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AN INCORPORATION BASED ANALYSIS OF SLAVIC VERB PREFIXATION

Syntactic analyses of the verbal prefixation of the Slavic type can be grouped in two types: those which postulate two different functional projections for the two types of prefixes known as the internal and the external prefixes, and those which postulate only one projection and use incorporation to derive the relevant effects, which also argue that external prefixes, just like the internal ones, contribute resultative semantics to the aggregate predicate. A novel analysis is proposed, which belongs to the latter abovementioned type, in which prefixes are analyzed as instances of concord between the verb and the resultative predicate. This concord is triggered by an aspectual operator to which both elements involved are semantically sensitive. This analysis is then discussed on the background of the incorporation analysis of the derivation of lexical verbs.

1. Introduction

Ever since the seminal work of Hale & Keyser (1993), a family of analyses has emerged in which certain classes of verbs are analyzed not as atomic lexical items, but as syntactically derived in larger structures, by the incorporation of some material into the verb(see section 7 for examples). This opens the question how much of the lexical material is derived in this way, i.e. a) are there any verbs with a rich lexical meaning which do not involve any incorporation and b) are there processes which involve incorporation and derive verbs which are clearly morphologically complex. This paper tackles the latter question, in an attempt to provide a better analysis of the Slavic verb prefixation. The goal of the paper is to test the incorporation hypothesis: that Slavic verb prefixation proceeds via incorporation, i.e. to try and explain all the empirical regularities in terms of this type of analysis. Eventually, I propose a modified analysis, which still falls in the class of incorporation analyses, and which still postulates only one relevant functional projection for the derivation of both classes of prefixes.

In section 7, I present Hale & Keyser's (1993) model and analyses that follow similar lines, but apply to different classes of verbs. Section 8 presents the system of verb prefixation in Serbo-Croatian (S-C), with a focus on the asymmetries between the internal and the external prefixes, and gives an overview of the type of approaches to these asymmetries in which they are analyzed in terms of two distinct functional projections. Section 9 presents an alternative type of analyses, in terms of incorporation, with only one relevant functional projection, and section 11 provides a discussion of the incorporational nature of the analysis proposed. Section 12 concludes.

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2. What can incorporate into the verb

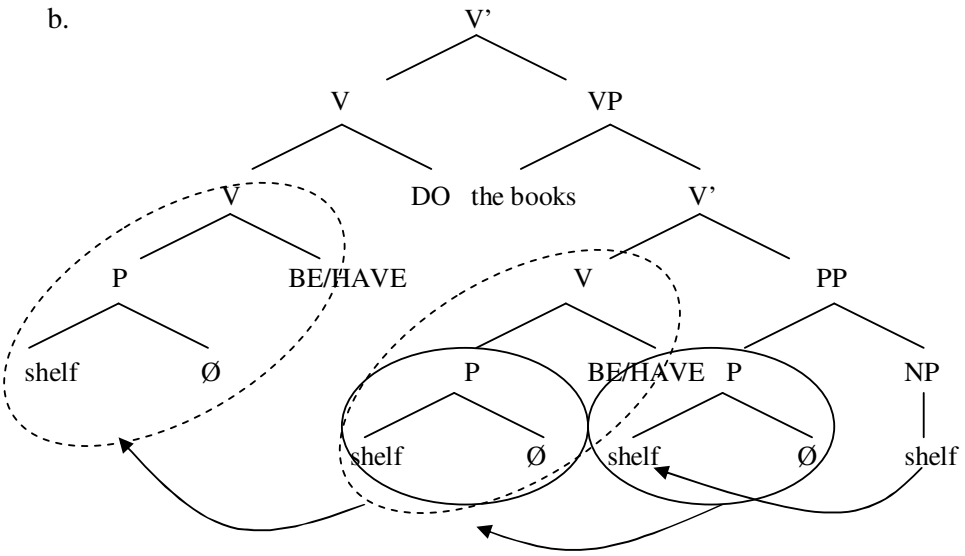
Linguists concerned with the mechanisms through which verbs with a richer lexical meaning are cross-linguistically derived have always given incorporation the central role in these processes (among others, Baker 1988, Hale & Keyser 1993, Harley 2005). Hale and Keyser argue that the incorporation of arguments into the verb is a syntactic process, even though its effects show up at the lexical level. They locate this process in what they call lexical syntax (L-Syntax), and show that, as predicted by their account, it indeed obeys the same restrictions that can be recognized in the domain of syntax proper. Harley adds more arguments in favor of their analysis, by showing that event-argument homomorphism effects, typical for the relation between events described by the verb and their arguments, hold for the incorporated arguments in the same way they do for the non-incorporated ones. Let me briefly illustrate a prototypical structure of incorporation in their account.

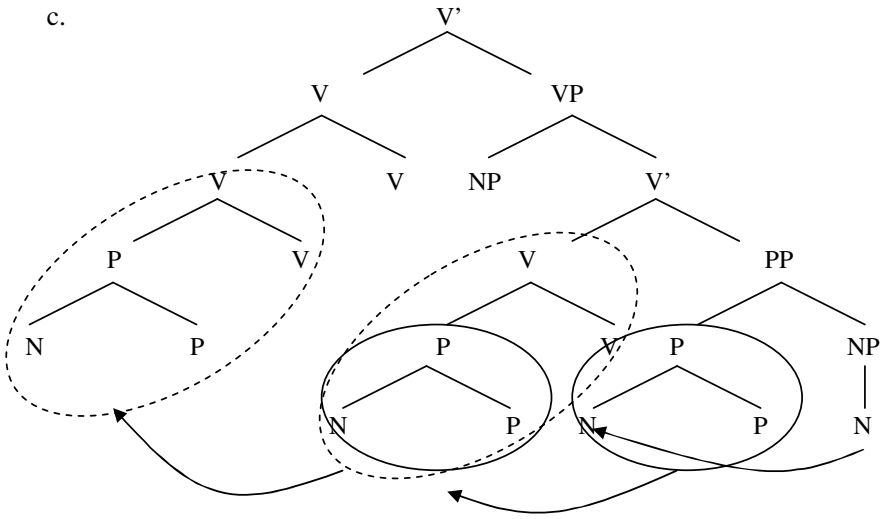
Hale and Keyser formulate their model based on a VP structure in the spirit of Larson's (1988) VP shells: each of the structural arguments of the verb is derived in its own VP projection, as its specifier, and the arguments lexicalized through PPs are generated as complements of the lowest VP shell, which generates the direct object. When the complement of the preposition is syntactically sufficiently simple (a minimal projection in terms of more recent approaches), and the other heads of the VP shells structure are lexically empty, this noun head-moves, to first adjoin the head of the lowest VP, which then moves together with the adjoined head higher up to adjoin the head of the higher VP shell, the one that takes the agent in its specifier in the example in (1a). The verbal stem derived from the noun in this way receives verbal inflection and acts as a verb. A general pattern of the syntactic model of incorporation is given in (1c), where category markers are used instead of real lexical elements.

(1) Result incorporation

a. John shelved the books.

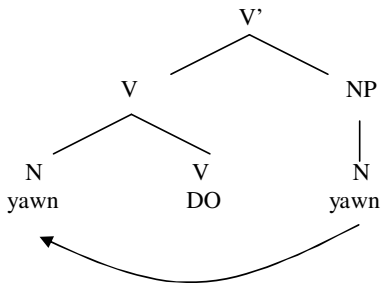
b.





Finally, one of the main supporting arguments for Hale & Keyser's model is that it correctly predicts that among two arguments, a theme and a goal, the goal will be the one to incorporate into the verb. Only an argument generated at the bottom of the structure may ever incorporate, as only this element may undergo head movement up to the position of the verb. (Else, the only possibility is that one of the heads lower than the verb starts the head-movement, in which case there is no argument incorporation, as only a series of heads ends up incorporated into the verb.) The only way for a direct object to incorporate into the verb is that the argument structure has no goal or similar argument lower than the direct object. In such a case, if represented by a head, the direct object may head-move to the position of the verb, left-adjoin to it, and yield an object-incorporating verb. Unergative verbs are derived in this way.

(2) The derivation of an unergative verb

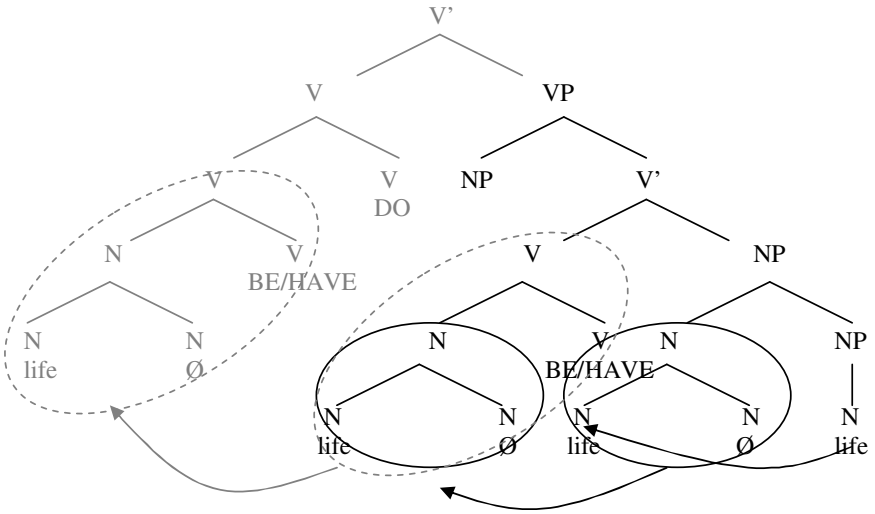


In her discussion, Harley (2005) provides support for this account, but also recognizes a class of verbs that cannot be accounted for in this way: the verbs in which the incorporated element is a manner modifier. And while in her discussion, for the verbs like drool, foal or dance, Hale & Keyser's account receives additional confirmation, she notes that the verbs incorporating a manner component, such as hammer, fit or smear, are less regular in their behavior, and says of them that they are derived "by a mysterious, parametrically varying, illunderstood process which [she]'ll call

Manner Incorporation" (Harley 2005: 44). Rather than deriving it syntactically, she suggests that manner incorporation is an extra-syntactic process having to do with our thoughts rather than narrow grammar.

Arsenijević (2011) argues that manner incorporation is also syntactic. His arguments are based on the behavior of manner-incorporating verbs in respect of cognate objects, reciprocal modification and in respect of prefixation in Slavic languages. He proposes an analysis which treats the manner-incorporating material as a complement of a direct object headed by a null nominal head. When the complement is a minimal projection, it has an open way for a head movement leading to incorporation into the verb. The incorporating complement is interpreted as an argument of the null direct object, hence providing it with additional specification. Due to the zero nature of the actual direct object, it adds indirect specification of the event-kind denoted by the verb, and this indirect specification is recognized as manner modification. The analysis is schematically presented in (3); the segment in grey color is active only in transitive manner-incorporating verbs (throw, push, strangle).

(3) 'Manner'-incorporation

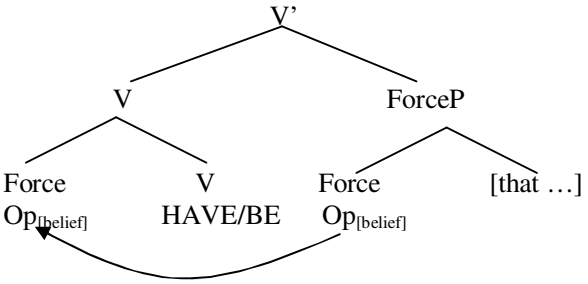


A final, fourth type of incorporation is found in verbs taking clausal complements. Arsenijević (2009) argues that complement clauses are derived by operator movement: an operator head-moves from a functional head related to their performative force, through their CP, and incorporates into the selecting verb. Verbs taking complement clauses are hence analyzed as verbs incorporating a force-related operator, and this is what derives the selectedness effect between the verb and its complement clause. A simplified version of the analysis is schematically presented in (4) (for more details see Arsenijević 2009).[1]

[1] It is also possible that the complement is not a clause but a nominal expression, which has the force component lexically contributed by the head noun or some other element. In light of Kayne's (1994) analysis of relative clauses, the two constituents are categorically equivalent, and so are they for the incorporation analysis as well.

(4) Force-incorporation

a. … believed that …

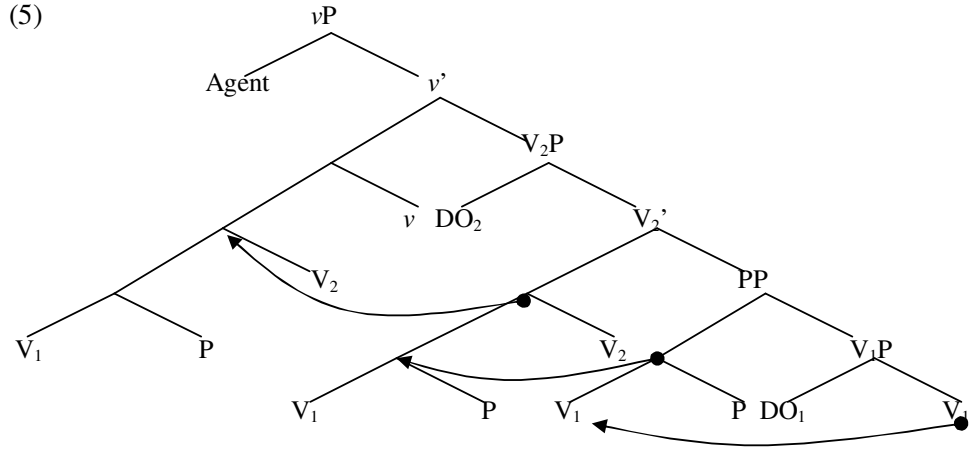


To briefly summarize, there are four interesting patterns of incorporation, deriving four classes of verbs: result incorporation, manner incorporation, object incorporation, and force incorporation. Although on a finer analysis, the view gets somewhat relativized, we note that the incorporating material is either of a nominal nature, or bears the functional category force. Crucially, it is always from the complement of the verb and always via head-movement.

One interesting question opened by the presented paradigm is whether these are the only possibilities, and whether it involves some syntactically unmotivated gaps. Rather than going into a thorough investigation of the possible gaps, a work at the level of a monograph, in this paper I focus on one particular gap, and then propose a filler for it as well.

Among the elements that can incorporate are result predicates and their complements, as long as the complements are heads, because only heads can start up the series of head movement leading to incorporation. There is one sub-case of result incorporation which is not excluded by any syntactic principle, but which has not yet been observed. This structure involves a VP as a complement of a resultative predicate lexicalized by a preposition.

(5)



Assuming that a VP can, as well as an NP, come as a complement of a result predicate, the configuration in (5) should be well formed, as it involves no syntactic violation.

3. External vs. internal: asymmetries and some common features

The structure in (5) is essentially the one proposed by Žaucer (2010a) in his analysis of the external verb prefixes in Slavic languages. Let me briefly introduce Slavic system of verb prefixation, in particular the distinction between the external and the internal prefixes, before I present Žaucer's analysis in more detail.

Slavic verbs are characterized by a rich system of prefixes which they take, and the aspectual effects that closely correlate with prefixation. With a few exceptions, each of these prefixes corresponds, both semantically and morphologically, to a preposition.[2] Slavic verbs form two aspectual classes: the imperfective and the perfective ones. Membership in these classes determines a number of semantic, morphological and syntactic properties of the verb, such as the verb forms that can be made of it, or the tense related interpretations eventualities described by them can receive. Althought there are exception to this rule (see e.g. Borik 2011), in principle, if an imperfective verb is added a prefix, it becomes perfective.

Already in traditional grammar, Slavic prefixes are divided into two classes, to which I refer as the internal and the external prefixes (see e.g. Romanova 2004, 2007 for an overview of the differences) (they are also known as the lexical and the superlexical, Svenonius 2004). Their main characteristics are that:

A) the internal prefixes contribute a resultative component to the interpretation of the verb – when there is a goal phrase in the VP, the preposition heading it will be the one corresponding to the internal prefix, as illustrated in (6b);[3] the contribution of the external predicates is rater related to the quantity of the eventuality (and of its incremental theme), as in (6c).

B) the external prefixes can stack, unlike the internal ones (i.e. at most one prefix on a verb can be internal, and then there can be more than one external prefix), as in (6c).

C) the internal prefixes tend to take the position closest to the lexical verb (i.e. if there are more than one prefixes on a verb, one of which is internal, then the internal one must be the last one in the series of prefixes, i.e. the one right before the verb).

D) the internal prefixes may add an argument to the argument structure of a bare lexical verb, while the external prefixes cannot have this effect.

E) Svenonius (2004) generalizes that internally prefixed verbs derive both root nominalizations and gerunds, while externally prefixed ones derive only the latter.

(6) a. Jovan je trčao.
J Aux run.Ptc
'Jovan ran'

b. Jovan je u^{INT}-trčao u sobu.
J Aux in-run.Ptc in room.Acc
'Jovan ran into the room.'

c. Jovan je iz^{EXT}-na^{EXT}-u^{INT}-trča-va-o u sobu.
J Aux out-on-in-run-Imp-Ptc in room.Acc

[2] I gloss prefixes using English counterparts of the prepositions in S-C corresponding to the respective prefixes.

[3] For a discussion ruling out seeming exceptions to this regularity, see Arsenijević (2006).

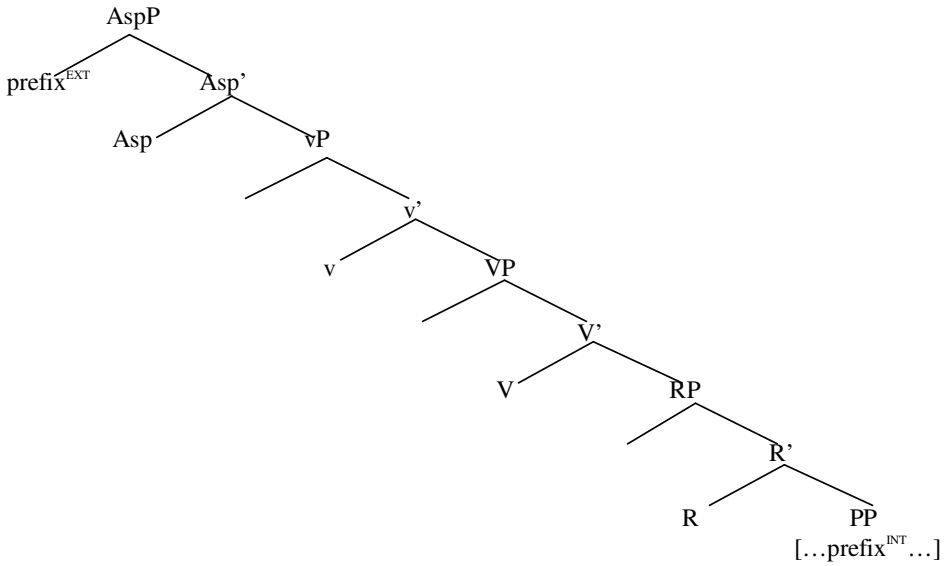
'Jovan did a lot of running into the room, to the exhaustion of some contextually
given amount of running into the room.'

Some among the prefixes can appear both as internal and as external. When appearing adjacent to the verb, such prefixes can be ambiguous, between the internal and the external interpretation.

(7) a. Jovan je na$^{INT/EXT}$-vukao drva na terasu.
J Aux on-pulled.Ptc woods on terrace
'Jovan pulled the wood onto the terrace' / 'Jovan did a lot of pulling wood onto the
terrace.'

Most syntactic analyses of Slavic verb prefixes (including, among others, Schoorlemer 1995, Di Sciullo & Slabakova 2004, Svenonius 2004) assume two different syntactic projections relevant for their generation, one below the verb, in which internal prefixes are generated, and one higher than the verb, for the external prefix (see, as an illustration, the structure from Svenonius 2004 in (8))

(8) Syntactic generation of external and internal prefixes according to Svenonius (2004)



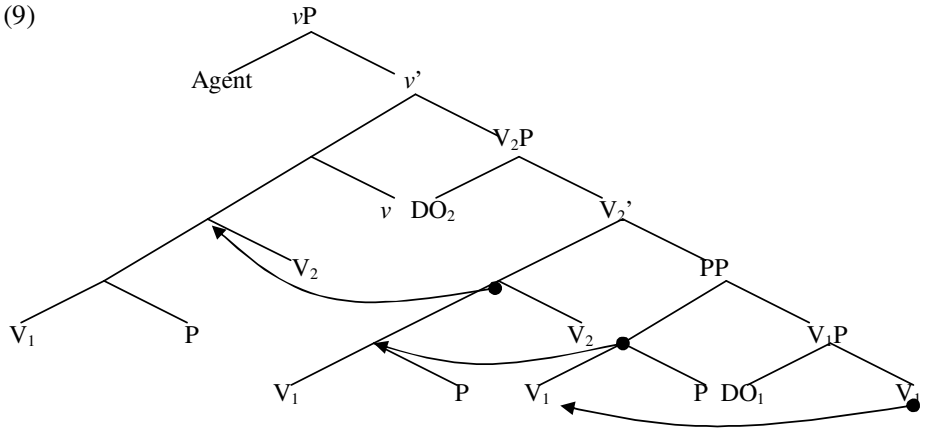
Žaucer (2010a) argues that the prefix na-, which displays properties typical of external prefixes, also shows properties of a resultative predicate, such as affecting the argument structure of the verb by introducing an argument that is not selected by the verb, yielding scopal ambiguities for the imperfectivizing suffix, or modifying a property targeted by an overt result state adverbial. Hence, he argues that this prefix should be generated on a par with the internal prefixes. To account for this, he proposes the analysis simplified as (5), in which the external prefix na- is generated in a structure with two VPs, as an internal prefix of the higher verb. Žaucer concludes that the analysis argued for the prefix na- might be the right analysis for all external

prefixes. In the next section, I take a closer look at this analysis, and how it accounts for the asymmetries listed in A-E above.

4. Žaucer: Slavic external verb prefixes via verb incorporation

This section presents in more detail the mechanics of Žaucer's (2010a) (an improved version of Žaucer 2009) analysis of the external prefix na-, its motivation, and its extension to all external prefixes. The schematic representation from (5) is repeated as (9).

(9)

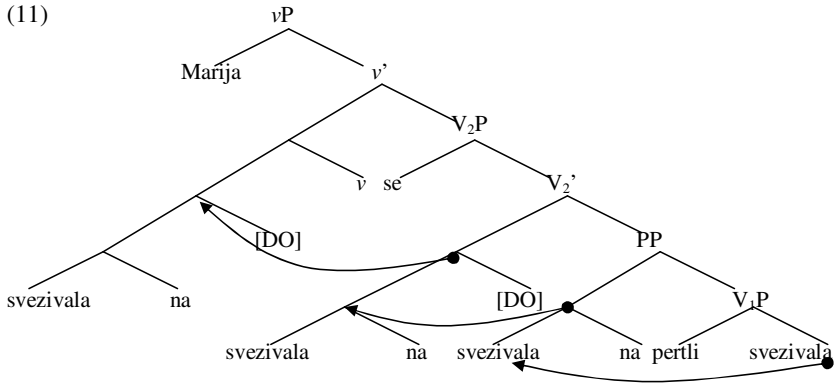


Žaucer concentrates on examples as in Error! Reference source not found.), with a reflexive direct object, and another argument, the undergoer of the eventuality described by the verbal stem, in genitive.

(10) Marija se na-s-vezivala pertli.
M Refl.Acc on-with-tie shoelaces.Gen
'Marija had her fill of tying shoelaces.'

Žaucer proposes to analyze this example in terms of two VPs, one of which acts as the result argument of the other. The result VP (V_1P in the figure) is generated as the complement of a PP, it is headed by a lexical verb, and it introduces one argument – its own direct object – to the aggregate argument structure. The other VP (V_2P in the figure) takes the PP with the result VP as its complement, which specifies the result of the eventuality it describes. Thus, we have an eventuality as an argument of the result predicate of another eventuality. The higher VP is headed by a light verb (V_2), which opens the possibility of incorporation. The lower verb (V_1) head-moves to the preposition specifying the result predicate, and then the entire complex head-moves higher, and incorporates into the light verb, providing it thus with lexical content, and hence also with a possibility of lexicalization. The result VP itself is a full-fledged VP, which may itself be prefixed, as in the example (10), analyzed as in (11).

(11)



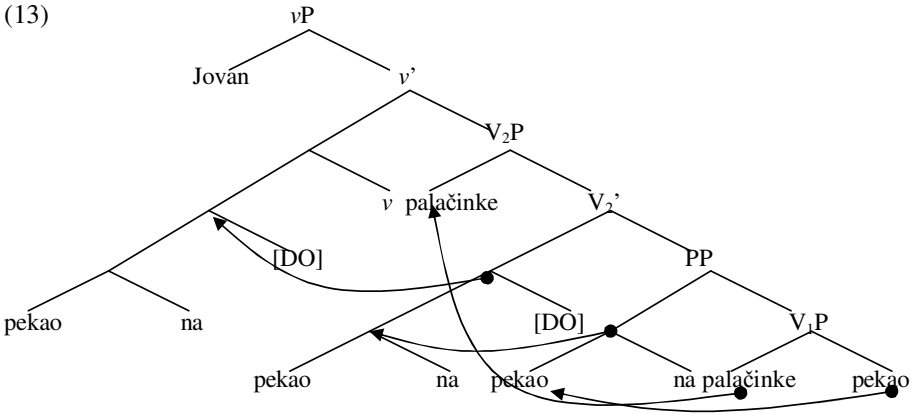
The interpretation is that some underspecified event has a result of there being a lot of shoelace-tying. The quantity, as argued by Arsenijević (2006, 2007a, 2007b), comes from the result predicate (the preposition na 'on'). The result predicate is interpreted distributively, or reciprocally, with respect to its complement, a homogeneous object of the type of eventualities. Eventualities of shoelace tying are thus interpreted as piled up on each other. For an abstract object (an eventuality in the relevant cases), piling up also has to receive a shifted, abstract interpretation, and Slavic languages (and possibly others too) grammaticalize the dimension of quantity as the one involved.

The direct object of the higher verb, which is the closest to the higher projections related to aspect, receives the interpretation of the incremental theme. This participant, i.e. one of the dimensions it introduces, measures out the event, and this derives the effect that Žaucer translates as 'getting one's fill of something'. The amount of the accumulated (piled up) eventuality in the result is measured by some dimension of the subject (which binds the reflexive) – e.g. her desire, or capacity, for taking part in the eventuality in the result.

With a slight additional specification, this analysis applies equally well to examples without reflexives. Take one of the examples typically used to illustrate the effect of external prefixes.

(12) Jovan je na-pekao palačinke.
J Aux on-baked pancakes
'Jovan did a lot of baking pancakes, and as a result there are a lot of pancakes.'

(13)



The additional step is the movement of the object of the result VP into the direct object position of the higher verb. In syntax, the consequence is that now this argument takes accusative case. The semantic effect is that it is interpreted as the incremental theme: the amount of pancakes measures out the entire eventuality, i.e. also the degree to which the eventuality of baking pancakes piles up.

Note that the analysis predicts for a regularity that is not predicted by analysis with two different positions for the two classes of prefixes: the incremental interpretation of the direct object with respect to the result predicate (na 'on'), and a lack thereof for the object of the lexical verb when marked by genitive. Because an entailment of the sentence in Error! Unknown switch argument.) is that as a result of the eventuality of baking, there are a lot of pancakes, while there is no such entailment for the shoelaces in (10). Note that the construction without the reflexive would require for shoelace tying as well that as a result there are a lot of tied shoe-laces, while the structure with a reflexive would allow for there being just a few pancakes, but either that they were baked very long and with a lot of effort, or that the subject wanted exactly that many pancakes.

In addition to this one, and the empirical arguments in favor of this analysis presented by Žaucer (2010a), there are also methodological advantages. Once this analysis is generalized for all external prefixes (see Žaucer 2009 in this respect), we do not have to postulate two classes of prefixes (which share a number of members, and properties).[4] Moreover, it has one syntactic projection fewer, as both classes of prefixes are generated in (categorically) the same structural position. Their difference stem from their syntactic context, in particular the type of complement they get (verbal vs. nominal) and the nature of the verb selecting them (lexically rich vs. light). Let me now briefly show how the traditionally observed asymmetries between the two 'classes' of prefixes follow from this analysis.

A) the internal prefixes contribute a resultative component to the interpretation of the verb – when there is a goal phrase in the VP, the preposition heading it will be the one corresponding to the internal prefix; the contribution of the external predicates is rater related to the quantity of the eventuality (and of its incremental theme).

As for the resultative nature of internal prefixes – the present analysis unifies all prefixes, arguing that they are all actually resultative, but that the syntactic context determines whether the resultative interpretation will target the spatial dimension (or some other typical resultative dimension), or the quantity dimension as in the prefixes referred to as external.

[4] One possible objection to this move is that na- is a special case, e.g. in participating in the construction with a reflexive. This is not correct, in general, or for the particular issue of the reflexive. The properties of *na-* that are highlighted as relevant for the analysis also hold for other prefixes, including the use with a reflexive, as illustrated in (i) and (ii).

(i) Za-mislio sam se (crnih misli). Za-slušao sam se muzike.
for[EXT]-thought Aux Refl black thoughts. Gen for[EXT]-listen Aux Refl music.Gen
'I fell deep in (black) thoughts.' 'I got absentminded listening to music.'

(ii) Raz-trčao sam igrače.
raz[EXT]-run Aux players
'I made the players run.'

The relation established with the goal PP should actually be rephrased as the possibility of having one. When the complement of the result predicate preposition is a nominal expression, a well-formed structure is generated, and it does not depend on its syntactic context. When the complement is a VP, a constituent that requires at least a minimal additional functional sequence, the structure has to be rescued. Under the present analysis, it is rescued by the incorporation, enabled by the light nature of the higher verb. No PP whatsoever remains after the incorporation – apart from PPs within the result PP. In other words, if there is a resultative PPs in an expression involving an external prefix, it must be from the result VP, and hence it also must be related to the most deeply embedded prefix – the one traditionally described as internal.

B) the external prefixes can stack, unlike the internal ones (i.e. at most one prefix on a verb can be internal, and then there can be more than one external prefix).

This follows directly from the present analysis, i.e. from the recursive nature of the VP-PP-VP sequence, enabled by the incorporation mechanism, i.e. the possibility for the verb to head-move into another VP. Internal prefixes are those related to a preposition with a nominal complement: since the nominal complement usually does not incorporate, and even when it does (in prototypical result-incorporating verbs, see Arsenijević 2011 for an analysis of the S-C data) – there can be only one round of such incorporation as after incorporation the head is of a verbal category.

Note that, as just pointed out, the present analysis of external prefixes introduces a novel type of a type-recursive structure: VP embedding a VP. One may ask why there are no examples of more than three rounds of embedding. The answer might come from two domains. One is pragmatics: it will rarely be the case that there is need to express e.g. a meaning in which a large amount of an eventuality results in its exhaustion, which results in its beginning, which results in there being a small amount of an eventuality (the meaning that would emerge if external prefixes na- 'on', iz- 'from', za- 'for' and po- 'over', respectively, stacked on one verb).

C) the internal prefixes tend to take the position closest to the lexical verb (i.e. if there are more then one prefixes on a verb, one of which is internal, then the internal one must be the last one in the series of prefixes, i.e. the one right before the verb).

While the issue of ordering receives a detailed discussion in section ????, the minimal assumption is that their order reflects the order of incorporation: the prefix related to the most deeply embedded VP is the closest to the verb, and as we go higher, we also get farther away. This is indeed what the data show: the internal prefix, which, if there is one, must be the most deeply embedded one (as it allows for only one round of embedding), is the closest to the verb, and the remaining prefixes have their order reflecting their scope, i.e. also the order of embedding of their respective VPs..

D) the internal prefixes may add an argument to the argument structure of a bare lexical verb, while the external prefixes cannot have this effect.

This empirical generalization is actually questioned by Žaucer (2010a) who gives examples where the external prefix na- has the same effect.

E) Svenonius (2004) generalizes that internally prefixed verbs derive both root nominalizations and gerunds, while externally prefixed ones derive only the latter.

Present analysis precisely defines internal prefixes as those related to the most deeply embedded VP, i.e. the only one headed by the bare verb. All the others, when there are any, are headed by a verb which already incorporates material from the em-

bedded VP. In other words, when we nominalize a verb with an internal prefix only, we might be nominalizing a verb, or an entire VP, but when we nominalize a verb with an external prefix, what we nominalize must contain at least one VP.

Let me outline some problems of this type of analysis, some of which Žaucer discusses in his paper. One of these problems is more general, and extends to other analyses as well. This general problem concerns the referential aspects of the eventualities involved. In semantics, culminative eventualities are assumed to involve between two and four eventualities. Minimally, they involve the result eventuality, and the aggregate eventuality which involves the respective result (see Arsenijević 2007a for a representative analysis of this type). Some authors, such as Ramchand (2002), argue that there are actually the result subevent, the process subevent, the initiating subevent and the aggregate event. The present analysis is entails that there are two eventualities: a result eventuality (V_1P) and the aggregate eventuality (V_2P). The expression denoting the former is syntactically embedded in the one denoting the latter. But how does this give us the semantic relation of being a resultative part?

A straightforward answer, presumably implicit in all the syntactic accounts, is that this is the contribution of the preposition, or that there is a functional projection RP encoding the result_of relation. Since the same prepositions can also be used to introduce adjuncts and other participants, such as instruments, the preposition alone is not enough. A projection encoding the result is better, but to my knowledge, no empirical evidence for such a thing has been reported: no morphological material encoding it, and no structural effects emerging from its presence). So can we provide an answer without postulating invisible material?

Another problem relates to the linearization. As Žaucer (2010a:19-20) observes, the linearization of the incorporation structure would have the internal prefix to the left, and all the other prefixes to the right of the verb (unless we assume a head-final structure, which has never been indicated by any other type of data for Slavic languages; but even then it would just be the inverse, now with the internal prefix at the wrong side of the verb). Again, an easy solution is available, but not really theoretically desirable. It is possible to specify that prepositions are prepositive, i.e. that they linearize to the left of the structure they attach to.[5] Again, the question is: can we achieve the right linear order without additional rules?

A final problem is that under the incorporation analysis, internal and external prefixes are derived in the same way: they head-move (together with the verb for external prefixes, and alone for the internal ones) to adjoin the (higher) verb. But in internal prefixation, the preposition is still visible in its base-generated position.

(14) Jovan je pod-vukao stolicu pod sto.
J Aux under^{INT}-pulled chair under table
'Jovan pulled the chair under the table.' (resultative)

And again there is an easy answer: both copies are lexicalized. But again we would have a better theory if we did not have to postulate exceptions of this kind, i.e. if the double realization of pod 'under' would follow from something else.

[5] Note that one should not relate this issue to the fact that all adpositions in Slavic languages are prepositive with respect to the noun, as the prediction would then be that in languages with postpositions, these relate to suffixes only.

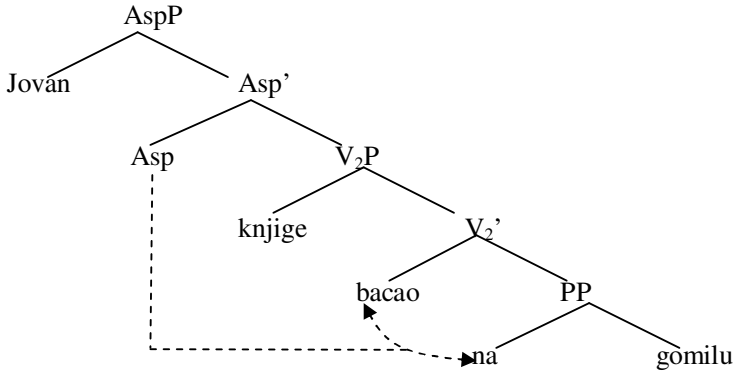
5. Prefixes instantiate concord

Faced with the problems presented at the end of section 9, Žaucer (2010b) abandons the analysis from Žaucer (2010a). In this section, I modify the incorporation analysis from Žaucer (2010a), in a way which explains away the problems, while still preserving the advantages it had with respect to the accounts with one VP and two different projections for the prefixes, such as Svenonius (2004).

The main modification I make concerns the nature of the prefix. Žaucer (2010a) analyzes it as an incorporated preposition. I argue it should be analyzed as an instance of concord. The main argument for this analysis is the fact that the corresponding preposition is still phonologically realized, even though it incorporates into the verb, a fact none of the previous analyses has an elegant way of coping with.

As syntax takes concord to be a special type of agreement, I take agreement, rather than movement and incorporation, to be the syntactic operation responsible for the prefixed surface forms of Slavic verbs. The mechanism is as follows.

The aspectual head, projected on top of the VP, is sensitive to the presence of a resultative predicate within the VP. In case there is one, the aspectual head receives a bounded interpretation (unless it is specified by a marker of imperfectivity as insensitive to the internal VP structure). As shown in abundant literature on the issue of event-argument homomorphism (Verkuyl 1972, Krifka 1989, Tenny 1994, Borer 2005, among others), the aspectual value of the predicate derived is also sensitive to the lexical semantics of the verb (i.e. the value of Verkuyl's add-to feature). Probing by the aspectual head into both the verb and the resultative predicate triggers an agreement between them, and as a marker of this agreement the verb gets the prefix.



Jovan	je	na^{INT}-bacao	knjige	na	gomilu.
J	Aux	on-throw	books	on	pile

'Jovan piled up the books by throwing them on a pile.'

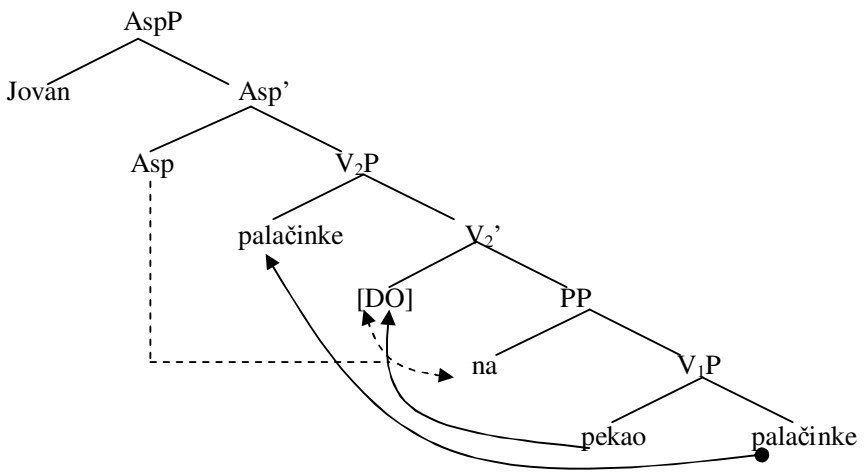
This type of concord is thus analyzed the same as the negative concord, i.e. as multiple agreement (Zeijlstra 2004), or as a regular agreement between two elements sensitive to the same operator (Haegeman & Lohndal 2010). Which of the two analyses of agreement is adopted does not make a difference for the analysis of S-C verb prefixation.

In external prefixation, things are a little bit more complicated. Here, only the prefix is visible in the surface structure, while the actual preposition is not. In Žaucer

(2010a), this is not a problem, as he assumes the preposition incorporates. But in a concord account, this is not expected to be the case. I discuss two possible analyses which would account for these facts.

One possibility is that the lower verb indeed incorporates, as in Žaucer (2010a), just not locally, via the prepositional head. It rather skips this head and moves directly to its attractor, the underspecified V head of the higher V_2P. Such a movement violates the Head Movement Constraint (based on the work of), but it has already been argued that head movement in S-C, and especially verb movement, can proceed at longer distances (Rivero 1991, 1993, Ćavar & Wilder 1994). After the verb has moved, and the AspP is projected, the latter triggers agreement between the verb and the resultative preposition, which triggers agreement. The preposition does not get lexicalized: its complement has been evacuated, and its contribution is guaranteed visibility via the agreement marking on the verb, so it can be deleted. This analysis is schematically represented in (16).

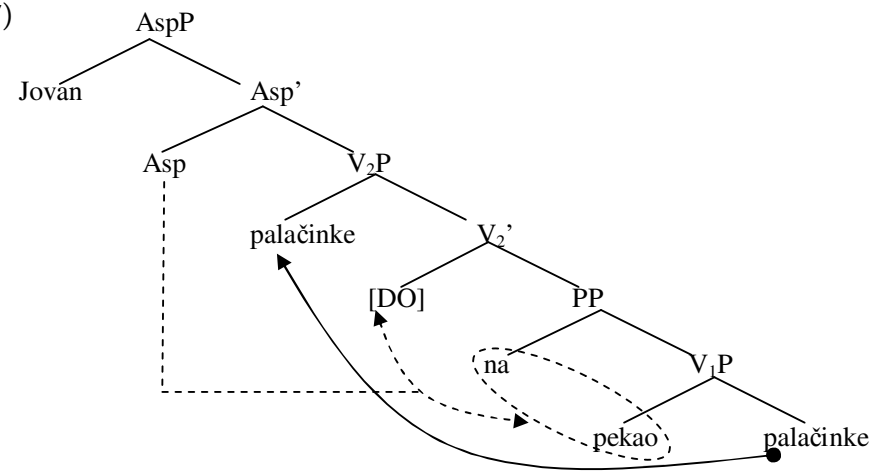
(16)



A second option is that the head movement is a post-syntactic operation, as argued by Embick & Noyer (2001). Such an analysis is almost equivalent to the first presented one, except that the head movement component is not non-local, but simply post-syntactic. The only additional difference would be that the preposition cannot delete because it has an emptu complement, as the complement, at least in syntax, still contains the lexical verb. However, since prepositions in S-C cannot take verbs as their complements, deletion might be a last resort option, licensed by the agreement marking which makes the preposition visible.

Finally, a third option is that the agreement targets the entire complex which composes the predicate in the expression specifying the result. In this case, this complex includes the preposition and the lexical verb. Thus, the higher verb (V_2) agrees with both these heads: na 'on' and pekao 'baked' and from a light phonologically null verb, becoming napekao. This is presented in (17).

(17)



In each of the three proposed versions, the current analysis has all the advantages of Žaucer (2010a), but without the problems Žaucer had with word order and with the double lexicalization of the prepositional element.

Each of these three syntactic analyses gets the right semantics, but each of them also needs to stretch a little bit the syntactic theory. None of the three cases invokes a violation of the any core syntactic principle: they just require a modification of the syntactic mechanism of agreement, or of head movement. An analysis without such requirements would clearly hold an advantage, but only to the extent that the word order and number of instantiations of each element are correctly captured, and that no compromise is made on the side of interpretation.

Let me show how this analysis answers the generalizations established in the literature.

A) the internal prefixes contribute a resultative component to the interpretation of the verb – when there is a goal phrase in the VP, the preposition heading it will be the one corresponding to the internal prefix; the contribution of the external predicates is rater related to the quantity of the eventuality (and of its incremental theme).

Like the analysis in Žaucer (2010a) – the present analysis unifies all prefixes under the resultative interpretation; the syntactic context determines whether the resultative interpretation will target the spatial dimension, or the quantity dimension as in the prefixes referred to as external.

B) the external prefixes can stack, unlike the internal ones (i.e. at most one prefix on a verb can be internal, and then there can be more than one external prefix).

Again just like in Žaucer (2010a), this follows from the present analysis, i.e. from the recursive nature of the VP-PP-VP sequence.

C) the internal prefixes tend to take the position closest to the lexical verb (i.e. if there are more then one prefixes on a verb, one of which is internal, then the internal one must be the last one in the series of prefixes, i.e. the one right before the verb).

Only the most deeply embedded PP can have a nominal complement. All the other recursively generated PPs have verbal complements. And only PPs with a nominal complement receive the interpretation referred to as that of internal prefixes. Hence, the internal prefix is always a marker of agreement triggered by the most deeply embedded PP, i.e. it is the one triggered first in a bottom up structure-building orientation, and hence also is the one closest to the lexical verb.

D) the internal prefixes may add an argument to the argument structure of a bare lexical verb, while the external prefixes cannot have this effect.

As already mentioned, this empirical generalization is shown in Žaucer (2010a) not to obtain, on a closer scrutiny of the relevant data.

E) Svenonius (2004) generalizes that internally prefixed verbs derive both root nominalizations and gerunds, while externally prefixed ones derive only the latter.

This naturally follows from the fact that external prefixes take VPs headed by a lexical verb as their complements. This means that their complement involves an already derived form of the lexical verb, and not a bare root. Bare roots can be found only in contexts where the local PP takes a nominal complement, and the root of the verb is generated higher in the structure.

In the meantime, two additional generalizations have become relevant, as they lead us to abandon the analysis by Žaucer (2010a):

F) both internal and external prefixes attach to the left of the verbal stem.

In the present analysis, this is not problematic, because all prefixes instantiate agreement markers, and each of them gets left-adjoined to the verbal stem.

G) internal prefixes often surface together with the respective prepositions.

This is exactly predicted by the proposed analysis. What it needs to explain is why this is not the case with the external prefixes. I have sketched three possible explanations – in terms of the category of the complement, emptiness of the complement, and a broader agreement between the higher verb and the resultative predicate, targeting also the lower (=lexical) verb.

6. Discussion

The main goal of this paper is to test the hypothesis that Slavic verb prefixation is a result of incorporation along the general lines of Hale & Keyser (1993). Yet, instead of Žaucer's (2010a) incorporation analysis, I ended up proposing an analysis in terms of concord. At the first sight, this amounts to rejection of the incorporation hypothesis. The consequences of this paper for the incorporation hypothesis, however, are not that simple. In fact, the mechanism I proposed for agreement: left adjunction to the verbal head, is very similar to the mechanism of incorporation, which unfolds in the same way. The difference is that what adjoins in concord is not the preposition itself, but some of its features (the preposition surfaces in its base generated position, to the extent that its syntactic context licenses its phonological realization), while in incorporation proper, the entire preposition incorporates, and its base generated copy is deleted.

If we go back to section 7, and look at the taxonomy of incorporation listed there, we can see that the present analysis in fact qualifies as incorporation no less than the briefly sketched analysis of verbs selecting for complement clauses from Arsenijević (2009). In both cases features incorporate, and in both cases the trigger is an operator. In other words, the analysis proposed in this paper can still be treated as incorporation, and it does not even introduce a whole new type of incorporation, but rather expands the class of clause embedding verbs. One may even go one step further, and revisit the analyses proposed for other classes of verbs, i.e. object, manner and goal incorporating verbs, and the issue of Hale & Keyser's (1993) L-Syntax. What is special of the L-Syntax might indeed be that what it plays with are functional and lexical semantic features only, as a pre-lexical material. Such a view would fit well with syntactic approaches such as that pursued

by Michal Starke, Pavel Caha and their collaborators (see Caha 2009 for an illustration), where syntax generally proceeds only at the level of features.

In this perspective, the present analysis can be seen as a member of the family of incorporation analyses, and prefixed Slavic verbs join the already numerous group of types of verbs derived via incorporation. The set of tools employed in processes of this type expands by one: aspectual concord triggered by the aspectual operator and marked on the lexical verb.

7. Conclusion

I presented the prototypical mechanism of incorporation argued to be responsible for the derivation of a number of verbs, cross-linguistically. On this background, I contrasted the analyses accounting for the two types of Slavic verb prefixes in terms of two distinct projections and the analyses which argue that there is one relevant projection, and that the difference reflects a difference in the syntactic context, more precisely – the category of the complement of the preposition specifying the result predicate. I showed how the latter offers better coverage and explanation for the empirical regulations observed. Finally, I presented some facts which are not captured by the two types of analyses, and offered an alternative in terms of concord. Slavic verb prefixes mark agreement between the two elements that contribute to the aspectual value of the VP: the verb and the predicate of result. This agreement is triggered by the aspectual operator, which targets both these elements. Finally, I pointed out that the analysis proposed still falls within the class of incorporation analyses.

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АНАЛИЗА ПРЕФИКСАЦИЈЕ СЛОВЕНСКИХ ГЛАГОЛА ЗАСНОВАНА НА ИНКОРПОРАЦИЈИ

Апстракт

Синтаксичке анализе глаголске префиксације словенског типа могу се сврстати у две класе: оне које постулирају две различите функционалне пројекције за два типа префикса позната као унутрашњи и спољашњи, и оне које их анализирају користећи једну пројекцију, и које релевантне синтаксичке ефекте углавном изводе из процеса инкорпорације. Рад нуди нову анализу потоњег типа, у којој су префикси анализирани као инстанца слагања између глагола и резултативног предиката. Слагање је последица деловања аспектуалног оператора на који су оба елемента која се слажу семантички осетљиви. Дискусија излаже предности предложене анализе у односу на ону која се ослања на инкорпорацију.