A unified analysis of two classes of Slavic verb-prefixes

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The paper presents a unified analysis of the external and internal Slavic verb-prefixes, treating them as markers of agreement between the phrases representing the initiating and the result subevent in telic eventualities. Each verb-prefix has a counterpart among prepositions. When agreement is established between the two subevents of a telic eventuality and there is a preposition that semantically (nearly) matches the predicate of the result subevent, the verb will take the prefix that corresponds to that preposition. I argue that the same mechanism generates both classes of prefixes, and that only two special properties distinguish the structure in which external prefixes are generated. One is that the affected participant of the telic eventuality (the undergoer of the change) is represented not by a nominal expression, but by a VP, and the other that there is a context variable in the result phrase. I show how quantitative interpretations, associated with external prefixes, can be derived from prepositional meanings, in combination with the context variable in the complement of the result subevent phrase. While the earlier analyses all account for the differences, but not for the similarities between the two classes of prefixes, the present analysis explains both aspects of the classification.

1. *Introduction*

All Slavic languages have a rich morphological marking of aspect. Aspectual meanings are marked by verb suffixes, and at the same time they are sensitive to the presence or absence of prefixes on the verb, as illustrated in (1).

(1) a. Jovan je gur-ao^{I} kolica. Serbo-Croatian
Jovan AUX push-PTC cart
'Jovan was pushing the cart.

b. Jovan je <u>od</u>-gur-ao^{P} kolica.
Jovan AUX away-push-PTC cart
'Jovan pushed the cart away.

c. Jovan je od-gur-<u>av</u>-ao^{I} kolica.
Jovan AUX away-push-I_suff-PTC cart
'Jovan was pushing the cart away.'

d. Jovan je <u>iz</u>-od-gur-av-ao^{P} kolica.
Jovan AUX out-away-push-I_suff-PTC cart
'Jovan completed the/some eventuality of pushing (the) carts away.'

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Before I continue, two remarks are due. One is that traditionally Slavic VPs are classified as perfective and imperfective, but there is no consensus on whether these two classes directly match with those related to telicity and inner aspect in general. Vaguely put, imperfective verbs can be related to atelicity, or homogeneity, and perfective ones to telicity, or quantization. I will be using the traditional labels 'perfective' and 'imperfective', but the analysis I propose in sections 2, 3 and 4 introduces more fine-grained properties and relations, which all deal only with elements of inner aspect. Superscripts 'I' and 'P' following the verb are used to mark the imperfective and perfective forms, respectively.

The other remark is that it is also possible to translate (1c) as 'Jovan pushed the cart away', but allowing only for the iterative reading of this translation. However, this translation is not a good match, not only because the English sentence naturally includes the singular reading (denoting that there was only one eventuality, i.e. the cart goes away only once), but also because it excludes the durative (progressive) reading which is available in the sentence in Serbo-Croatian (S-C). The translation that is provided in the example, which uses the English present continuous form, has both readings of the S-C sentence. The readings are: a) that there is a singular eventuality of pushing the cart away in a progressive interpretation (i.e. only its initiating subevent is really entailed), and b) that there is an unbounded set of iterations of a full telic eventuality (bare plural reading). Based on this parallel, some authors, such as Borer (2005b) and Arsenijević (2006), have claimed that the imperfective suffix *-va* corresponds to the present continuous in English.

As (1) illustrates, stem verbs are normally imperfective (there are exceptions, which I do not discuss here). Adding a prefix to a stem verb contributes to its lexical meaning, often even causing a shift in the lexical meaning of the verb, and as a consequence the verb becomes perfective. Literature on prefixes is divided as to whether they are functional elements that mark perfectivity, or they are just a lexical semantic component, and perfectivity that co-occurs with prefixation is a by-product: a consequence of some structural properties that prefixation involves (see for instance Filip 2003 and Gehrke 2005b). Adding the imperfective suffix (*I_suff* in (1)) to a perfective verb (even to a perfective stem verb) marks the verb for being imperfective. The suffix does not shift the lexical meaning of the verb, nor does it contribute to it any other additional semantic material. Therefore, it is uncontroversially taken as a functional element, the only function of which is to mark aspect. It is less uncontroversial, however, what exactly the suffix marks: is it outer or inner aspect, and for either choice: what its exact interpretation actually is. Finally, there is also a group of prefixes which can appear on a verb that already has a prefix and a suffix, as in (1d). Verbs with two layers of prefixes and a suffix are perfective, which means that this latter type of prefixes is associated with some position that can neutralize the effects of the imperfective suffix (probably by having a wider scope, i.e. in syntactic terms by being higher in the structure).

Žaucer (2002) convincingly argues that verb-prefixes with spatial meanings in Slovenian are all stative, i.e. that they do not realize dynamic notions, like for instance paths. His arguments hold equally well for S-C. Observe the examples in (2). Prefix *iz-* (out) in this view corresponds to the state of being outside of some place and the prefix *do-* (next to, to) corresponds to the state of being at some place, nearly matching the meanings of their prepositional counterparts.

(2) a. Jovan je iz-bacio^{P} psa. S-C
Jovan AUX out-threw dog.ACC
'Jovan threw the dog out.'

b. Jovan je do-vezao^{P} kola.
Jovan AUX to-drive car.ACC
'Jovan brought the car by driving.' 'Jovan drove the car to the relevant place.'

Not only for the Slavic languages, but also more generally, verb-prefixes and (separable) verb particles are often associated with resultative meanings (see for instance Lüdeling 1998). With respect to Slavic languages, this has been most explicitly put forward in Gehrke (2005a) and Arsenijević (2007). Both these papers argue that verb-prefixes in Slavic languages are generally resultative. The state of the dog being out of something in (2) is therefore viewed as the result of the telic eventuality of throwing the dog out, and the state of the car being at some place is the result of driving the car to that place.

This suggests that all verb-prefixes are derived as (parts/reflexes of) the predicates of the result component in the eventuality denoted by the VP. In this paper I argue that this indeed is the case. I analyze prefixes as instances of agreement with the predicate of the result subevent, and that this is why their semantics seems so closely related with the semantics of the result predicate. For a more general discussion of the claim that Slavic prefixes are resultative, see the cited works of Gehrke (2005a) and Arsenijević (2007).

The paper has two major aims. One is to present an analysis that accounts both for similarities as well as for differences between external and internal Slavic verb-prefixes (see DiSciullo & Slabakova 2005 and Svenonius 2004 for a detailed discussion of the classification of Slavic prefixes into the internal and external ones). The other goal is to show how prepositional meanings are involved not only in the meaning of internal, or lexical, prefixes, but also in the external, or superlexical, ones, which appear to have quantificational effects. I will argue that these quantificational interpretations are derived in the same structure, the only special property having to do with the argument that it takes. More precisely, quantificational interpretations arise when a telic eventuality takes another telic eventuality in the argument position representing the affected participant.

I will use only examples from S-C, but for most of the phenomena they are supposed to illustrate – the situation is the same in other Slavic languages. Therefore, the present paper really directly talks only about S-C, but I am, so far, unaware of any points in which it would not be universally applicable to all Slavic languages.

The paper is organized as follows. In section 2, I briefly sketch the event structure that I will be using and especially the way it represents telic eventualities. In section 3, I present an analysis of the internal Slavic verb-prefixes based on the presented event structure. Section 4 presents the external Slavic verb-prefixes, and their main differences from the external ones. In section 5 I show how the same analysis developed for the internal verb-prefixes can be applied to the external ones. In this section I also discuss the differences between the two classes can be accounted for, and especially how the quantificational meanings associated with the external prefixes can be derived. Section 6 discusses a number of consequences of the presented analysis and some questions that it opens, and that are not directly discussed in earlier sections, and section 7 concludes.

2. *Event structure*

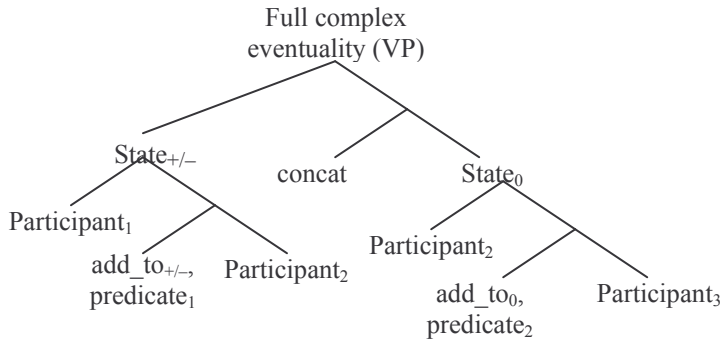
Throughout this paper, I will use the event structure model presented in Arsenijević (2006). This model represents all atelic eventualities as predicates that are assigned one temporal trace. Telic eventualities are seen as a product of the predicate of concatenation applied to two atelic eventualities, and thus also to their temporal traces. The predicate of concatenation marks that its two arguments, the one appearing in the specifier position and the one in the complement, are concatenated, i.e. that they undergo sum without any overlap, being immediately adjacent with each other. The two arguments in the telic template are states, and being concatenated for them

means that the end of the temporal interval of one of them is immediately adjacent with the beginning of the temporal interval of the other.

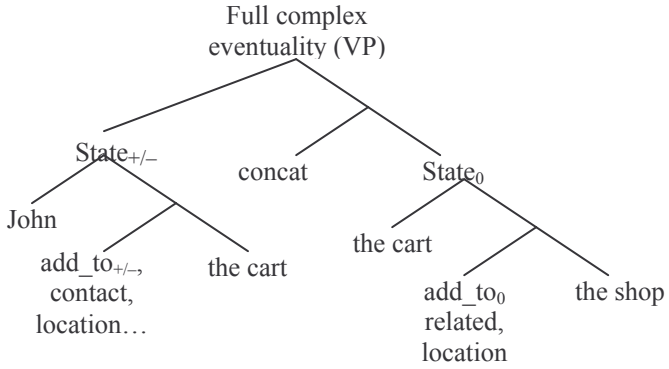
This is illustrated in (3). In (3a), I give a general pattern of this structure, and in (3b) an example of its application to a concrete VP.

(3) Telic eventuality as a concatenation of two atelic ones

a. The template



b. An example 'John pushed the cart to the shop.'



In this example, two predicates are independently assigned an unbounded temporal interval each, which makes them atelic eventualities. For all atelic eventualities, I use the term *states*, distinguishing between two types of states, the dynamic ones – involving a monotone increasing or decreasing function that maps times to properties and therefore marked $State_{+/-}$, and the proper states – constant functions from times to properties, which are marked $State_0$. Dynamic states correspond to what is traditionally referred to as processes, and proper states correspond to the traditional denotation of the term *states*. The telic eventuality in the example is a concatenation of two such states. In one of them, which is dynamic, John acts in a way that affects the location of the cart and involves physical contact. It represents a process in which John pushes the cart, causing it to move. In the other, which is a proper state, the location of the cart is at the shop (i.e., as in the representation, it is related to the location of the shop). These two predicates are concatenated asymmetrically: the temporal interval of the dynamic state in which John acts in a pushing manner with respect to the cart, thus affecting its location, is adjacent to and immediately precedes the temporal interval of the proper state in which the cart is at the shop. The asymmetry is encoded in the structure: in each concatenation, the element in the specifier of the predicate *concat* precedes the one in its complement.

In this way both the thematic roles and the inner aspect of the eventuality are derived in terms of syntactic structural relation *c-command* and a number of very simple predicates. Thematic

roles usually referred to as the Initiator (i.e. Agent or Causer), Undergoer (i.e. Theme or Patient) and Goal correspond, respectively, to the specifier of the dynamic state, the argument appearing both in the complement of the dynamic state and in the specifier of the proper state and the complement of the proper state. Their thematic properties are derived from their structural contexts. Telicity, as the inner aspect value of the eventuality, is derived from the concatenation of one dynamic and one proper state. Some change that is described by the dynamic state (in (3b), the change of the location of the cart) is entailed to go on until the property under change (in (3b), the location of the cart) establishes the value specified in the proper state (in (3b): at the shop).

In order to derive the described semantics of a telic eventuality, the structure in (3) has to satisfy three general conditions.

1. it is asymmetric: the structurally higher subevent temporally precedes the lower one.
2. the complement of the higher subevent must corefer with the specifier of the lower subevent (Participant$_2$ in (3a), universally denoting the undergoer of change)
3. the higher subevent must have a dynamic interpretation (i.e. it must be a process).

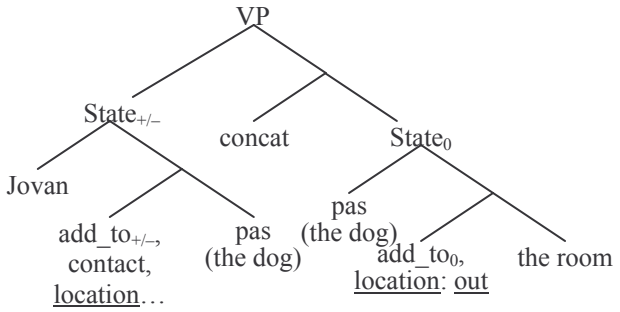
Nothing prevents grammar from generating structures similar to (3a), but which do not satisfy these conditions, and in fact such structures are present in language. However, only structures that satisfy these conditions represent telic eventualities. A telic change will only be specified if there is a dynamic predicate, and its temporal interval goes until some other predicate is established, and if the same referent is being affected in the earlier state and is the holder of the predicate of the later one.

The structure in (3) represents telic eventualities at the syntax-semantics interface. It is a well-formed syntactic structure, in which head positions are not filled with formal syntactic features, but with primitive predicates, i.e. elements with a certain semantic load. The syntactic structure appears non-standard in some respects, like for instance the independent generation of the identical material in different positions (in particular the appearance of the Undergoer in the complement of the dynamic state and in the specifier of the proper state). As for the particular issue of multiple independent generation of the same material, I see it in the context of approaches like Distributive Morphology (Halle & Marantz 1993): it is only the relevant semantic material that is generated in the syntactic positions in question, and not its lexicalization. When it comes to lexicalization, syntax inspects the locality relations between nodes with the identical material, and if the relevant locality is satisfied, some of the instances are reduced to resumptive pronouns, clitics, or to full deletion. This reduction happens at the interface of syntax with phonology, and the interface with semantics, which is discussed in this paper, deals with full semantic representations of the material involved.

3. *Internal verb-prefixes*

In Arsenijević (2007, 2006) I propose to analyze internal Slavic verb-prefixes (ISVPs) as instances of agreement between the contents of the two atelic subevents that concatenate to build a telic eventuality. I present this idea on an example in (4).

(4) Jovan je iz-bacio[I] psa iz sobe.
Jovan AUX out-threw dog.ACC from room.GEN
'Jovan threw the dog out of the room.'



The structure in (4) uses the general template that generates telic eventualities, proposed in Arsenijević (2006). This template, as explained above, asymmetrically concatenates two atelic events, one dynamic ($State_{+/-}$) and one which is stative ($State_0$). The asymmetry consists in the requirement that the dynamic subevent comes first in the concatenation. The dynamic subevent is thus interpreted as the initiating subevent, leading to the state determined in the stative subevent, which is thus interpreted as the result. The requirement that the complement of the initiating (i.e. dynamic) subevent is co-referential with the specifier of the result (i.e. stative) subevent guarantees that the two subevents specify phases of the same change, i.e. that the same participant that is affected in the initiating subevent is the one that bears the property specified in the result subevent.

The event denoted by the sentence in the example in (4), throwing out of the dog by Jovan, is analyzed parallel to the English example in (3). There is a dynamic subevent of Jovan acting with respect to the dog in a throwing manner (i.e. involving physical contact that affects the location of the dog), concatenated with a stative subevent of the dog being located out of the room. The aggregate interpretation is that Jovan's action of throwing involves a monotone function that maps times to values of the location property of the dog in such a way that, in a certain final temporal subinterval of the whole eventuality, the location property of the dog has the constant value *out of the room*.

The predicate of the initiating subevent, which is for the example in (4) the spatial nature of the affected property (location), has to establish agreement with the predicate of the result subevent, here the spatial nature of the property specified as the result (due to agreement, naturally, again location). This agreement can in S-C be marked by a prefix, which appears on the verb, and reflects the nature of the predicate in the result subevent. In the example in (4), this is the locative predicate specifying the location of the participant in $SpecState_0$ (the dog) as being out of the location of (the space taken or somehow else determined by) the participant in the complement of this phrase (the room). The relevant spatial predicate is thus the one of coming into the 'outside' relation, corresponding to the S-C preposition 'iz' (out of). In general, since it is generated as a marker of agreement between the initiating and the result subevent, an ISVP will always correspond to the preposition that appears as the closest match of the predicate of the result subevent. I argue that the same holds of external Slavic verb prefixes.

4. External verb-prefixes

External Slavic verb-prefixes (ESVPs) appear to have no semantic contribution internal to the eventuality described by the verb to which they attach, neither regarding the lexical meaning of the verb, nor by changing the argument structure or other syntactically relevant properties of the VP. In addition, they are argued not to directly semantically relate to the phonologically corresponding prepositions, they predicate higher than the imperfective suffix (which predicates over the eventuality) and their meanings are rather quantitative than lexical. This is the reason why most researchers in the field considered external prefixes to semantically form a different class (Filip 2003, Gehrke 2005a) and to be syntactically generated in a different position, somewhere above the VP (Svenonius 2004, DiSciullo & Slabakova 2005, among others).

Properties of the ESVPs listed above are illustrated in (5).

(5) a. Jovan je iz-od-gura-va-o^{P} kolica.
Jovan AUX out-away-push-I_suff-PTC cart
'Jovan pushed carts away to the exhaustion of the presupposed quantity of pushing carts away to be done by him.'

b. Jovan je na-u-baci-va-o^{P} knjige u orman.
Jovan AUX on-in-throw-I_suff-PTC books in cupboard
'Jovan threw the books into the cupboard so that as a result a large quantity of throwing books into the cupboard has taken place.'

Observe, especially, the quantificational contribution that these prefixes appear to have with respect to the interpretation of the eventuality, reflected in the underlined parts of the English translations in (5).

Structural asymmetry between the two classes of prefixes is also visible in the fact that there can normally be only one ISVP, while the ESVPs can stack so that one verb can have up to three ESVPs, as illustrated in (6).[1]

(6) Jovan je iz-na-po-od-guravao^{P} kolica.
Jovan AUX out-on-over-away-push-I_suff-PTC cart
'Jovan pushed carts away to the exhaustion (*iz*) of the presupposed large (*na*) and distributed (*po*) (in this case, over carts) quantity of pushing carts away to be done by him.'

It is quite clear already after a superficial look at these examples that the significant differences between ESVPs and ISVPs strongly suggest that the two classes cannot be generated in exactly the same way, no matter the actual analysis. However, most analyses proposed for ESVPs generate these two classes of elements in radically different ways (e.g. Svenonius 2004, who generates ISVPs VP internally, within the PP representing the result of the eventuality, and ESVPs in an aspectual projection on top of the VP).[2] This is in conflict with several significant similarities that the two types of predicates display, such as those listed in (7).

[1] There are in fact even examples with four or five ESVPs, but most often the lowest among them appear to be lexicalized, and are not perceived as prefixes but as part of the root.

[2] An exception, but only to some extent, are DiSciullo & Slabakova 2005.

(7) a. All or almost all morphemes appearing as ESVPs also appear as ISVPs.
b. There is a certain sense of resultativity in the quantitative predicates contributed by ESVPs, with respect to the eventuality denoted by the verb.
c. Both classes contribute perfectivity, with all the same consequences for the syntactic behaviour of the verb.

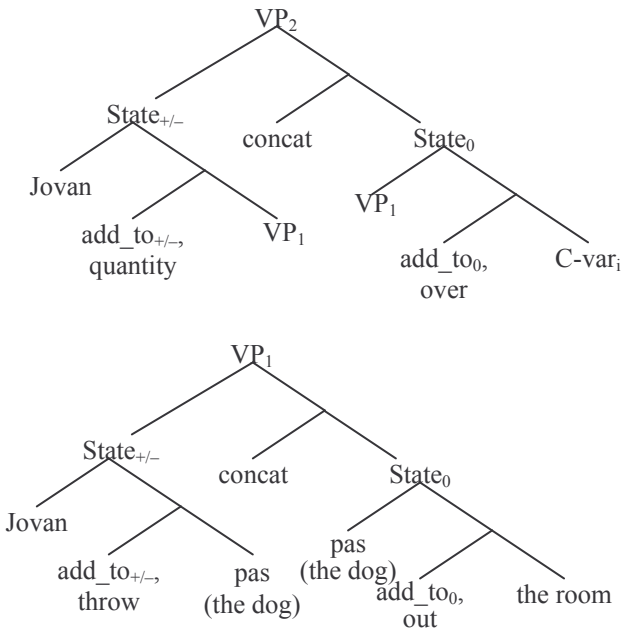
An account that views the two classes of prefixes as completely different elements both in terms of syntax and semantics needs to explain these similarities before being accepted, which does not look like an easy task. An analysis that naturally derives both differences and similarities between the two classes is proposed in the next section.

5. *ESVPs: telic template babushkas*

The essence of the analysis I propose for ESVPs is that they are generated in the same templatic structure of telic eventualities, and in the same way, as ISVPs. ESVPs are, just like ISVPs, instances of agreement between the relevant property of the affected participant from the initiating subevent and the relevant property of the result state. The special thing about ESVPs is that the templatic structure of a telic eventuality in which they are generated takes eventualities, i.e. other telic templates, and not only nominal expressions, as its Undergoer (the argument representing the affected participant), and that there is a context-variable in the complement of the phrase representing the result subevent.[3] This is presented in (8).

(8) Jovan je po-iz-baci-va-o^{P} pse iz sobe.
Jovan AUX over-out-threw-I_Suff-PTC dogs.ACC from room.GEN
'Jovan threw the dogs out of the room so that the eventuality of throwing distributes over some contextually available set.'

[3] I postulate here a context variable because it can easily be determined by the pragmatics. This may explain the prominence of the interpretations that have the right referent interpreted in this position. Another option is to have overtly specified the referent that is supposed to be interpreted in this position, but in that case there will be a significant variation between different ESVPs with respect to the element that appears in this position.



The intuition behind this structure is that the telic eventuality of Jovan throwing dogs out of the room (telic in the sense of requiring the result state) is embedded, as the affected argument, into another telic eventuality. In the bigger telic structure, the initiating subevent is the one in which Jovan acts with respect to the quantity of the embedded eventuality, and the result subevent is that the quantity of the embedded eventuality is determined by the distribution of this eventuality over some contextually provided set. This contextually provided set, represented here through the contextual variable (C-var), is usually either the embedded eventuality itself (in this case such a reading would be non-informative) or the set denoted by one of the participants of the embedded eventuality (in this case the most natural reading is that the eventuality distributes over its affected arguments, i.e. the set of dogs). A third option is that the eventuality distributes over some presupposed set of reference times.

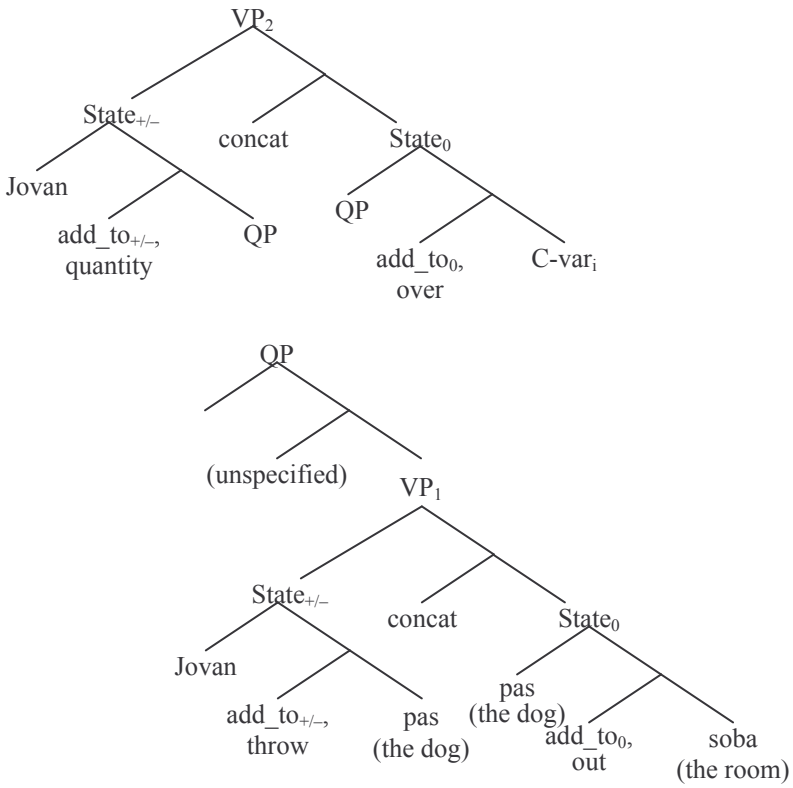
On the one hand, this analysis explains similarities between the two classes of prefixes, which are expected if they are generated in the same template (perfectivity is then just a particular grammaticalization of resultativity and telicity). The differences are accounted for in terms of the arguments of the template. ISVPs mark agreement in telic eventualities that involve only nominal arguments. There can be only one such level – already the first embedding will produce a template that takes VP arguments – and therefore generates an ESVP. This is why ISVPs do not stack. ESVPs scope over the suffix and over ISVPs because they are generated higher in the structure (I refrain here from a deeper discussion of the syntax and semantics of suffixes, which lies beyond the domain of this paper; a detailed discussion is available in Arsenijević 2006).

One property reserved for ESVPs that has not yet been explain is why it is exactly the property of quantity that is affected in the structure generating ESVPs. This question opens another one, related to the tentative generalization that all prefixes have prepositional meanings. An answer has to be provided for the questions why and how prepositional meanings can derive quantificational interpretations.

The answer to the first question follows directly from the view of the telic template presented in Arsenijević (2006), where I argue that the telic template corresponds to the predicate of division in the nominal domain (see Borer 2005a), i.e. to the category of grammatical number. This category is for both Borer and Arsenijević immediately dominated by the predicate of quantification. The telic VP, as presented here, can therefore be seen as a divided, i.e. plural

eventuality, syntactically represented as a structure with the potential to project a phrase that marks quantification, i.e. as an expression that is most naturally directly specified for quantity. In other words, we may have VP_1 in the structure in (8) replaced by a quantificational phrase (QP) that takes VP_1 as its complement, as represented in (9). QP is a projection headed by a quantificational predicate, which introduces the quantification over the eventuality; its direct counterpart in the nominal domain is the projection in which overt nominal quantifiers are generated. In the verbal domain, it is usually not overtly realize, simply because most languages lack morphemes with quantificational meanings that attach to the verb (exceptions are languages with event classifiers, like Chinese). The head of QP is not directly filled by any element, but it eventually gets assigned a certain value by the structure in which QP appears.

(9) Quantifier Phrases instead of VPa introducing embedded eventualities



The quantificational predicate is the one that immediately attaches to the main eventuality, and therefore exactly the property that it specifies is affected in the embedding structure. At the same time, in this representation, the argument positions are filled by QPs, which, unlike VPs, have bounded denotations and therefore must have referential meanings and cannot be generic. Therefore, they do not have the option to semantically incorporate into the main eventuality.

Let us now take a look at the example in (8), with the representation in (9), and try to answer the second part of the question above: can we keep the generalization that prefixes reflect the meanings of their (phonologically) corresponding prepositions, and still cover the quantificational interpretation of ESVPs. For the given example, it appears quite easy. Prefix *po*- corresponds to its corresponding preposition *po* (over), which indeed involves the meaning of distribution, or mapping, of one entity over/with another. If it is further specified that the interpretation of the predicate denoted by this element is to be quantificational, it is straightforward that the distributive interpretation of quantity will be derived. But how about other ESVPs? Quite much

the same. Several most frequent ESVPs are given in (10), with meanings that intuitively give quantificational interpretations like a large quantity, exhaustion, inception or completion.

(10) a. iz-E (out-E) → E out of E → exhaustion
Jovan je iz-od-gura-va-o^{P} kolica.
Jovan AUX out-away-push-I_suff-PTC cart
'Jovan exhausted the presupposed quantity of the eventuality of pushing carts away.'

b. na-E (on E) → E on E → accumulation
Jovan je na-od-gura-va-o^{P} kolica.
Jovan AUX on-away-push-I_suff-PTC cart
'Jovan did a lot of pushing carts away.'

c. do-E (to E) → E to E → completion
Jovan je do-od-gura-va-o^{P} kolica.
Jovan AUX to-away-push-I_suff-PTC cart
'Jovan completed some presupposed quantity of pushing carts away.'

d. za-E (behind E) → E behind E → inception, partitivity
Jovan je za-peva-o^{P} pesmu.
Jovan AUX behind-sing-PTC song
'Jovan started singing the song.'
Jovan je za-lomi-o^{P} vazu.
Jovan AUX behind-break-PTC vase
'Jovan partially broke the vase.' 'Jovan broke off a little piece of the vase.'

Apart from the advantages presented above, related to accounting for both similarities and differences between ISVPs and ESVPs, this analysis is also theoretically simpler (or 'less costly'). Unlike other proposed analyses, in particular DiSciullo & Slabakova (2005), Svenonius (2004) and Ramchand (2004), which are forced to introduce two different functional projections for the two classes of prefixes, the present analysis involves, as relevant, only one functional projection – the one marking concatenation between two atelic eventualities.

6. *Some open questions and consequences of the analysis*[4]

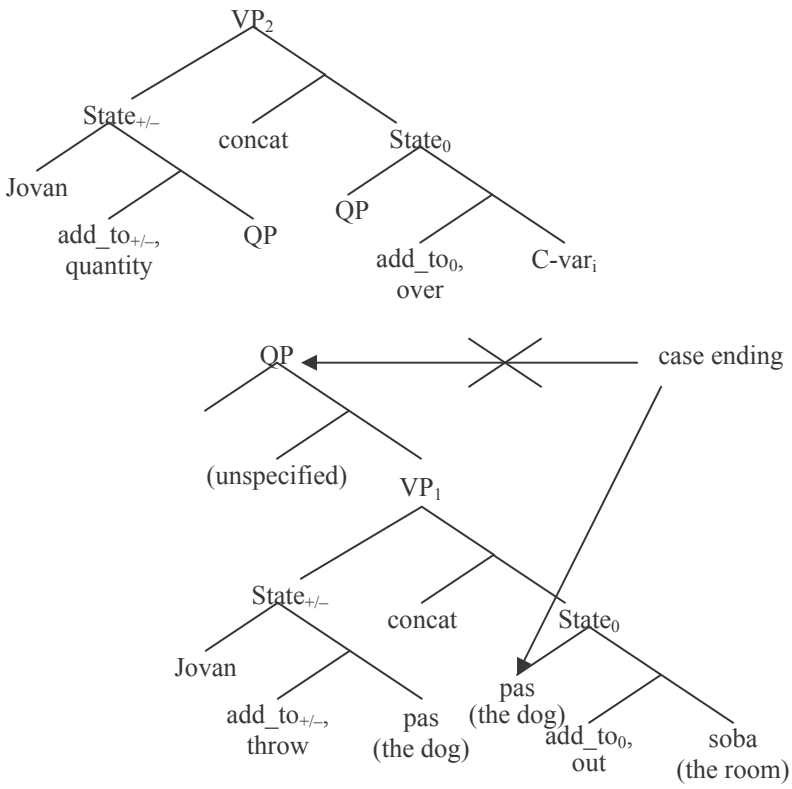
Certain aspects of this analysis have important consequences, or open interesting new questions. For instance, perfectivity as a property of verbs or VPs in Slavic languages, which is usually seen as a matter of outer rather than inner aspect, is derived in the same structure that derives telicity. This implies that either outer aspect in general has to be accounted for in terms of the telic template, i.e. as a 'sort of' telicity, or that there is also outer aspect, but that it does not include the distinction between perfective and imperfective verbs in Slavic languages.

Another question that this analysis opens is how come arguments of embedded eventualities (especially its affected participant) seem to carry the structural cases of the arguments of the embedding structure. The answer does not have to be difficult or complicated. It is possible that case endings behave like the English genitive *'s* in the fact that it can attach to any category that belongs to the expression that takes the relevant genitive marking, as long as it satisfies some phonological requirements. Similarly, assuming that eventualities appearing as arguments cannot

[4] The introduction of most of the material in this section, as well as several other points in the paper, is initiated by the review of the paper by Lanko Marušič, for which I am very grateful.

be marked for case because there are no case morphemes in the lexicon that can be attached to the verb or to the entire VP, the relevant case ending must look for a suitable candidate within that eventuality. Let us look again at (9), repeated as (11).

(11) The case of the embedded eventuality surfaces on one of its arguments



The accusative case of the main eventuality (i.e. the accusative assigned by VP_2) should be assigned to its Undergoer, i.e. to the embedded eventuality (QP). However, accusative case morphemes contained in the lexicon are all restricted to appear on nominal expressions, and not on eventualities. The assignment is therefore impossible. The next option is to assign the case ending to some element within the QP. Since the two concatenated states are not nominal expressions, there are three possible candidates: *Jovan*, *pas* and *soba*. Jovan and soba are already assigned cases, *Jovan* in the main eventuality (nominative) and *soba* by the preposition that it appears with (*iz*, out). The only good candidate is *pas*, and it indeed ends up hosting the accusative case ending. I believe that a similar analysis can be applied to most or all of the ECM cases, where the accusative is supposed to be assigned to an infinitival clause, but since it cannot host it, and it has one argument without any case assigned (the subject of the infinitive), this argument is assigned the pending accusative.[5] This is, however, only a sketch of the possible analysis, and do not go any further into discussing this problem. The goal of this paper is to sketch the major lines of the particular analysis that I propose, and its main advantages and disadvantages, and I leave these and other newly opened questions for further research.

Talking about case, throughout the paper, I mostly deal with eventualities that have all their arguments specified and all of them at least in one instance overtly lexicalized. Therefore, I owe a brief explanation about different argument structures with a smaller number of arguments, especially about the unaccusatives and unergatives. I consider these VPs to be derived in the

[5] I want to thank Rint Sybesma for pointing out to me the parallel between the analysis I propose for the accusative on an embedded argument and the ECM constructions.

same structures: in one state if atelic and in the telic template if telic. The only difference is that they have one or two arguments unspecified (like unaccusatives and unergatives), and/or one of their arguments is incorporated in the verb (for instance telic VPs without specified Goals, involving verbs like *to kill*, *to destroy* and *to create*, with the Goal incorporated into the verb).

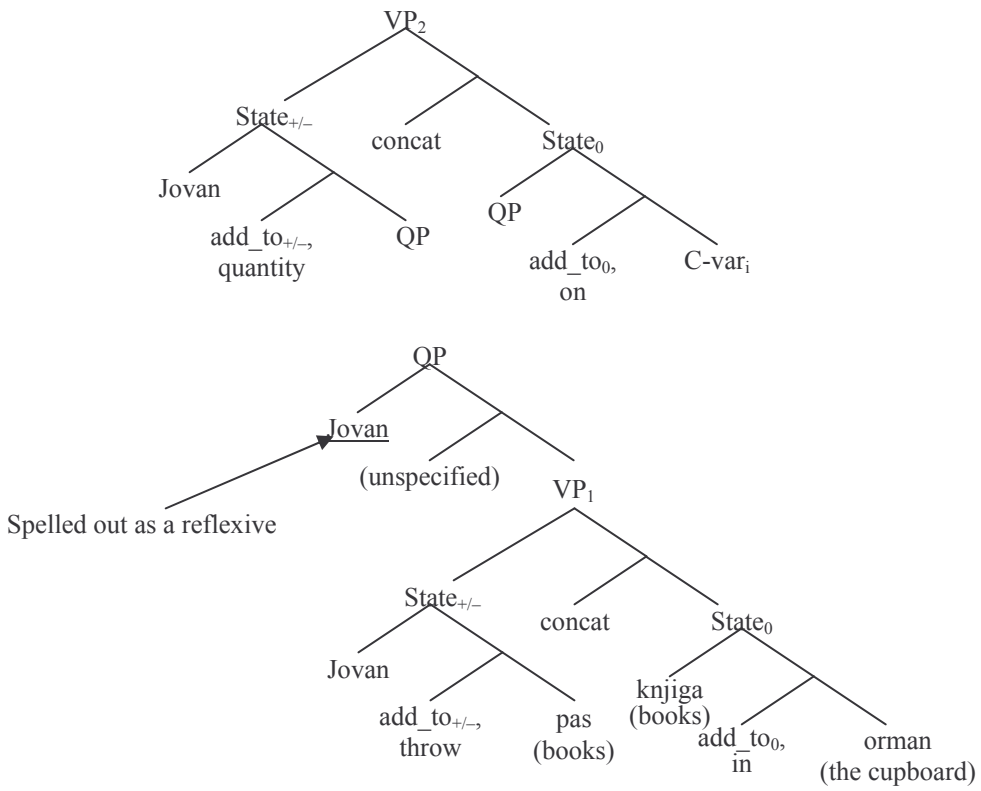
A related issue is that of the ESVPs appearing in the structure with a reflexive carrying accusative and with the embedded Undergoer in genitive, as in (12).

(12) Jovan se na-u-baci-va-o^{P} knjiga u orman.
Jovan REFL.ACC on-in-throw-I_suff-PTC books.GEN in cupboard
'Jovan threw the books into the cupboard so that as a result a large quantity, for the standards determined based on some properties of Jovan, of throwing books into the cupboard has taken place.'

In all such examples, the quantity of the embedded eventuality is somehow related to the subject of the main eventuality. The fact that the subject of the main eventuality also binds the reflexive, the element that most prominently distinguishes these sentences from the regular ESVP ones, hints that the reflexive may be responsible for the difference in meaning with respect to the expressions with an ESVP and without the reflexive.

I suggest the analysis presented in (13), which generates the reflexive from (12) in the specifier position of the embedded QP.

(13) The structure deriving ESVPs with a reflexive



This directly explains why the quantity of the embedded eventuality is interpreted as determined based on some properties of the subject of the main eventuality – it is natural, if the subject is also the specifier of the embedded QP. It explains as well why the reflexive takes the accusative case: the instance in the specifier of QP need to be visible, and therefore must be assigned case.

Furthermore, it is the structurally highest candidate in the embedded QP to bear the accusative case, which makes it the most local one with respect to the structure that assigns it. Its syntactic relation with the subject licenses it to be lexicalized as a reflexive. The Undergoer of the embedded eventuality takes genitive, the case that in Slavic languages typically marks nominal expressions internal to the direct arguments of the main VP.

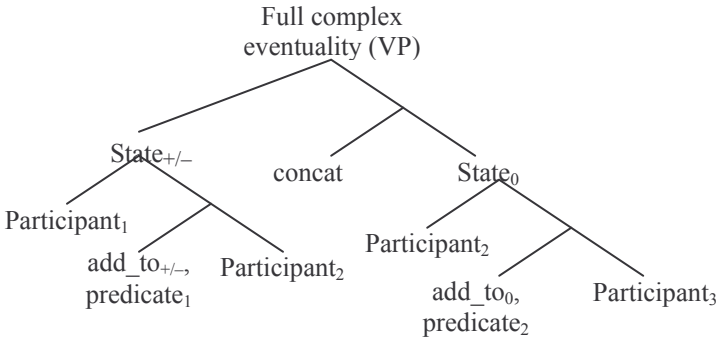
Finally, the analysis proposed for ESVPs explains the facts about verbs with doubled prefixes of this kind. On the one hand, ESVPs are characterized by the ability to stack, which means it should also be possible for them to be doubled. On the other hand, sentences involving doubled prefixes are generally degraded. A sentence with a doubled ESVP, like (14), would correspond to a structure in which one ESVP structure is embedded into another one of the same kind. The sentence in (14) is quite unusual, but not really ungrammatical, and certainly not semantically infelicitous. Its meaning is clear, although bizarre: there was an eventuality initiated by Jovan, that resulted in a large quantity of another eventuality, described as an eventuality initiated by Jovan and resulting in a large quantity of throwing books into the cupboard.

(14) ? Jovan je na-na-u-baci-va-o^{P} knjige u orman.
Jovan AUX on-on-in-throw-I_suff-PTC books in cupboard
'Jovan threw the books into the cupboard so that as a result a large quantity of throwing books into the cupboard has taken place.'

The problem with the sentence in (14) is rather that it is pragmatically strange, i.e. its meaning requires a context which is very difficult even only to construct, not to mention its likelihood to appear in language use.

The last issue that I will discuss is whether the postulation of the two states in the telic template is confirmed by the modificational capacities of the structure, i.e. by the possible adjunction sites for the typical modifiers of eventualities. The telic template, repeated in (15), predicts three possible adjunction sites for e.g. a temporal modifier: the dynamic state, the proper state and the VP.

(15) The telic template



The data signal that only the first of the three adjunction sites appears problematic, as illustrated in (16).

(16) a. ? John flew for three hours to London.
b. John flew to London for ten days. (the reading where he stays there ten days)
c. John flew to London in three hours.

Most speakers judge sentence like (16a) very strange, even degraded, but not totally out. A discussion of this type of construction is available in Arsenijević (2006), and for the present paper it is most important that the possibility of modifying three different predicates is indeed there.

7. Conclusion

I argued that internal and external SVPs are generated in the same telic eventuality templatic structure and by the same mechanism of agreement. A structural template of telic eventualities is used, in which a telic eventuality is seen as a concatenation of two atelic subevents, the first of which is dynamic (the initiating subevent) and appears as the specifier of the concatenation predicate, while the second is stative (result subevent) and appears as the complement of the concatenation predicate. The mechanism by which both classes of prefixes are generated is the one of establishing agreement between the predicates of the initiating and the result subevent.

This allows us to assign the following two properties to both classes of prefixes: they are all generated as agreement between the two subevents in the telic template and they all have meanings corresponding to the meanings of their phonological counterparts among prepositions. Differences between the two classes are all consequences of the fact that ISVPs are generated in telic templates that have all their arguments represented by nominal expressions, while ESVPs are generated in telic templates where at least the affected participant (the undergoer of the change) is referred to by QP projected over VP. In addition, the result subevent of the telic template generating an ESVP has its complement position filled with a context variable, an anaphoric element the interpretation of which is determined by the context. The quantitative interpretation linked to ESVPs is a result of two components characteristic of this construction. One is the fact that QPs involved have variable heads, without a fixed specification, and thus are open for specification by the structure in which they appear. The other component includes particular interpretations that arise in the interaction of prepositional meanings associated with prefixes and interpretations of the contextual variables involved in the result subevent.

A number of consequences and related questions are discussed. They show that the proposed model has correct predictions and the potential to explain some difficult questions related more or less directly to the topic of the paper, such as case assignment, ECM or prefix doubling.

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