp to other.ACC
'Many fled from one side to the other.'

(b) Belka pere-bežala dorog-u.
squirrel PERE-ran road-ACC
'A squirrel ran across the road.'

(c) Ona pere-bežala v kabinet muža.
she PERE-ran in office.ACC husband.GEN
'She ran across into her husband's office.'

(d) *Ona pere-bežala iż kabineta.
she PERE-ran from office.GEN
('She ran across from the office.')[9]

[9] Curiously, it is possible to have a Goal PP without a Source PP, but not the opposite: if there is a Source PP there must be a Goal PP present as well, and the source must precede the goal (while

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The prefix *pro-* may also introduce the beginning and the end of a path, as in (34a), an argument specifying the trajectory, as in (34b), and an argument measuring the trajectory, as in (34c).:

(34) (a) Nikto ne smog pro-bežatj ot odn-ogo konc-a do
noone not could PRO-run from one-GEN end-GEN up.to
drugogo.
other.GEN
'Noone managed to run from one end to the other.'

(b) On pro-bežal v svoj kabinet.
he PROran in his office.ACC
'He ran by into his office.'

(c) Ja pro-exal odnu ostanovku po Arbatu.
I PRO-rode one bus.stop.ACC along Arbat.DAT
'I went one stop along Arbat Street by bus.'

With the prefix *do-* it is also possible to specify goal, both source and goal, and the distance, as illustrated by the three examples in (35), respectively.

(35) (a) Iznyvaja ot žary, oni do-breli do lesa.
suffering from heat they DO-walked up.to forest
'Suffering from heat, they walked (slowly, with great difficulty) up to the forest.'

(b) Ona do-šla ot mašiny do podjezda.
she DO-walked from car to entrance
'She walked from the car to the entrance.'

(c) Tem ne menee Sonya rešila do-beža-tj distanciju.
it.INSTR not less, Sonya decided DO-run-INF distance
'Nevertheless, Sonya decided to complete running the distance.'

Additional piece of evidence for classifying *do-* as a Route prefix comes from the fact that it provides information about the length/difficulty of the path in addition to goal all the examples found in the Russian National Corpus (www.ruscorpora.ru/en/) involved some obstacles, such as heat (in (35a)), snow (a snowstorm is mentioned in the text preceding (35b)) or sickness (in (35c)), which made covering the path to the goal long or difficult.

Thus, the examples in (29)–(35) illustrate a tight relationship between the complexity of the prefix with the complexity of the path denoting PP selected by the prefix. If the prefix contains only the Goal projection on top of place

for Source prefixes, it is perfectly grammatical to have a source alone), suggesting, perhaps, that in this case Source is dependent on Goal.

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as illustrated in tree diagram (12b), only a Goal PP may be added. If the prefix contains both Source and Goal (as in (12a)), both Source and Goal PPs may be added. If the prefix contains Goal, Source and Route (as in (11)), all three PPs are allowed, as well as a measure of the path length.

At first sight, the prefix *po-* might present a problem for this classification, but I show below that its usage with motion verbs is compatible with my analysis. In spite of its inceptional meaning and some features of superlexical prefixes (incompatibility with secondary imperfectivization, which must be derived by separate mechanisms), the prefix patterns with Route prefixes (such as *pro-*, *pere-* and *do-*) in allowing specification of source and goal, as in (36a), as well as distance, as in (36b). It is also possible to specify source without goal, as well as vice versa.

(36) (a) On po-bežal (iz xaty) (v pole).
he PO-ran from house to field
'He started running from the house to the field.'

(b) Sportsmen po-bežit pjatj kilometrov.
sportsman PO-ran.FUT five kilometers
'The sportsman will run five kilometers.'

Both of these are grammatical even without *po-*, i.e. with the imperfective form *bežatj* without the prefix. In such cases the PPs appear in the complement of the *proc* projection, which is less selective (as a thematic, as opposed to a functional element in terms of Abney 1987).

The inceptive meaning is not always a part of the prefix, e.g. (36b) does not mean that the sportsman will BEGIN to run, it simply means that he will run, with completion implied.

However, the prefix, does not necessarily entail completion. Compare (37a), where the speaker did not get to the destination due to illness, and thus the verb entails the beginning of walking, and (37b), where the speaker clearly arrived at the point of destination, to be caught by illness there, and thus the entails both the beginning and the completion of the trip.

(37) (a) Včera po-šla na lekciju; mne po doroge stało ploxo.
yesterday PO-went on class me-DAT on way became 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.'

In addition, either the beginning of the process or just the arrival point may fall under the scope of negation. Ivan in (38a) stayed home, and never even started walking, while in (38b) he went in the direction of work, so the beginning portion

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did take place in spite of the negation, though he turned before getting to the destination.

(38) (a) Ivan za-bolel i na rabotu ne po-šel.
Ivan ZA-fell.sick and to work not PO-walked
'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 swerved into a pub on his way.'

Thus, we see that neither the inception nor completion of the activity are a crucial part of the meaning of the prefix *po-* here. This is consistent with it being used as a lexical prefix. As a lexical prefix, it does involve a full path with a source, goal and duration, each of which may be specified, and the verb is always telic. Its lexical entry is the least specific, allowing the most freedom, and the largest variety of meanings depending on the structure where it is inserted.

Table 3 summarizes the classification of the lexical prefixes and what may be modified.

Transition type	Prefix	Goal	Source	Route
– – – +++	za-	yes (29a)	* (29b)	*
+++ – – –	ot-	yes (30b)	yes (30b)	*
+++ – – –	s-	yes (30c)	yes (30c)	*
– – – +++ – – –	pro-	yes (34b)	yes (34a)	yes (34c)
– – – +++ – – –	pere-	yes (33c)	yes (33a)	yes (33b)
– – – +++ – – –	do-	yes (35a)	yes (35b)	yes (35c)
– – – +++ – – –	po-	yes (36a)	yes (36a)	yes (36b)

Table 3
Compatibility of lexical prefixes with PPs.

4.2 *Superlexical prefixes*

At the superlexical level, the starting point, the endpoint and the duration of an event may be modified by PPs or adverbs, parallel to the Source, Goal and Route at the lexical level. On the spatial level, the lowest projection, Goal ([Goal [Place]]), denotes a punctual transition from not being in a place to being there, i.e. minus to plus transition. On the temporal level, the shape of the lowest projection is parallel ([Inception [Aspect [Vp . . .]]]), but the transition is from not being involved in an activity, to starting the activity, i.e. inception. The Goal prefix *za-* thus can denote inception when it appears in this position. The inception point can be modified by punctual adverbs only, as is shown in (39).

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(39) (a) **Vdrug** on za-begal po komnate.
suddenly he ZA-ran$^{non\text{-}dir}$ along room
'SUDDENLY, he started running around the room.'

(b) **V 6 utra** vse vstali, za-begali, za-sobiralisj . . .
in 6 morning all woke.up ZA-ran$^{non\text{-}dir}$ ZA-get.ready
'AT SIX IN THE MORNING, everyone woke up, began to run about and started to pack . . .'

(c) *S dvux do trex on za-begal po komnate.
from two to three he ZA-ran$^{non\text{-}dir}$ along room
'BETWEEN TWO AND THREE O'CLOCK, he started running around the room.'

Thus, both Goal and Inception position allow only one transition denoting an adverbial expression or PP. Since inception involves only one projection, no other types of modification are available.

With completion prefixes such as *ot-* and *s-*, the point of completion may be modified with 'in an hour' phrases, as illustrated in (40a),[10] and with phrases specifying a single point in time, as in the example in (40b), rather than a period of time. Duration may not be measured, as the duration projection (parallel to Route projection) is not available.

(40) (a) Trudno vosemj zanjatij ot-plavatj za dve nedeli.
hard eight classes OT-swim.INF in two weeks
'It's hard to complete swimming eight classes in two weeks.'

(b) Da tuda za desjatj minut s-bega-tj možno!
but there in ten minutes S-run-INF possible
'But it is possible to run there and back in ten minutes!'

Though (40a) makes it look like the duration of the activity may be measured, the measure ('eight classes') can be interpreted as an argument of the verb because a passive participle is possible, as in (41).

(41) No zlye tetki potrebovali denežku za každyj lišnij
but evil women demanded money for every extra
ot-plav-annyj čas.
OT-swim-PASS.PART hour
'But the evil women demanded money for every extra hour that we swam.'
(lit.: 'every extra hour swum')

[10] 'In an hour' modification is actually unusual for verbs with superlexical prefixes. The verbs with *s-* and *ot-* also pattern with transitive verbs in another way. *S*-prefixed verbs have a goal, and *ot*-prefixed verbs have a direct object of the amount covered, which may also be passivized. However, these two prefixes are definitely superlexical by all the tests.

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Another interesting feature of completion prefixes is that if a time is specified with the preposition *do-*, the completion point must be anywhere in the time interval up to the point specified by the PP with the prefix *do-*; for example, in (42), the plan must be completed any time before (or including) the first of December.

(42) A nado esche po planu ot-plavatj do pervogo
and necessary also according plan OT-swim.INF up.to first
dekabrja.
December
'And it is also necessary, according to the plan, to finish swimming by the first of December.'

This is contrasted with the behavior of the duration prefixes (– – – +++ – – –), where (if such a phrase is possible) the only available interpretation is where the activity lasts exactly up to the point specified by the *do-* PP, as shown in the next section. Similarly, with lexical source prefixes, a Goal PP with the preposition *k* 'towards' does not imply reaching the goal, but just the direction, while with Route prepositions the same PP implies approaching the goal closely enough, if not reaching the goal, not just the direction of movement.

Thus, both inception and completion allow only one transition point to be modified. Unlike the lexical prefixes, the more complex completion prefixes (with plus-to-minus transition on top of minus-to-plus) do not usually allow two modifiers. The reason lies probably in the syntactic difference: the lexical prefixes are inside the result phrase, at the very bottom of the tree, and the path PPs are the complements, while the superlexical prefixes are above Aspect, and the temporal adverbs are the modifiers.

4.3 *Duration prefixes:* – – – +++ – – –

When the prefix specifies the beginning and the end of the activity, it is possible to measure its duration, as illustrated in (43). Note that the verbs in (43) do not allow passivization, unlike the verbs with the prefix *ot-* in the last section, so I assume that the measure phrase is an adjunct in this case, rather than an argument.

(43) (a) Pora vy-xod-itj, a Čertko vse esche net, desjatj lišnix
time.to out-go-INF but Čertko all yet no, ten extra
minut pere-plaval.
minutes PERE-swam$^{non\text{-}dir}$
'It is time to get out, but Čertko is still not here, he swam for ten extra minutes.'

(b) Čertko pro-plaval dva časa.
Čertko PRO-swam two hours
'Čertko swam for two hours.'

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(c) Čertko po-plaval desjatj minut.
Čertko PO-swam ten minutes
'Čertko swam (briefly) for ten minutes.'

(d) Čertko do-plaval dva časa.
Čertko DO-swam two hours
'Čertko completed swimming the two hours.'

In the previous section it was shown (in example (42)) that when the verbs with one transition point are modified with a PP containing the preposition *do* 'up to', the activity ends at any point before the time specified by the PP. This contrasts with the behavior of the verbs with duration prefixes (see (44)). In this case, the activity must last exactly until the time in the PP, i.e. the *do*-phrase refers to the entire duration (from now until completion), rather than the completion point:

(44) (a) Nado do-plava-tj do pervogo dekabrja.
necessary DO-swim-INF up.to first-GEN December.GEN
'We must keep swimming until December first.'

(b) Deti pro-begali do obeda.
children PRO-ran up.to dinner-GEN
'The children kept running until dinner.'

This shows that the verbs with the durational prefixes refer to events that last a certain time, so the duration of the activity may extend up to the point specified by the PP. The verbs with the completion prefixes described in the previous section refer to punctual events with no duration to be measured, hence completion of the event has to happen at a point on the interval that extends up to the time specified by the 'do' PP, rather than refer to the event itself extending up to that time.

The example below shows that the verbs with the prefix *do-* may allow the 'in a year' type modification. Note, however, that it is only possible in the presence of the goal reached, in very limited contexts.

(45) Za tri goda on do-plaval do kandidat-a v mastera
in three years he DO-swam up.to candidate-GEN in masters
sporta.
sports
'In three years he swam enough to be a Candidate for Master of Sports.'

Table 4 sums up the properties of the superlexical prefixes, resulting in the tripartite classification coinciding with the classification of the lexical prefixes in the previous section. Goal prefixes turn out to be compatible with 'suddenly' and specific time modifiers in their superlexical use, source prefixes are compatible with 'in an hour' type modification, and Route prefixes allow duration of an activity to be measured when they are superlexical.

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Transition type	Prefix	Specific time	'in an hour'	Duration
– – –+++	za-	yes (39)	*	*
+++ – – –	ot-	yes	yes (40a)	*
+++ – – –	s-	yes	yes (40c)	*
– – –+++ – – –	pro-	?	*	yes (43b)
– – –+++ – – –	pere-	?	*	yes (43a)
– – –+++ – – –	do-	?	? (45)	yes (43d)
– – –+++ – – –	po-	?	*	yes (43c)

Table 4
Compatibility of superlexical prefixes with modifiers.

Unfortunately, the lexical prefixesin this table reveal no implicational relationships, and the source of the possibility of 'in an hour' modification is rather unclear, as it is connected more to the presence of the result state than the number of transitions. However, the tripartite division is present even if we ignore the 'in an hour' column. Furthermore, the inception and completion verbs may be modified by phrases denoting exact time, and then the point will coincide either with inception or with completion.

(46) (a) V polnoč vse za-begali.
in midnight all ZA-ran$^{\text{non-dir}}$
'At midnight everyone started running around.'

(b) V 6 utra ona sbegala v magazin.
at 6 morning she S-ran to store
'At six in the morning she ran to the store and back.'
(Note that here it looks like both beginning and end happened around 6 in the morning.)

(c) V 1990 godu IL-76 svoe ot-letal.
in 1990 year IL-76 its OT-fly$^{\text{non-dir}}$
'In 1990 [the airplane] IL-76 has done its flying.'

With *pro-* and *po-* it is also possible to modify both the beginning and the end of an activity in a way parallel to source and goal of path with lexical prefixes:

(47) My po-/pro-brodili po gorodu s dvux do trex.
we PO-/PRO-wandered around town from two to three
'We were wandering around the town from two to three.'

Like with lexical prefixes, source is not normally used without the goal (unless the final point is clearly the reference time of the utterance).

However, specifying both beginning and end time is not possible with *pere-* and *do-*. Therefore, perhaps, either a more fine-grained structure is necessary

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or there is some non-structural reason that makes the meanings of these prefixes incompatible with such modification. Possibly they involve some presupposition about the initial boundary (if part of the prefix meaning is that the activity took too long, the start of the activity was a while ago), which could be incompatible with stating it explicitly.

5. Conclusion

Following the discussion in this paper,, 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 a figure in time with respect to the event.

This paper showed the possibility of a single lexical entry per prefix, which specifies the kind of transition it denotes (e.g. the lexical entry of *do-* contains information about two transitions, as well as the long distance between them that is overcome with difficulty), but the lexical entry is unspecified for the domain of the transition. This information is provided by the syntactic structure: if the prefix is attached VP-internally inside the *res* projection, the transition specified by the lexical entry is a spatial one, while if the same prefix is attached above Aspect, the transition cannot refer to path any longer and refers to time.

Shifting the computational burden to syntax makes it possible to preserve one common lexical entry for each prefix. Thus, even if the lexicon is responsible for some of the information, the approach suggested in this paper represents a significant progress compared to listing homophones and allows us to bring at least some order to the chaos of Russian prefixes.

References

Abney, Steven Paul. 1987. *The English noun phrase in its sentential aspect*. Ph.D. dissertation, MIT.
Babko-Malaya, Olga. 1999. *Zero morphology: A study of aspect, argument structure and case*. Ph.D. dissertation, Rutgers University.
Beliakov, Vladimir & Marguerite Guiraud-Weber. 1997. O nekotoryx svojstvax vtorichnyx glagol'nyx pristavok.. *Russian Linguistics* 21.2, 165–175.
Borer, Hagit. 2005. *Structuring sense,* vol. I: *In name only*. Oxford: Oxford University Press.
Borik, Olga. 2006. *Aspect and reference time*. New York: Oxford University Press.
Dowty, David R. 1979. *Word meaning and Montague grammar: The semantics of verbs and times in generative semantics and in Montague's PTQ*. Dordrecht: Reidel.
Filip, Hana. 2003. Prefixes and the delimitation of events. *Journal of Slavic Linguistics* 11.1, 55–101.
Gehrke, Berit. 2008. *Ps in motion: On the semantics and syntax of P elements and motion events*. Ph.D. dissertation, University of Utrecht.
Isačenko, Alexander. 1960. *Grammatičeskij stroj russkogo jazyka. Morfologija. Častj vtoraja*. Bratislava: Vydavatelstvo Slovenskej Akadémie vied.
Janda, Laura A. 2006. Totally normal chaos: The aspectual behavior of Russian motion verbs. *Harvard Ukrainian Studies* 28, 183–193.
Julien, Marit. 2002. *Syntactic heads and word formation*. New York: Oxford University Press.

https://doi.org/10.1017/S0022226714000206 Published online by Cambridge University Press

Krifka, Manfred. 1998. The origins of telicity. In Susan Rothstein (ed.), *Events and grammar*, 197–235. Dordrecht: Kluwer.
Markovskaya, Evguenia. 2006. Goal-source asymmetry and Russian spatial prefixes. In Peter Svenonius (ed.), *Adpositions*, special issue of *Nordlyd* (Tromsø Working Papers in Linguistics) 33.2, 200–219. Tromsø: University of Tromsø.
Ožegov, Sergei Ivanovich. 2001. *Tolkovyj slovar' russkogo jazyka*. Moscow: Rossijskaja akademija nauk.
Pantcheva, Marina. 2007. Bulgarian spatial prefixes and event structure. In Minjeong Son Monika Bašic, Marina Pantcheva & Peter Svenonius (eds.), *Space, motion, and result*, special issue of *Nordlyd* (Tromsø Working Papers on Language & Linguistics) 34.2, 320–344. Tromsø: University of Tromsø.
Pantcheva, Marina. 2011. *Decomposing path: The nanosyntax of directional expressions*. Ph.D. dissertation, University of Tromsø.
Pereltsvaig, Asya. 2006. Small nominals. *Natural Language & Linguistic Theory* 24, 433–500.
Ramchand, Gillian. 2008. *Verb meaning and the lexicon: A first phase syntax*. Cambridge: Cambridge University Press.
Rappaport-Hovav, Malka. 2008. Lexicalized meaning and the internal structure of events. In Susan Rothstein (ed.), *Theoretical and crosslinguistic approaches to the semantics of aspect*, 13–42. Amsterdam: John Benjamins.
Richardson, Kylie. 2007. *Case and aspect in Slavic*. Oxford: Oxford University Press.
Romanova, Eugenia. 2004. Superlexical vs. lexical prefixes. In Svenonius (ed.), 255–278.
Romanova, Eugenia. 2007. *Constructing perfectivity in Russian*. Ph.D. dissertation, University of Tromsø.
Schoorlemmer, Maaike. 1995. *Participial passive and aspect in Russian*. Ph.D. dissertation, University of Utrecht.
Součková, Kateřina. 2004. Measure prefixes in Czech: Cumulative *na-* and delimitative *po-*. MA thesis, University of Tromsø.
Švedova, N. 1980. *Russkaja grammatika,* vol. 2. Moscow: Academy of Sciences, Nauka.
Svenonius, Peter. 2004a. Slavic prefixes inside and outside VP. In Svenonius (ed.), 205–253.
Svenonius, Peter (ed.). 2004b. *Slavic prefixes*, special issue of *Nordlyd* (Tromsø Working Papers on Language and Linguistics) 32.2. Tromsø: University of Tromsø.
Wunderlich, Dieter. 1991. How do prepositional phrases fit into compositional syntax and semantics? *Linguistics* 29, 591–621.
Zwarts, Joost. 2005. Prepositional aspect and the algebra of paths. *Linguistics and Philosophy* 28, 739–779.

Author's address: *CASTL, Tromsø University, Rypevei 13,*
Tromsø, 9015, Norway
inna.k.tolskaya@uit.no

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