

# ARGUMENT INHERITANCE AND LEFT PERIPHERY IN HUNGARIAN INFINITIVAL CONSTRUCTIONS

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## *1 Hungarian simple sentences and infinitival constructions: the data*

Hungarian is not a structure configurational language. In simple sentences almost any permutation of the major constituents is grammatical. The position of the arguments does not depend on their syntactic function, but the permutation of a verb and its arguments can have different interpretations. These different interpretations are explained by the different communicative roles of the preverbal positions. In Hungarian the first constituents of the sentence are topics, which are followed by different types of quantificational expressions ordered by their scope, and the last position in the preverbal field is the focus position. These preverbal positions are optional. The order of the positions correspond the RefP, DistP and FP positions proposed by Szabolcsi (1997). For example in sentence (1) the object of the verb *call* is in the topic position, the subject and the adverbial phrase are quantificational, so they follow the topic, and the third argument of the verb is in focus position. The verb is followed by those constituents that do not have a special role. The order of the postverbal elements is free; their permutation does not give different interpretations. In the preverbal field the order of quantificational expressions is the same as their scope order: everybody > several times.

- 1) Pétert mindenki többször is a mobilján hívta a múlt éjjel.  
Peter.ACC everybody.NOM several.times the his.mobile.SUP call.PAST the last night  
'As for Peter, it was his mobile that everybody called him on it several time last night.'

Since (É. Kiss 1989) it is well known that the structure of the Hungarian infinitival constructions is problematic: the arguments of the infinitival verb can appear everywhere in the sentence, they can be topicalized, focused or in any position in the preverbal field of the finite verb as well, as they can be scrambled with the finite verb's postverbal arguments:

- 2) a. Péterrel holnap szeretne Mari találkozni.  
Peter.with tomorrow would.like Mary.NOM meet.INF  
'As for Peter, Mary would like to meet him tomorrow.'
- b. Holnap mindenkivel szeretne Mari találkozni.  
tomorrow everybody.with would.like Mary.NOM meet.INF  
'Mary would like to meet everybody tomorrow.'
- c. Holnap Péterrel szeretne Mari találkozni.  
'It is Peter, whom Mary would like to meet tomorrow.'
- d. Holnap szeretne Péterrel Mari találkozni.  
'Mary would like to meet Peter tomorrow.'

In (2a) the non-subject argument (*Péterrel* 'with Peter') of the infinitive *találkozni* 'meet' is in the topic position of the sentence, in (2b) the quantificational *mindenkivel* 'with everybody' is in quantificational position, in (2c) *Péterrel* is in focus position, and in (2d) it is after the finite verb, but the subject of the sentence (*Mary*) appears between *Péterrel* and the infinitival verb. In these sentences the infinitive and its arguments are not in a single constituent, so the sentences in example (2) must be analyzed as simple sentences.

On the other hand, É. Kiss (1989) pointed out, that sentences containing an infinitive have properties indicating a biclausal structure as well. In her analysis, preverbal positions are sentential positions, and since nonfinite verbs also have a left periphery, as shown in example (3), the infinitive has his own subordinate sentence.

- 3) Mindenki szeretne csak Péterrel találkozni.  
 everybody.NOM would.like only Peter meet.INF  
 ‘Everybody would like to meet with Peter only.’

In a simple sentence *csak Péter* (‘only Peter’), like every *only*-phrase, must be in focus position. However in sentence (3) it is directly before the nonfinite verb, so this verb has its own focus position, therefore it must be in an independent subordinate clause.

É. Kiss (1989) suggests that these types of sentence have two parallel structures at the same time: a simple sentence structure and a compound one. However, this proposal does not explain all of the phenomena seen above.

In my paper I propose a new analysis to this phenomenon. First I show how Hungarian simple sentences can be described in HPSG, and afterwards I suggest a solution for infinitival constructions, which explains the ambiguous behavior of these sentences.

## 2 The structure of Hungarian simple sentences in HPSG

Hungarian is described with flat postverbal and hierarchical preverbal sentence structure since (É. Kiss 1987). In her transformational analysis the finite verb and all of its extensions (arguments and non-obligatory complements) are originally located under V-bar, and they can be moved to their preverbal positions: these movements are called “topicalization” “quantifier-raising” and “focusing”. Different kinds of movements have different landing sites, so the order of the moved constituents is fixed. In my proposal sentence structure is similar to this, but without transformations.

The flat postverbal part of the sentence consists of the finite verb and its complements. Since in Hungarian there is no difference between subject and object positions, there is no need to mark subjects in a different complement position. The matching ID schema is the following:

- 4) Head-Complement Schema
- $$\left[ \begin{array}{l} \text{SYNSEM|LOCAL|CATEGORY} \\ \text{DTRS } \textit{head-comp-struct} \end{array} \left[ \begin{array}{l} \text{HEAD } \textit{verb} \\ \text{COMPS } \langle \ \ \rangle \end{array} \right] \right]$$

Elements of the preverbal field are not in complement positions, but in filler positions. Topichood and focushood are not the property of the constituents that appear in topic and focus positions, but sentential properties: it is sentences can have topics or foci. In my reading this means that the head of the sentence, namely the verb itself, is marked to give focus interpretation to one of its complements. This focus marking is carried out by lexical rule (5) applied to verbs:

5) Focus Selector Lexical Rule

$$\begin{array}{c}
 \left[ \begin{array}{l}
 \text{LOC} \left[ \begin{array}{l}
 \text{CAT} \left[ \begin{array}{l}
 \text{DEPS} \langle \dots, \boxed{3}, \dots \rangle \\
 \text{COMPS} \langle \dots, \boxed{3}\text{LOC}\boxed{1}, \dots \rangle
 \end{array} \right] \\
 \text{CONTENT } \alpha \\
 \text{NONLOC|INHER} \left[ \begin{array}{l}
 \text{SLASH } \boxed{2} \\
 \text{FOCUS } \{ \}
 \end{array} \right]
 \end{array} \right] \\
 \downarrow \\
 \left[ \begin{array}{l}
 \text{LOC} \left[ \begin{array}{l}
 \text{CAT} \left[ \begin{array}{l}
 \text{DEPS} \langle \dots, \boxed{4} \left[ \begin{array}{l}
 \text{LOC } \boxed{1}, \\
 \text{NONLOC|INHER|SLASH } \{ \boxed{1} \}
 \end{array} \right], \dots \rangle \\
 \text{COMPS} \langle \dots, \dots \rangle
 \end{array} \right] \\
 \text{CONTENT } \beta \\
 \text{NONLOC|INHER} \left[ \begin{array}{l}
 \text{SLASH } \{ \boxed{1} \} \cup \boxed{2} \\
 \text{FOCUS } \{ \boxed{1} \}
 \end{array} \right]
 \end{array} \right]
 \end{array}
 \end{array}$$

This rule accesses the argument-structure of the verb, selects an element from the argument-list, and modifies the semantic interpretation of the selected argument on the semantic description of the verb. Since the focused constituent appears on the left side of the verb, i.e. in filler position, this rule ensures that the focused complement gets there: the focused element moves from the COMPS list to SLASH, as can be seen in (Pollard, Carl; Sag 1994:387) and (Sag 2005). Furthermore, I introduce a new nonlocal feature, the FOCUS feature, which identifies the focused constituent. Since the interpretation of the focus is not interesting from the point of view of this presentation, the difference between  $\alpha$  and  $\beta$  is not detailed here.

Selecting topic constituents happens in a similar way: a lexical rule selects an element from the verb's DEPS list, moves it from the COMPS list to the verb's SLASH set and TOPIC set, while the verb's interpretation becomes  $\alpha$  to  $\beta$ . The Topic Selector Lexical Rule differs from the previously discussed one in their ability of recursion: The Focus Selector Rule can be applied only once (since the input verb's FOCUS feature must be empty), the Topic Selector Rule may be applied repeatedly.

The third kind of constituent appearing in the preverbal position is the quantified constituent. Since any of the constituents interpreted with wide scope can be (but need not be) targeted by quantifier raising, they get into the verb's SLASH set by the simple Complement Extraction Lexical Rule proposed by Pollard and Sag (1994:387):

6) Complement Extraction Lexical Rule

$$\left[ \begin{array}{l}
 \text{DEPS} \langle \dots, \boxed{3}, \dots \rangle \\
 \text{COMPS} \langle \dots, \boxed{3}\text{LOC}\boxed{1}, \dots \rangle \\
 \text{INHER|SLASH } \boxed{2}
 \end{array} \right] \Rightarrow \left[ \begin{array}{l}
 \text{DEPS} \langle \dots, \boxed{4} \left[ \begin{array}{l}
 \text{LOC } \boxed{1}, \\
 \text{INHER|SLASH } \{ \boxed{1} \}
 \end{array} \right], \dots \rangle \\
 \text{COMPS} \langle \dots, \dots \rangle \\
 \text{INHER|SLASH } \{ \boxed{1} \} \cup \boxed{2}
 \end{array} \right]$$

The structure of simple sentences can be handled easily by the verb constructed the following way: the verb constitutes a *head-comp-structure* with all of its complements (using the Head-Complement Schema presented in (4)), and the preverbal constituents are attached to this phrase one by one constructing a *filler-head-structure*. The order of the filler-daughters can be defined with the help of the nonlocal FOCUS and TOPIC features.

3 Argument inheritance in Hungarian non-finite sentences

It is easy to describe the phenomenon exemplified in (3) with the rules given in the previous section. Since non-finite verbs are also verbs, lexical rules can be applied to them for the selection of their topic(s), focus and quantifier complements. A subordinated non-finite clause can be built up the same way as a simple sentence, so such a clause with an empty COMPS feature can be a complement of the finite verb.

7) Verb with complete infinitival clause as complement

$$\left[ \begin{array}{l} \text{HEAD } \textit{verb}[\text{VFORM } \textit{fin}] \\ \text{DEPS } \langle \text{NP}[\textit{nom}], \text{VP} \left[ \begin{array}{l} \text{VFORM } \textit{inf} \\ \text{COMPS } \langle \quad \rangle \end{array} \right] \rangle \end{array} \right]$$

On the other hand, the scrambling of the finite verb's and non-finite verb's arguments can be explained easily by referring to the usual way of argument inheritance. Complete argument inheritance was proposed by Hinrichs and Nakazawa (1990) for German modal auxiliaries, Kathol (1994) for German passive constructions, and Bouma (2003) for Dutch adjunct scrambling. In these analyses certain finite verbs have got an element in their DEPS list with an unsaturated COMPS feature  $\square$  concatenated directly after its own DEPS list (the names of the lists of arguments and the way of concatenation may be different):

8) Complete argument inheritance

$$\left[ \begin{array}{l} \text{HEAD } \textit{verb}[\text{VFORM } \textit{fin}] \\ \text{DEPS } \langle \text{NP}[\textit{nom}], \text{VP} \left[ \begin{array}{l} \text{VFORM } \textit{inf} \\ \text{COMPS } \square \end{array} \right] \rangle \oplus \square \end{array} \right]$$

Elements inherited to the DEPS list of the finite verb from its non-finite complement can become topic or focus of the whole sentence using the lexical rules in (4)-(6).

Considering these possible solutions of non-finite constructions it may seem that they exclude each other: a finite verb can either take the whole complement structure of its infinitival complement or it can allow it to build its own clause structure with a flat postverbal part and hierarchical preverbal positions. But if one examines these two solutions, namely letting left periphery to be built and then stealing the complements of the verb, it is noticeable that they are independent. Building a left periphery is based on lexical rules, which move elements from the COMPS list of the (infinitival) verb to the SLASH list, but there is no reference to this COMPS list during the construction of phrase structure. On the other hand, the complete argument inheritance schema (seen above) doesn't refer to the nonlocal features of the verb.

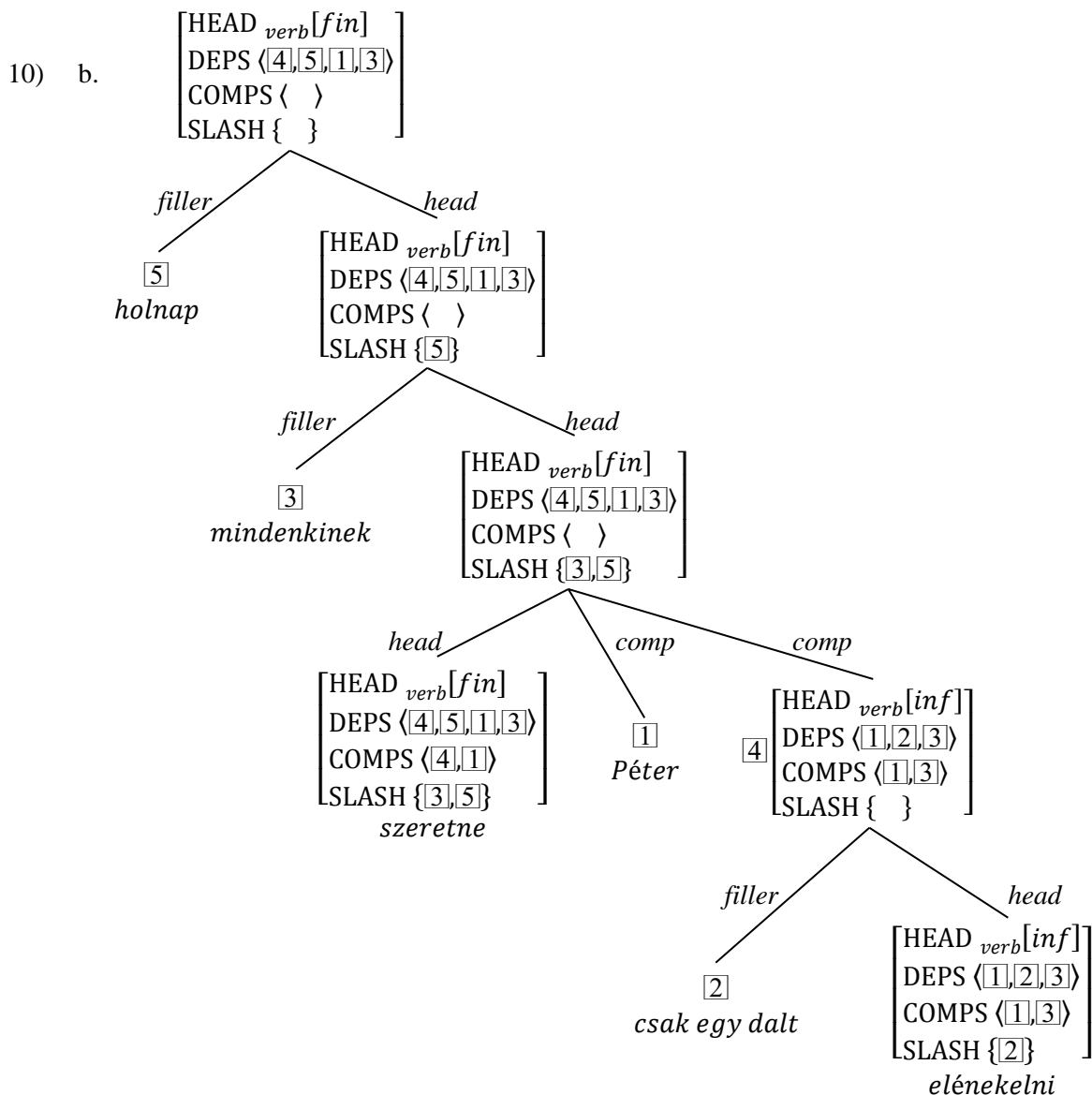
According to my proposal the double nature of non-finite constructions can be explained by allowing the lexical rules in (4)-(6) to be applied to lexical infinitival verbs, letting them build a left periphery, but prohibiting them from constituting a *head-complement-structure* with their own complements. Arguments not appearing in the preverbal positions of the non-finite verb remain on the COMPS list of the infinitival verb, hence the finite verb is able to inherit the complete COMPS list. The only modification that must be performed to the rules mentioned earlier is the prohibition on constructing a *head-complement-structure* for non-finite verbs:

9) Head-Complement Schema for finite sentences (modification of (4))

$$\left[ \begin{array}{l} \text{SYNSEM|LOCAL|CATEGORY} \left[ \begin{array}{l} \text{HEAD } \textit{verb}[\text{VFORM } \textit{fin}] \\ \text{COMPS } \langle \quad \rangle \end{array} \right] \\ \text{DTRS } \textit{head-comp-struct} \end{array} \right]$$

Finally I would like to show the result, the constituent structure of a sentence that contains an embedded infinitival clause with its own left periphery.

- 10) a. Holnap mindenkinek szeretne Péter csak egy dalt énekelni.  
 tomorrow everybody.DAT would.like Peter only one son.ACC sing.INF  
 'Peter would like to sing only one song everybody.'



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