

**HUNGARIAN PARTICLE VERBS  
REVISITED:  
REPRESENTATIONAL,  
DERIVATIONAL AND  
IMPLEMENTATIONAL ISSUES FROM  
AN LFG PERSPECTIVE**

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## Abstract

In this paper, I will make a systematic and critical comparison between two salient approaches to Hungarian particle verb constructions (PVCs): (i) a fully and uniformly lexicalist treatment proposed by Ackerman (2003) and Ackerman et al. (2011); (ii) a mixed analysis developed by Forst et al. (2010) and Laczkó & Rákosi (2011), whose essence is that non-compositional PVCs receive a special lexical treatment, while compositional PVCs are handled by means of a particular syntactic predicate composition. After discussing various processes involving PVCs, e.g. preverb-reduplication and various types of derivation, I will conclude that the uniform lexical treatment is more appealing LFG-theoretically and it is also more plausible. At the same time, I will claim that the analysis I have developed has several advantages over the (rather programmatic) approach advocated by Ackerman (2003) and Ackerman et al. (2011).

## 1 Introduction

Particle verb constructions ('PVCs', for short) manifest a varied set of well-attested and widely investigated cross-linguistic phenomena. For an excellent example of variation across languages and theoretical frameworks, see Dehé et al. (2002). PVC phenomena can also be posited in the broader context of complex predicates, see Alsina et al. (1997), for instance.

As is well-known, Hungarian PVCs pose substantial challenges both for theoretical analysis and for computational implementation, because they exhibit a mixture of lexical and syntactic properties: their formation typically affects argument structure, they can be input to productive derivational processes, they can be either compositional or non-compositional, but their pieces (the particle and the verb) are separable in the syntax. These PVCs have been analyzed from a variety of perspectives over the years. For a discussion, examples and references, see Ackerman (2003), Laczkó & Rákosi (2011) and Rákosi & Laczkó (2011).

In this paper, I will make a systematic and critical comparison between two salient approaches: (i) a fully and uniformly lexicalist treatment of all types of Hungarian PVCs proposed by Ackerman (2003) and Ackerman et al. (2011); (ii) a mixed analysis developed by Forst et al. (2010) and Laczkó & Rákosi (2011, 2013), whose essence is that non-compositional PVCs receive a special lexical treatment, while compositional PVCs are handled by means of a particular syntactic predicate composition. After discussing various processes involving PVCs e.g. preverb-reduplication and various types of derivation, I will conclude that the uniform lexical treatment is more appealing LFG-theoretically and it is also more plausible. At the same time, I will claim that the analysis I have developed has several advantages over the (rather programmatic) approach advocated by Ackerman (2003) and Ackerman et al. (2011).

The structure of the paper is as follows. In section 2, I highlight the traits of two different approaches to PVCs: (i) realization-based lexicalism, see Ackerman (2003) and Ackerman et al. (2011); (ii) an LFG-XLE analysis proposed by Laczkó & Rákosi (2011), inspired by Forst et al. (2010). In section 3, I modify and augment this approach by also presenting an account of several derivational processes PVCs undergo. In section 4, I make some concluding remarks.

## 2 On some previous approaches

Ackerman et al. (2011) give an overview of several salient approaches to predicates with respect to derivational and inflectional processes as well as their synthetic vs. analytic mode of expression. They point out that classical LFG very strongly subscribed to the Strong Lexicalist Hypothesis (SLH), in which all derivational processes (e.g. those affecting a predicate's argument structure, the assignment of grammatical functions, etc.) and all inflectional processes are assumed to be strictly lexical in nature. In addition, this model advocated the classical lexicalist view which holds that each lexical item is a synthetic morphological object functioning as a single syntactic atom. However, when the behaviour of various sorts of complex predicates, including PVCs, was taken into consideration, it turned out that this classical LFG view could no longer be maintained in its entirety. Naturally, the basic problem was that the relevant types of complex predicates are composed of two syntactic atoms. There have been two major types of solutions proposed. (i) We should allow well-defined types of complex predicate formation in the syntax. (ii) We should allow analytic morphological objects (consisting of more than one syntactic atom) in the lexical forms of predicates as a marked option in addition to the default synthetic mode of realization.

In this section, first I highlight the most crucial general aspects of the realization-based lexicalism approach, opting for solution (i), to PVCs on the basis of Ackerman (2003) and Ackerman et al. (2011) in subsection 2.1, and then I offer an overview of a syntactic predicate formation approach to certain types of PVCs, in the spirit of solution (ii), on the basis of Forst et al. (2010) and Laczkó & Rákosi (2011), by also comparing certain ingredients of the two approaches in subsection 2.2.

### 2.1 On Ackerman (2003) and Ackerman et al. (2011)

These papers adopt the notion of Ackerman & Webelhuth's (1998) *Morphological Expression* (for a discussion, see Ackerman 2003: 15).

(1) a. *Synthetic realization principle*

Where the realization  $w$  of  $\langle L, \delta \rangle$  is a synthetic member of category  $X$ ,  $w$  may be inserted as the head of  $XP$ .

b. *Periphrastic realization principle*

Where the realization  $w_1w_2$  of  $\langle L, \delta \rangle$  is periphrastic and  $w_1$  and  $w_2$  belong to the respective categories X and Y,  $w_1$  and  $w_2$  may be inserted as the heads of the respective nodes X(P) and Y(P).

[ $\delta$  = either morphosyntactic or derivational properties]

Crucially, in this approach both inflectional processes and derivational processes are treated in a paradigmatic-realizational fashion. Furthermore, this system allows both the synthetic (= concatenational) and the analytic (= juxtapositional) realization of predicates with certain featural compositions. In the analysis of PVCs, for instance, the preverb and the verb can be realized as either one (morphologically complex) syntactic atom (Concat) or two distinct syntactic atoms (Juxtap).

Basically, both Ackerman (2003) and Ackerman et al. (2011) are programmatic, and they concentrate on what general arguments PVCs provide for their strictly lexicalist, realization-based, paradigmatic approach. Neither develops an analysis of Hungarian PVCs. I hasten to add that I do not question the possibility of developing a fully-fledged and coherent account in the frame of this approach. But it is only when this has been carried out that meaningful comparison can be made between such an account and an alternative, detailed analysis like that in Laczkó & Rákosi (2011), see the next subsection.

## **2.2 On Forst et al. (2010) and Laczkó & Rákosi (2011)**

Forst et al. (2010) discuss the problems posed by PVCs in German, English and Hungarian for both theory and implementation. Their theoretical framework is LFG, and their implementational platform is the Xerox Linguistic Environment (XLE). They argue that the compositional and (sufficiently) productive types of PVCs should be sharply and consistently distinguished from the non-compositional and/or non-productive types. They claim that this distinction should be so dramatic that the compositional types should be handled in the syntax in terms of syntactic complex predicate formation (by employing XLE's restriction operator), while the non-compositional types should receive a special lexical representational treatment coupled with XLE's concatenation template. This paper is highly programmatic, and it only offers an overview of possible general PVC types in the three languages and a sketch of the way in which they could be treated. In addition, it leaves the investigation of the effect that derivational processes involving PVCs may have on this approach for future research.

In Laczkó & Rákosi (2011) we explore the tenability and implementational applicability of the approach proposed by Forst et al.

(2010).<sup>1</sup> In this vein, we give a detailed analysis of both the compositional and the non-compositional uses of two Hungarian spatial PVC types and report its successful implementation. Consider the following examples.

- (2) *A rák ki mász-ott a folyó-ból.*  
 the crab.NOM out crawl-PAST.3SG the river-out.of  
 ‘The crab crawled out of the river.’
- (3) *Az elnök ki fej-ez-te együttérzés-é-t.*  
 the president.NOM out head-Vsuf-PAST.3SG sympathy-his-ACC  
 ‘The president expressed his sympathy.’

The sentence in (2) is an example of the compositional use of the preverb *ki* ‘out’, while (3) illustrates an utterly non-compositional use (because the simplex verb form *fejzte* does not exist on its own). We assume that preverbs are non-projecting words in the sense of Toivonen (2001), and their syntactic category is PRT (short for particle).<sup>2</sup> For the analysis of (2) we need the following lexical forms for the preverb and the verb (only the relevant details are indicated in these XLE style implementational representations).

- (4) a. *mászik* V (↑ PRED)= ‘crawl <(↑ SUBJ) (↑ OBL) >’.  
 b. *ki* PRT (↑ PRED)= ‘out <% ARG1 (↑ OBL) >’.

The verb *mászik* ‘crawl’ has its regular lexical entry. It is a two-place predicate with a subject and a (goal) oblique argument. The preverb *ki* ‘out’ in its compositional use is also a two-place predicate: it takes a verb as its first argument and a (source) oblique second argument. In c-structure, the preverb, analyzed as the main predicate, has the customary functional head annotation, while the verb has a set of annotations containing the restriction operator encoded by the \ symbol.<sup>3</sup> The interplay of these annotations results in syntactic complex predicate formation, represented in f-structure. The PRED feature in the f-structure of (2) has the following value:

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<sup>1</sup> Reviewer 1 makes two remarks in this connection. On the one hand, they miss, from the current paper, the discussion of further PVC types analyzed in either Laczkó & Rákosi (2011) or Rákosi & Laczkó (2011). On the other hand, they query the justifiability of the syntactic predicate composition analysis of the type exemplified in (2) above. My response is this. (i) Space limitations have prevented me from discussing further PVC types (the reader is referred to those two previous papers). (ii) In Laczkó & Rákosi (2011) we argue in a detailed fashion for the syntactic treatment of two types of compositional PVCs (again, space limitations do not make it possible to repeat those arguments here). Moreover, one of the main conclusions of the present paper is that the syntactic treatment is implausible anyhow in the light of certain derivational processes.

<sup>2</sup> In using this PRT category, we also follow the practice of the English and German implementational grammars.

<sup>3</sup> For further details, see Laczkó & Rákosi (2011).

(5) ‘*ki* < ‘*mászik* < [*rák*], NULL >, [ *folyó*] >.

The preverb (*ki* ‘out’) is the main predicate, and it has a “nested” argument structure. Its first argument is the verb (*mászik* ‘crawl’) with its own embedded two-place argument structure. The verb’s first argument is the subject (*rák* ‘crab’), and its second (oblique) argument receives the zero grammatical function (NULL). The preverb’s second argument is a source oblique (*folyó* ‘river’).

In analyzing non-compositional spatial PVCs in Laczkó & Rákosi (2011) we also adopt Forst et al.’s (2010) XLE approach. For instance, in the analysis of (3) we employ the following lexical forms for the (independently non-existing) verb and the preverb.

(6) *fejez* V (↑PRED) = ‘%FN < (↑ SUBJ) (↑ OBJ) >’  
 (↑ CHECK \_PRT-VERB) = +  
 (↑ PRT-FORM) = c *ki*  
 @(CONCAT (↑ PRT-FORM) # stem %FN).

(7) *ki* PRT (↑ PRT-FORM) = *ki*  
 (↑ CHECK \_PRT-VERB) = c +.

In the XLE notation, the %FN symbol expresses the value of the PRED feature without its argument structure, see the first line. Within angle brackets in the same line, the argument structure of this non-compositional PVC is given: it is a two-place predicate taking a subject and an object argument. The second line contains one of the two members of a CHECK feature pair. This member is defining and the other is constraining. This is an extremely useful XLE device. Its function is to regulate the obligatory co-occurrence of two elements in a particular configuration. The essence of this \_PRT-VERB type CHECK feature is that it requires that the two elements involved must co-occur in a PVC configuration. The third line constrains that form of the particle in this particular instance has to be *ki* (out). The fourth line calls XLE’s concatenation (CONCAT) template. The function of this template is to formally combine (concatenate) the two elements, the preverb form and the verbal stem, in a string connected by the hash mark. This string serves as %FN, the value of the PRED feature without the argument structure.<sup>4</sup> So in our analysis of (3), the PRED feature has the following value

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<sup>4</sup> Note that this XLE concatenation process is radically different from that assumed by Ackerman et al. (2011). In their system concatenation means the creation of a synthetic form, a morphologically complex word. By contrast, the XLE device only brings about a string in the value of the PRED feature of a complex predicate in f-structure, and the elements corresponding to the two pieces of the string (flanking the hash mark) are still two free morphemes, that is, two independent syntactic atoms in c-structure.

representation in f-structure (where *elnök* = president, *együttérzés* = sympathy).

(8) ‘ki#fejez < [elnök], [együttérzés] >’

As regards the lexical form of the preverb in (7), notice that in this use it has no PRED feature, it only has a form feature (whose value is *ki*), see the first line in its lexical form. The second line is the other (constraining) side of the CHECK \_PRT-VERB coin.<sup>5</sup> In c-structure, the preverb and the verb are functional co-heads.

This approach employs an apparatus which is capable of maintaining the “one lexical item – one morphological word – one syntactic atom” correspondence in such a way that it can still capture the marked behaviour of (non-compositional) PVCs. For this purpose, it applies a system of devices: efficient cross-referencing between distinct lexical items via appropriate constraining equations and CHECK-features. The analysis has been successfully tested implementationally, which can be taken to be a rather strong indication of its feasibility.

It is highly significant from the perspective of the present paper that Laczkó & Rákosi (2011), just like Forst et al. (2010), do not examine whether derivational process pose any challenges for their analysis.

In Laczkó & Rákosi (2013) we give a detailed theory-internal and cross-theoretical assessment of our PVC analysis in Laczkó & Rákosi (2011). Two points are directly relevant for the topic of this paper. (i) We only very briefly touch upon derivational issues and make the following rather programmatic statement: “... if a particular morpheme, in our par excellence case, the nominalizing suffix, requires a single morphological word input then the lexical redundancy rules of LFG can provide this by forming one morphological word from the lexical entries of the two distinct elements of the complex predicate (along similar lines to productive compounding processes)” (2013: 167). (ii) In two paragraphs (2013: 167-168) we mention that although we still strongly support the syntactic complex predicate formation approach to compositional PVCs (and thereby the violation of the Strong Lexicalist Hypothesis), we think that technically there is a way to extend our lexical treatment of non-compositional PVCs to that of compositional ones, and we present two sample lexical forms. In subsection 3.3, I address these issues in a detailed manner.

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<sup>5</sup> Given that XLE does not tolerate multiple entries for the same lemma in its lexicons, in our HunGram grammar we have a single lexical form for the preverb *ki* (out) and the two representations in (4b) and (7) are expressed disjunctively in a single entry, but this has no theoretical repercussions.

### 3 Revisiting Hungarian spatial PVCs

This section has the following parts. In subsection 3.1, I add a general aspect to our analysis: the treatment of various constituents in the [Spec,VP] position. In subsection 3.2, I present an alternative lexical analysis of compositional PVCs in our LFG-XLE framework. Next, I discuss on what basis we can choose between the lexical and the syntactic account of this PVC type (3.3). Then I concentrate on two extremely productive derivational processes both compositional and non-compositional PVCs readily undergo: nominalization (3.4) and preverb reduplication (3.5).

#### 3.1 On treating constituents in [Spec,VP]

In the current version of our HunGram XLE grammar we postulate a VP constituent in Hungarian sentence structure. Our treatment of the [Spec,VP] position is oversimplified, and it fails to capture some basic facts. We employ an XP vs. PRT (that is, preverb) complementary distribution in such a way that the XP is always a focussed constituent. The problem with this approach is that the designated arguments of certain predicates can, or rather must, occupy this position in neutral, i.e. non-focussed and non-interrogative, sentences. Most often they are “reduced arguments” (e.g. bare nouns), but they can also be full XPs. In widely used descriptive terms, they and preverbs are collectively called “verbal modifiers” (VMs).<sup>6</sup>

In Laczkó (2013) I propose a fuller and more comprehensive LFG-XLE treatment of this position. In (9) below, I give a version of it which has been simplified for expository purposes in the context of the current paper.

$$(9) \quad \left\{ \begin{array}{l} (\uparrow \text{GF}) = \downarrow \\ \left\{ \begin{array}{l} (\uparrow \text{FOCUS}) = \downarrow \\ | (\downarrow \text{CHECK\_VM-INTER}) = c + \\ | (\downarrow \text{CHECK\_VM}) = c + \end{array} \right\} \\ | \uparrow = \downarrow \\ (\downarrow \text{CHECK\_VM}) = c + \end{array} \right\}$$

In this approach, the main distinction is between constituents associated with grammatical functions and constituents associated with the functional head annotation, see the major dual disjunction in (9). In the first main disjunct, focussed constituents, “question constituents” of “WH interrogative sentences” and various types of designated arguments of certain predicates occupying the [Spec,VP] position in non-focussed and non-interrogative sentences are in complementary distribution. In the second main disjunct, the functional head annotation is reserved for preverbs in the spirit of our analysis of PVCs in Laczkó & Rákosi (2011, 2013), supplemented with the

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<sup>6</sup> For an excellent overview of the most important VM types, see Komlósy (1985).



\_VM CHECK feature, constraining the preverb to appear in the [Spec,VP] position in non-focussed and non-interrogative sentences (cf. the same check-featural constraint on designated arguments in the third disjunct of the first main disjunct).

### 3.2 A possible lexical treatment of compositional PVCs

The lexical analysis of even compositional PVCs would undeniably have the advantage that classical LFG's subscription to the Strong Lexicalist Hypothesis could be maintained in the domain of complex predicates represented by Hungarian PVCs. In this subsection, I show a possible way in which such an approach can be developed in an LFG-XLE framework. In the next subsection I explore what arguments processes involving PVCs provide for or against the lexical vs. syntactic treatment of compositional PVCs.

Let us take a second look at our previous examples in (2) and (3), repeated here as (10) and (11), respectively, for convenience. The former is compositional and the latter is non-compositional.

(10) *A rák ki mász-ott a folyó-ból.*  
 the crab.NOM out crawl-PAST.3SG the river-out.of  
 'The crab crawled out of the river.'

(11) *Az elnök ki fej-ez-te együttérzés-é-t.*  
 the president.NOM out head-Vsuf-PAST.3SG sympathy-his-ACC  
 'The president expressed his sympathy.'

Given that in Laczkó & Rákosi (2011) we analyze non-compositional PVCs lexically and compositional PVCs syntactically, if one seeks to develop an account of the latter along lexical lines then it is almost inevitable that the analyses of the two types will share important aspects. Below I show that this is really the case to a remarkable extent.

First of all, note that the true counterpart of complex predicate formation in the syntax via restriction would be complex predicate formation via restriction in the lexicon. This process would involve sublexical structures within a morphologically complex word. However, this option is not available exactly because of the syntactic separability of the verb and the preverb. This fact very strongly moves us towards some crucial ingredients of the analysis of non-compositional PVCs.

I propose the following lexical form for the preverb.

(12) *ki* PRT  
 (↑PRT-FORM)= ki  
 (↑CHECK \_PRT-VERB) =c +  
 { (↑ FOCUS)  
 | (↑CHECK \_VM) =c + }  
 ((↑ DIR) = out).

It is a “shared” lexical form for both the non-compositional and the compositional uses. Its crucial property is that even in the compositional use it has no PRED feature, it only has a FORM feature, just like in the non-compositional use, see (7) in section 2.2. Compare this with the argument-taking predicate representation in (4b) on the syntactic account in section 2.2. The other (by now) uniform trait of the preverb in both uses is that it is constrained to a PVC configuration, see the `_PRT-VERB CHECK` feature in the second line, and compare this with the representations in (7) and (4b). I have added the disjunction between the focus annotation and the `_VM CHECK` feature in the third and fourth lines on the basis of section 3.1. It is the optional  $(\uparrow \text{DIR}) = \text{out}$  equation that differentiates between the compositional and non-compositional uses of the preverb. The idea is that in the compositional use, it encodes this spatial-directional feature,<sup>7</sup> it explicitly contributes this feature to the entire PVC, and in the non-compositional use it does not.

I assume the following lexical forms for the two relevant simplex verbs.

(13) *fejez* V

$(\uparrow \text{PRED}) = \text{'\%FN} < (\uparrow \text{SUBJ}) (\uparrow \text{OBJ}) >'$   
 $(\uparrow \text{CHECK\_PRT-VERB}) = +$   
 $(\uparrow \text{PRT-FORM}) = \text{c ki}$   
 $\sim(\uparrow \text{DIR})$   
 $@(\text{CONCAT } (\uparrow \text{PRT-FORM}) \# \text{stem \%FN}).$

(14) *mászik* V

$(\uparrow \text{PRED}) = \text{'out} < \text{'crawl} < (\uparrow \text{SUBJ}) \text{NULL} > (\uparrow \text{OBL}) >'$   
 $(\uparrow \text{CHECK\_PRT-VERB}) = +$   
 $(\uparrow \text{PRT-FORM}) = \text{c ki}$   
 $(\uparrow \text{DIR}) = \text{c out}.$

Not surprisingly, the lexical form of the simplex verb in the non-compositional use of the PVC on this uniform account has not changed much, compare (6) and (13). The only difference is that in (13) I have added a negative existential constraint: the preverb does not encode a directional feature.

For obvious reasons, the lexical form of the simplex verb in the compositional use of the PVC on this uniform account has changed rather dramatically, compare (4) and (14). The representation in (14) follows the non-compositional strategy to a great extent. To begin with, it encodes the

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<sup>7</sup> Note that on this lexical account the preverb itself cannot have a PRED feature, because in the syntax there is no restriction operation: both the preverb and the verb have the functional head annotation, i.e. they are functional co-heads. In this respect, they are treated in the same way as non-compositional PVCs, and only one of them can have a PRED feature (which is a general LFG constraint on functional co-heads).

PRED feature of the entire PVC. Now it is constrained to a PVC configuration, and it prescribes that in this meaning the form of the preverb has to be *ki* (out). As opposed to the simplex verb in the non-compositional use, here it requires the presence of the directionality feature (to be contributed by the preverb). The other difference is that here there is no concatenation template. Instead, I assume a PRED feature representation whose details are identical to the result of restriction on the former syntactic predicate composition analysis, see the second line in (14) and compare it with (4b) and the PRED value in (5) in section 2.2. For this account to work, we need a special lexical redundancy rule responsible for creating (14) from the ordinary lexical form of this motion predicate, shown in (4a) in section 2.2. This approach, mimicking the result of the syntactic restriction operation, has a marked aspect. The main predicate ‘out’ has no lexical form that could serve as input to this derivational process. In a loose sense, a particular type of conversion takes place which introduces a “superordinate” predicate whose “dummy” morphological exponence is a morpheme with special properties: it has no PRED feature on its own, its actual contribution is just a directionality feature, and it is a syntactic atom.<sup>8</sup>

Inevitably, there emerges a potential problem for this approach: preverbs in their compositional use can be foci or contrastive topics, see (15).

- (15) *Ki a rák mász-ott a folyó-ból.*  
 out the crab.NOM crawl-PAST.3SG the river-out.of  
 cca. ‘As regards out(crawling) it was the crab the crawled out of the river.’

My response is this. First of all, note that the preverbs of absolutely non-compositional PVCs can also occur independently, on their own in short answers, for instance (although they are definitely semantically empty, with no PRED feature). Consider:

- (16) A: *Ki fejez-ted a vélemény-ed-et?* B: *Ki.*  
 out head.Vsuf-PAST.2SG the opinion-your-ACC out  
 ‘Did you express your opinion?’

Naturally, a constituent’s use as a contrastive topic (or focus) does require some meaningful content. In this new approach, although the preverb does not function formally as the main predicate of the sentence, in its compositional use it does have some semantic contribution: it encodes directionality, hence its focus/contrastive topic potential. This is the significance of, and rationale behind, my employing the directionality feature in the lexical form of the preverb.

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<sup>8</sup> A reminder is in order here: this marked aspect of the analysis is the consequence of the behaviour of PVCs: the syntactic separability of the two pieces. That is why the restriction operation as we know it cannot work in the lexicon.

In the next subsection, I address the following question. On what basis can the choice between the lexical and the syntactic predicate composition account be made?

### 3.3 On the choice between the syntactic and the lexical accounts

At a general level, the pros and cons are as follows. The syntactic account gives up classical LFG's adherence to the Strong Lexicalist Hypothesis, which is a disadvantage. At the same time, it can elegantly capture the special behaviour of these PVCs: it employs a coherent device for complex predicate formation in the syntax. Moreover, it has an extremely favourable implementational merit. These productive PVCs can be parsed "on the fly": no lexical aspect is needed. This reduces the burden on the lexical component of a large scale XLE grammar to a great extent.<sup>9</sup> By contrast, the lexical account respects the Strong Lexicalist Hypothesis. It basically follows the treatment of non-compositional PVCs and supplements it with a special lexical redundancy rule for the generation of a "transparent" PRED feature value. Its implementational disadvantage is that it requires the generation and storage of each PVC in the lexical component, which can be a serious hindrance for a robust XLE grammar.

At this point let me take further facts and criteria into consideration. Fundamentally, I will concentrate on the relevance of various types of productive derivational processes PVCs (whether compositional or non-compositional) can undergo.<sup>10</sup> Below I discuss three processes: causativization, iterativization and event nominalization.

PVCs, like ordinary verbal predicates, readily undergo causativization. Consider the following examples. (17) exemplifies an intransitive compositional PVC and its causative counterpart, while (18) shows a transitive non-compositional PVC and its causative version. The empirically and intuitively correct generalization is that both the non-compositional and the compositional PVCs are in the scope of the causative morpheme.

(17) a. *A fiú ki mász-ott a folyó-ból.*  
the boy.NOM out crawl-PAST.3SG the river-out.of  
'The boy crawled out of the river.'

b. *Ki mász-at-tam a fiú-t a folyó-ból.*  
out crawl-CAUS-PAST.1SG the boy-ACC the river-out.of  
'I made the boy crawl out of the river.'

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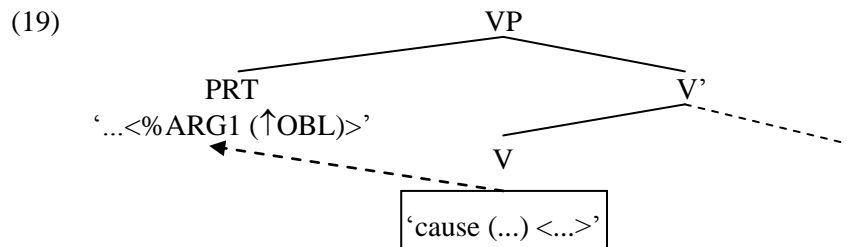
<sup>9</sup> For a detailed discussion of this issue, see Forst et al. (2010).

<sup>10</sup> As I mentioned in subsection 2.2, this is an issue Forst et al. (2010) and Laczkó & Rákosi (2011) do not address and leave for future research.

- (18) a. *Az elnök ki fej-ez-te*  
 the president. NOM out head-Vsuf-PAST.3SG  
*az együttérzés-é-t.*  
 the sympathy-his-ACC  
 ‘The president expressed his sympathy.’
- b. *Ki fej-ez-tet-tem az elnök-vel*  
 out head-Vsuf-CAUS-PAST.1SG the president-with  
*az együttérzés-é-t.*  
 the sympathy-his-ACC  
 ‘I made the president express his sympathy.’

In theory, in the case of non-compositional PVCs this can be properly captured in the CONCAT type lexical analysis proposed by Forst et al. (2010) and Laczkó & Rákosi (2011), and also adopted here. We can causativize the lexical form of the simplex verb (containing the entire value of the PRED feature of the PVC) just like the lexical form of any ordinary verb,<sup>11</sup> and at the same time the derived form will inherit the CONCAT apparatus from the input verb (the CONCAT template itself and the PRT-FORM constraint).

If compositional PVCs are also treated lexically, in fundamentally the same manner as non-compositional ones as shown in the previous subsection, then their causativization can also be handled along the same lines, so the empirically and intuitively justified uniformity can be achieved. However, on the “syntactic complex predicate formation via restriction” account this seems to be impossible for the following reason. In Hungarian, the causative morpheme is strictly bound: it is a derivational suffix. From this it follows that in this approach the simplex verb has to be causativized in the lexicon, and this form with its PRED will combine with the preverb in the syntax. Thus, the causative simplex verb will be the first argument (that is, it will be in the scope) of the preverb, rather counterintuitively. Consider the abstract representation of this scenario.



<sup>11</sup> For instance, this device can be a metarule macro or the lexical type of restriction. This is an issue to be explored carefully from an XLE perspective which I cannot deal with here.

I think this is a serious problem for the syntactic analysis, and it is made even more serious by the fact that there are several absolutely productive derivational processes which can follow one another in a series. There is one such example in (20).

- (20) *a fiú ki mász-at-gat-ás-a a folyó-ból.*  
 the boy.NOM out crawl-CAUS-ITER-DEV-his the river-out.of  
 cca. ‘repeatedly making the boy crawl out of the river’

The problem is that the PVC is best interpreted as being in the scope of the causative suffix (CAUS), this combination should be in the scope of the iterative suffix (ITER), and this new combination should be in the scope of the deverbal nominalizing suffix (DEV). However, in the syntactic approach it is the simplex predicate and its hierarchically growing suffixed counterparts that ultimately undergo complex predicate formation via restriction with the preverb. This fact makes the syntactic approach rather implausible.<sup>12</sup>

### 3.4 On the nominalization of PVCs

One of Ackerman’s (2003) central arguments for treating Hungarian PVCs lexically is that they can serve as input to event nominalization. His fundamental generalization is as follows. “Phrasal predicates generally become synthetic morphological entities when they undergo category changing derivation” (2003: 9). Consider, for instance, the nominalized counterpart of (17), one of our previous examples.

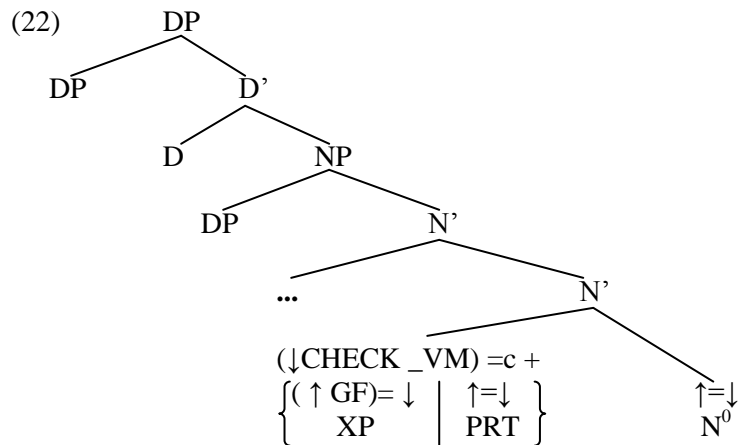
- (21) *a fiú ki mász-ás-a a folyó-ból*  
 the boy.NOM out crawl-DEV.his the river-out.of  
 ‘the boy’s crawling out of the river’

Before discussing the treatment of the nominalization of PVCs, let me point out that in this paper my approach is along the same general lexical lines as Ackerman’s. On the one hand, I adopt Forst et al.’s (2010) and Laczkó & Rákosi’s (2011) lexical treatment of non-compositional PVCs, and, on the other hand, I argue for a similar lexical account of compositional PVCs (contra Forst et al. 2010 and Laczkó & Rákosi 2011).<sup>13</sup>

<sup>12</sup> Note that one way out would be to allow ordinary suffixal derivation (e.g. causativization and nominalization) also to take place in the syntax of Hungarian. This, however, would even more seriously undermine classical LFG’s view of morphology in a different respect: it would allow bound morphemes to live independent syntactic lives in a GB/MP fashion. (The nominalizing morpheme cannot be treated as either a clitic or a phrasal suffix, because – among other things – it is affected by the rules of vowel harmony, which is only characteristic of world-level bound morphemes.)

<sup>13</sup> As I mentioned in subsection 2.1, it is not possible to compare our approaches in a detailed fashion, because Ackerman’s is rather programmatic.

In my analysis of the nominalization of PVCs, my most crucial assumption is that these derived forms are not synthetic morphological entities (contra Ackerman's claim). On the basis of Laczkó (2000), I postulate that Hungarian DPs have the following (skeletal) structure.



The key idea here is that I assume a special position below the lower N' which I take to correspond to the [Spec,VP] position in the verbal domain. Furthermore, I postulate that this position is available to the overwhelming majority of the VMs in the verbal domain,<sup>14</sup> e.g. to preverbs with the functional head annotation and a range of designated arguments with their respective grammatical functions. My main motivation for this structure is that among these designated arguments there are also clearly maximal projections.

Let us first take a look at one of Ackerman's own examples (2003: 28).<sup>15</sup>

- (23) a. *szabályszerű-vé válik*      b. *szabályszerű-vé vál-ás*  
regular-TRANS    become      regular-TRANS    become-DEV  
'become regular'                      'becoming regular'

Ackerman's claim is that in this case, too, nominalization results in the "incorporation" of the VM element, that is, the nominalized version becomes a synthetic morphological entity (just like in the case of the nominalization of PVCs). Notice, however, that the adjective *szabályszerű* 'regular' can be modified and this results in an AP, for instance: *meglepően szabályszerű* 'surprisingly regular'. This weakens the tenability of the lexical incorporation analysis considerably, because it does not seem to be plausible to "lexicalize" a (possibly infinite) number of accidental adverb + adjective combinations

<sup>14</sup> For a preliminary, incomplete and undeveloped version of this idea, in comparison with Szabolcsi's (1994) GB solution, see Laczkó (2000).

<sup>15</sup> I have modified the glosses so that they conform to the glossing pattern followed in this paper. TRANS glosses the translative case suffix.

like this. Furthermore, the verbal predicate in (23a) can also take a full referential DP in translative case as its complement, see the examples in (24).

- (24) a. *Pál Éva barát-já-vá vált.*  
 Paul.NOM Eve.NOM friend-her-TRANS became  
 ‘Paul became Eve’s friend.’
- b. *Pál-nak az Éva barát-já-vá*  
 Paul-DAT the Eve.NOM friend-her-TRANS  
*vál-ás-a*  
 become-DEV-his  
 ‘Paul’s becoming Eve’s friend’

I think it would be even more implausible to assume that the referential possessive DP (*Éva barátja* ‘Eve’s friend’) incorporates into a synthetic morphological entity as a result of nominalization.

This phenomenon manifests a very old problem for approaches to VM constituents which aim at a uniform analysis of all these elements (given their complementarity and their fundamentally similar syntactic positional behaviour in neutral, focussed and negative clauses). I have just shown that a uniformly lexical/morphological treatment is not feasible. The other logical possibility is to treat all these VMs and their verbal or nominalized companions as distinct syntactic atoms consistently. My approach does exactly this.

Now let us take a look at the details of my analysis of examples like (21). Of the two VM options in (22), it is the PRT version that is invoked. The preverb has the same lexical form as before in (12), repeated here as (25) for convenience.

- (25) *ki* PRT  
 (↑PRT-FORM)= *ki*  
 (↑CHECK \_PRT-VERB) = c +  
 { (↑ FOCUS)  
 | (↑CHECK \_VM) = c + }  
 ((↑ DIR) = out).

From the lexical form of the simplex verb shown in (14) a lexical redundancy rule creates its event nominal counterpart by changing its syntactic category and replacing the (SUBJ) grammatical function of the first argument of the verb with the (POSS) function.

- (26) *mászás* N  
 (↑PRED) = ‘out < ‘crawl < (↑POSS) NULL >’ (↑OBL) >’  
 (↑CHECK \_PRT-VERB) = +  
 (↑PRT-FORM)=c *ki*  
 (↑ DIR) =c out.



Note two fundamental differences related to the VM position in DPs as opposed to VPs. (i) This position cannot have the ( $\uparrow$  FOCUS) annotation in DPs. (ii) As a rule, a preverb (PRT) can only occupy this position in DPs: it cannot follow the noun head, nor can it target any other pre-head position.

### 3.5 Preverb reduplication

This is an absolutely productive process even in the case of non-compositional PVCs. Consider two of our previous examples, (2) and (3), this time with reduplicated preverbs. The PVC is compositional in (27) and non-compositional in (28).

(27) *A rák ki-ki mász-ott a folyó-ból.*  
 the crab.NOM out-out crawl-PAST.3SG the river-out.of  
 ‘The crab crawled out of the river from time to time.’

(28) *Az elnök ki-ki fej-ez-te*  
 the president. NOM out-out head-Vsuf-PAST.3SG  
*együttérzés-é-t.*  
 sympathy-his-ACC

‘The president expressed his sympathy from time to time.’

In Ackerman’s (2003) terminology, preverb reduplication introduces the following aspectual feature: intermittently repeated action (IRA), see the translations of (27) and (28). Relying on Kiefer (1995/1996), he makes the following generalizations. Preverb reduplication brings about a synthetic morphological object. Their main test is negation, the observation being that the reduplicated preverb cannot occur postverbally when the verb is preceded by the negative particle, which is the way of negating ordinary PVCs.

My comment on Kiefer’s and Ackerman’s generalization to the effect that reduplicated preverbs make up a synthetic morphological unit is that it is false. The reason for this is that if this combination was really a complex morphological entity and a single syntactic atom then it should be inserted under a  $V^0$  node and it should be negatable as an ordinary verb. This can only be stipulated in the context of their generalization. My claim is that the (empirically) correct generalization is that a reduplicated preverb is constrained to occupying the [Spec,VP] position. This single constraint captures the (negative) negation facts, which makes it more tenable than the “Kiefer-Ackerman” approach. I think it is a further (and related) problem that the reduplicated preverb can get “very far” from its base verb in the syntax. Consider the following example.

(29) *A rák ki-ki akar mász-ni a folyó-ból.*  
 the crab.NOM out-out wants crawl-INF the river-out.of  
 ‘The crab wants to crawl out of the river from time to time.’

Notice that in this sentence the reduplicated preverb occurs in the Spec position of a VP headed by a verb different from its own simplex verb within the PVC.

If the PV-PV-V complex is an ordinary synthetic V<sup>0</sup>, as is assumed by Kiefer and Ackerman, then, in addition to the impossibility of the negative particle's preceding this V, it is also puzzling why no focussed constituent can precede it, either, in the regular [Spec,VP] position. Consider (30).<sup>16</sup>

- (30) \**Csak a rák ki-ki mászott a folyóból.*  
 only the crab out-out crawled the river.from  
 'It was only the crab that crawled out of the river from time to time.'

This fact also follows from my alternative analysis: no focussing is possible because the designated position is occupied by the reduplicated preverb.

All this having been said, the following legitimate question arises. Why are reduplicated preverbs constrained to the [Spec,VP] position?<sup>17</sup> My tentative answer is that they are capable of enforcing their aspectual content in that position, but this issue requires further investigation.<sup>18</sup>

My analysis of PVCs with reduplicated preverbs is as follows. The lexical form of the simplex verb has to be modified minimally: in addition to the simple form of the preverb, it also has to admit the reduplicated version disjunctively: see (31) below and compare it with (14).

- (31) *mászik* V  
 (↑PRED) = 'out < 'crawl < (↑SUBJ) NULL >' (↑OBL) >'>  
 (↑CHECK\_PRT-VERB) = +  
 (↑PRT-FORM)=c { ki | ki-ki }  
 (↑ DIR) =c out.

A lexical redundancy rule creates a lexical form for the reduplicated version of the preverb, and it brings about two changes with respect to the lexical form of the input preverb (in addition to the obvious FORM feature change). On the one hand, it eliminates the two-member disjunction by removing the (↑ FOCUS) disjunct,<sup>19</sup> and, on the other hand, it introduces a special aspectual feature which, following Ackerman (2003), I informally represent as IRA ("intermittently repeated action"). Compare the lexical form of the

<sup>16</sup> This example is a reliable test because Hungarian *csak* 'only' constituents obligatorily occupy the [Spec,VP] focus position.

<sup>17</sup> It is also to be noted that at least for some speakers the postverbal occurrence of a reduplicated preverb is also acceptable (György Rákosi, p. c., July 14, 2013); thus, in their grammar reduplicated PVCs provide even more spectacular evidence for their non-synthetic nature.

<sup>18</sup> It is noteworthy in this context that É. Kiss (1992), in her GB framework, assumes that certain (phonetically null) aspectual operators occupy the [Spec,VP] position.

<sup>19</sup> In this way we can constrain the reduplicated preverb to a VM position.

simple preverb in (25), repeated here as (32a) for convenience, with that of the reduplicated counterpart in (32b).

- (32) a. *ki* PRT  
 (↑PRT-FORM)= *ki*  
 (↑CHECK \_PRT-VERB) =c +  
 { (↑ FOCUS)  
 | (↑CHECK \_VM) =c + }  
 ((↑ DIR) = out).
- b. *ki-ki*, PRT  
 (↑ PRT-FORM) = *ki-ki*  
 (↑ ASPECT) = IRA  
 (↑CHECK \_PRT-VERB) =c +  
 (↑CHECK \_VM) = +  
 ((↑ DIR) = out).

Ackerman (2003) rejects Kiefer's (1995/1996) claim that reduplicated PVC cannot undergo category changing derivation. Ackerman is right. Consider the nominalized counterpart of (27).

- (33) *a rák ki-ki mász-ás-a a folyó-ból*  
 the crab.NOM out-out crawl-DEV.its the river-out.of  
 'the crab's crawling out of the river from time to time'

My treatment of this nominalization is very simple. The lexical form of the reduplicated preverb is the same: (32b), and the relevant lexical redundancy rule nominalizes the modified lexical form of the simple verb given in (31).<sup>20</sup>

## 4 Conclusion

In this paper I have revisited crucial LFG theoretical and XLE implementational issues related to the treatment of spatial PVCs in Hungarian. I compared, in a detailed fashion, the lexical-realizational approach advocated by Ackerman (2003) and Ackerman et al. (2011), among others, with an LFG-XLE approach developed by Forst et al. (2010), Laczkó & Rákosi (2011) and Rákosi & Laczkó (2011). As regards the latter two papers, on the one hand, I added some important aspects to their analysis, and, on the other hand, I proposed a significant modification. I argued that compositional PVCs should also be treated lexically in a manner similar to the treatment of non-compositional PVCs, and I presented a possible way of carrying this out. I pointed out that one of the advantages of this uniform lexical treatment is that classical LFG's view of the distribution of labour between the lexical and the syntactic components of grammar can be maintained.<sup>21</sup> I also showed how various morphological processes (often

<sup>20</sup> The reduplication of inflecting preverbs poses an additional challenge for an analysis along these lines. I have a solution, but space limitations prevent me from showing it here.

<sup>21</sup> In this connection, Reviewer 1 writes: "the paper [...] tries to adhere to the Strong Lexicalist Hypothesis despite the fact that it has been shown (not necessarily for Hungarian PVCs of type (A), but for other phenomena in other languages) that this hypothesis does not hold 100% while happily sacrificing the productivity of compositional PVCs." My answer is this. I myself think that a linguistic phenomenon

consecutively) involving PVCs can be handled (e.g. causativization, preverb reduplication and nominalization). And a final remark: it is a favourable aspect of our LFG-XLE approach that its apparatus makes it possible to adhere to the classical notions of a morphological word and a syntactic atom to a great extent.

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may call for a syntactic analysis in violation of the SLH (in Laczkó & Rákosi 2011, we argued for such a solution). However, in the present paper, on the basis of further investigation, my claim is that additional crucial facts more strongly support a lexical treatment. Moreover, I do not “sacrifice” productivity: I simply capture it in the lexical component of grammar. So in this case the SLH is not the motivation or aim driving my (re)analysis; instead, it is just a welcome consequence, making this account one degree less marked, given the general assumptions of LFG.

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