

# Russian Prefixes are Phrasal

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October 5, 2004

## 1 Introduction

In a certain view of X-bar theory, an element is ‘phrasal’ or ‘maximal’ when it is not dominated by a projection of itself (Muysken 1982, Muysken and van Riemsdijk 1986, Baltin 1989, Chomsky 1995); exceptions are sometimes made for head-adjunction structures, in which an adjoined head, assumed to be non-maximal, is dominated by a projection of itself only at the root of a head-chain.

In this paper I assume a morphosyntactic decomposition of words and phrases into an X-bar theory of this sort, and so there is a trivial and uninteresting sense in which I am simply assuming without argument that Russian prefixes are phrasal; since they correspond to pieces of syntax, and no piece of syntax projects infinitely, there is some point at which they are phrasal.

The more interesting claim, which is much more difficult to defend, is that Russian prefixes occupy a phrasal position in the surface syntax of Russian; that is, they occupy a specifier position, and are not incorporated into the verb under a nonmaximal projection. This is a highly plausible position for German and Dutch separable prefixes, as I discuss below, but seems on the face of it extremely dubious for Slavic languages in general.

However, I argue here that when the stipulations are weighed against each other, an account that takes the Russian prefixes to be XPs in the specifier of (or adjoined to) an aspectual projection outside VP is superior to an account that takes them to be heads incorporated into the verb. The latter kind of account can surely be made to work, but only by essentially stipulating what it sets out to explain, whereas the purely syntactic XP account promises to be able to derive the properties of Russian prefixes from independently observable facts about morphology, syntax, and semantic scope.

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\*Thanks very much to Eugenia Romanova for extensive discussion and assistance with the Russian data and its interpretation. All data in this paper is Russian and provided by her unless otherwise noted. Thanks also to the participants in the Slavic prefix discussion group in Tromsø in 2003–2004, and to Michal Starke for comments on a previous draft. Finally, thanks to the organizers and audience at FDSL-5 in Leipzig, where a preliminary version of this material was presented.

## 2 Decomposition and Russian prefixes

Russian prefixes are traditionally divided into at least two general types, the lexical and super-lexical (or sub-lexical) (setting aside purely perfectivizing prefixes). Generally, lexical prefixes contribute directional or idiosyncratic lexical meanings, as illustrated in (1a–c), much like Germanic particles (cf. e.g. Spencer and Zaretskaya 1998).

- (1) a. pere-kidat'  
across-throw  
'throw across'
- b. pere-kusit'  
across-bite  
'bite in half'
- c. pere-bit'  
across-beat  
'interfere'

Superlexical prefixes, on the other hand, contribute predictable aspectually quantizing meanings as in (2a–c) (cf. Filip 2000).

- (2) a. pere-kidat'  
DISTR-throw  
'throw one by one'
- b. pere-kusat'  
DISTR-bite  
'bite one by one'
- c. pere-bit'  
DISTR-beat  
'beat one by one'

As a convention, I gloss lexical prefixes as prepositions, and superlexical prefixes with abbreviations of their functions (DISTR[ibutive], CUM[ulative], TERM[inative], INCEP[tive], DELIM[itative], and COMPL[etive]).

Lexical prefixes are also generally distinguishable from superlexical ones in that they attach to the directed form of motion verb stems, as in (3).

- (3) a. na-bežat'  
on-run.DIR  
'run over'
- b. ot-nesti  
away-carry.DIR  
'carry off'
- c. po-past'  
along-fall.DIR  
'find oneself somewhere'

Superlexical prefixes attach to the non-directed form as in (4).

- (4) a. na-begat'  
CUM-run.NONDIR  
'run (cumulative)'
- b. ot-nosit'  
TERM-carry.NONDIR  
'wear to exhaustion'
- c. po-padat'  
DISTR-fall.NONDIR  
'fall one after the other'

Lexical prefixes allow the formation of secondary imperfectives, as illustrated in (5).

- (5) a. iz-brat'/iz-birat'  
out.of-take  
'elect' (perfective/imperfective)
- b. za-verit'/za-verjat'  
onto-trust  
confirm' (perfective/imperfective)
- c. vo-rvat'=sja/v-ryvat'=sja  
in-tear=RFX  
'enter quickly' (perfective/imperfective)

In contrast, the secondary imperfective forms in (6) cannot be interpreted as secondary imperfectives of the superlexically prefixed verbs glossed here (though these secondary imperfective forms are grammatical as imperfectives of lexically prefixed verbs meaning 'play to the limit,' 'bite in half,' and 'walk along').

- (6) a. za-igrat'/\*za-igryvat'  
INCEP-play  
'start to play' (perfective)
- b. pere-kusat'/\*pere-kusyvat'  
DISTR-bite  
'bite one after the other' (perfective)
- c. po-guljat'/\*po-gulivat'  
DELIM-walk  
'walk for a while' (perfective)

Assuming a decompositional approach to morphosyntax, the resultative semantics of the lexical prefixes suggest a low point of attachment. I have argued in Svenonius (2004) that they originate VP-internally, very much like English particles or German separable prefixes. There, I argue that the VP-internal analysis explains, among other things, the tendency for prefixes to develop highly idiosyncratic meanings, as the VP is a domain for idiom assignment (Marantz 1984).

The same decompositional approach dictates a high point of attachment for superlexical prefixes (cf. Babko-Malaya 1999). This is especially clear when

cases of multiple prefixation are examined, as the superlexical prefixes attach outside lexical ones, as illustrated by the Serbian examples in (7) (provided by Nataša Milićević, personal communication).

- (7) a. pre-trčati — is-pre-trčavati  
 across-run COMPL-across-run.IMPF  
 ‘run across’ — ‘run across each’  
 b. na-piti — po-na-pijati  
 on-drink DISTR-on-drink.IMPF  
 ‘get [sby] drunk’ — ‘get [people] drunk one by one’  
 c. za-pisati — po-za-pisivati  
 down-write DISTR-down-write.IMPF  
 ‘record, write down’ — ‘record one by one’

Note, too, that the superlexical prefixes do not carry idiomatic meanings; their meanings are systematically regular and compositional, as expected if they originate outside VP.

Another piece of evidence supporting the relative placement of lexical versus superlexical prefixes is the effect of the secondary imperfective: an unprefixed stem is ordinarily imperfective (8a), while a prefixed stem is perfective (8b); thus the prefix perfectivizes the stem. A secondary imperfective suffix has the effect of making a lexically-prefixed stem imperfective, as illustrated in (8c) (glossing the theme vowel as *v*, as discussed below).

- (8) a. bol-e-t’  
 ill-*v*-INF  
 ‘be ill’ (imperfective)  
 b. za-bol-e-t’  
 onto-ill-*v*-INF  
 ‘fall ill’ (perfective)  
 c. za-bol-e-va-t’  
 onto-ill-*v*-IMPF-INF  
 ‘fall ill’ (imperfective)

This suggests that the secondary imperfective is structurally higher than the lexical prefix, as illustrated in (9).

- (9) [za-bol-e]-va-t’  
 onto-ill-*v*-IMPF-INF

The impossibility of applying secondary imperfective to a superlexically prefixed stem is explained if the superlexical prefixes attach higher than the secondary imperfective. Note that in the Serbian examples of double prefixation in (7a–c), the lexically prefixed stems are secondarily imperfectivized before the superlexical prefix is attached. The superlexical prefix leads to perfectivization again, proving that it scopes over the secondary imperfective. (7a) is repeated here with a fuller parse.

- (10) is-pre-trč-a-va-ti  
COMPL-across-run-*v*-IMPF-INF

In fact, the superlexical prefix can be more narrowly localized; Russian *zakatal*, for example, means ‘started rolling,’ not ‘starts to have rolled,’ suggesting that the superlexical prefix is inside the scope of tense, as illustrated in (11).<sup>1</sup>

- (11) [za-[kat-a]]-l  
INCEP-roll-*v*-PAST

Thus, we can map the Russian verb onto the following hierarchy of projections: AGR[reement], T[ense], SUP[erlexical prefix], ASP[ect], *v* (cf. Hale and Keyser 2002), V, and LEX[ical prefix]. I assume that *v* is represented by the thematic vowel, or is null with certain verbs.

- (12) AGR-T-SUP-ASP-*v*-LEX

I am assuming that the imperfective suffix is one realization of an ASP[ect] projection. I am simplifying the analysis of Tense and Agreement (the *-l* past tense in Russian is at least historically participial, with gender and number (g,n) agreement, while finite tenses take person and number (p,n) agreement; the order of these elements when they cooccur is  $\text{Agr}_{p,n}$ - $\text{T}_{fin}$ - $\text{Agr}_{g,n}$ - $\text{T}_{part}$ , as seen e.g. for the Bulgarian examples in note 1).

### 3 Head-movement

For those categories realized as suffixes, the actual structure of the verb fits a pattern widely attested cross-linguistically, most directly captured in a head-incorporation approach to morphology (Baker 1988), where e.g. V head-moves to *v*, creating a complex head V-*v* which head-moves to T, etc.

- (13) V-*v*-ASP-T-AGR

In fact, even the lexical prefix could be treated this way; since it originates below the verb, the leftward adjunction procedure which is standard for head movement will cause it to surface as a prefix.

- (14) LEX-V-*v*-ASP-T-AGR

But the superlexical prefix was included in this line-up in the position between T and Asp, in (12); this seems to wrongly predict it to surface as a suffix between Asp and T. In order to get the superlexical prefix into the structure by head

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<sup>1</sup>Michal Starke has suggested to me that the *-l* in Russian is a participial morpheme, lower than tense proper (as it is in other Slavic languages). However, overt tenses such as the Bulgarian aorist can be demonstrated to be higher than superlexical prefixes. For example, *iz-čet-ja-x-a* ‘COMPL-read-IMPF-AOR-3PL’ (‘[they] read through’) shows an aorist suffix on a verb with a prefix, while *b-ja-x-a iz-če-l-i* ‘be-IMPF-AOR-3PL COMPL-read-PERF-PL’ (‘[they] had read through’) shows the aorist suffix on an auxiliary, higher than the main verb bearing the prefix (examples from Krapova (1999)).

movement, we could assume that prefixes are specially marked in the lexicon as demanding incorporees to right-adjoin, rather than left-adjoin. The right order is now derived, with the right hierarchical structure, as suggested in the partial derivation in (15).

- (15)    a.    ... T ... SUP ... [LEX-V-*v*-ASP]  
           b.    ... T ... [SUP-[LEX-V-*v*-ASP]]  
           c.    ... [[SUP-[LEX-V-*v*-ASP]]-T]

Right adjunction has been argued to be syntactically impossible (Kayne 1994). Below I show that there are other challenges for a head movement analysis of prefixation.

## 4 Problems for head movement

Phonologically, all prefixes appear to be outside a domain including the root and all its suffixes (Pesetsky 1985, Fowler 1994, Matushansky 2002), suggesting the prosodic structure illustrated by the parentheses in (16).

- (16)    a.    *za*-(*bol-e-va-t'*)  
                   onto-ill-*v*-IMPF-INF  
           b.    *za*-(*kat-a-l*)  
                   INCEP-roll-*v*-PAST

This is at odds with the syntactic structure argued for in §2. The two can be resolved if the prefix defines a separate prosodic domain. That is, if the prefix constitutes a separate phonological cycle, then that yields the prosodic boundary between the prefix and the root signified by the left parenthesis in (16). This is illustrated in (17).

- (17)    a.    [[[[(*za*)-*bol*]-*e*]-*va*]-*t'*]  
                   onto-ill-*v*-IMPF-INF  
           b.    [[(*za*)-[*kat-a*]]-*l*]  
                   INCEP-roll-*v*-PAST

The question arises whether this special prosodic status can be made to follow from anything or whether it must simply be stipulated. If prefixes are maximal (extended) projections, then it might follow on independent grounds that they define their own phonological cycles. But if they are heads in the extended projection of V, then the special prosodic status appears to require an additional stipulation, in addition to the one that they require right adjunction by the incorporating verb.

Julien (2002) proposes that many prefixes are actually heads in situ, not actually forming a syntactic constituent with the stem to which they are perceived as being prefixed. If we adopt that solution for Russian superlexical prefixes, then the verb cannot move as high as T in Russian, nor in Slavic in general; but that the Slavic verb remains relatively low is the conclusion drawn by Veselovská

(1995) on completely independent grounds.

If the verb remains low, then head movement cannot be the mechanism for combining the verb with T and Agr. Instead, T and Agr must combine with the verb by some other means, for example morphological merger (Halle and Marantz 1993, Embick and Noyer 2001). The idea would be that the verb moves as high as Asp, where it is preceded by the superlexical prefix. Then T attaches to the verb by the postlexical lowering operation, morphological merger. However, morphological merger is assumed to require a kind of adjacency, which would entail that the superlexical prefix is an adjunct, not a head or specifier.

Another alternative to head movement is that proposed by Brody (2000). According to Brody, the phonological realization of a projection line like that in (13) may appear in any specially designated head in that line. But for Brody's system to work for a structure like (12), it is crucial that the superlexical prefix not be a head (at least, not in the same extended projection line as V). Otherwise it would necessarily appear as a suffix, between IMPF and T.

Thus, the fact that the superlexical prefix is a prefix suggests that it has not incorporated, and the fact that higher morphological material can appear suffixally suggests that the superlexical prefix is not a head but a phrase.

The lexical prefix can be assumed to undergo phrasal movement to the pre-verbal position. This captures the great similarity between lexical and superlexical prefixes: both are perfectivizing operators, binding a variable in Asp, and both have the same prosodic profile. At the same time, it captures the differences; the lexical prefix is a secondary predicate, originating VP-internally, introducing internal arguments, and participating in idioms (as discussed in Svenonius 2004).

## 5 Comparison with German separable prefixes

The above proposal suggests that the Russian verb does not form a syntactic constituent with the prefix.<sup>2</sup> This will strike many readers as counterintuitive. It is instructive to compare the case of German. For German, a clearer case can be made that the so-called separable prefix projects a full phrase; Zeller (2001) and Lüdeling (2001) argue at length that separable prefixes occur in a phrasal position to the left of the unmoved verb in German. The arguments are the following.

- (18) Arguments that German and Dutch separable prefixes are not morphologically incorporated (see Zeller 2001 and Lüdeling 2001 for references and examples)
- a. Stranded by V2 movement
  - b. Separated from V by Verb Raising

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<sup>2</sup>The prefix appears to form a constituent with the verb in participle fronting, attested in most Slavic languages (e.g. in Slovak *Na-písal som list* 'onto-written am letter' 'I have written a letter,' Rivero 1999). This could be a case of remnant movement or of movement of a prosodic constituent, or else be due to clitic lowering. See Franks and King (2000) for discussion, including arguments against long head-movement analyses.

- c. Separated from V by *zu*
- d. Never change the inflectional class of the verb

In German and Dutch, separable prefixes can be contrasted with inseparable prefixes on each of these points. In Russian, however, there is no V2 movement, and no Verb Raising of the Dutch type, so (18a)–(18b) cannot be demonstrated.<sup>3</sup> There is no preverbal head like *zu* which appears between the prefixes and the verb (though other prefixes may appear between the superlexical prefixes and the verb). Prefixes seem not to change the inflectional class of the verb, which is expected if they are not morphologically part of it, but on the other hand many affixes share this property. Thus, none of the points in (18) can be used to make much of a case for Russian either way.

Zeller and Lüdeling also present arguments that German separable prefixes are specifically XPs.

- (19) Arguments that German separable prefixes are XPs (Zeller 2001, Lüdeling 2001)
- a. Can topicalize
  - b. Can undergo focus scrambling
  - c. Left behind under Gapping
  - d. Can be modified

Here Russian seems to contrast with German systematically. Russian prefixes do not topicalize, in contrast to German ones.

- (20) a. An der Haltestelle stiegen hübsche Frauen ein. Aus stiegen  
at the bus.stop climbed pretty women in out climbed  
nur Männer.  
only men  
'At the bus stop, pretty women got on. Only men got off' (German;  
Zeller 2001: 89)
- b. V autobus vo-šli krasivyje ženščiny. \*Vy toljko mužčiny  
in bus in-climbed pretty women out only men  
šli.  
climbed

Nor can Russian prefixes be separated from the verb by scrambling.

- (21) a. Ich weiß, daß die Sonne AUF im Osten und UNTER im  
I know that the sun up in.the East and down in.the  
Westen geht.  
West goes  
'I know that the sun goes up in the East and down in the West'  
(German; Lüdeling 2001: 50)

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<sup>3</sup>Slavic languages have participle movement carrying the prefix along, cf. note 2, but when a participle crosses a finite verb, prefixes are carried along even in German: *Ab-getreten* is *Nixon 1974* 'off-stepped is Nixon 1974' ('Nixon resigned in 1974'), Zeller 2001: 97



- b. \*Solnce VOS na Vostoke xodit, a ZA na Zapade xodit.  
 sun up on East goes and behind on West goes

In contrast to German, Russian prefixes cannot be stranded by Gapping.

- (22) a. weil Peter ein-steigt und Hans aus-(steigt)  
 because Peter in-climbs and Hans out-climbs  
 ‘because Peter climbs in and Hans (climbs) out’ (German; Zeller 2001: 85)  
 b. Ivan vo-shël, a Taras vy-\*(shel).  
 Ivan in-went and Taras out-went.  
 ‘Ivan went in, and Taras went out.’

In German, particles can be modified. At first glance, this appears to be true of Russian, as well.

- (23) a. Peter hat die Tür ganz weit auf-gemacht.  
 Peter has the door quite wide up-made  
 ‘Peter has opened the door quite wide’ (German; Zeller 2001: 100)  
 b. On dovoljno široko ot-kryl dver’.  
 he rather wide away-covered door  
 ‘He opened the door rather wide’

However, the modifier in (23b) might modify the whole verb, rather than just the particle. Zeller shows that the modifier in German is carried along when the particle is topicalized (*Ganz weit auf hat Peter die Tür gemacht*), but as we have just seen topicalization of prefixes is not possible in Russian. However, a modifiers like *prjamo* ‘right’ which combines freely with PP does not seem to be able to scope over a prefix.

- (24) a. On v-taščil mešok prjamo v komnatu.  
 he in-dragged sack right in room  
 ‘He dragged the sack right into the room’  
 b. On (??prjamo) v-taščil mešok v komnatu.  
 he right in-dragged sack in room  
 ‘He (??right) dragged the sack into the room’

Thus, the diagnostics in (19) seem to indicate that Russian prefixes are not phrasal.

It should be noted, however, that German and Dutch separable prefixes only topicalize, scramble, strand, and accept modification under very circumscribed circumstances. Generally, it is only the most transparently contentful prefixes which pass these diagnostics. In fact, so many separable prefixes resist them that many of the same diagnostics have been used to argue that German separable prefixes are affixal.

- (25) a. \*Auf ist er im letzten Moment gesprungen.  
 up is he in.the last moment jumped

- (German; Stiebels and Wunderlich 1994: 923)
- b. \*dat Jan het meisje op vaak merkte  
 that Jan the girl up often noticed  
 (Dutch; Neeleman and Weerman 1993: 436)

But the contrast with Russian prefixes appears to be absolute; a few German prefixes can be moved, but no Russian ones can.

## 6 Prosody

In looking for a reason for the strict adjacency of the Russian prefix and the verb stem, one possibility (which I will reject) is that it has something to do with prosody. The idea would be that the prefix is phonologically weak, and is prosodically a clitic on the verb. When the verb is removed from it, the result is prosodically, not syntactically ill-formed.

There are two problems with this kind of solution. First, it does not explain why the prefix could not prosodically incorporate to some other element; a stipulation has to be made that the prefix specifically seeks the verb.

Second, the prefixes are phonologically indistinguishable from prepositions, but prepositions, under some very limited circumstances, can be stranded by deletion processes like Gapping.

- (26) a. Sullay krasil nad oknom, a Gillian pod.  
 Sullay painted above window and Gillian below  
 ‘Sullay painted above the window, and Gillian below’  
 b. Katja krasil pered oknom, a Kuba za.  
 Katja painted in.front.of window and Kuba behind  
 ‘Katja painted in front of the window, and Kuba behind it’

Thus, a prosodic account would have to be stipulated, as it cannot be made to follow from any independently ascertainable properties of the prefixes.

## 7 Scope

Scope-taking elements are often sensitive to movement. For example, the scope of *again* is ambiguous in (27a), but unambiguously wide in (27b).

- (27) a. Trina opened the door again.  
 b. Again, Trina opened the door.

In (27), it appears, a scope-taking element cannot move to a higher position without changing its scope. In other cases, a similar effect is perceived on the domain of the scope. For example, in German a verb like *verdreifachen* ‘triple’ can be modified by a degree modifier like *mehr als* ‘more than,’ as shown in (28a); but if it is, then the verb cannot move across it, as illustrated in (28b) (pointed out to me by Hubert Haider).

- (28) a. daß die Erneuerung den Wert des Hauses (mehr als)  
 that the renovation the value of.the house more than  
 verdreifachte.  
 tripled  
 ‘that the renovation (more than) tripled the value of the house’  
 b. Die Erneuerung verdreifachte den Wert des Hauses (\*mehr  
 the renovation tripled the value of.the house more  
 als).  
 than  
 ‘The renovation tripled the value of the house’

This is a striking illustration of a surface requirement because verb movement has so few detectable semantic effects that is sometimes claimed to be purely phonological (e.g. Chomsky 2001).

Of course, other scope-taking elements appear to be able to scope at a distance. Without claiming to understand the difference, I will simply refer to the strictly local kind of scope illustrated in (27)–(28) as local scope.

The absolute immovability of the Slavic prefix could be explained if the Slavic prefix could independently be demonstrated to have local scope over the verb. As it happens, there is a very clear contrast between the role of the Slavic prefix in effecting perfectivity and the role of the Germanic particle. Germanic particles are often claimed to telicize, but they are at best resultative. Slavic prefixes have a much more profound effect on the aspectual character of the predicate.

To indulge in a brief bit of speculation, I suggest that this effect is the result of the binding, by some aspectual operator, of an eventual variable located in the verb (the verb may have moved to the Asp head, thus the relevant variable may in fact be located in Asp). This aspectual operator is apparently not present in ordinary prepositions, with which the prefixes are homophonous. Following this line of reasoning, the operator is a nominal constituent which is the complement of the prefix. It is then this complement that makes the prefix phrasal.<sup>4</sup>

## 8 Modification

The badness of modification of Slavic prefixes (illustrated above in (24)) is not explained by the local scope hypothesis. However, there is a plausible independent explanation. In Norwegian, certain PPs undergo Particle Shift. These PPs can be phrasal. However, they cannot be modified by adverbial material, as indicated.

- (29) a. Hun kastet kniven (langt) fra seg.  
 she threw the.knife (far) from RFX  
 ‘She threw the knife (far) away from her’

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<sup>4</sup>This entails that the operator can scope out of the PP projected by the prefix, much as has been observed for constructions like *We spoke [to each woman<sub>i</sub>] about her<sub>i</sub> options*.

- b. Hun kastet (\*langt) fra seg kniven.  
 she threw far from RFX the.knife  
 ‘She threw the knife away from her’
- (30) a. Hunden rev hatten (rett) av mannen.  
 the.dog tore the.hat right off the.man  
 ‘The dog tore the hat (right) off the man’
- b. Hunden rev (\*rett) av mannen hatten.  
 the.dog tore right off the.man the.hat  
 ‘The dog tore the hat off the man’

In these cases, I suggest, the projection of P which undergoes shift to the position between V and DP is smaller than the projection which remains behind; assume, for example, that the complement of V in these cases is  $pP$ , the head  $p$  of which takes a PP complement (cf. Zeller 2001, Svenonius 2003). PP undergoes shift, leaving  $p$  behind, along with the DP in its specifier. If the modifiers are contained in the  $p$  projection, then they will not be carried along. If they are local modifiers of P, then they cannot be stranded either.

This suggests that there are projections which are too small to contain certain kinds of modifiers. If the Russian prefixes are of this small size, then they will not contain modifiers, even if they are phrasal. Their small size may also explain why they cannot have other complements than the perfective operator.

## 9 Conclusion

The arguments in favor of a phrasal approach to Russian prefixes must be seen in the context of a theory of morphosyntax. If human language learning admits the postulation of morphological rules which arbitrarily dictate that certain classes of elements must be adjacent to some other class of elements, or must be right-adjointed to their hosts, then a learner faced with Russian data might postulate such rules. If, on the other hand, morphology is minimal, then such rules may not exist. In that case, a learner faced with Russian data must discover a syntactic system that leads to the correct distribution of prefixes. I suggest that the perfectivizing function of prefixes might be a clue to the learner that they take what I called local scope over the verb. In fact, the regular adjacency of prefixes to verbs might also be a clue to which the learner is sensitive (as is often assumed). Possibly, once the existence of a perfectivizing local scope operator is discovered, the extreme adjacency facts follow. There are many details which remain to be worked out, not least how multiple prefixation works. I hope to have at least made the phrasal analysis plausible.

## References

- Babko-Malaya, Olga. 1999. Zero Morphology: a study of aspect, argument structure and case. Ph.D. thesis, Rutgers, New Brunswick, New Jersey.

- Baker, Mark C. 1988. *Incorporation: A Theory of Grammatical Function Changing*. Chicago: University of Chicago Press.
- Baltin, Mark R. 1989. Heads and projections. In Mark R. Baltin and Anthony S. Kroch, eds., *Alternative Conceptions of Phrase Structure*, 1–16, Chicago: University of Chicago Press.
- Brody, Michael. 2000. Mirror theory: Syntactic representation in perfect syntax. *Linguistic Inquiry* 31:29–56.
- Chomsky, Noam. 1995. Bare phrase structure. In Gert Webelhuth, ed., *Government and Binding Theory and the Minimalist Program: Principles and Parameters in Syntactic Theory*, 383–439, Oxford: Blackwell.
- Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz, ed., *Ken Hale: A Life in Language*, 1–52, Cambridge, Ma.: MIT Press.
- Embick, David and Noyer, Ralf. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.
- Filip, Hana. 2000. The quantization puzzle. In Carol Tenny and James Pustejovsky, eds., *Events as Grammatical Objects*, 39–96, Stanford, Ca.: CSLI.
- Fowler, George. 1994. Verbal prefixes as functional heads. *Studies in Linguistic Sciences* 24:171–185.
- Franks, Steven and King, Tracy Holloway. 2000. *A Handbook of Slavic Clitics*. New York: Oxford University Press.
- Hale, Ken and Keyser, Samuel Jay. 2002. *Prolegomenon to a Theory of Argument Structure*. Number 39 in Linguistic Inquiry Monograph, Cambridge, Ma.: MIT Press.
- Halle, Morris and Marantz, Alec. 1993. Distributed morphology and the pieces of inflection. In Kenneth Hale and Samuel Jay Keyse, eds., *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, 111–176, Cambridge, Ma.: MIT Press.
- Julien, Marit. 2002. *Syntactic Heads and Word Formation*. Oxford Studies in Comparative Syntax, New York: Oxford University Press.
- Kayne, Richard S. 1994. *The Antisymmetry of Syntax*. Cambridge, Ma.: MIT Press.
- Krapova, Iliyana. 1999. The system of auxiliaries in Bulgarian. In Mila Dimitrova-Vulchanova and Lars Hellan, eds., *Topics in South Slavic Syntax and Semantics*, number 172 in Current Issues in Linguistic Theory, 59–89, John Benjamins.
- Lüdeling, Anke. 2001. *On Particle Verbs and Similar Constructions in German*. Stanford, Ca.: CSLI.

- Marantz, Alec. 1984. *On the Nature of Grammatical Relations*, volume 10 of *Linguistic Inquiry Monographs*. Cambridge, Ma.: MIT Press.
- Matushansky, Ora. 2002. On formal identity of Russian prefixes and prepositions. In *Phonological Answers (and their corresponding questions)*, volume 42, 217–253, Cambridge, Ma.: MITWPL.
- Muysken, Pieter. 1982. Parametrizing the notion 'head'. *Journal of Linguistic Research* 2:57–75.
- Muysken, Pieter and van Riemsdijk, Henk. 1986. Projecting features and featuring projections. In Pieter Muysken and Henk van Riemsdijk, eds., *Features and Projections*, 1–30, Dordrecht: Foris.
- Neeleman, Ad and Weerman, Fred. 1993. The balance between syntax and morphology: Dutch particles and resultatives. *Natural Language and Linguistic Theory* 11:433–475.
- Pesetsky, David. 1985. Morphology and lexical form. *Linguistic Inquiry* 16:193–246.
- Rivero, María Luisa. 1999. Verb movement and economy: Last resort. In Mila Dimitrova-Vulchanova and Lars Hellan, eds., *Topics in South Slavic Syntax and Semantics*, number 172 in Current Issues in Linguistic Theory, 1–23, John Benjamins.
- Spencer, Andrew and Zaretskaya, Marina. 1998. Verb prefixation in Russian as lexical subordination. *Linguistics* 36:1–39.
- Stiebels, Barbara and Wunderlich, Dieter. 1994. Morphology feeds syntax: The case of particle verbs. *Linguistics* 32:913–968.
- Svenonius, Peter. 2003. Limits on P: *filling in holes* vs. *falling in holes*. *Nordlyd. Proceedings of the 19th Scandinavian Conference of Linguistics* 31:431–445.
- Svenonius, Peter. 2004. Slavic prefixes inside and outside VP, ms. University of Tromsø; to appear in *Nordlyd* at [www.ub.uit.no/munin/nordlyd/](http://www.ub.uit.no/munin/nordlyd/).
- Veselovská, Ludmila. 1995. Phrasal movement and X<sup>0</sup>-morphology: Word order parallels in czech and english nominal and verbal projections. Ph.D. thesis, Palacký University, Olomouc.
- Zeller, Jochen. 2001. *Particle Verbs and Local Domains*. Amsterdam: John Benjamins.