A Case for Result-Modifying Prefixes

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1. Introduction

This paper discusses the syntactic position of the type of Slavic verbal prefixes underlined in (1), whose semantic contribution with respect to the singly-prefixed counterpart is represented by the underlined part of the translation. Because of their semantic effect, the prefixes in (1a) through (1c) are often called ‘excessive’, ‘repetitive’ and ‘attenuative’, respectively.

(1) a. pre-na-trpati  b. pre-u-stekleničiti  c. pri-vz-digniti
    over-on-stuff    over-in-bottle   at-up-lift
    ‘to stuff too full’ ‘to rebottle’ ‘to lift up slightly’

The discussion is cast against the background of the widely-accepted view that Slavic prefixes split into two large groups: one group contains ‘internal’ or ‘lexical’ prefixes, which contribute spatial or idiosyncratic meanings, affect the base-verb’s argument structure, cannot stack over other prefixes and will always be the only one of its kind on the verb stem; the other group contains ‘external’ or ‘superlexical’ prefixes, which contribute adverb/measure/aspect-like meanings, do not affect the base-verb’s argument structure and can stack over another prefix. These differences have been proposed to find a straightforward explanation if we assume that internal prefixes originate as resultative secondary predicates in a small-clause-like complement of the verb, (2), whereas external prefixes originate as heads or specifiers of aspectual,

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† Unless marked otherwise, non-English examples are from Slovenian. I deviate from the standard orthography in separating the prefixes and the stem with hyphens.
quantificational, etc., functional projections above the VP, (3) (e.g. Svenonius 2004, Romanova 2007, Ramchand 2008, etc.).

(2) VP
   / \                      /  \\
  V   SC                    P_{EImPf}P  VP
     /  \                        /  \\
   DP   P_{iMPf}P            ...  ...

The underlined prefixes in (1) above are stacked over another prefix, contribute adverb-/measure-/aspect-like semantics, and have no effect on their input’s argument structure. Following the approach outlined above, this puts such prefixes squarely in the external group, whereby their syntactic position should be outside the vP/VP, as in (3). Furthermore, one thing that the three underlined prefixes in (1) have in common, and which separates them from other classes of stacked prefixes, is that in the presence of secondary-imperfective morphology, they do not have a perfectivizing effect, as observed for similarly-looking prefixes in Russian by Tatevosov (2008). This is shown in (4)-(5), where the progressive-tense gloss is used to represent an imperfective reading and the simple-tense gloss is used to represent a perfective reading.

(4) a. u-stekleničevati
   in-bottle_{IMF}  ‘to be bottling’
   b. pre-u-stekleničevati
   over-in-bottle_{IMF}  ‘to be rebottling’

(5) a. u-stekleničevati
   in-bottle_{IMF}  ‘to be bottling’
   b. na-u-stekleničevati se
   on-in-bottle_{IMF}  REFLEX  ‘to get one’s fill of bottling’

This is what led Tatevosov (2008) to finetune the VP-external group by proposing that prefixes such as the outer one in (4b) are located below the secondary imperfective AspP and prefixes such as the outer one in (5b) are above it; he labels the former ‘intermediate’ and reserves the

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2 The result portion of the tree is now often assumed to be built around a dedicated functional projection labelled ResultP/RP (Svenonius 2004, Ramchand 2008, etc.).

3 This paragraph is borrowed from Žaucer (2012).
label ‘external’ for the latter. Furthermore, he suggests that prefixes such as the outer one in (4b) may merge either above the vP or below it, though they are always above the VP.

In this paper I will argue that the stacked prefixes in (1) are modifiers of result, merged VP-internally. One consequence of this finding is that a prefix’s ability to stack, its adverb-/measure-/aspect-like meaning, and its failure to trigger argument-structure changes are not reliable diagnostics of VP-externality (but note that this claim goes only one way, it does not follow from this that argument-structure changes are not a reliable diagnostic of resultativity, nor does it follow that no stacked prefix could be VP-external). In section 2, I will present different types of evidence for the main claim of the paper. Section 3 will briefly mention the option for a verb to host multiple result-modifying prefixes and section 4 will briefly discuss cases with two result prefixes, each with its own result modifying prefix. Section 5 will explain why result-modifying prefixes can sometimes be found as an only prefix, and section 6 will conclude.

2. Evidence

2.1 Scope with respect to VP-adverbials
The first piece of evidence against a VP-external attachment of the prefixes under investigation comes from their relative scope with respect to VP-adverbials. As shown in (6)-(7), the so-called repetitive pre- shows low scope with respect to VP-adverbials.

(6)  Juš je pismo na-pisal doma, pre-na-pisal ga bo pa v službi.  
Juš is lettel on-written home over-on-written it will PTCL in work  
‘Juš wrote the letter at home and he will rewrite it at work.’

(7)  U-stekleničil sem tole vino sicer na roke, pre-u-stekleničil ga bom in-bottled am this wine PTCL on hand over-in-bottled it will pa z mašinco.  
PTCL with machine  
‘Though I bottled this wine manually, I’ll rebottle it with a machine’

In (6), the letter was not written at work the first time around, suggesting that pre- scopes below the place adverbial ‘at work’ (cf. Williams 2011: 15, 51 for temporal adverbials and manner adverbs with English re-). In
(7), the wine was not bottled with a machine the first time around, suggesting that the ‘with’-adverbial is outside the scope of pre-. The repetitive pre-, therefore, does not seem to originate above the VP.

2.2 Scope with respect to Restitutive ‘again’
It is well-known that some adverbs like ‘again’ show an ambiguity between a repetitive and a restitutive reading, and it is widely assumed that the two readings arise due to a different-height attachment of the adverb: whereas the repetitive reading is derived higher up, the restitutive reading, represented in an LCS format in (8), derives from attaching ‘again’ below the VP (McCawley 1976, Stechow 1996, Rapp & Stechow 1999, Beck & Johnson 2004, Marantz 2007, etc.)

(8) [CAUSE [BECOME ['again' [RESULT]]]]

Looking at the measure prefixes pri- ‘partly’ and pre- ‘over-’ in (9)-(10), we see that they obligatorily take narrow scope with respect to the restitutive reading of spet ‘again’.

(9) Juš je klop spet pri-vz-dignil.
Juš is bench again at-up-lifted
‘Juš restored the bench to a partly lifted state.’
(not: ‘Juš was partly involved in lifting the bench.’)

(10) Juš je hladilnik spet pre-na-polnil.
Juš is fridge again over-on-filled
‘Juš restored the fridge to an overfilled state.’
(not: ‘Juš was overly involved in filling up the fridge.’)

In an LCS format, the scope positions that pri- ‘partly’ and pre- ‘over-’ from (9)-(10) have in a decomposed verb phrase would be as in (11)-(12), with pri- and pre- modifying the result predicate.

(11) [CAUSE [BECOME ['again' ['partly' [up]]]]]
(12) [CAUSE [BECOME ['again' ['over' [full]]]]]

In summary, pri- ‘partly’ and pre- ‘over-’ cannot take wide scope with respect to the restitutive ‘again’. If the restitutive reading of ‘again’ derives from a VP-internal attachment, these prefixes cannot be VP-
external, regardless of the fact that they contribute a measure meaning and that they are stacked over another prefix.

2.3 Scope with respect to Adverbs of Completion
Piñón (2005) shows that adverbs of completion (‘completely’, ‘partly’, ‘halfway’ etc.) obligatorily scope under the restitutive ‘again’, as can be seen from (13).

(13) Mary opened the door halfway again. (Piñón 2005: 152)
   ‘Mary opened the door halfway and so it was again the case that the
door was halfway open’ [again\_restitutive [halfway [open]]]
   (not: ‘Again, Mary opened the door but this time (only) halfway’
   [repetitive, with wide scope of halfway])
   (not: ‘Mary opened the door halfway and so it was again the case
   that the door was open but this time (only) halfway’ [restitutive,
   with wide scope of halfway])

If the restitutive ‘again’, which scopes over adverbs of completion, is inside the VP (Rapp & Stechow 1999, etc.), then adverbs of completion must also be inside the VP.

As it turns out, the repetitive pre- not only scopes below the restitutive ‘again’ (see section 2.2 above) but even below adverbs of completion, as seen in (14) (u-strojiti = ‘shape’, pre-u-strojiti = ‘reshape’).\(^4\)

(14) Juš je samo na pol pre-u-strojil sistem.
     ‘Juš reshaped the system only halfway.’ (i.e. the system must have
been fully shaped before Juš’s half-reshaping, it is not possible that
it was only half-shaped before and he half-shaped it again)

So even though we are dealing with a measure prefix and a stacked prefix, this pre- must originate inside the VP.

\(^4\) Similarly, the English prefix re- is claimed to scope under the adverbial of completion by Keyser & Roeper (1992), as in (i), and by Williams (2011), as in (ii).
(i) John recapped the bag all the way up. (Keyser & Roeper 1992: 112)
(ii) John repolluted the river completely. (Williams 2011: 45)
2.4 Absence of Token-Differentiated Reading

The repetitive and the restitutive ‘again’ differ in that with an indefinite direct object, the former allows a what McIntyre (2003: 134) calls ‘token-differentiated’ reading of the direct object, whereas the latter does not. In (15), the wounds that Juš bandaged need not have been the same that he bandaged in the previous wound-bandaging event; but in (16), the wounds that Juš bandaged must have been bandaged before.

(15) Juš je spet ob-vezal štiri rane.
Juš is again around-tied four wounds
‘Juš again bandaged four wounds.’
(16) Juš je štiri rane spet ob-vezal.
Juš is four wounds again around-tied
‘Juš rebandaged four wounds.’

Looking at the repetitive pre-, we find that it patterns like the restitutive and unlike the repetitive ‘again’ in not allowing a token-differentiated reading of the direct object. In (17) below, the wounds that Juš bandaged must have been bandaged before (cf. McIntyre 2003: 134-7 and Williams 2011: 44 for English re-, Borik 2009: 38 for Russian pere-).

(17) Juš je pre-ob-vezal štiri rane.
Juš is over-around-tied four wounds
‘Juš rebandaged four wounds.’

Like the restitutive ‘again’, then, pre- should also originate low, inside the VP.⁵

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⁵ McIntyre (2003: 136) explains the unavailability of token-differentiated reading with English re-verbs by positing a representation of an event where the participants are represented as yet-to-be-bound variables, and where the interpretation of these segments is already fixed before the variables are bound by anything that could yield token differentiation (cf. also Beck & Johnson 2004). Borik (2009: 38) presents similar facts in Russian and (following Williams 2011: 44 for re-) concludes that the repetitive pere-scoses over the object; however, see McIntyre (2003: 136-7) against such a conclusion. Regardless of whether McIntyre’s explanation is correct, what is crucial for my purposes is that the repetitive pre- once again patterns with the VP-internal restitutive ‘again’.
2.5 Restriction on the Type of Predicate

If a repetitive prefix with the meaning of ‘again’ is superlexical or intermediate, i.e. attached outside the vP/VP, there seems to be no good reason why there should be restrictions on the type of predicate it can occur with. On their repetitive uses, again, Slovenian spet ‘again’, etc., combine with activities, accomplishments, semelfactives, etc. In fact, Italian has a repetitive prefix which has been analyzed simply as an affixal counterpart of a repetitive adverb, and it indeed freely combines with activities, accomplishments, semelfactives, etc. (Cardinaletti 2003: 8); (18) below shows it used with an activity predicate.6

(18) Ha ri-giocato sporco. [Italian]
  has re-played dirty
  ‘He played dirty again.’ (Cardinaletti 2003: 8)

Unlike the Italian ri-, however, the Slovenian repetitive pre- only occurs on predicates with a result state but not on activities, (19)-(20) (cf. Smith 1997: 179, Marantz 2007, etc. for English re-).

(19) Juš je {spet / *pre-} igral umazano.
  Juš is  again  over- played dirtily
  ‘Juš played dirty again.’

(20) Juš je {spet / *pre-} godrnjal
  Juš is  again  over- grumbled
  ‘Juš grumbled again.’

If pre- is a result-related repetitive morpheme (or more generally a result modifier, even if not a true repetitive morpheme, cf. McIntyre 2003 on English rework an essay), we have a straightforward explanation of why pre- combines with predicates with a result state but not with activities.

2.6 Stacked Attenuative po- ‘a little’ in Czech, Reversative Prefixes ...

In this section, I briefly mention some other stacked-prefix uses that have been claimed to be modifiers of result, or whose counterparts in non-

6 The same has also been shown for the French repetitive re- (Sportiche 2012: 254) and for the Greek repetitive ksana- (Williams 2011: 60).
Slavic languages have been claimed to be modifiers of result. One such case is the stacked *po-* in the Czech example in (21).

(21) *po-od-skočit* [Czech]
    around-off-jump
    ‘jump a little bit away’ (Filip 2003: 89)

Žaucer (2005) and Gehrke (2008) have claimed that in (21) the prefix *od-* provides the result and the prefix *po-* serves as a result modifier (though Gehrke, without comment, still places *po-* above the vP, while at the same time placing the result itself/*od-* below the VP). The same would be the case for DiSciullo & Slabakova’s (2005: 68) Bulgarian *po-na-debeleja* ‘get a little fat’, with *na-* contributing the result and *po-* ‘a little’ serving as a result modifier.

English reversative prefixes (*un-lock, dis-en-tangle, de-stabilize*) have been treated as result modifiers (McIntyre 2003: 131, Dowty 1979: 257-260), in that they were shown to take narrowest scope with respect to the decomposed verb, as in [CAUSE [BECOME [NOT [RESULT]])]. The same holds in Slovenian, as in (22) with its stacked reversative *raz-*.

(22) *raz-od-tujevanje*
    off-away-alienating
    ‘dealienation’, ‘reversing alienation’ (SSKJ dictionary)

Analyzing the stacked prefixes from (1) above as result modifiers is thus not without precedents.

2.7 Conclusion

Presenting evidence from their scope with respect to VP-adverbials, restitutive ‘again’ and adverbs of completion, and on the basis of the unavailability of a token-differentiated reading and a restriction on the type of predicate, this section argued that the stacked prefixes from (1) above are result modifiers. In a model where resultative prefixes merge in a VP-internal PP (Svenonius 2004, etc.), it will be natural to analyze
such result modifiers as adjuncts to the result/PP or as instatiations of an XP in the extended projection of the resultative PP, (23).\(^7\)

(23) \[\text{VP} \left[\text{PP/XP prefix}\text{result-modifier} \left[\text{PP prefix}\text{resultative} \right]\right]\]

3. Multiple Result-Modifying Prefixes

It should be noted that there exist cases with multiple result-modifying prefixes. In (24), we have three prefixes, all of which take narrow scope with respect to ‘halfway’, a case of Piñón’s (2005) adverb(ial)s of completion, and should thus be VP-internal (cf. 2.3 above).

(24) \text{Juš je do polovice pre-po-raz-delil} \text{ bonbone (med otroke).}
\hspace{1cm} \text{Juš is to half over-around-off-dealt candies among kids}
\hspace{1cm} \text{‘Juš caused candies to be halfway redistributed in roughly equal shares (among the kids).’}

In a model where resultative prefixes merge in a VP-internal result/PP (Svenonius 2004, etc.), none of these prefixes will thus be a VP-external prefix; whereas the stem-adjacent one contributes the result, the other two serve as result modifiers. Given the analysis in (23), multiple result-modifying prefixes present no problem.\(^8,9\)

4. Two Result Prefixes, Each with a Result-Modifying Prefix

Arsenijević (2006) and Žaucer (2009) have argued that some prefix stacking, such as (25), involves a stem carrying two resultative prefixes.

\(^7\) In terms of linearization, prefixes would then combine with the verbal stem via phrasal movement, with the whole result PP moving to some position above V. Alternatively, if result-modifying PPs were to be analyzed, unlike in (23), as further specification of the resultative PP and as originating below it (cf. Dikken 1995), the attested linearization can be derived with head movement. See Žaucer (2009: 60-64) for a longer exposition.

\(^8\) They do, however, raise interesting questions, as pointed out by a reviewer, with respect to their relative order and scope, and this may in turn provide clues as to the details about their nature touched on in note 7. Due to space restrictions, I cannot go into this here.

\(^9\) One also finds stacking of one and the same modifier prefix, as in \text{pre-pre-u-stekleni\v{c}iti} (over-over-in-bottle) ‘re-re-bottle’ (cf. DiSciullo & Slabakova 2005: 68). As far as I can tell, this is not a problem for (27), it is an iteration not unknown in the realm of modifiers, and the leftmost \text{pre-} still scopes below adverbs of completion, does not perfectivize, etc.
(25) *na-na-polnjevati se gum*
   on-on-fill self tires\textsubscript{GEN}
   ‘get one’s fill of filling up tires’

If this is true, one would expect that it will be possible—when the combination makes sense semantically—to also have two sets of result-modifying prefixes. (26), where each *na-* hosts its own ‘excessive’ *pre-*, shows that this is indeed possible (cf. Žaucer 2009: 35, 63).

(26) *pre-na-pre-na-polnjevati se gum*
   over-on-over-on-fill self tires\textsubscript{GEN}
   ‘get more than one’s fill of overfilling tires’

Whereas such cases are perfectly expected on my account, they appear to be problematic for an ‘intermediate’ analysis—in the spirit of Tatevosov (2008)—of what I have treated as result-modifying prefixes. That is, Tatevosov interprets the absence of a perfectivizing effect of such prefixes in Russian as evidence of their originating below the secondary imperfective AspP. However, given that (26)’s outer *na-* perfectivizes its secondary imperfective input (see Žaucer 2009), the outermost measure prefix *pre-* that stacks over it could not, unlike its synonymous inner measure prefix *pre-*, originate below the secondary imperfective AspP.

5. A Consequence – A Subclass of Result-Modifying Prefixes

5.1 Unstacked result-modifying prefixes?
All of the result-modifying prefixes I have discussed above were stacked over a prefix that contributes a resultative secondary predicate, as in (1c) from above, repeated below as (27). Sometimes, however, a prefix with one of these result-modifying meanings also occurs as a sole prefix, as the attenuative (‘a little’/‘slightly’/‘partly’) *pri-* in (28).

(27) *pri-vz-digniti*
    at-up-lift
    ‘lift up slightly’

(28) *pri-preti vrata*
    at-push door
    ‘close the door partly’
In fact, Spencer & Zaretskaya (1998) present a list of Russian attenuative pri-verbs, in which roughly 30 out of 60 have the ‘partly’-contributing pri- stacked over a result prefix and roughly 30 do not. If such pri-prefixes are analyzed as result modifiers, one may wonder why they should ever be found on a verb as an only prefix.

The answer is quite simple. The presence of a result modifier presupposes the structural presence of a result; in other words, there cannot be a result modifier if there is no result. So if we analyze pri- as a result modifier we may have already explained why the result-encoding prefix might sometimes have disappeared.10

Furthermore, unlike stacked result-modifying prefixes above, which cannot affect their input’s argument structure, Spencer & Zaretskaya’s (1998) unstacked pri- with the same meaning can: (29) shows an unselected object with a verb prefixed only with an attenuative pri-.

(29) On *(pri-)*sypal jamu (peskom). [Russian]
he at-poured hole_{acc} sand_{inst} (Spencer & Zaretskaya
‘He half-filled the hole with sand.’ 1998: 121)

Under my analysis, this is expected. When stacked, pri- is a result modifier on top of a result prefix and as such cannot have argument-structure effects. When an only prefix, pri- either combines a modifier and a result head, or represents a modifier stacked over a null resultative prefix (cf. footnote 10 above), so that the possibility of unselected objects is not surprising. And in addition to this difference in argument-structure effects, my approach also captures the meaning similarity (attenuation) between the stacked and unstacked pri-. Conversely, the mainstream approach presented in section 1 above would have to treat the stacked pri- in (27) as VP-external and the unstacked pri- from (28)-(29) as VP-internal/resultative, despite their shared attenuative meaning.

10 Cases like (28) could thus be analyzed as containing a covert prefix/result head, which is recoverable via the presence of the result-modifying prefix; or they could be analyzed as expressing a ‘modified state’ (Spencer & Zaretskaya 1998, Strigin & Demijjanow 2001); or they could be analyzed so that the single prefix in fact spells out more structure, both the result’s P and, say, a MeasureP in its extended projection (cf. Wiland 2012).
5.2 More of This
Before concluding section 5, I will briefly illustrate that the attenuative pri- is not the only result modifier we find both stacked and unstacked.

Example (30) below shows a pair of synonyms listed in the SSKJ Slovenian dictionary in which one version has the repetitive pre- stacked over a resultative ob-, which turns the verb ‘tie’ into a resultative ‘bandage’, and the other version has the repetitive pre- as an only prefix, apparently with nothing turning ‘tie’ into ‘bandage’.

(30) a. pre-ob-vezati rano      b. pre-vezati rano
    over-around-tie wound  over-tie wound
    ‘rebandage a wound’      ‘rebandage a wound’

Similarly, (31) below shows a pair of synonyms listed in the SSKJ dictionary in which one version has the distributive po- stacked over a resultative za-, which turns the verb ‘sleep’ to a resultative ‘fall asleep’, and the other member has the distributive po- as an only prefix, apparently with nothing turning ‘sleep’ to ‘fall asleep’.

(31) a. po-za-spati           b. po-spati
    around-behind-sleep      around-sleep
    ‘fall asleep one by one’  ‘fall asleep one by one’

And in (32)-(33) below, we have a pair of sentences from the internet, both coining a reversative from ‘teach’; whereas one writer did so by simply stacking the reversative od- on the resultatively prefixed ‘teach’, the other affixed the reversative od- as well as stripping ‘teach’ of its usual resultative prefix na-.\(^{11}\)

(32) kar smo se nekoč na-učili […], se lahko od-na-učimo (www)
    what are refl once on-taugh refl can off-on-taugh
    ‘what we once learned we can also unlearn’
(33) ker se vedenja na-učimo, se ga lahko tudi od-učimo (www)
    as refl behavior on-teach refl it can also off-teach
    ‘since a certain behaviour can be learned, it can also be unlearned’

\(^{11}\) Cf. also the English doublets dis-en-tangle and dis-tangle, un-en-tangle and un-tangle.
These doublets can all be approached in the same way as was suggested above for attenuative pri-verbs: pre-/po-/lod- act as result modifiers when stacked, and as either combining a modifier and a result head, or representing a modifier stacked over a null resultative prefix, when unstacked (cf. footnote 10 above).

6. Conclusion

I have argued that if we follow Svenonius (2004), Ramchand (2008), etc., in treating internal prefixes as VP-internal result predicates, then analyzing the stacked prefixes in (1) above as result modifiers explains their scope with respect to the restitutive ‘again’, adverbs of completion, etc. This analysis also allows us to straightforwardly relate the stacked pri- that comes with the meaning of ‘a little’ and does not license unselected objects with the unstacked pri- that comes with the meaning of ‘a little’ and does license unselected objects. On the other hand, treating them as VP-external (whether ‘external’ or ‘intermediate’) fails to explain any of these things. Moreover, if the stacked prefixes in (1) are modifiers of result, it is also not surprising that in the presence of a secondary imperfective such prefixes will scope below the secondary imperfective (see section 1, examples in (4)), given that the resultative prefix they modify also scopes below the secondary imperfective.

In turn, the reported results give support to the independently made claim from Arsenijević (2006) and Žaucer (2009) that stacking is not a solid diagnostic of VP-externality: at the very least, not every stacked prefix is superlexical.

As a final note, I acknowledge that the main claim of this paper is targeted specifically at models which introduce resultative prefixes VP-internally (e.g. Svenonius 2004, Ramchand 2008, Tatevosov 2008). For a model that places above the VP not only superlexical but also resultative prefixes (Wiland 2012, Arsenijević 2010), the results of this paper, even though not consequence-free, may be less interesting. At this point, however, the model which introduces resultative prefixes inside the VP is better worked out and more widely adopted, and it is also the only one that has tried to relate resultative Slavic prefixes to resultative Germanic particles and prefixes; as such, it constitutes a natural point of departure.
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