ON PARTICULARLY PREDICATIVE
PARTICLES IN HUNGARIAN

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Abstract

This paper investigates the grammar of two types of spatial particles in Hungarian. We provide an analysis in the framework of Lexical-Functional Grammar (LFG), which has been successfully implemented on the Xerox Linguistic Environment (XLE) platform of the Parallel Grammar international project. We propose that, in the productive cases, syntactic predicate composition of a special sort takes place via XLE's restriction operator. We treat the non-productive cases by dint of appropriate specifications in the (distinct) lexical entries of verbs and particles in combination with XLE's concatenation template.

1. Introduction

Particle verb constructions (henceforth: PVCs) present well-known challenges for linguistic analysis, even extending into the broader context of complex predicate formation, see Alsina et al. (1997). For an overview of the PVC problems to be addressed, a discussion of the major types of solutions offered in the literature, and a range of case studies on languages including Dutch, English, German, Swedish and Hungarian, see Dehé et al. (2002). The major issue is that PVCs exhibit a mixture of very strong lexical and syntactic properties. Their combination seems to have a straightforward derivational flavour, while they are separable in the syntax. This mixed behaviour is problematic for the classical designs of the majority of generative frameworks, and, consequently, it also poses significant problems for implementational platforms based on some of these generative theories.

In this paper, and in our other paper (Rákosi and Laczkó, this volume), we discuss Hungarian particle verb constructions expressing spatial dependencies. We distinguish the following four major types.[1]

(1)　(A) non-inflecting adverbial PVC:

    A　macska fel　szaladt　az　asztal-ra.
    the　cat.NOM up　ran.3SG　the　table-onto
    'The cat ran up onto the table.'

    (B) non-inflecting, case-assigning postpositional PVC:

    A　macska át　szaladt　az　asztal-on.
    the　cat.NOM across　ran.3SG　the　table-on
    'The cat ran across the table.'

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[1] Diverging from standard spelling conventions, we consistently spell the particle and the immediately following V as two separate orthographic units, which is in accordance with a crucial syntactic aspect of our analysis: even an immediately preverbal particle occupies a distinct constituent structure position.

(C) inflecting, reduplicating suffixal PVC:

A	*macska*	*rá*	*szaladt*	*az*	*asztal-ra*.
the	cat.NOM	onto.3SG	ran.3SG	the	table-onto

'The cat ran onto the table.'

(D) inflecting, possessive postpositional PVC:

A	*macska*	*mögé*	*szaladt*	*az*	*asztal-nak*.
the	cat.NOM	behind.to.3SG	ran.3SG	the	table-DAT

'The cat ran behind the table.'

As the names of the types express, one of the fundamental differences between Types (A-B) and Types (C-D) is that in the former the particle cannot be inflected, while in the latter it can be inflected for person and number. Types (C-D) are analyzed in Rákosi and Laczkó (this volume), and in the present paper we concentrate on Types (A-B). Here we develop an LFG analysis which we have successfully implemented on the XLE platform. The general motivation for an account along these lines was provided by Forst-King-Laczkó (2010). The most crucial aspects of our approach are as follows. In the productive cases, the particle and the verb are combined in the syntax: a special sort of syntactic predicate composition takes place via XLE's restriction operator. The special nature of this process is that the verb is taken to be an argument, without any grammatical function, of the particle, which has the main predicate status. We handle the non-productive cases by the help of appropriate specifications in the (distinct) lexical entries of verbs and particles. The felicitous co-occurrence and combination of the particle and the verb is ensured by XLE's concatenation template. In our analysis, we assume that the particles in question are non-projecting words in the sense of Toivonen (2001). In this connection, our terminology is as follows: we use the word particle as a cover term for certain verbal modifiers that, in neutral sentences, immediately precede the verb. When, on our account, the particle has a non-projecting word status, we assume that it has the PRT syntactic category.

The structure of the paper is as follows. In section 2, we discuss the traits of Hungarian non-inflectional spatial markers. In section 3, we offer a brief overview of the literature most relevant from the perspective of this paper. In section 4, we present our LFG-XLE analysis of the two types of non-inflectional spatial markers. We cover both compositional and non-compositional uses. In section 5, we summarize and make some concluding remarks.

2. Non-inflecting spatial markers in Hungarian: a descriptive overview

2.1. Shared properties of the two types of non-inflecting PVCs

The following properties are shared not only by the two non-inflecting PVC types, but by all the four types presented in (1).

- The PVC licenses an oblique associate.
- The particle occupies an immediately preverbal position in neutral clauses.
- The particle can be separated from the verb in non-neutral clauses under clearly definable circumstances.
- The semantic type of the particle itself is *goal* or *path*.
- Particular PVCs can be fully compositional or fully idiomatic in each construction type.
- The particle typically telicizes the verb.
- In the compositional cases typically the *PVC + OBL* combination alternates with a *plain V + OBL* combination.

2.2. The non-inflecting adverbial PVC

The particle word occurring in this PVC type is used as an adverb elsewhere. Consider the use of *ki* 'out' in (2).

(2) *Men-j   ki   /   ki-jjebb!*
    go-IMP.2SG out   /   out-COMP
    'Move out / more outwards.'

As a particle, it only requires its associate to be of a given semantic type, but it does not govern its associate's case:

(3) *Ki   fut-ott-am   a   park-ból   /   a   fa   alól.*
    out   run-PAST-1SG   the   park-from   /   the   tree   from.under
    'I ran out from the park / from under the tree.'

As (3) shows, *ki* 'out' as a particle licenses a source oblique argument. The fact that the licenser is the particle and not the verb is clearly demonstrated by the ungrammaticality of (4), in which the verb is used on its own, and it is incompatible with a source argument.

(4) **Fut-ott-am   a   park-ból   /   a   fa   alól.*
     run-PAST-1SG the   park-from   /   the   tree   from.under
     'I ran out from the park / from under the tree.'

The following particles also belong to this type: *be* 'in', *le* 'down', and *fel* 'up'.

2.3. The non-inflecting, case-assigning postpositional PVC

The particle word occurring in this PVC type is used as a postposition elsewhere, and in that use it takes a complement with a selected oblique case. Consider the use of *keresztül* 'across' in (5).

(5) *a   park-on/*park-ban/*park-ból   keresztül*
     the   park-on/ park-in/   park-from   across
     'across the park'

As (6) shows, when *keresztül* 'across' is used as a particle, it also prescribes the same case form for the oblique argument of the PVC.

(6) *Keresztül   fut-ott-am   a   park-on/*park-ban.*
     across   run-PAST-1SG   the   park-on/ park-in
     'I ran across the park.'

The fact that the licenser of the oblique argument with its designated case is the particle and not the verb is clearly demonstrated by the ungrammaticality of (7), in which the verb is used on its own and, thus, it is incompatible with an oblique argument in superessive case.

(7) *Fut-ott-am   a   park-ban/*park-on.*
     run-PAST-1SG   the   park-in/   park-on
     'I ran in the park / *on the park.'

The following particles also belong to this type: *át* 'across, over', *által* 'across', which is an archaic or dialectal synonym, and *szembe* 'against', which requires an oblique argument in instrumental case, as opposed to the superessive case required by the other particles of this type.

3.   Previous literature on spatial dependencies in Hungarian

Hungarian PVCs have been analyzed from various perspectives and in a variety of descriptive as well as generative theoretically- and implementationally-oriented frameworks; see, for instance, Ackerman (1983, 2003), É. Kiss (1987, 1992, 2006), Komlósy (1992), Piñón (1992), Ackerman-Webelhuth (1993), Kiefer-Ladányi (2000), Surányi (2009a,b, 2011), Forst-King-Laczkó (2010), Laczkó-Rákosi (2011b), and the references in these works.

The basic line of demarcation between various approaches has to do with the locus of the combination of PVCs. The following two radically different views can be distinguished: most crucial properties of PVCs have to be captured (i) lexically or (ii) syntactically.

As regards the first view, a variety of strongly lexicalist accounts (predominantly but not exclusively in an LFG-style framework) is proposed by Ackerman (1987, 2003) and Ackerman-Webelhuth (1993). The most significant aspects of this approach are as follows: (i) only lexical rules (as

opposed to syntactic rules) can create new argument structures; (ii) in the unmarked case, lexical representations are expressed by single synthetic word forms; however, as a marked option, they can also be expressed by combinations of words without joint morphological status. Given that these papers concentrate on inflecting Type (C) PVCs, the relevant details of this analysis are discussed in Rákosi-Laczkó (this volume).

É. Kiss's (1987) account, in the framework of Government and Binding theory (GB), can also be taken to be lexical in nature. Its essence is that the particle+verb combination is a V^0 element in the lexicon and its peculiarity is that it is exempt from the otherwise obligatory morphological process called bracket erasure. In É. Kiss's notation, it has the following lexical representation: $[[Prev] [V^0]]_V^0$. This is roughly comparable to Ackerman's notion of an analytic lexical form.

As far as the strongly syntactic analyses of PVCs are concerned, Types (A-B) have received much less attention in the GB/Minimalist tradition than Types (C-D); see the overview of the relevant literature in Rákosi-Laczkó (this volume). We can only find outlines of an analysis along syntactic lines in É. Kiss (2002) and Surányi (2009a,b; 2011). The essence of the account is the movement of the particle from an underlying appositive structure:

(8) *Fel$_i$ ugr-ott-am*   [*f̶e̶l̶$_i$* [*az*   *asztal-ra*]].   (Surányi 2009b)
    up   jump-PAST-1SG   up   the   table-onto
    'I jumped up onto the table.'

Our analysis presented in this paper and in Rákosi-Laczkó (this volume) has been substantially motivated by Forst-King-Laczkó (2010), which aims at developing a uniform LFG/XLE approach to PVCs in German, English, and Hungarian. The crucial aspects of this approach are as follows. When the particle and the verb are combined non-productively (typically non-compositionally) then the two elements have distinct lexical entries in such a way that the particle only has FORM information in its entry and all the relevant information is encoded in the lexical entry of the verb: the meaning and argument structure of the PVC in question, and the constraint that the verb in the given use has to co-occur with a designated particle. The XLE device that efficiently handles this phenomenon is the hard-wired concatenation template. When the particle and the verb are combined productively then this combination takes place in the syntax. The following types of PVCs are distinguished in this domain:

a) the particle is an adjunct of the verb,
b) the particle is an oblique argument of the verb,
c) the particle is an aspect marker,
d) the particle is a secondary predicate,
e) the particle is the main predicate taking the verb as one of its arguments.

Fundamentally, Forst-King-Laczkó (2010) give only German examples of these five types and they point out that there are Hungarian and English counterparts in each type. In the case of type e), they assume that a special instance of syntactic predicate composition takes place, which is implemented in XLE by dint of the restriction operator. In this connection, our goal in this paper is twofold: (i) we aim to prove that Hungarian Type (A-B) PVCs as we introduced them above are genuine examples of type e) and (ii) we provide arguments in favour of taking the particle to be the main predicate in these cases (which is only postulated in Forst-King-Laczkó (2010)).

Note that the crucial details of Forst-King-Laczkó's (2010) account are spelled out in the presentation of our analysis of PVC Types (A-B).

4. Our analysis

4.1. A structural issue

As has been emphasized several times, the particles under investigation are separable, and they are forced to appear in positions other than [Spec,VP] under clearly definable conditions. The two most important conditions are as follows: (i) the clause contains a focussed constituent; (ii) the clause contains negation. These cases are exemplified in (9) below.

(9)   a.   *ÉN*   *szaladt-am*   *ki*   *a*   *ház-ból.*
          I.NOM   ran-1SG   out   the   house-from
          'It was ME who ran out of the house.'
   b.   *Nem*   *szaladt-am*   *ki*   *a*   *ház-ból.*
          not   ran-1SG   out   the   house-from
          'I didn't run out of the house.'

In a large body of GB literature on Hungarian focus constructions, a FocP is postulated, with the focussed constituent itself occupying the [Spec,FocP] position distinct from [Spec,VP], which is assumed to be occupied by (non-focussed) verbal modifiers (including particles), see Brody (1990) and É. Kiss (2002), among others. However, we agree with Börjars et al. (1999) that the postulation of a FocP in a language like Hungarian is unjustified in an LFG framework, and we think that the most LFG-friendly way of capturing the syntactic (preverbal) complementarity of focussed constituents and verbal modifiers (including particles) is to assume that they target the same syntactic position. We believe that the most appropriate salient single position for this purpose is [Spec,VP].[2] Thus, it is a general aspect of our account, both in this paper and in Rákosi-Laczkó (this volume), that we assume that all the spatial

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[2] Our [Spec,VP] analysis, which we defend in Laczkó-Rákosi (2011a) at greater length, has been partially motivated by É. Kiss's (1992) GB approach. For a [Spec,VP] account of Hungarian focus in LFG, see Mycock (2006).

particles in the four types under investigation (irrespective of their syntactic category and their function) occupy the [Spec,VP] position when they immediately precede the verb.

4.2. The non-inflecting adverbial PVC

We discuss this type using examples containing the particle *ki* 'out'. In its productive, compositional use, the particle denotes a path, and it introduces (at least) an optional OBL source argument, without specifying its form of expression. Consider the following examples.

(10) *Fut-ott-am   a   park-ba   / *park-ból.*
     run-PAST-1SG the   park-into /   park-out.of
     'I ran into the park / out of the park.'

(11) *Ki   fut-ott-am   a   park-ból   / a   fa   alól.*
     out   run-PAST-1SG the   park-out.of / the   tree   from.under
     'I ran out from the park / from under the tree.'

(12) *Ki   fut-ott-am   a   park-ba   / a   fa   alá.*
     out   run-PAST-1SG the   park-out.of / the   tree   to.under
     'I ran out into the park / under the tree.'

As (10) shows, the motion verb *fut* 'run' is compatible with an optional goal oblique argument and it is not compatible with a source argument. However, as (11) demonstrates, when this verb combines with *ki* 'out', the PVC is compatible with a source argument. The actual form of this argument is not constrained as long as it satisfies the source semantic requirement, so it can be expressed, for example, by an (elative) case-marked noun phrase or a prepositional phrase. (12) illustrates the fact that the source argument of the PVC is optional and the PVC (just like the verb alone) is compatible with a goal argument. Two remarks are in order at this point. On the one hand, as follows from the discussion of the status of *ki* 'out' below, it stands to reason to assume that this 'path' particle is capable of introducing both a source and a goal oblique, and, thus, the verb, the particle or both elements can be taken to be the licenser(s) of the goal. We cannot explore the problems and consequences of this issue in this paper, especially in the light of the next remark. On the other hand, given the fact that our HunGram implementation of the XLE system only admits one "general" oblique argument per predicate (we do not employ several differently theta-marked obliques in an argument structure) and the fact that the source is solely introduced by the particle, we assume that the constituent analyzed as an oblique, whether a source or a goal, is an argument of the particle.

In the presentation of our analysis, we first concentrate on the productive (compositional) use of *ki* 'out' as exemplified in (11) and (12). Following the relevant aspects of the approach developed in Forst-King-Laczkó (2010), we

assume that a special kind of predicate composition takes place when such PVCs are created.

The first issue to be addressed in any instance of predicate composition is the (semantic) relationship between the two predicative elements. It is our conviction that in the case at hand the right assumption is that the particle is the main predicate. This is based on the following considerations.

(A) These particles themselves are capable of contributing the 'directional path' semantic feature to the (complex) PVC predicate, consider their potential combinability with non-motional verbs, and the result is a source-path-goal geometry of the semantics of the PVC. Consider the following examples.

(13) *A   szurkoló-k   meg   tapsol-t-ák   a   focistá-k-at.*
     the   fan-PL.NOM   PERF applaud-PAST-3PL the   footballer-PL-ACC
     'The fans applauded the footballers.'

(14) *A   szurkoló-k   ki   tapsol-t-ák   a   focistá-k-at*
     the   fan- PL.NOM   out   applaud-PAST-3PL the   footballer-PL-ACC
     az   öltöző-ből   a   pályá-ra.
     the   dressing.room-from   the   pitch-onto
     'The fans applauded the footballers from the dressing room
     to the pitch.'

It is obvious that *tapsol* 'applaud' or its perfect counterpart in combination with the perfectivizing particle *meg* is not a motion verb, see (13). However, when this verb is combined with *ki* 'out', the resulting PVC will receive a source-goal semantic dimension, which can only be the contribution of the particle.[3]

(B) In certain elliptical-looking imperative contexts, a directional particle is *the* predicate with an optional subject, with an obligatory oblique argument and it has a source-path-goal semantic geometry. Consider the examples in (14) and (15).

(14) *(Mindenki)   Ki   az   öltöző-ből   (a   pályá-ra)!*
     everybody.NOM   out   the   dressing.room-from   the   pitch-onto
     '(Everybody) Out of the dressing room (to the pitch)!'

(15) a. *Le   a   sapká-t!*
        down   the   cap-ACC
        'Down with the cap!'
     b. *Le   a   sapká-val!*
        down   the   cap-WITH
        'Down with the cap!'

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[3] The analysis of such constructions is a complex issue, which we leave for future research. Our main point here is that, whatever the details of a feasible account are, the semantic contribution of the particle along the source-goal line is unquestionable.

The reason why we assume that examples like (14) are only elliptical-looking is that if one thinks about the meaning of such an imperative sentence their conclusion can naturally be that the sentence is not terribly elliptical. Its main message is that the speaker demands that *x* should undergo a change of location such that *x* should get from *y* to *z*, and the actual mode (manner of motion) of this change of location is unimportant (it can be walking, running, crawling, etc.). (15a) contains a similar example. Both (14) and (15a) are constructions in which a suitable verb can be inserted (from a range of verbs of motion) and the result will be a complete PVC with approapriate argument structural and syntactic properties, including the number, types and forms of arguments. Of course, this fact supports the potentially elliptical nature of these constructions. However, even in this light, we have every reason to assume that in (14) and (15a) the main predicate of the construction, namely the particle, *is* present, and what has been ellipted is one of its arguments, namely the verb.[4] Moreover, in this domain, there are constructions with particles and without verbs in which no verb can be felicitously inserted, because there is no PVC that would require or allow the actual form of the oblique argument. In this respect, compare (15a) and (15b). In the former we can insert several verbs and the result will be a well-formed PVC, as shown in (16a). By contrast, (15b) rejects any completion along these lines, see (16b). Thus, the only logical conclusion is that *le* 'down' in this use is the main predicate without any verbal argument, and the oblique argument in instrumental case is solely its own argument.

(16) a. *Ve-dd* / *Te-dd* *le* *a* *sapká-t!*
    take-IMPER.2SG / put-IMPER.2SG down the cap-ACC
    'Take off the cap! / Put down the cap!'
  b. **Ve-dd* / **Te-dd* *le* *a* *sapká-val!*
    take-IMPER.2SG / put-IMPER.2SG down the cap-INSTR
    'Take off the cap! / Put down the cap!'

Once we have established the main-predicate—argument relationship between the particle and the verb in the productive use of the PVC,[5] the

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[4] We would like to make two remarks here. (A) Our analysis of this particle type as the main predicate is, in a significant sense, the mirror image of É. Kiss's (2006) approach, in which *all* Hungarian particles (including this type) in *all* their uses are secondary (resultative) predicates. (B) In this paper, we do not explore the possibility of including a subject in the argument structure of the particle and its consequences.

[5] Forst-King-Laczkó (2010) simply assume this semantic pattern without any justification, and they refer the reader to Stiebels (1996). They only give the following German example.

(i) *Lauf* *dem* *Glück* *nicht* *länger* *hinterher!*
    run.IMP.2SG the.DAT happiness not longer after
    'Don't run after happiness any longer!'

following two questions arise. (A) What LFG/XLE device/operation should we use to formally capture this relationship? (B) In which component of our grammar should we apply this device/operation?

As regards question (A), given that the verb is taken to be an argument, one classical LFG solution to explore would be to assume that the verb heads an (XCOMP) propositional argument. However, on closer inspection it soon turns out that the (XCOMP) funtional control device as we know it cannot be employed here. The reason for this is twofold. On the one hand, it stands to reason that the verb brings along its core (subject and object) arguments into the PVC overtly, and, thus, it cannot qualify as the head of an (XCOMP), which, by definition, has to be an open propositional function with a covert (and functionally controlled) subject. On the other hand, our current view of the semantics of the particle is that it contributes the source-goal dimension and it takes the verb as one of its arguments, but it has no core argument.[6] On the basis of these considerations, we subscribe to Forst-King-Laczkó's (2010) approach, which assumes that predicate composition takes places in such a way that the verb, with its argument structure, becomes a semantic argument of the particle without bearing any grammatical function assigned by the particle. The device used for this purpose is XLE's restriction operator, which, in our analysis of the phenomena at hand, deranks the verb (makes it an argument of the particle) and restricts out its oblique argument. The first procedure is necessary in order to prevent the verb from functioning as the co-head of the PVC, because this would violate the principle that requires

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It is interesting to note that the direct Hungarian counterpart of the German PVC would simply be the verb *fut* 'run' taking an oblique argument expressed by a PP headed by *után* 'after'. In addition, *után* 'after' is an inflecting postposition that, under certain circumstances, can be used as a particle. We call the relevant construction type *inflecting, possessive postpositional PVC*, see (1D), and we analyze it in Rákosi-Laczkó (this volume).

[6] See our remark (B) in Footnote 4. In addition, even if we assumed that the particle also had a subject argument (denoting the entity undergoing the change of location expressed by the particle), an (XCOMP) analysis would only be available in cases in which the PVC contains an intransitive verb. Compare the following examples.

(i) *Ki   gurul-t   a   labda   a   szobá-ból.*
    out   roll_INTR-PAST.3SG the   ball.NOM the   room-FROM
    'The ball rolled out of the room.'

(ii) *János   ki   gurít-ott-a   a   labdá-t   a   szobá-ból.*
     John.NOM   out   roll_TR-PAST-3SG.DEF the   ball-ACC the   room-FROM
     'John rolled the ball out of the room.'

It is only in the case of (i) that we could postulate that the ball is the overt subject of the particle, which functionally controls the covert subject of the (XCOMP) headed by the verb. Obviously, no similar (acceptable) (XCOMP) analysis would be available in the case of (ii).

that if there is more than one funcional head, only one of them can have a PRED feature. The second procedure is necessary for XLE-internal reasons: as we pointed out at the beginning of this section, the architecture of XLE only admits one oblique argument per (complex) predicate, and we need this single oblique argument status for the oblique introduced by the particle.

As far as question (B) is concerned, again, we follow Forst-King-Laczkó (2010) in assuming that this special predicate composition via restriction takes place in the syntactic component of the grammar. Their main motivations for this choice are as follows. (A) The particle and the verb are fully independent syntactic elements. (B) In the productive case, the composition of the PVC is highly regular and predictable. (C) It is a very important advantage from a theoretical, and (especially) from an implementational, perspective that complex predicates can be created, and they can also be analyzed as created, on the fly; that is, new combinations can be readily and straightforwardly parsed. (D) It is a further advantage that the lexical component is not at all burdened with all the necessary lexical forms for these absolutely productive PVCs, which would be inevitable if this restriction operation was assumed to take place in the lexicon. (E) Finally, at the end of this section it will turn out to be an additional favourable aspect of this approach that in this way we can neatly compartmentalize the treatment of our PVCs: productive cases are handled in the syntax, while the crucial aspects of non-productive cases are handled in the lexicon.

Given the strongly lexicalist architecture of LFG, predicate composition in the syntax considerably deviates from the classical view according to which any process affecting argument structure has to be lexical in nature. There are, however, LFG practitioners who propose that under clearly definable circumstances such a deviation is justified and the necessary technical apparatus can be developed in a principled manner (see restriction, for instance). From the foregoing discussion it should be obvious that we also adopt this view. For an interesting and edifying debate bearing on the locus of the treatment of complex predicates based on several independent phenomena from various languages, see Ackerman-LeSourd (1997), Alsina (1997) and Butt (1997), all three in Alsina et al. (1997).

Let us now present the details of our analysis of the productive use of non-inflecting adverbial PVCs. Consider the following example.

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

In this use, the particle and the verb have the following XLE-style lexical representations.

(18) *ki*　　　 PRT XLE　　 ($\uparrow$PRED) = 'out < %ARG1 ($\uparrow$OBL) >'.

(19) *mászik*　 V XLE　　　 ($\uparrow$PRED) = 'crawl < ($\uparrow$SUBJ) ($\uparrow$OBL) >'.

The particle has a special syntactic status: adopting Toivonen's (2001, 2002) proposal for Swedish, we assume that it is a non-projecting word, and its category is PRT; also see a similar XLE treatment of German, English and Hungarian particles in Forst-King-Laczkó (2010). In this paper, we do not have space to argue extensively for non-projecting categories, so we confine ourselves to presenting the following brief considerations.

(A) Particles having the PRT category cannot have phrasal projections to begin with.

(B) In our analysis they are the main (functional) heads but they are clearly not verbal categorially.

(C) It seems that there is an independent need in Hungarian, too, for a non-projecting category to be associated with a verbal element. The clearest case, we believe, is manifested by the conditional particle *volna*. Consider the following examples.

(20) a. János   megérkez-ett.
          John.NOM   arrive-PAST.3SG
          'John arrived.'
      b. János   megérkez-ett   volna,   ha...
          John.NOM   arrive-PAST.3SG   COND   if
          'John would have arrived if...'

As (20b) illustrates, the combination of *volna* (COND) with the past tense form of the verb expresses the counter-factual past conditional mood in Hungarian. This element in this use is clearly a non-projecting function word,[7] and it must occur immediately after the verb in the past tense, except that in certain idiolects, at least, *is* 'too' can intervene between the verb and *volna*. We claim that *volna* is another candidate for the PRT status.[8]
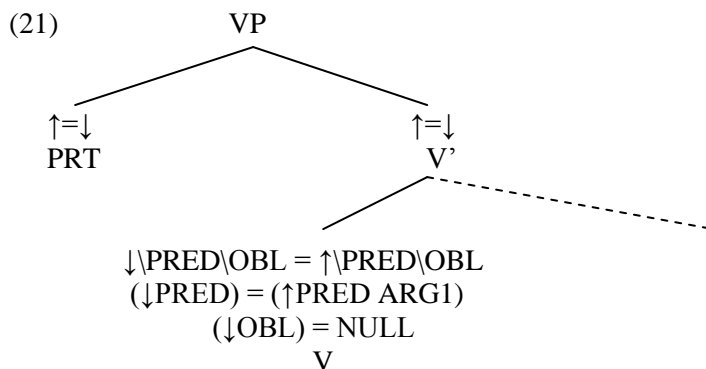
In the argument structure of *ki* 'out' in (18), %ARG1 is a special notation. Practically speaking, it prepares this predicate for the "incorporation" of the verb with its own argument structure as its first argument. In (19) the verb has an ordinary lexical form.[9] As has been pointed out above, in our analysis this special predicate composition takes place in the syntax. Consider (21). This is the crucial part of the structure of the VP when the (non-projecting) PRT occupies its specifier position. PRT and V' are functional co-heads. The

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[7] This element can also be used as the (irrealis) conditional form of the copula *van* 'be'.

[8] We also think that the Hungarian yes-no question morpheme *-é* can most appropriately be analyzed along the same non-projecting PRT lines. We leave this to future research.

[9] In a fully developed treatment, it also has to be encoded in the lexical form of a predicate like *mászik* 'crawl' that it is a motion verb. Furthermore, it has to be constrained in the lexical form of a particle like *ki* 'out' that its first argument has to be a motion verb. We have not implemented this aspect of the analysis in our Hungarian XLE grammar yet.

functional annotations associated with V encode the essential aspects of syntactic predicate composition via restriction. The \ symbol is the restriction operator itself. In the first equation it restricts out the (OBL) argument of the verb and licenses the (OBL) argument of the particle. The second equation turns the verb into the first argument of PRT. The third equation "nullifies" the (OBL) function of the verb's second argument.

(21)
```
                        VP
             _____
            |                        |
          ↑=↓                       ↑=↓
          PRT                       V'
                             _____ - - - - - - -
                            |
              ↓\PRED\OBL = ↑\PRED\OBL
                 (↓PRED) = (↑PRED ARG1)
                     (↓OBL) = NULL
                           V
```

The c-structure and f-structure representations provided by our HunGram XLE analysis of (17) are given in Figure 1.
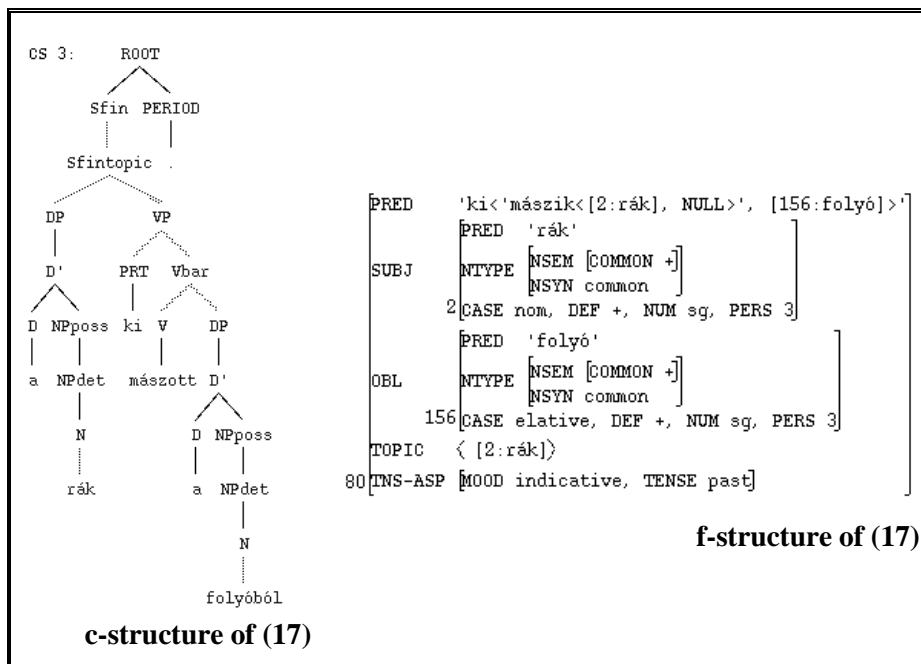

c-structure of (17)

f-structure of (17)

Figure 1

The relevant parts of the c-structure are straightforward.[10] As regards the f-structure, the crucial part is the representation of the PRED attribute. As a result of the restriction operation, a composite argument structure is created: the particle is the main PRED with two arguments. Its first argument is the verb with its own argument structure, and its second argument is a (source) oblique. The subject argument of the verb is, at the same time, the subject of the composite predicate, the particle's oblique is the composite predicate's oblique argument, and the verb's second argument receives the zero grammatical function, as it has been restricted out. The subject also has the topic discourse function.

Let us now turn to non-compositional PVCs containing *ki* 'out'. Consider the following example.

(22) *Az*   *elnök*   *ki*   *mász-ott*
     the   president.NOM   out   crawl-PAST.3SG
     a   *kellemetlen*   *helyzet-ből.*
     the   unpleasant   situation-from
     'The president got himself out of the unpleasant situation.'

At first sight, it seems that this sentence can be straightforwardly analyzed in the same way as (17), because it contains exactly the same PVC and the same number and types of constituents. However, as the translation in (22) shows, here the meaning, although quite transparent metaphorically, is not fully compositional, and thus, this PVC does not conform to the productive pattern.[11] Therefore, the syntactic predicate composition via restriction analysis cannot be applied to it, and we have to have recourse to a different approach: concatenation.

The essence of our analysis, in the spirit of Forst-King-Laczkó (2010), is as follows. We use two distinct lexical forms for the particle and the verb just like in the case of the the compositional PVC. Consider (23) and (24).

(23) *ki*   PRT XLE   ($\uparrow$PRT-FORM) =c ki
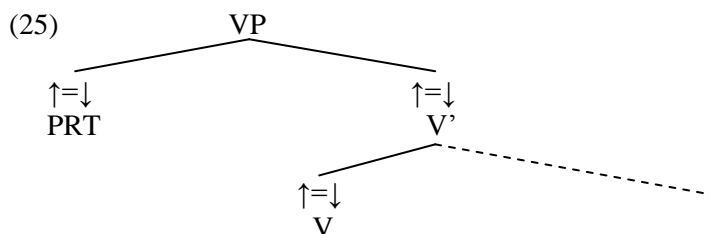   ($\uparrow$CHECK _PRT-VERB) =c +.

---

(24) *mászik*   V XLE   (↑PRED) = '%FN < (↑SUBJ) (↑OBJ) >'
                            (↑CHECK _PRT-VERB) = +
                            (↑PRT-FORM) =c ki
                            @(CONCAT (↑PRT-FORM) # mászik %FN).

Given that this particle plus verb combination in this use is not compositional, we assume that the PRT has no PRED attribute: it only has a FORM feature. Furthermore, it has to be constrained that the PRT occurs in a PVC configuration. In the XLE system this is achieved by a CHECK feature. In the lexical entry of the simplex verb, we encode the meaning and argument structure of the particle plus verb combination. We also have to ensure that the given simplex verb obligatorily occurs in the syntax in a PVC configuration: this is the other side of the CHECK_PRT-VERB feature coin. Moreover, the simplex verb requires a designated PRT form, which also has to be encoded in its lexical entry. The last line in (24) invokes a hard-wired template in XLE. This template concatenates the particle form it finds in the syntax with the simplex verb form in the PRED attribute in f-structure. The (joint) argument structure comes from the lexical entry of the simplex verb. In the template, PRT-FORM stands for the particle, # is the symbol connecting the two concatenated elements, %stem represents the simplex verb form and %FN encodes the value of the PRED (without its argument structure) indicated in the lexical entry of the simplex verb form. In the case of this concatenation analysis the following functional annotational pattern is necessary in c-structure. This representation, just like (21), puts the PRT in [Spec,VP], but the PRT can also occur in several different syntactic positions (with the same functional annotation).

(25)   VP
          ┌───────────────┴───────────────┐
       ↑=↓   ↑=↓
       PRT   V'
                                  ┌─────┴ - - - - - - - - - - -
                               ↑=↓
                                V

The most important point here is that the PRT and the V are functional co-heads, and they are concatenated by the template. The single PRED principle is respected here, too, because the PRT only carries a FORM feature and the PRED feature (for the PRT plus V combination) is contributed by the V.

The c-structure and f-structure representations provided by our HunGram XLE analysis of (22) are given in Figure 2.
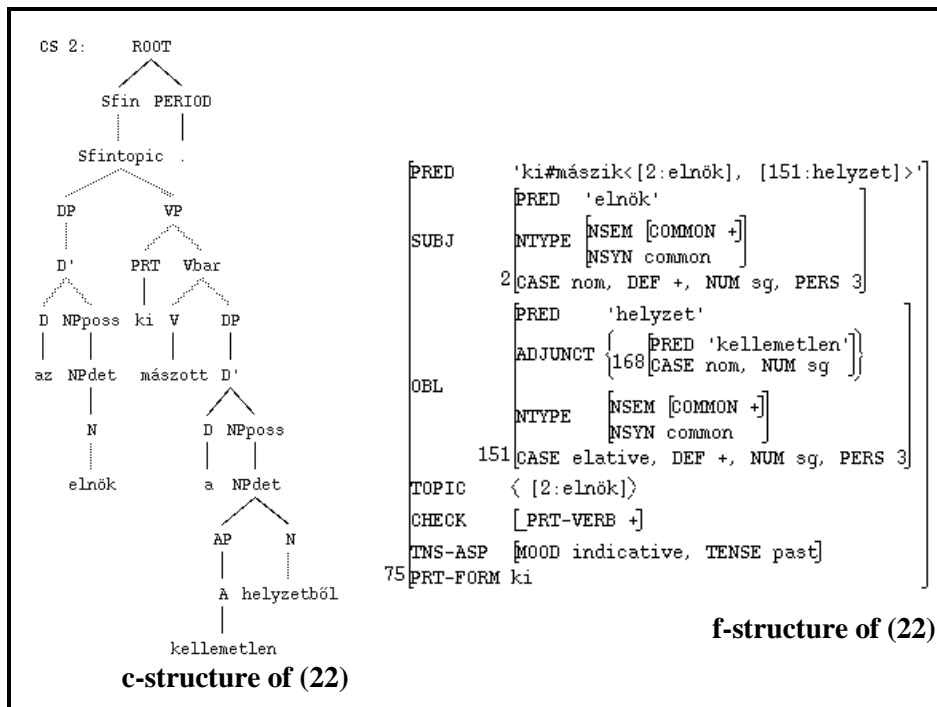
```
CS 2:    ROOT
          ╱╲
        Sfin PERIOD
         │     │
      Sfintopic  .
        ╱  ╲
      DP    VP
       │    ╱╲
       D'  PRT Vbar
      ╱╲   │   ╱╲
     D NPposs ki V  DP
     │  │     │ │   │
     az NPdet mászott D'
         │           ╱╲
         N         D NPposs
         │         │   │
       elnök       a  NPdet
                       ╱╲
                      AP  N
                      │   │
                      A helyzetböl
                      │
                   kellemetlen
```

```
PRED      'ki#mászik<[2:elnök], [151:helyzet]>'
          ┌PRED  'elnök'                          ┐
SUBJ      │NTYPE ┌NSEM [COMMON +]┐                 │
          │      └NSYN common    ┘                 │
        2 │CASE nom, DEF +, NUM sg, PERS 3         │
          ┌PRED      'helyzet'                       ┐
          │ADJUNCT {168┌PRED 'kellemetlen'┐}         │
OBL       │            └CASE nom, NUM sg  ┘          │
          │NTYPE ┌NSEM [COMMON +]┐                    │
          │      └NSYN common    ┘                    │
      151 │CASE elative, DEF +, NUM sg, PERS 3       │
TOPIC     < [2:elnök]>
CHECK     [PRT-VERB +]
TNS-ASP   [MOOD indicative, TENSE past]
   75 PRT-FORM ki
```

c-structure of (22)

f-structure of (22)

Figure 2

As regards the c-structure, the only point to be emphasized (because functional annotations are not indicated in the XLE display) is that there is an important functional annotational difference between the restriction and the concatenation analyses. Here the verb is a functional co-head, while in the restriction treatment the verb is annotated with a battery of functional equations containing the restriction operator itself. As for the f-structure representation, the crucial part is again in the PRED attribute. The PRT form and the verb are concatenated, which is indicated by the hash mark. Note, however, that this concatenation template is just a formal device necessitated by the current representational convention in XLE: the meaning of a word is simply given by repeating the actual form of the word in inverted commas. Naturally, in this construction type, this "meaning indication" has to contain (the combination of) both elements, hence the concatenation device. If the meaning of a predicate was given in a more "sophisticated" (or realistic) manner, then there would be no need for this purely formal device, because, for instance, in the example at hand in the c-structure we would have the actual forms *ki* and *mászott*, and in the PRED attribute in the f-structure the meaning specification would take a different form. On such a scenario, the lexical entry would be as is shown in (26), as opposed to (24).

(26) *mászik*   V XLE   (↑PRED) = 'get out of < (↑SUBJ) (↑OBL) >'
                            (↑CHECK _PRT-VERB) = +
                            (↑PRT-FORM) =c ki.

There is no concatenation template and the value of the PRED (without the argument structure) is given by an entirely different form, for simplicity's sake here we use an English word. From all this it follows that although we refer to this treatment of non-compositional PVCs as the concatenation approach, the really essential parts of the analysis are all the other aspects: two distinct lexical entries and the successful cross-referencing by the help of appropriate constraining equations and check-features. The design of XLE makes this alternative account available, but the current general practice (including ours) is along the concatenation template lines.

It is important to note that this PVC constrains the case form of it oblique argument: it has to be elative, which must be encoded in the lexical form of the verb. This constraint can be naturally associated with the PRT. Recall that in its compositional use, this PRT does not impose a similar formal constraint on its (own) oblique argument. This additional contrast lends further independent support to treating the compositional and non-compositional uses of *ki* 'out' differently.

4.3. The non-inflecting, case-assigning postpositional PVC

As regards the analysis of this PVC type, we are in a favourable position. From the perspective of this paper, the sole significant difference between this type and the non-inflecting adverbial type discussed in the previous section, or, more precisely, the only property this type has and the other lacks, is that in this type the PRT, even in its compositional use, strictly constrains the form of its oblique argument. Consider the following example.

(27) *János   át   lép-ett   a   kerítés-en.*
      John.NOM   across   step-PAST.3SG   the   fence-on
      'John stepped over the fence.'

The relevant lexical forms are as follows.

(28) *át*   PRT XLE   (↑PRED) = 'across < %ARG1 (↑OBL) >'
                        (↑OBL CASE) =c superessive.

(29) *lép*   V XLE   (↑PRED) = 'step < (↑SUBJ) (↑OBL) >'.

The example in (27) is directly comparable to that in (17). The two lexical entries in (28) and (29), again, are directly comparable to (18) and (19), respectively. The difference between the two PVC types is captured by the constraining equation in (28).

It is also noteworthy that in this PVC type, too, we find the same kinds of non-compositionality as in the former PVC type. Without any further

elaboration, we invite the reader to verify that (30) is straightforwardly comparable to (22). Consequently, (30) allows and requires the same sort of analysis.

(30) *János   át   lép-ett   a   problémá-n.*
      John.NOM   across   step-PAST.3SG   the   problem-on
      'John got over the problem.'

5.   Conclusion

In this paper, motivated by Forst-King-Laczkó (2010), we have proposed an LFG-XLE analysis of two types of non-inflecting spatial PVCs in Hungarian: the adverbial type and the postpositional case-assigning type. We covered both compositional and non-compositional uses. We proposed that, in the productive cases, syntactic predicate composition takes place via XLE's restriction operator. We treated the non-productive cases by employing appropriate specifications in the (distinct) lexical entries of verbs and particles in combination with XLE's concatenation template. We demonstrated that the case-assigning postpositional type has the sole additional property, as compared to the adverbial type, that in the compositional use the PRT also imposes a case constraint on the expression of its oblique argument.

We believe that it is one of the merits of this approach[12] that it covers both compositional and non-compositional cases in a principled manner, and it does so by compartmentalizing their treatment in a justifiable way. It is a further advantage that it employs an LFG-XLE apparatus which can handle the syntactic separability property of PVCs in a theoretically plausible fashion. The attested implementability of the account provides further support for its feasibility. It is to be noted, though, that in this paper, due to space limitations, we could not discuss derivational issues: as is well-known, particle plus verb combinations readily and productively serve as input to (lexical) derivational processes. We leave addressing such issues in the context of our analysis to another forum.

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[12] Naturally, these general advantageous properties have been "inherited" from Forst-King-Laczkó (2010).

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