

Chapter 11

The (un)expectedly stacked prefixes in Slovenian

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When a Slavic verb occurs with multiple prefixes their order is often claimed to follow certain restrictions of a fairly formal character. Firstly, lexical prefixes, which can modify the argument structure of the verb and contribute idiosyncratic interpretations, are always found adjacent to the verbal root, while superlexical prefixes, which do not alter the argument structure and whose interpretative contribution is adverbial, can be stacked over the lexicals. And secondly, when multiple superlexicals stack on a verbal stem, they follow a fixed order. We set out to test these two generalizations with a corpus study. We find that there exist a number of verbs which seem to have more than one lexical prefix, in direct contradiction of the standard assumptions about prefixation.

1 Introduction

In Slovenian and in Slavic languages more generally, simplex verbs consist of a root, a theme vowel [TV] and a tense and agreement ending [T/AGR], and are typically imperfective (though this is not a rule, cf. e.g. the Slovenian perfective simplex verb *kupiti* ‘to buy’). Verbs can also carry one or more prefixes, with the prefixed form generally being interpreted perfectly (unless imperfectivized through, for example, suffixation in the process called secondary imperfectivization [SI]). We demonstrate this for the verb *znati* ‘to know’ and some of its derivatives in Table 1.¹

¹Unless indicated otherwise, all examples in this paper are Slovenian.



Table 1: The various parts of the Slavic verb

prefix	prefix	root	SI	TV	T/AGR	Gloss
		zn		a	ti	‘to know.IPFV’
	po	zn		a	ti	‘to know.PFV’
	po	zn	av	a	ti	‘to know.IPFV’
pre	po	zn		a	ti	‘to recognize.PFV’
pre	po	zn	av	a	ti	‘to recognize.IPFV’

Turning to verbal prefixes, these are, in general, all formally related to prepositions (e.g., *ob* ‘by/next to’, *pri* ‘at’, etc., cf. Matushansky 2002, Gehrke 2008, Caha & Ziková 2022, a.o.), but are often assumed to differ among themselves in terms of their position within the verbal domain. Typically, a distinction is made between so-called lexical and superlexical prefixes. The former are often seen as affixal prepositions functioning as VP-internal resultative secondary predicates, similarly to resultative particles in Germanic, the latter as affixal prepositions functioning as VP-external, INFL-level material, e.g., Ramchand (2004), Romanova (2004), Svenonius (2004), and each type is said to behave uniformly with respect to a number of properties. The tree in Figure 1 sketches the relevant positions. A more detailed overview is given in Section 2.

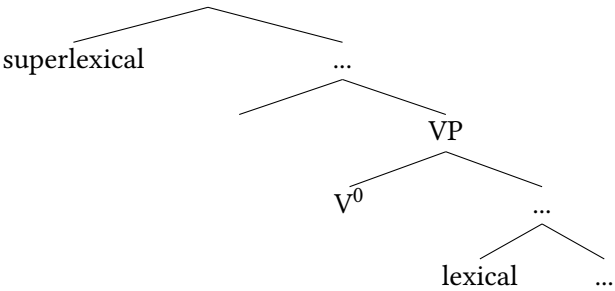


Figure 1: A sketch of the two positions of the two types of prefixes

One important distinction between the two types of prefixes that the literature often seems to convey (even if sometimes unintentionally) is that a verb will – generally – only have one lexical prefix, while superlexical prefixes can stack. The strong tendency that there will only be a single lexical prefix stems from the fact that there is a single position for lexical prefixes, as in Svenonius (2004) or Romanova (2004), or that the semantics of lexical prefixes preclude there being

more than one with a given verb, as in Babko-Malaya (2003). When both types of prefixes appear in a verb, the superlexical prefix(es) linearly precede the lexical prefix, and if a verb has multiple superlexical prefixes, these appear in a certain order (e.g., Milićević 2004, Istratkova 2006, Wiland 2012).

The main goal of this paper is to see if we can find a reflection of these generalizations in Slovenian corpus data, if we can use Slovenian corpus data to corroborate these generalizations about the lexical–superlexical division, in particular the view that stacked prefixes will generally not be lexical prefixes and that superlexical prefixes are governed by strict ordering constraints. If we find the generalizations reflected in corpus data, this can be seen as support for the theoretical claims; but note that if we do not, the claims can still be correct, as theoretical possibilities for the existence of specific structures per se do not necessarily imply anything about these structures’ frequency in use.

Whereas we find that our corpus data are of limited use for testing fine-grained proposals for orderings of superlexicals, we do also find that they offer corpus support for some aspects of the ordering claims. At the same time, our corpus data also reveal some cases that may appear to be at odds with the expected division. Specifically, while isolated examples of verbs that seem to have two lexical prefixes have been pointed out in the past, e.g., *iz-pod-riniti* (lit.: from-under-drive) ‘to push out’ and *s-pod-makniti* (lit.: from-under-move) ‘to jerk away’ have been considered in Svenonius (2004: 242), and see also Markova (2011: 260) for Bulgarian and Biskup (2023: 20) for Russian and Czech, our corpus leads us to an expanded set of verbs that display this unexpected combination. Using this set of verbs we then consider how to analyze verbs in which two prefixes both exhibit properties typical of lexical prefixes.

The paper is organized as follows. In Section 2 we review some widely assumed properties ascribed to the two classes of prefixes. Section 3 presents a corpus study that focuses on stacked verbal prefixes. Section 4 discusses the data with potentially unexpectedly stacked prefixes, Section 5 presents the conclusions.

2 What we know: Lexical and superlexical prefixes in Slavic verbs

A fairly standard division of prefixes that is also characteristic of the more traditional literature (e.g. Vidović Muha 1993, Toporišič 2000), and is typically assumed to hold for all Slavic languages, establishes two main uses of prefixes. Lexically used prefixes tend to have spatial or idiosyncratic meanings, where “idiosyncratic” is meant to capture situations in which the prefix’s addition to the

verb does not lead to a systematically predictable interpretation of the prefix-verb stem complex, as shown in (1). With superlexically used prefixes, on the other hand, the addition of the same prefix predictably adds the same (adverbial) interpretation, and the interpretation of the verb stays transparent and constant across the prefixed verb class, (2).²

- (1) ob-delati | ob-soditi | ob-noviti | ob-leteti
at-work at-judge at-new at-fly
'to process' | 'to sentence' | 'to renew' | 'to fly around'
- (2) po-sedeti | po-bingljati | po-plesati | po-igrati se
over-sit over-dangle over-dance over-play REFL
'to sit for' | 'to dangle' | 'to dance' | 'to play for a
a while' | for a while' | for a while' | while'

The two classes are said to differ in a number of other properties. Lexical prefixes are said to appear directly on the verb root while superlexicals can be separated from the root by another prefix, and consequently, lexical prefixes can never be stacked, while there should be no such restriction, across the board, for superlexicals. Also, only lexical prefixes are said to be able to affect argument structure. And only lexical prefixes, but not superlexicals, can form secondary imperfec-tives, cf., e.g., Svenonius (2004: 229) for the diagnostics for superlexical prefixes, though note also that even for Svenonius some subclasses of superlexical pre-fixes can violate this last constraint (Svenonius 2004: 230). These properties are summarized in Table 2.

Table 2: Lexical and superlexical prefixes

Lexical prefixes	Superlexical prefixes
adjacent to the root	outside of lexical prefixes
idiosyncratic/PP meanings	adverbial meanings
affect argument structure	don't affect argument structure
form secondary impf.	don't form secondary impf.
generally don't stack	can stack

²For expository reasons, we ignore Slovenian orthography and separate prefixes from the rest of the verb with a hyphen. Prefixes are glossed on the basis of the basic meanings of their prepositional counterparts.

Many aspects of these generalizations, however, have also been questioned. Žaucer (2009), for example, shows that the cumulative prefix *na-* introduces an unselected object – generally considered a hallmark of lexicality – but can, at the same time, also stack over another prefix. A number of authors argued that the split should be in more than two groups: for example, Tatevosov (2008) argues for an independent, third class of *intermediate* prefixes; Babko-Malaya (2003) splits lexical prefixes in two groups; Markova (2011) proposes a four-part division into *outer*, *higher inner*, *lower inner*, and *lexical* prefixes (where the “traditional” lexical prefixes are split into *lower inner* and *lexical* prefixes).

2.1 Identity of prefixes

What is phonologically one and the same prefix can often be used as either a lexical or a superlexical prefix, as shown in (3)–(4). So if prefixes are defined with their phonological shape one should really only talk of their lexical or superlexical uses, rather than of lexical and superlexical prefixes.

- (3) a. *po-liti*
over-pour
'to spill'
- b. *po-sedeti*
over-sit
'to sit for a while'
- (4) a. *do-staviti*
to-put
'to deliver'
- b. *do-od-pirati*
to-off-push
'to finish opening'

Po- will standardly be analyzed as a lexical prefix resulting in a spatio-idiosyncratic interpretation on the verbal stem in (3a) and as a superlexical prefix with adverbial interpretation in (3b), and *do-* as a lexical prefix added to the verbal stem *staviti* (which never occurs on its own without a prefix in most varieties of Slovenian) and as a superlexical prefix added to an already prefixed stem in (4b).

Moreover, a prefix can have more than one superlexical use, as shown by the Polish example (5), where *po-* serves once as a delimitative and once as a distributive prefix (cf. also Žaucer 2009).

- (5) Kucharze po-po-roz-kładali przez chwilę naczynia i zajęli
 cooks po.DELIM-po.DIST-roz-put.SI over all tables and began
 się czymś innym.
 REFL something else
 ‘The cooks put the dishes on the table for a while and they turned their
 attention to something else.’
 (Polish; Klimek-Jankowska & Błaszczak 2022)

2.2 Stacking

As mentioned above, it has been observed that when Slavic verbal prefixes stack, their ordering is not random, but rather reveals certain restrictions of a fairly formal character. For one, lexical prefixes attach to the verb before superlexical prefixes, and as a consequence, in any form with multiple prefixes, if the form includes a lexical prefix, the lexical prefix will appear closest to the verb, as sketched in (6). The other observation, also sketched in (6), is that superlexical prefixes (and only superlexical prefixes) can stack even over other superlexical prefixes so that a single verb can have more than one superlexical prefix but, normally, just one lexical prefix (cf. Romanova 2004, Svenonius 2004, Gehrke 2008) (though some authors, e.g. Tatevosov 2008, argue that Russian actually does not allow stacking of “genuine” superlexical prefixes (i.e., inceptive *za-*, delimitative *po-*, cumulative *na-* and distributive *pere-*) but only of “intermediate” prefixes, cf. above).

- (6) superlexical prefix > superlexical prefix > lexical prefix > verb

The restriction to no more than one lexical prefix is taken to reflect the widely assumed general restriction to one independent resultative secondary predicate per verb (a.o. Rappaport Hovav & Levin 2001, Ramchand 2008), and suggests a further difference between lexical and superlexical prefixes.³ Slavic lexical prefixes are parallel to resultative secondary predicates in languages like English, while superlexicals appear to be something different (cf. also Spencer & Zaretskaya 1998).

The superlexical prefixes are also said to follow a fixed order when stacked to the same verbal stem (Istratkova 2006, Wiland 2012, Endo & Wiland 2014, Klimek-Jankowska & Błaszczak 2022). For example, as claimed by Wiland (2012), who

³This restriction is sometimes also suggested to have a non-structural, conceptual explanation, e.g. the Single Delimiting Constraint in Tenny (1994) and Filip (2003). In this paper, we focus on the structural approach.

- ### 3 Corpus-study results

In order to get better empirical insight into multiply prefixed verbs in Slovenian, we considered two sets of data. First, we looked at the 3000 most common verbs in Slovenian using the *WeSoSlav* database (see Arsenijević et al. 2024), to explore the behavior of common verbs with more than one prefix in general (assuming that such a 3000-verb sample is representative of the language). In the second step we created a list of multiply prefixed verbs from the list of all verbs occurring in the *Gigafida 2.0* reference corpus of written standard Slovenian (Čibej et al. 2019).

Starting with *WeSoSlav*, while we were able to confirm that multiple prefixation exists, we found that only 6 out of 3000 verbs had 3 prefixes (no verbs have more), 178 verbs had 2 prefixes, while 2,076 had a single prefix.⁴ Table 3 gives the

⁴The 6 verbs with three prefixes include two aspectual pairs (i.e. *s-po-raz-umeti* 'to agree/communicate.PFV', *s-po-raz-umevati* 'to agree/communicate.IPFV' and *s-po-pri-jeti* 'to cope/deal with.PFV' *s-po-pri-jemati* 'cope/deal with.IPFV') so that there are really only 4 different verbs

relevant results.⁵ Note that each verb was counted only once (that is, verbs with three prefixes were not counted also as verbs with one prefix and as verbs with two prefixes).

Table 3: Prefixation in WeSoSlav (Arsenijević et al. 2024)

number of prefixes	number of verbs	percent
zero	740	24.67%
(exactly) one	2,076	69.2%
(exactly) two	178	5.93%
(exactly) three	6	0.2%
TOTAL	3,000	

This data leads us to certain conclusions. On the one hand, prefixed verbs are more common than verbs without prefixes (the latter are not necessarily simplex, since some have a suffix, e.g. *kup-ova-ti* ‘to buy.IPFV’). But more importantly, while verbs with a single prefix are extremely common, multiple prefixation is not. Given the relatively low number of multiply prefixed verbs, no proper quantificational analysis of the relative order of prefixes can be conducted. In order to create a better empirical base for investigating multiple prefixation, we created a larger list of multiply prefixed verbs.

3.1 Corpus-study results, additional data

The new set of data was created from the list of all 90,000+ verbs found in the *Gigafida 2.0* corpus (Čibej et al. 2019). We only looked at verbs that had more than 5 occurrences in the corpus as the number of typos, misspelled words and incorrectly classified words only increases with less frequent strings of characters. Prefixed verbs were automatically extracted from the list using a simple formula that looked at each individual verb and checked whether it begins with one of the prefixes. The prefix was subtracted from the verb and the verb was

with three prefixes. Applying this same aspectual-pair exclusion criterium also to verbs with two and with one prefix, there are only around 125 different verbs with two prefixes and around 1500 different verbs with a single prefix.

⁵Verbs that have a non-Slavic prefix like *re-* in *re-organizirati* ‘to reorganize’ or *dis-* in *diskvalificirati* ‘to disqualify’ were counted as unprefixed. Similarly we also disregarded the negative prefix *ne-*, as in *o-ne-sposobiti* ‘to disable’.

checked again if the remaining part of the verb starts with one of the listed prefixes. This procedure was repeated five times. The automatically extracted multiply prefixed verbs were then also checked manually, since in some cases the automatic procedure counted some beginnings of stems/roots as prefixes, as in the case of verbs like *stati* (incorrectly analyzed as *s-tati*) ‘to stand’ or *vleči* ‘to pull’ (incorrectly analyzed as *v-leči*), and some combinations of prefixes could be misparsed as combinations of different prefixes, e.g. *pod-o-...* ‘under-about-...’, which is string-homophonous with *po-do-...* ‘over-to-...’, etc.

Table 4: Prefixation in the expanded database

number of prefixes	number of verbs	percent
zero	4,186	29.45%
one	9,181	64.58%
two	833	5.86%
three	16	0.11%
TOTAL	14,216	

With this procedure we were able to retrieve a list of 849 multiply-prefixed verbs that exhibit at least 5 occurrences in the corpus. As above, the list contains some aspectual pairs, see footnote 4, but we did not exclude aspectual pairs for the figures we made. Verbs with three prefixes are extremely rare in Slovenian (see Section 3.2), and among the verbs with at least 5 occurrences in the corpus, there were no verbs with more than three prefixes.

In Figure 2 the prefixes are ordered on the basis of their likelihood, increasing from left to right, to appear as the prefix closest to the verb. The first thing to note is that no prefix is restricted to the root-adjacent position: in the presented set of verbs they all appear in the first position of a pair of prefixes at least once.

This last observation is very clearly visible also from Figure 3. Even the prefixes *pod-* ‘under-’ and *vz-* ‘up-’, which can be, based on Šekli (2016), taken as essentially exclusively lexical prefixes in Slovenian, appear stacked over another prefix in up to 20% of the cases. Actually, even the prefixes which seem to be most common in the root-adjacent position (*vz-* ‘up-’, *v-* ‘in-’, *ob-* ‘around-’, *pod-* ‘under-’ according to Figure 2 and Figure 3) also appear stacked over another prefix in at least 10% of the cases. Thus, all prefixes that are possible in the root-adjacent position can also be used as stacked prefixes (cf. Łaziński 2011 for a similar dictionary-based result from Polish) and thus – according to the descrip-

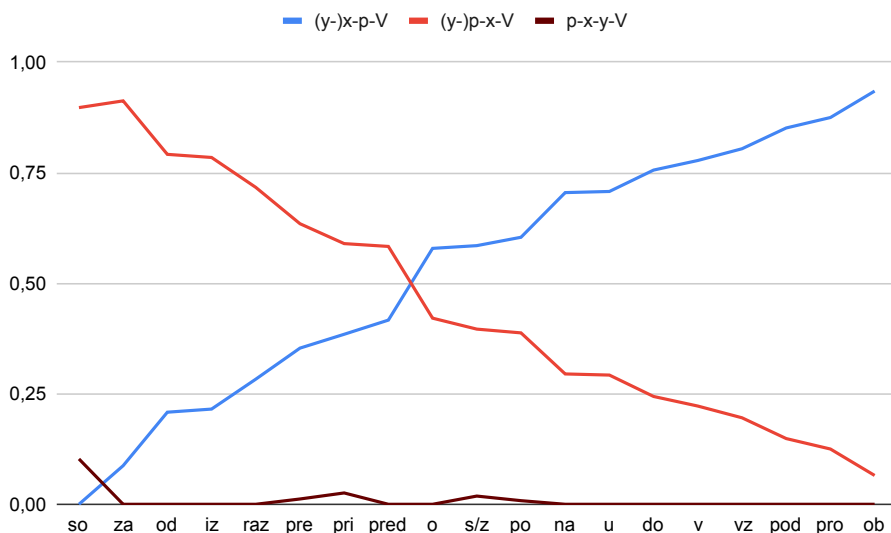


Figure 2: The frequency of prefixes relative to their position in a multiply prefixed verb (counting tokens of combinations)

tion so far – as superlexical prefixes. The implication does not go both ways, as *so-* ‘co-’ is never used as verb-adjacent in multiply prefixed verbs.

Table 5 confirms a tendency for a hierarchy, but does not confirm a true hierarchy. Most pairs of two prefixes only exist in one order, as is evident from the fact that the lower left half of Figure 5 has fewer cells filled in than the upper right half of the table. Table 5 shows that many pairs of prefixes exist with both orders of prefixes, so for example, there are 10 different verbs with the sequence *za-pre-* ‘for-over’, and 4 different verbs with this sequence reversed, i.e. *pre-za-*. Given that certain prefixes have more than one use, that is, that they can be either used as lexical or superlexical prefixes, one would need to determine case by case whether the second prefix of a sequence of two prefixes is indeed an instance of a superlexical prefix or a lexical prefix (which means coding your data on the basis of previous qualitative data analysis, which we wanted to avoid here as much as possible). Further, some prefixes have even more than one superlexical use (cf. Wiland 2012, Klimek-Jankowska & Błaszczak 2022), so that they can appear in more than one position within the proposed hierarchy of superlexical prefixes. These two facts presumably explain why we find so many different combinations where both orders of the two prefixes are possible, and we can only conclude that automatic extraction of prefixes cannot produce a clear sequence of superlexical

11 The (un)expectedly stacked prefixes in Slovenian

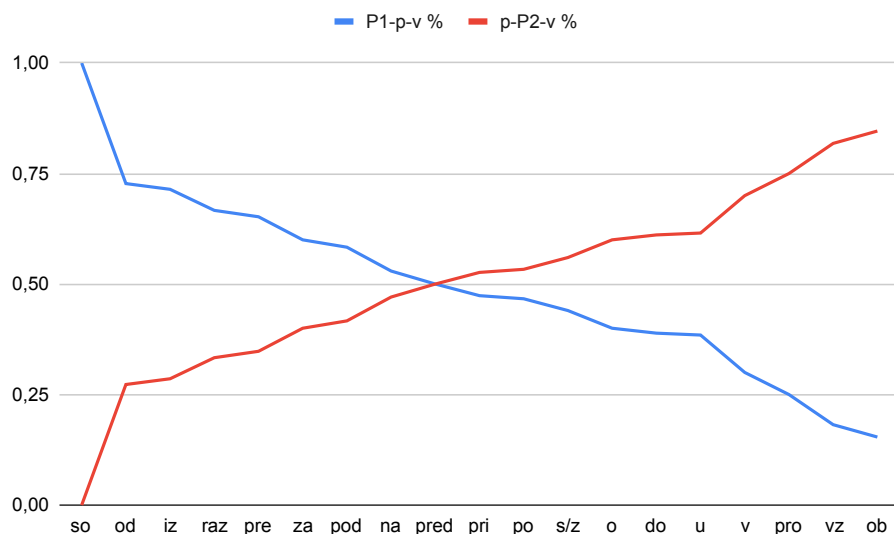


Figure 3: Relative amount of prefixes that a prefix can appear with either when it comes first or second in a pair of prefixes (counting types of combinations).

Table 5: The cross-table of prefix combinations. The first prefix of a pair is listed vertically, the second horizontally. The order of prefixes is a slightly modified sequence from Figure 2.

	so	od	pred	raz	iz	za	pre	o	pri	s/ z	po	na	u	v	do	vz	pod	pro	ob
so		3	2			1		3	1	1	4		12	3	4		2	1	2
od							1		1	2	9	1			1	2		2	
pred								1	1		2	3							
raz							2	3		5	15			2			1	7	3
iz							6	4		4	11	4	1		1	2	14		4
za			1				10	9	5	127	20		7	3	8	4		3	12
pre	1			6	5	4		8	5	6	10	27	14	3	1	4		2	12
o						1	4		2	4	11			2					
pri						5		1		14	11	1			5	7		1	3
s/z			1			2	36		5	1	35	2			1		41	8	2
po	1			9	5	5		2	6	18		14	10	8	2	13		2	2
na						1	1			1	5		1	7	4	2			1
u								2	5	9							2	1	
v									2	5					1				
do					2	1	1		2	1	2								1
vz											4						5		
pod			1	1				2			1	2	2			2			
pro						2								1	1				
ob				2									1						

prefixes, and therefore none of the proposed orders can be either confirmed or rejected.

If we assume that, generally, only the prefix closest to the root will potentially be a lexical prefix (see Section 1), we would need to look at verbs with at least three prefixes to be able to get a sequence of superlexical prefixes, but we only have 16 verbs with three prefixes to work with.

3.2 Verbs with three prefixes

Given that prefixes should be able to stack, and that quite some claims have been made on the basis of the possible and impossible ordering patterns in stacking, we expected that we will find substantial numbers of verbs with three or more prefixes. However, this prediction was not confirmed since out of 849 multiply-prefixed verbs no verb included more than three prefixes and only 16 included three prefixes. Specifically, a closer review of the 16 verbs showed that this number is actually even smaller, as “deduplication” of aspectual pairs reduces the number to a mere 10 verbs, listed in (11)–(20).⁶

Moreover, even some of the 10 verbs in (11)–(20) are odd-looking and unknown to us, such as *priopoteči* in (17), but as these verbs’ few occurrences in the corpus seem to exhibit similar uses, we did not exclude them manually.^{7,8}

- (11) pre-raz-po-rediti^{PFV} – pre-raz-po-rejati^{IPFV}
 over-from-over-order over-from-over-order
 ‘to rearrange’

- (12) s-po-pri-jeti^{PFV} – s-po-pri-jemati^{IPFV}
 with-over-at-hold with-over-at-hold
 ‘to tackle’

⁶Why are verbs with three or more prefixes so rare in actual language is a question we leave for future work. In discussing the rarity of some predicted orders of superlexical stacking, Markova (2011: 269) suggests that this might have to do with processing constraints.

⁷The verb *prisprehoditi* has 5 occurrences in *Gigafida 2.0* and *priopoteči* has 6 occurrences, and these 5/6 occurrences even include more than one example by the same author, so these are possibly forms that have been used/coined by two or three speakers. *Posprehoditi* has 27 occurrences and *porazporediti* 30 occurrences in *Gigafida 2.0*. With the exception of *posprehoditi*, none of these are listed in any of the dictionaries available to us; the translations we provide for these verbs are thus our context- and form-based inferences.

⁸One could perhaps also exclude verbs with the prefix *so-* (similar to the English *co-*), such as (14) and (15). This prefix behaves differently from other verbal prefixes in several respects, can also appear in non-verbal contexts, e.g. *so-avtor* ‘co-author’, and is consequently often not even included in works on verbal prefixation, e.g. Vidovič Muha (1993).

- (13) s-pre-ob-rniti^{PFV} – s-pre-ob-račati^{IPFV}
 with-over-around-turn with-over-around-turn
 ‘to convert’
- (14) so-u-po-rabiti^{PFV} – so-u-po-rabljati^{IPFV}
 co-in-over-use co-in-over-use
 ‘to co-use’
- (15) so-po-vz-ročiti^{PFV} – so-po-vz-ročati^{IPFV}
 co-over-up-hand co-over-up-hand
 ‘to co-cause’
- (16) s-po-raz-umeti^{PFV} – s-po-raz-umevati^{IPFV}
 with-over-from-understand with-over-from-understand
 ‘to agree/communicate’
- (17) pri-o-po-teči
 at-around-over-run
 ‘to get somewhere staggering’
- (18) po-raz-po-rediti
 over-from-over-order
 ‘to distribute’
- (19) po-s-pre-hoditi
 over-with-over-walk
 ‘to take a brief walk’
- (20) pri-s-pre-hoditi
 at-with-over-walk
 ‘to get somewhere taking a walk’

Ignoring the interpretation of individual prefixes, we can extract several partial orders of prefixes from the above examples. Partial orders are given in (21). Interestingly *s/z-* ‘with-’ and *po-* ‘over’ appear in both orders, which is not surprising if both *po-* and *s/z-* have more than one superlexical use and thus more than one position in the hierarchy of superlexical prefixes.

- (21) so > u, po
 s/z > po, pre > raz
 pri > o, s/z
 po > raz, s/z

But what seems to be going on is probably something else. A closer look at the verbs in (11)–(20) reveals that actually none of them seems to have a sequence of two obvious superlexical prefixes, and that for some of them no prefix seems very much like a standard, VP-external-looking superlexical prefix. In verbs like (12) and (13) all three prefixes have some of the properties of lexical prefixes – they affect the argument structure or have spatial PP meanings.

Automatic extraction of prefixes out of a list of verbs has limitations, and even though we were able to show that there is a tendency for a hierarchy, we did not arrive at a single order of superlexical prefixes; we were just able to show that there are certain prefixes that prefer to stay closer to the root and others that prefer to be further away, and that this preference is different for different prefixes, but different methods of establishing this preference gave different sequences of prefixes.

We will devote the remainder of this paper to the observed unexpected sequences of prefixes. As mentioned above, even the prefixes that have been suggested as being exclusively lexical appear in up to 20% of cases as the first prefix in a sequence of prefixes. Consider the verb *vz-po-staviti* ‘to set up’. The prefix *vz-* generally has the meaning ‘up’ and is rarely associated with an adverbial meaning (e.g. *vz-ljubiti* ‘to start to love’) that we generally expect with the outermost prefix of a verb with two prefixes – certainly such a meaning is absent in *vz-po-staviti*. Similarly, the inner prefix of *vz-po-staviti*, as expected, has a meaning that can only be associated with a lexical prefix (‘over’). This type of verbs – which we will call *vz-po-staviti*-type verbs – is what we turn to in Section 4.

4 Examples with two seemingly lexical prefixes

Considering the mainstream view in the literature on prefixation (Section 1), one expectation is that if a verb has two (or more) prefixes, at most one will tend to be a VP-internal, lexical prefix, while the rest will tend to be superlexical (or intermediate). However, our corpus study presented in Section 3 turned up a sizeable number of multiply prefixed verbs in which the outermost prefix also contributes a typically lexical meaning (i.e., *vz-po-staviti*-type verbs). Examples (22) to (28) give a sample of such verbs. These examples are presented here in triplets: The first form is the unprefixed version, the last is the relevant example with two prefixes, and the middle example is the form (which is always an attested form) with a single prefix. Example (28) stands out somewhat, as it has three seemingly lexical prefixes, and the version of the verb with just two is not attested in modern Slovenian (though it is attested in older versions of Slovenian). We

use a #hashtag to mark unprefixed forms that are unattested in modern standard Slovenian and also in many dialects, such as #*staviti*, though they are attested in some present-day dialects of Slovenian, in closely related BCMS, or are historically attested. Note also that in *vz-po-staviti*-type verbs, the verb with a single prefix always seems to exist, which makes these different from Žaucer's (2002) examples like (30), discussed in Svenonius (2004), in which the version with a single prefix is not attested.⁹

- (22) klicati | po-klicati | v-po-klicati
call over-call in-over-call
'to call' | 'to call up' | 'to enlist'
- (23) #staviti | po-staviti | vz-po-staviti
set on-set up-on-set
| 'to set' | 'to set up/establish'
- (24) #jeti | pri-jeti | o-pri-jeti
grab at-grab around-at-grab
| 'to grab' | 'to hold on to'
- (25) #peti | vz-peti | po-vz-peti
pull up-pull on-up-pull
| 'to climb' | 'to climb'
- (26) #deti | o-deti | raz-o-deti
put around-put from-around-put
| 'to wrap' | 'to reveal'
- (27) nesti | za-nesti | pri-za-nesti
carry behind-carry at-behind-carry
'to carry' | 'to carry in' | 'to spare'
- (28) #umeti | raz-umeti | #po-raz-umeti | s-po-raz-umeti
get/understand apart-get over-apart-get with-over-apart-get
| 'to understand' | | 'to agree'

⁹Regarding (24): some varieties do exhibit a verb *jeti*, but only with an aspectual meaning 'to start'. While this is the same root, with the aspectual meaning having developed from the root's basic meaning 'grab'/'hold' or 'take' (Snoj 2009), it is not the root's meaning that the prefixed verb is based on, so we mark *jeti* in (24) with a hashtag.

- (29) nesti | pri-nesti | do-pri-nesti
 carry at-carry to-at-carry
 ‘to carry’ | ‘to bring’ | ‘to contribute’
- (30) riniti | *pod-riniti | iz-pod-riniti
 push under-push from-under-push
 ‘to push’ | | ‘to push out’

The meaning contribution of the outermost prefix suggests that these examples contain more than one lexical prefix. In (22) and (23) the addition of *v-* and *vz-*, respectively, leads to an idiosyncratic, or perhaps spatial meaning; in (24) the prefix *o-* adds a spatial meaning; in (25) the contribution of *po-* is not very clear (little discernible meaning change compared to its singly prefixed input); in (27), *pri-* adds an idiosyncratic meaning; etc. This situation is surprising in view of the idea that lexical prefixes generally do not stack.

The question is, then, how these prefixes should be analyzed. Possible answers include: (i) they are, despite their meanings, VP-external superlexicals; (ii) they fall into one of the additional categories of prefixes described in the literature (cf. Babko-Malaya 2003, Tatevosov 2008, Markova 2011, etc.); (iii) they are indeed VP-internal lexicals, but can be stacked because some special conditions are met. The last option then further opens several possibilities that could be explored, such as the possibility that these examples, in a sense, only include one prefix (and the inner prefix is somehow incorporated into the root), or that these are in fact two prefixes which either appear in a double-VP structure with two independent ResultPhrase positions for lexical prefixes, that they are result modifiers, or that they even require a completely different approach, perhaps one in which all prefixation is introduced above the VP (cf. Biskup 2023). In what follows, we explore these options.

4.1 Option 1: They are superlexical

If the outer prefixes of the *vz-po-staviti*-type verbs were instances of *vP*-external, superlexical prefixes, then one would expect them to exhibit properties typical of superlexical prefixes. One such property is their placement and the ability to stack – since they appear on top of a prefix they could, in principle, be taken as superlexical.

However, there are arguments against this claim. Firstly, they do not carry typical superlexical, adverbial meanings. If we consider the verb *pri-za-nesti* in (27), adding the prefix *pri-* results in an idiosyncratic meaning shift from ‘to

carry in' to 'to spare', which cannot be the result of one of the two possible adverbial readings that *pri-* has, according to Šekli (2016), namely, a delimitative or an inchoative reading, as in *pri-preti* 'open a little' and *pri-žgati* 'to light up', respectively.

Also, superlexical prefixes are typically said not to allow secondary imperfectivization (see Section 2). Except for *vpoklicati*^{PFV} 'to conscript' in (22), all other verbs given in (22)–(30) have well-attested secondary imperfectives: *vzpostavljati*^{IPFV} 'to establish', *oprijemati*^{IPFV} 'to hold on to', *povzpenjati*^{IPFV} 'to climb', *razodevati*^{IPFV} 'to reveal', *prizanašati*^{IPFV} 'to spare', *sporazumevati*^{IPFV} 'to communicate', *spozabljati se*^{IPFV} 'to forget oneself'.¹⁰ It should be emphasized that these do not seem to be cases of a prefix combining with an imperfective base – if this were the case, the resulting verb should be, contrary to fact, perfective. Rather, the imperfectivized verbs match the meaning of the perfective form (except in aspect), suggesting that these are in fact imperfectivizations of the doubly prefixed verbs:

- (31) a. *Veter je {za-nesel^{PFV} / za-našal^{IPFV}} listje na dvorišče.*
wind AUX behind-carry behind-carry leaves.ACC on yard
'The wind carried leaves to the yard.'
- b. **Veter je {pri-za-nesel^{PFV} / pri-za-našal^{IPFV}} listje na dvorišče.*
wind AUX at-behind-carry at-behind-carry leaves.ACC on yard
Literally: 'The wind spared leaves to the yard.'
- (32) a. **Sodišče ni {za-neslo^{PFV} / za-našalo^{IPFV}} osumljencem.*
court NEG.AUX behind-carry behind-carry suspects.DAT
Literally: 'The court didn't carry to the suspects.'
- b. *Sodišče ni {pri-za-neslo^{PFV} / pri-za-našalo^{IPFV}} kriminalcem.*
court NEG.AUX at-behind-carry at-behind-carry criminals
'The court didn't spare the criminals.'

And finally, according to Svenonius (2004) superlexical prefixes normally do not appear in nominalizations, in particular root/zero nominalizations (cf. also Caha

¹⁰The fact that at least for many speakers, *vpoklicati*^{PFV} 'to conscript' does not have a natural imperfective counterpart is not problematic, given that it is also not the case that every perfective verb with a single prefix has a secondary imperfective counterpart, e.g., *za-bresti*^{PFV} 'to get stuck' does not. In fact, the input of *vpoklicati*^{PFV}, i.e., *poklicati*^{PFV} 'to call up', also does not have a secondary imperfective counterpart.

& Ziková 2016). While it should be noted that not all verbs in Slovenian derive root nominalizations, several of these *vz-po-staviti*-type verbs do:

- (33) *iz-po-staviti* | *iz-po-stav-a* (/ *iz-po-stav-e*)
 out-over-stand out-over-stand-F.SG.NOM out-over-stand-F.SG.GEN
 ‘to single out’ | ‘branch’
- (34) *do-pri-nesti* | *do-pri-nos-Ø* (/ *do-pri-nos-a*)
 to-at-carry to-at-carry-M.SG.NOM to-at-carry-M.SG.GEN
 ‘to contribute’ | ‘contribution’
- (35) *za-pri-seči* | *za-pri-seg-a* (/ *za-pri-seg-e*)
 behind-at-reach behind-at-reach-F.SG.NOM behind-at-reach-F.SG.GEN
 ‘to pledge’ | ‘pledge’
- (36) *v-po-klicati* | *v-po-klic-Ø* (/ *v-po-klic-a*)
 in-over-call in-over-call-M.SG.NOM in-over-call-M.SG.GEN
 ‘to call in, enlist’ | ‘conscription’

Root nominalizations are usually assumed not to contain structure above the VP, and following Svenonius (2004), the existence of root nominalizations can be taken as an argument that these prefixes are structurally similar to lexical prefixes, merged inside the verb phrase.

The only reason to consider the outermost prefix in the verbs under discussion to be superlexical, then, would be their placement, whereas their other properties speak against their being superlexical. In what follows, we will therefore further explore the option that they are not superlexical.

4.2 Option 2: They are neither lexical nor superlexical

Whereas a binary split into VP-internal lexical prefixes and a possibly internally diverse group of superlexical prefixes is the most common stance taken in the literature (present also in several cartography-like accounts such as Wiland 2012), some authors have proposed systems with more than two circumscribed groups of prefixes. In this section, we consider whether the stacked prefix in our *vz-po-staviti*-type verbs could belong to one of these additional classes, and conclude that it could not. Note that we will always leave the highest-merging prefix type of these systems out of the discussion: that the stacked prefix in our *vz-po-staviti*-type verbs cannot be any of these highest merging types follows from the discussion in Section 4.1.

Tatevosov (2008) analyzes lexical prefixes as merging in a result phrase inside the VP and superlexical prefixes as merging outside the vP. He suggests that between the lexical and the superlexical prefixes there is a third group – intermediate prefixes, such as the Russian completive *do-* – which merges somewhere above the VP and below the superlexicals.

While *vz-po-staviti*-type verbs share certain properties with verbs with intermediate prefixes (e.g. being able to be imperfectivized), they also have characteristics that set them apart. According to Tatevosov (2008), intermediate prefixes (among other characteristics) yield compositional meanings and never influence argument structure. As we already saw in Section 4.1, the outermost prefix in *vz-po-staviti*-type verbs can lead to non-compositional meanings, such as *vz-* in (23) ('to set' > 'to establish') or *pri-* in (27) ('to carry in' > 'to spare'), which come with concomitant argument structure effects (shown with more detail in Section 4.3). As was also already mentioned in Section 4.1, *vz-po-staviti*-type verbs often serve as the basis for root nominalizations, as in (33), which following Svenonius (2004) also suggests that their prefixes do not originate above the VP. We therefore conclude that our *vz-po-staviti*-type verbs are not simply intermediate prefixes.¹¹

In a similar vein, Markova (2011) presents an account in which lexical prefixes, which she merges inside the VP as head adjuncts to V^0 , are joined by three groups: outer prefixes, which are above vP; higher inner prefixes, which originate between VP and vP; and lower inner prefixes, which originate in a PathP complement to V^0 .

Given that Markova's (2011) higher inner prefixes are positionally the same as Tatevosov's (2008) intermediate prefixes, the same arguments that we just presented against viewing the stacked prefix in *vz-po-staviti*-type verbs as Tatevosov's intermediate prefixes will also apply to the possibility that these prefixes would be Markova's higher inner prefixes. At the same time, the stacked prefixes in *vz-po-staviti*-type verbs will also not be Markova's lower inner prefixes, since she reserves this position for spatial and causative prefixes, whereas the stacked prefixes in a number of our *vz-po-staviti*-type verbs are neither spatial nor causative: see again, for example, (27). Also, Markova's lower inner prefixes cannot contribute idiosyncratic meanings, which she reserves for lexical prefixes, but the stacked prefixes in our *vz-po-staviti*-type verbs can contribute idiosyncratic meanings.

Note, however, that somewhat in passing, Markova (2011: 260) also mentions the possibility that a verb hosts two lexical prefixes, in a V^0 combining two

¹¹In the spirit of Žaucer (2013), an argument could also be made on the basis of relative scope with respect to VP adverbials, the restitutive 'again' and adverbs of completion, all of which scope over the outer prefix. For a demonstration of some of this, see Section 4.3.3 below.

prefixes and a verb, that is, in a V^0 to which two prefix heads have been adjoined. From what we can tell, this structure, which assumes the possibility for idiosyncratic meanings for both prefixes, can actually successfully derive our *vz-po-staviti*-type verbs. Though Markova does not mention this, her account probably also predicts the possibility that a verb hosts a lexical prefix as well as a stacked lower inner prefix, a structure that presumably can derive some of our *vz-po-staviti*-type verbs. We return to this in Section 4.3.1.

Another account that proposes more than two groups of prefixes was put forth in Babko-Malaya (2003). As a version of the superlexical category, Babko-Malaya has Aktionsart-prefixed verbs, in which the prefix merges outside the VP (for which see Section 4.1). In addition, she has lexically prefixed verbs, in which the prefix is adjoined to V^0 , and resultatively prefixed verbs, in which the prefix (itself part of a complex head) is adjoined to V^0 . As explained by Babko-Malaya (2003: 27) herself, the semantics derived from those structures is such that double prefixation is only possible when a stacked prefix is an Aktionsart prefix (i.e., a superlexical prefix in the terminology from Section 4.1), while it actually prevents double prefixation with either two lexical prefixes, two resultative prefixes, or a combination of the two. So the stacked prefixes in our *vz-po-staviti*-type verbs will clearly be neither the lexical nor the resultative prefixes of Babko-Malaya (2003).

Note, however, that as pointed out by a reviewer, the account from Babko-Malaya (2003) is presumably not incompatible with the existence of stacked prefixes of the type of *vz-po-staviti* if such stacked prefixes are analyzed as result modifiers in the sense of Žaucer (2013) (even though Babko-Malaya herself does not discuss this type of data). This would be a version of the view that these stacked prefixes are VP-internal, lexical prefixes, which is the option we discuss next, having determined now that our *vz-po-staviti*-type verbs can be neither superlexical nor intermediate, or something of the sort.

4.3 Option 3: They are lexical

If prefixes in *vz-po-staviti*-type verbs are VP-internal lexical prefixes, we expect them to exhibit properties typically ascribed to lexical prefixes. Again, an argument against such an analysis is that the prefixes under discussion stack, while for lexical prefixes it is assumed that they generally do not stack, see Section 1 and Section 2. The explanation for this restriction is structural. Because lexical prefixes are generally assumed to be resultative and originate in a VP-internal Result Phrase [RP], as shown in Figure 4 (based on Svenonius 2004: (80)), and because verbal structure is assumed to be able to host only one result/one RP

(Rappaport Hovav & Levin 2001, Ramchand 2008), it should normally not be possible to have more than one lexical prefix per verb.¹²

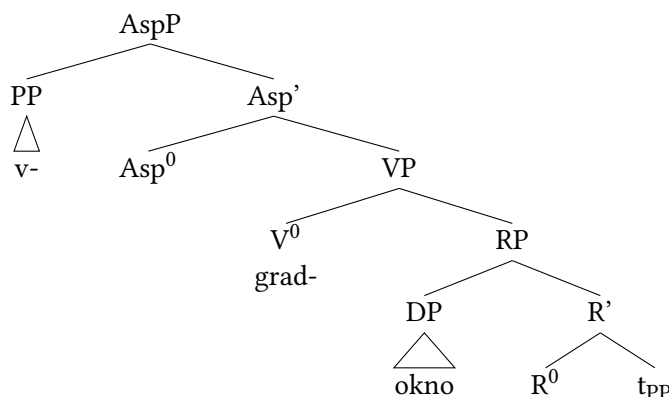


Figure 4: Structure dictates the one-lexical-prefix restriction.

However, as already indicated in Section 4.1, these prefixes display several other properties that can be taken as arguments for a VP-internal, lexical analysis. In addition to non-superlexical interpretations, the availability of secondary imperfectivization and root nominalizations, the outer prefixes in *vz-po-staviti*-type verbs also exhibit some argument-structure effects.

For example, the “singly” prefixed verb *pri-jeti* ‘to grab’ can select for a single accusative object, the reflexive clitic *se*, and an optional genitive object, or an optional reflexive clitic *se* and a prepositional phrase, as shown in (37). The “doubly” prefixed *o-pri-jeti* ‘to hold on to’, on the other hand, is unacceptable (in most modern varieties) with a single accusative object, requires the genitive object with a reflexive clitic *se*, and simply does not tolerate prepositional objects, as shown in (38). Differences in the argument structure of the singly- and doubly-prefixed counterparts are observed also in other cases, as shown in (39)–(41).

- (37) a. *pri-jeti ročaj*
 at-grab handle.ACC
 ‘to grab the handle’
 b. *pri-jeti se (ročaja)*
 at-grab REFL handle.GEN
 ‘to grab (on to the handle)’

¹²Though see den Dikken (1995) for a different understanding of the structure used for particles and prefixes and the restrictions it imposes.

- c. pri-jeti (se) za ročaj
at-grab REFL for handle.ACC
'to grab on to the handle'
- (38) a. *o-pri-jeti ročaj
around-at-grab handle.ACC
b. o-pri-jeti se *(ročaja)
around-at-grab REFL handle.GEN
'to grab on to the handle'
c. *o-pri-jeti (se) za ročaj
around-at-grab REFL for handle.ACC
- (39) a. pri-seči (*pričo)
at-reach witness.ACC
'to swear, take an oath'
b. za-pri-seči (pričo)
behind-at-reach witness.ACC
'to take an oath; to swear in a witness'
- (40) a. za-nesti skrbi Vidu
behind-carry worries.ACC Vid.DAT
'to carry worries to Vid'
b. *za-nesti Vidu (s skrbmi)
at-behind-carry Vid.DAT with worries
'to carry worries to Vid'
- (41) a. pri-za-nesti (*skrbi) Vidu
at-behind-carry worries.ACC Vid.DAT
'to spare Vid'
b. pri-za-nesti Vidu (s skrbmi)
at-behind-carry Vid.DAT with worries
'to spare Vid (the worries)'

Given that we seem to be led to the conclusion that the outer prefix in *vz-po-staviti*-type verbs is a lexical prefix, it should be noted that different authors have previously observed that VP-internal prefixes are not a homogeneous group. A natural question to ask, then, is whether the outer prefixes in *vz-po-staviti*-type verbs share any of the properties of those proposed subgroups.

4.3.1 Option 3.1: They are lexical – but these verbs contain only one prefix

This option presents itself as a possibility especially in view of the fact that some of these apparently doubly-prefixed verbs are no longer used without a prefix. For example, while (42) exists in some Slovenian dialects (and in BCMS), it does not exist in standard Slovenian, nor in many other dialects that normally use *vz-po-staviti*. Similarly, (43) does not exist in modern Slovenian (though it does exist in BCMS), and neither does (44).

(42) #*staviti* ‘set’ (exists in some Western Slovenian dialects)

(43) #*peti* ‘pull’ (but exists in BCMS)

(44) **jeti* ‘grab’/‘hold’

Given that these simplex forms are not attested (or are at best very limited) synchronically, it could be the case that the innermost prefix, even if historically a prefix, is just a part of the root (cf. Fowler 1996), or in other terms, as suggested in Markova (2011: 260) for all prefixes resulting in idiosyncratic meaning shifts, is adjoined to V^0 , forming a complex verbal head. According to this analysis, a verb can have more than one lexical/ X^0 -adjoined prefix, and since prefixes are adjoined to v^0 , they are freely ordered.

On the one hand, it seems to us that Markova’s proposal could be seen as consistent with *vz-po-staviti*-type verbs, especially for those built on verbs like *po-staviti* ‘to set’ or *pri-jeti* ‘to grab’, whose unprefixed bases are not attested synchronically, as well as for those whose outer prefix seems somehow related to a spatial use, such as in *v-po-klicati* ‘to enlist’. On the other hand, for a number of *vz-po-staviti*-type verbs aspect presents an issue. Several of these verbs, such as *vz-peti* ‘to climb.PFV’, are based on stems that were historically imperfective, and just like most lexically prefixed verbs (and unlike most native unprefixed verbs), these verbs generally form secondary imperfectives, e.g. *po-stavlja* ‘to stand.IPFV’, *vz-penja* ‘to climb.IPFV’, *pri-jema* ‘to hold.IPFV’. This suggests that these inner prefixes trigger perfectivity. It is unclear to us how such adjunction could account for the change of aspect. In Svenonius’s (2004) account, for example, the perfectivizing effect arises when a prefix moves from the RP into a VP-external aspect projection; if the prefix is part of a complex V^0 , such movement does not seem to be possible. For those *vz-po-staviti*-type verbs which exhibit singly-prefixed counterparts even in modern Slovenian, such as *v-po-klicati* ‘to enlist’ or *za-pri-seči* ‘to take an oath, to swear somebody in’, this aspectual concern regarding treating their inner prefix as V^0 -adjoined is even more obvious.

In addition, whereas some of these *vz-po-staviti*-type verbs synchronically do not exhibit unprefixated versions, they do occur in a modern Slovenian with several different prefixes, (45)–(47), resulting in forms with either clearly related or with idiosyncratic meanings. We can take this as an argument against an analysis on which the innermost prefixes are simply part of the root: While we agree with Romanova (2004), who considers similar examples of “cranberry roots” in Russian, that these roots are light (according to Romanova they can have no semantics at all), a comparison of the same root with different prefixes implies some common meaning (for (45), this could be paraphrased as ‘to place’) while the prefixes add a predictable spatial meaning.

- (45) *na-staviti* | *po-staviti* | *v-staviti* | *pre-staviti* | *do-staviti* | *od-staviti* ...
on-set over-set in-set over-set to-set from-set
‘set’ | ‘set’ | ‘insert’ | ‘move’ | ‘deliver’ | ‘remove’
- (46) *na-peti* | *vz-peti* | *v-peti* | *raz-peti* | *pri-peti* | *od-peti* ...
on-pull up-pull in-pull apart-pull at-pull from-pull
‘stretch’/‘string’ | ‘climb’ | ‘fasten’ | ‘spread’ | ‘attach’ | ‘detach’
- (47) *na-jeti* | *pri-jeti* | *za-jeti* | *ob-jeti* | *vz-eti* ...
on-grab at-grab behind-grab around-grab up-grab
‘hire’ | ‘grab’ | ‘scoop’ | ‘hug’ | ‘take’

And finally, assuming that the forms in (45)–(47) are unprefixated poses a problem for the varieties in which the simplex forms of the verbs in (45)–(47) do exist, and it also does not account for those *vz-po-staviti*-type verbs that are perfectly normally attested both in standard Slovenian and across Slovenian dialects without the prefix (e.g., *klicati* ‘to call’, the root of the doubly prefixed verb *v-po-klicati* ‘to enlist’). We thus conclude that despite some merits, Markova’s account falls short of fully explaining our *vz-po-staviti*-type verbs.

4.3.2 Option 3.2: They are lexical – but these verbs have two VPs (=double resultative structure)

As mentioned in Section 4.3, the restriction to a single lexical prefix per verb has been derived as a consequence of the structural position of lexical prefixes; because the clausal structure can only have one RP, there can normally only be one lexical prefix per verb phrase (and consequently per verb). However, Žaucer (2009) discusses a class of verbs in Slovenian that seem to have two resultative prefixes, and ultimately analyzes these as having a double-VP structure (cf. also

Tatevosov 2022). In the discussion of the cumulative (/accumulative/saturative) prefix *na-*, a crucial piece of support for the double-VP structure is argued to be the two sets of unselected objects, (48) and (49).

- (48) *(pre)-igrati^{PFV} Maradono
over-play Maradona.ACC
‘fake out Maradona’
- (49) *(na)-*(pre)-igravati^{PFV/IPFV} se Maradone
on-over-play REFL Maradona.GEN
‘get / getting one’s fill of faking out Maradona’

As is evident from our examples in Section 4.3, the *vz-po-staviti*-type verbs do not behave like this. They do not appear to introduce two unselected objects.

Furthermore, the outermost prefix in (49) and this type of examples require an imperfective input, which is not the case in *vz-po-staviti*-type verbs. Also, (49) and this type of examples are normally read perfectly, with the outermost prefix there triggering perfectivity; in other words, an example such as (49) does not necessarily get an imperfective reading despite the presence of the imperfective suffix *-ava*. At the same time, though, the imperfective affix *can* be interpreted as scoping over the outermost prefix – in this case the interpretation of (49) is ‘getting one’s fill of faking out Maradona’. Unlike (49), and as shown in (50), the outermost prefix of *vz-po-staviti*-type verbs never perfectivizes its input and the imperfective affix always scopes over the outermost prefix, which further means that the whole verb is interpreted as imperfective.

- (50) a. pri-jeti^{PFV} – pri-jemati^{IPFV} | o-pri-jeti^{PFV} – o-pri-jemati^{IPFV}
at-grab at-grab.SI around-at-grab around-at-grab.SI
‘to grab’ | ‘to grab on to’
- b. pri-nesti^{PFV} – pri-našati^{IPFV} | do-pri-nesti^{PFV} – do-pri-našati^{IPFV}
at-carry at-carry.SI to-at-carry to-at-carry.SI
‘to carry to’ ‘to contribute’
- c. po-staviti^{PFV} – po-stavljati^{IPFV} | iz-po-staviti^{PFV} – iz-po-stavljati^{IPFV}
over-stand over-stand.SI out-over-stand out-over-stand.SI
‘to set’ | ‘to single out’

While Žaucer (2009) discusses other properties of examples that can be analysed as including two VPs, we take these differences as evidence enough to conclude that prefixes in *vz-po-staviti*-type verbs are not similar to the cumulative *na-*.

4.3.3 Option 3.3: They are lexical – result modifiers, not main result predicates

The literature has identified one further group of prefixes that does not fully respect the standard division into lexical and superlexical. As discussed by Žaucer (2013), prefixes such as excessive (*pre-*), repetitive (*pre-*), attenuative (*pri-*, *po-*), and distributive (*po-*) have adverbial, superlexical-like meanings, can stack, and do not affect argument structure at least when stacked, which makes them look like ordinary superlexical prefixes. An example of this type of prefix is given in (51).

- (51) *pre-na-polniti*
over-on-fill
‘overfill’

However, Žaucer (2013) argues, contrary to what would be expected given the properties listed above, that these prefixes nevertheless merge VP-internally, supporting this claim, for example, with the fact that they scope below VP-adverbials, as shown in (52). The proposed analysis is that these prefixes are result modifiers, thus a sort of adverbial prefixes, but ones that modify the result phrase directly, before it is merged together with the verb.¹³

- (52) *U-stekleničil sem tole vino sicer na roke, pre-u-stekleničil ga bom pa*
in-bottled AUX this wine PTCL on hand over-in-bottled it will PTCL
z mašino.
with machine
‘Though I bottled this wine manually, I’ll re-bottle it with a machine.’
(Žaucer 2013: 292)

What (52) says is that the first time the wine was bottled it was bottled manually, while the second time it was bottled this was done with the use of a machine, which indicates that the repetitive *pre-* is inside the scope of the ‘with’-adverbial, which, in turn, means that *pre-* does not originate above the VP.

Interestingly, the same scopal facts can be observed with *vz-po-staviti*-type verbs. As shown in (53) the entire verb *oprijeti* ‘to hold on to’ is in the scope of the ‘with’-adverbial, suggesting that all parts of the verb originate VP-internally.

¹³As already mentioned, this is a possibility not considered by Babko-Malaya (2003), whose analysis explicitly rules out stacked lexicals and resultatives, but it is, as pointed out to us by a reviewer, a possibility that is in fact perfectly compatible with that system.

- (53) Vejo sem sicer pri-jel z roko, o-pri-jel se je bom pa
branch AUX PTCL at-hold with hand around-at-hold REFL it AUX PTCL
z rokavico.
with glove
‘I grabbed the branch with my hand, but I’ll hold on to it with a glove.’

The two sets of prefixes also behave the same with respect to the restitutive reading of *spet* ‘again’. That is, both the excessive/measure prefix in (54) and the outer prefix in *vz-po-staviti* ‘establish’ in (55) take narrow scope with respect to the restitutive reading of *spet* ‘again’.

- (54) Juš je hladilnik spet pre-na-polnil.
Juš AUX fridge again over-on-filled
‘Juš restored the fridge to an overfilled state.’
Not: Juš was overly involved in filling up the fridge. (Žaucer 2013: 293)
- (55) Miha je stike z očetom spet vz-po-stavil.
Miha AUX contacts with father again up-over-set
‘Miha restored contacts with his father.’
(No other interpretation.)

While Žaucer’s (2013) result-modifying prefixes have a predictable adverbial interpretation and the outer-most prefixes in *vz-po-staviti*-type verbs do not seem to, both of these types of prefixes behave comparably with respect to scopal tests, suggesting that they share the same structural position.¹⁴

4.3.4 Option 3.4: They are lexical and parallel to particles

It is well known that there exist parallels between Germanic particles and Slavic prefixes, e.g. Spencer & Zaretskaya (1998), Svenonius (2004). In fact, similarly to doubly-prefixed verbs of the *vz-po-staviti*-type verbs in Slovenian, we can also observe particle recursion in Germanic, see for example den Dikken (1995: 80). den Dikken (1995) claims that particle recursion is structurally possible but, for unclear reasons, rare. He analyzes recursive particles using his basic structural template from Figure 5 by simply having the second particle as the head of XP, as in Figure 6.

¹⁴Žaucer (2013) does not discuss nominalization possibilities, but root nominalizations from verbs with those result-modifying prefixes are not difficult to find, e.g. *pri-vz-dig* ‘a partial lift’, *pre-u-stroj* ‘remodeling’, *pre-u-redba* ‘reorganization’. The same holds also of our *vz-po-staviti*-type verbs, cf. (33)–(36) above.

- (56) I'll send the letter on over to Grandma's house.
den Dikken (1995: (116b)), quoting Di Sciullo & Klipple (1994)

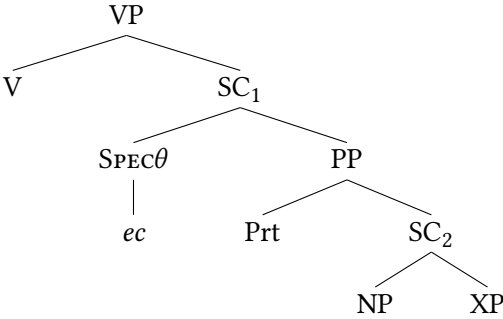


Figure 5: The basic structural template of den Dikken (1995)

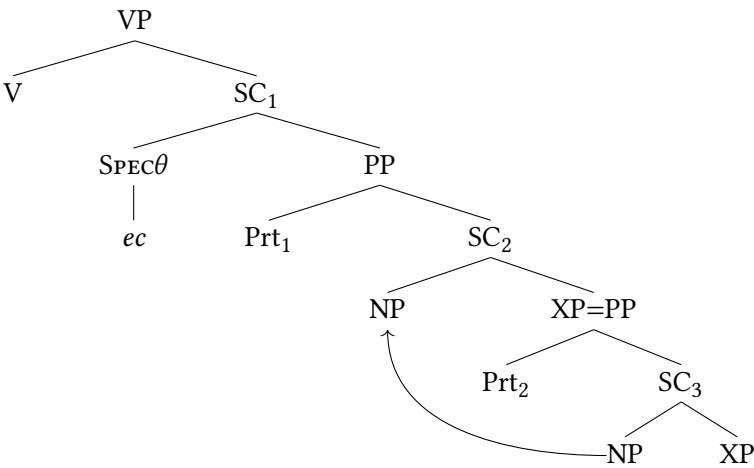


Figure 6: Using den Dikken's (1995) basic structural template to explain unexpected multiple prefixation

4.3.5 Option 3.5: They are some of the lowest projections above VP

There is yet another set of accounts that we have not discussed, namely, accounts that merge all prefixes, including lexical ones, outside the VP. One part of these accounts is represented by systems which at least implicitly still subscribe to two groups, lexical prefixes and a group of higher prefixes, with a single slot for lexical prefixes (e.g. Slabakova 2005, Istratekova 2006, Wiland 2012); like the accounts

discussed above, with lexical prefixes originating VP-internally, these accounts thus generally also end up with a restriction to a single lexical prefix. In addition, it is also not clear to us that such systems can really explain argument structure effects of lexical prefixes well, cf. Žaucer (2009: 16–18). Most recently, Biskup (2023) also develops a system with all prefixes merged outside the VP, but his version presumably allows more flexibility than the previous all-prefixes-outside-the-VP accounts as it does not really seem to subscribe to two groups, and it does not limit the number of lexical prefixes structurally but rather by appealing to conceptual reasons; for a similar case as our *vz-po-staviti*-type verbs, it explicitly allows two lexical prefixes hosted in two separate internal-prefix phrases above the VP. The approach looks promising to us for approaching our *vz-po-staviti*-type verbs, however, in addition to the concern regarding argument-structure effects already stated above, it is also not clear to us – assuming a universal clausal spine – what the nature of the lexical-prefix projections introducing the multiple lexical prefixes could be, and why they could be freely remergeable.

4.4 Instead of a conclusion—a partial proposal

We have shown that the outer prefixes in *vz-po-staviti*-type verbs, even though they are stacked on top of another prefix, do not behave like other superlexical prefixes but rather much more like VP-internal, lexical prefixes. Table 6 presents a comparison of our *vz-po-staviti*-type verbs, or rather, their outer prefixes, lexical prefixes, superlexical prefixes and result-modifying prefixes on the basis of the six most typically considered properties. Some of these properties are clearly related to one another, so for example, a prefix's VP-internal position is related to its ability to form a secondary imperfective, which is merged outside the VP and thus scopes over it. Similarly, as already explained in Section 4.3, placing lexical prefixes in a dedicated VP-internal Result Phrase means that a verb should not host a stack of such prefixes. Additionally, idiosyncratic meaning and argument-structure effects of lexical prefixes also seem to be related to their position inside the VP.

So far we mentioned 12 different *vz-po-staviti*-type verbs that used 10 different prefixes as the outer prefix. Most likely, then, the outer prefixes of *vz-po-staviti*-type verbs do not form a homogeneous class of prefixes, so we actually need not expect to find a single explanation for all of them.

The type of verbs that had been discussed by Žaucer (2002) and Svenonius (2004), *iz-pod-riniti* 'to push out' and *s-pod-makniti* 'to jerk away', are probably just instances of a complex prefix which realizes both PATH and PLACE parts of

Table 6: Lexical, superlexical, and other types of prefixes

	Lexical	VZ-PO-STAVITI	result mod.	Superlex.
VP-positioning	internal	internal	internal	external
meaning	idiosyn./spati.	idiosyn./spati.	adverbial	adverbial
affect arg. struct.	Yes	Yes	No	No
form sec. imperf.	Yes	Yes	Yes	No
form root nomin.	Yes	Yes	Yes	No
stacking	No	Yes	Yes	Yes

the preposition phrase inside a single result phrase, as suggested by Svenonius (2004).¹⁵

Some prefixes have a relatively clear spatial meaning, such as *o-* in *o-pri-jeti* ‘hold on to’, which is comparable in meaning to verbs where *o-* is more clearly lexical like *o-kleniti* ‘grab on to’, *o-graditi* ‘to put a fence around’, or *o-črtati* ‘to draw a line around’ (in some cases the (core) spatial meaning got obscured by a more metaphorical interpretation) and *v-* in *v-po-klicati* ‘to enlist’, which can even be doubled by a preposition phrase with the same prefix, as in (57).

- (57) Trener ga je v-po-klical v reprezentanco.
 coach him AUX in-over-call in national-team
 ‘The coach called him up into the national team.’

In cases like these, the outer prefix may seem to be a proper lexical prefix that would require a result phrase of its own, which would mean that we need two RPs inside the VP, which seems like a problem – but cf. Markova (2011) and Biskup (2023). Note that even though these verbs have a different argument structure from their unprefixed counterpart, the contribution of the prefix to the argument-structure change is not very clear, suggesting that potentially one of the two prefixes can receive an alternative interpretation.

In many respects, our *vz-po-staviti*-type verbs seem to behave similarly to doubly-prefixed verbs in which the prefixes are “result modifiers”, the main difference being the interpretation of prefixes/prefixed verbs – while the “result mod-

¹⁵The two combinations *iz-pod-* and *s-pod-* are synonymous. One can find both versions of these two verbs in written Slovenian – *iz-pod-riniti* and *s-pod-riniti* both with the same meaning ‘to push out’ and likewise *s-pod-makniti* and *iz-pod-makniti* both meaning ‘to jerk away’. Spoken Slovenian hardly makes a distinction between the two pronunciations of these two forms, so we are treating them as just two realizations of the same lexical unit.

ifiers” in Žaucer (2013) have a clear adverbial reading, prefixes in *vz-po-staviti*-type verbs lead to anything between a slight modification in the interpretation of the input to a full-scale idiosyncratic meaning shift compared to the input. Despite this, we propose that the prefixes in *vz-po-staviti*-type verbs should be subsumable under a result-modifier analysis.¹⁶

Based on Žaucer (2013), we thus propose that the structure in Figure 7 captures the two positions for the prefixes in *vz-po-staviti*-type verbs. Note that the result-modifying prefix (on its own) here cannot introduce an unselected object (perhaps unlike the structure in Figure 6).

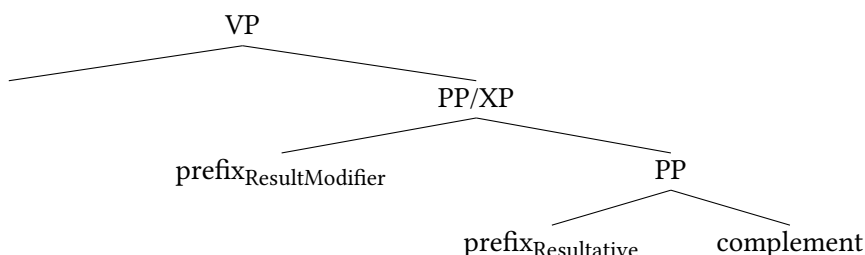


Figure 7: The structure with the two positions of the two prefixes of *vz-po-staviti*-type verbs

5 Conclusions

Our corpus data show that even prefixes which have been claimed to serve (almost) exclusively as lexical prefixes appear stacked over another prefix in up to 20% of their occurrences, which ultimately means that no prefix is used exclusively as a lexical prefix, or that lexical prefixes can sometimes also stack. Our corpus data also confirms a tendency for a hierarchy, but as multiple prefixes have more than one use and since all of them can be used either as lexical or as superlexical prefixes and can appear in more than one position, a true hierarchy of superlexical prefixes could only be determined, perhaps, if prefix occurrences were coded for specific prefix uses – a task that unfortunately seems quite unrealistic, but also one that would inevitably end up drawing in individual researcher’s subjective decisions. Our corpus study also showed that whereas prefixed verbs

¹⁶One could say that just like standard lexical prefixes, which sometimes contribute a compositional spatial interpretation and sometimes a non-compositional idiosyncratic interpretation, result-modifying prefixes also have these two options: contributing either a compositional adverbial interpretation or a non-compositional idiosyncratic interpretation, which we observed with many *vz-po-staviti* type verbs.

are very common in Slovenian, verbs with stacked prefixes are very rare, all in all making the use of corpora rather poorly suited for investigating prefix stacking options in Slovenian.

On the other hand, our corpus investigation also turned up a sizeable set of verbs with two prefixes in which the outer prefix does not seem to have any of the typical superlexical characteristics, other than the fact that it occurs stacked over another prefix. Zooming in on these verbs, which we called *vz-po-staviti*-type verbs, we compared their outer prefixes to superlexical prefixes, to intermediate (and other types of in-between) prefixes, and to some types of stacked prefixes that had previously been proposed to instantiate lexical prefixes despite being stacked. We argued that both the inner and the outer prefix in *vz-po-staviti*-type verbs are lexical and cannot be explained away easily. We found that the outer prefixes in these verbs do not seem to form a homogeneous class, and so it is quite likely that it need not be just one explanation that will solve all of these examples. Some of the discussed cases can be explained relatively easily, and at least for a large part of them they seem best treated as (a version of) result-modifying prefixes, though some cases may need alternative approaches, which we leave for future research.

Abbreviations

ACC	accusative	IPFV	imperfective
ATT	attenuative	M	masculine
AUX	auxiliary	NOM	nominative
BCMS	Bosnian/Croatian/ Montenegrin/Serbian	NEG	negation
COMPL	completive	PERD	perdurative
CUML	cumulative	PFV	perfective
DAT	dative	PTCL	particle
DELIM	delimitative	REFL	reflexive
DIST	distributive	REP	repetitive
EXC	excessive	SAT	saturative
F	feminine	SG	singular
GEN	genitive	SI	secondary imperfective
INCP	inceptive	TERM	terminative
		TV	thematic vowel

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References

- Arsenijević, Boban, Katarina Gomboc Čeh, Franc Lanko Marušič, Stefan Milosavljević, Petra Mišmaš, Jelena Simić, Marko Simonović & Rok Žaucer. 2024. *Database of the Western South Slavic Verb HyperVerb 2.0 – WeSoSlaV*. Slovenian language resource repository CLARIN.SI. <http://hdl.handle.net/11356/1846>.
- Babko-Malaya, Olga. 2003. Perfectivity and prefixation in Russian. *Journal of Slavic Linguistics* 11(1). 5–36. <http://www.jstor.org/stable/24599703>.
- Biskup, Petr. 2023. Deriving morphological aspect in Russian: A matryoshka way. In Christina Clasmeier & Julia Golbekand (eds.), *Linguistische Beiträge zur Slavistik: XXIX. JungslavistInnen-Treffen vom 09. bis 10. September 2021 an der Ruhr-Universität Bochum*, 9–30. Berlin: Peter Lang.
- Caha, Pavel & Markéta Ziková. 2016. Vocalic alternations in Czech prefixes: Evidence for prefix movement. *Acta Linguistica Hungarica* 63(3). 331–377. DOI: 10.1556/064.2016.63.3.3.
- Caha, Pavel & Markéta Ziková. 2022. Prefixes in Czech zero-derived nominalizations and verbs. In Petr Karlík & Lucie Taraldsen Medová (eds.), *Nominalizations and Participles in Czech and beyond*, 3–61. München: Lincom.
- Čibej, Jaka, Špela Arhar Holdt, Kaja Dobrovoljc & Simon Krek. 2019. *Frequency lists of words from the Gigafida 2.0 corpus*. Slovenian language resource repository CLARIN.SI. <http://hdl.handle.net/11356/1273>.
- den Dikken, Marcel. 1995. *Particles: On the syntax of verb-particle, triadic, and causative constructions*. Oxford: Oxford University Press.
- Di Sciullo, Anna Maria & Elizabeth Klipple. 1994. Modifying affixes. In Sharon Hargus, Gerald R. McMenamin & Vida Samiian (eds.), *Proceedings of the Western conference on linguistics XXIII (WECOL 93)*, 68–80. Fresno: Department of Linguistics, California State University. <https://wecol.weebly.com/proceedings.html>.

- Endo, Yoshio & Bartosz Wiland. 2014. The symmetric syntax of Japanese complex verbs and Slavic prefixes. In Anna Cardinaletti, Guglielmo Cinque & Yoshio Endo (eds.), *On peripheries: Exploring clause initial and clause final positions*, 141–159. Tokyo: Hituzi Syobo Publishing.
- Filip, Hana. 2003. Prefixes and the delimitation of events. *Journal of Slavic linguistics* 11(1). 55–101. <https://www.jstor.org/stable/24599705>.
- Fowler, George. 1996. An articulated theory of aspect and prefixation in Slavic. In Jindřich Toman (ed.), *Annual workshop on Formal Approaches to Slavic Linguistics: The College Park meeting 1994*, vol. 20, 97–12. Ann Arbor: Michigan Slavic Publications.
- Gehrke, Berit. 2008. *Ps in motion: On the semantics and syntax of P elements and motion events* (LOT Dissertation Series 184). Utrecht: LOT.
- Istratkova, Vyara. 2006. When prefixes become adverbs. In Tanya Ivanova-Sullivan, Andrea D. Sims & Miriam Whiting (eds.), *Proceedings of the second graduate colloquium on Slavic linguistics*, vol. 6 (Ohio Slavic Papers), 1–31. Columbus: Department of Slavic, East European Languages & Literatures, The Ohio State University.
- Klimek-Jankowska, Dorota & Joanna Błaszczak. 2022. The status of secondary imperfectivization in Polish: Evidence from VP idioms. *Journal of Slavic Linguistics* 30(FASL 29 issue). 1–19. DOI: 10.1353/jsl.2022.a923068. <http://ojs.ung.si/index.php/JSL/article/view/99>.
- Łaziński, Marek. 2011. Polish aspectual prefixes, their order and functions: A study based on the National Corpus of Polish. *Word Structure* 4. 231–243. DOI: 10.3366/word.2011.0012.
- Markova, Angelina. 2011. On the nature of Bulgarian prefixes: Ordering and modification in multiple prefixation. *Word Structure* 4(2). 244–271. DOI: 10.3366/word.2011.0013.
- Matushansky, Ora. 2002. On formal identity of Russian prefixes and prepositions. *MIT Working Papers in Linguistics* 42. 217–253.
- Milićević, Nataša. 2004. The lexical and superlexical verbal prefix *iz-* and its role in the stacking of prefixes. *Nordlyd* 32(2). 279–300. DOI: 10.7557/12.70.
- Ramchand, Gillian Catriona. 2004. Time and the event: The semantics of Russian prefixes. *Nordlyd* 32(2). 324–360. DOI: 10.7557/12.72.
- Ramchand, Gillian Catriona. 2008. *Verb meaning and the lexicon: A first-phase syntax*, vol. 116. Cambridge: Cambridge University Press.
- Rappaport Hovav, Malka & Beth Levin. 2001. An event structure account of English resultatives. *Language* 77(4). 766–797. <https://www.jstor.org/stable/3086847>.

- Romanova, Eugenia. 2004. Superlexical versus lexical prefixes. *Nordlyd* 32(2). 255–278. DOI: 10.7557/12.69.
- Šekli, Matej. 2016. Pomeni glagolskih predpon v slovenščini. *Filološke studije* 14(1). 273–287. <https://hrcak.srce.hr/203716>.
- Slabakova, Roumyana. 2005. Perfective prefixes: What they are, what flavors they come in, and how they are acquired. In Steven Franks, Frank Y. Gladney & Mila Tasseva-Kurktchieva (eds.), *Formal Approaches to Slavic Linguistics 13: The South Carolina Meeting*, vol. 13, 324–341. Ann Arbor: Michigan Slavic Publications.
- Snoj, Marko. 2009. *Slovenski etimološki slovar*. Ljubljana: Modrijan.
- Spencer, Andrew & Marina Zaretskaya. 1998. Verb prefixation in Russian as lexical subordination. *Linguistics* 36(1). 1–39. DOI: 10.1515/ling.1998.36.1.1.
- Svenonius, Peter. 2004. Slavic prefixes inside and outside VP. *Nordlyd* 32(2). 206–253. DOI: 10.7557/12.68.
- Tatevosov, Sergei. 2008. Intermediate prefixes in Russian. In Andrei Antonenko, Christina Bethin & John Baylin (eds.), *Proceedings of the annual workshop on formal approaches to Slavic linguistics 16. the stony brook meeting*, vol. 16, 423–445. Ann Arbor: Michigan Slavic Publications.
- Tatevosov, Sergei. 2022. *Multiple prefixation, reflexivization, and event identification*. Paper presented at FASL 31; abstract available at <https://fasl.humanities.mcmaster.ca/program/>.
- Tenny, Carol. 1994. *Aspectual roles and the syntax-semantics interface* (Studies in Linguistics and Philosophy 52). Dordrecht: Springer.
- Toporišič, Jože. 2000. *Slovenska slovnica*. Fourth edition. Maribor: Založba Obzorja.
- Vidovič Muha, Ada. 1993. Glagolske sestavljenke: Njihova skladišna podstava in vezljivostne lastnosti. *Slavistična revija* 41. 161–192. https://srl.si/ojs/srl/article/view/COBISS_ID-35424256.
- Wiland, Bartosz. 2012. Prefix stacking, syncretism and the syntactic hierarchy. In Markéta Ziková & Mojmir Dočekal (eds.), *Slavic languages in formal grammar: Proceedings of FDSL 8.5, Brno 2010*, 307–324. Berlin: Peter Lang.
- Žaucer, Rok. 2002. *The role of verbal prefixes in Slavic: Evidence from Slovenian locative denominal verbs*. Ottawa: University of Ottawa. (MA thesis).
- Žaucer, Rok. 2009. *A VP-internal/resultative analysis of 4 "VP-external" uses of Slavic verbal prefixes*. Ottawa: University of Ottawa. (Doctoral dissertation).
- Žaucer, Rok. 2013. A case for result-modifying prefixes. In Alexander Podobryaev (ed.), *Formal Approaches to Slavic Linguistics 20: The Second MIT Meeting*, 290–304. Ann Arbor: Michigan Slavic Publications.

