An Analysis of Hungarian -*Ú* Adjectives:
The Case of Another Morphologically Bound Predicate
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1. Introduction

In this paper I will outline a new account of Hungarian adjectival phrases exemplified in (1).

(1)   a hosszú haj-ú lány
        the long hair-Ú girl
        the long-haired girl

These APs headed by adjectives derived from nouns by means of the *-(j)ú-(j)ű* suffix have two very special characteristics.
        A) An *Ú* adjective cannot by itself serve as an attributive modifier of a noun head. Compare (1) with (2) and (3).

(2)   a haj-ú lány
        the hair-Ú girl
        the haired girl

(3)   a fényképezőgép-ű férfi
        the camera-Ú man
        the camerad man

Typically, its modifier is an AP; therefore, we are led to the conclusion that this AP is used to modify the N stem which has served as input to N A derivation. Consider:

(4)   a feltűnő(-en) hosszúság-ú haj
        the remarkable(-ly) length-Ú hair
        the hair of remarkable length

The important point here is that the *Ú* adjective *hosszúságú* can only take an adjective as its premodifier and it cannot take an adverb derived from this adjective.
        B) The AP preceding the adjectival head is active syntactically. For instance, it can be

embedded in a comparative constituent. Compare the grammatical Hungarian construction in (5) and the ungrammatical English counterparts in (6).

(5)   az Edit-é-nél hossz-abb haj-ú lány
         the Edith-her-than long-er hair-Ú girl
         the girl with longer hair than Ediths

(6)   a. the longer than Ediths haired girl
         b. the haired longer than Ediths girl
         c. the haired girl longer than Ediths
         d. *the girl haired longer than Edith's

The grammatical English *-ed* equivalents of Hungarian *Ú* constructions can be easily analyzed as the results of ordinary lexical processes because the first element is typically an X^0 element and it is not active syntactically. There are two theoretical possibilities of derivation:

(7)   a. [[AN]ed] (compounding and *-ed* suffixation)
         b. [A[Ned]] (*-ed* suffixation and compounding)

On neither account are any generally accepted lexical principles violated, since X^0 elements are involved in these processes.

      The Hungarian phenomena, as we have seen, are much more complex because the first element in the construction is syntactically active and, consequently, on the face of it, a principled lexical account appears to be unavailable. These Hungarian constructions can be regarded as instances of bracketing paradoxes.

      Despite the apparent difficulties, in this paper, I will propose a lexical approach in an LFG-framework. Its essence is as follows. I postulate that the *Ú* adjectival suffix is a predicate which takes the noun stem as one of its arguments and the AP as its XCOMP argument.

      The structure of the paper is as follows. First I will briefly discuss some possible analyses (section 2). Then I will propose my alternative account (section 3). This will be followed by some concluding remarks (section 4).

2. Some possible analyses

On the basis of various (mostly GB) accounts of somewhat similar but unrelated phenomena the following major theoretical possibilities can be considered:
in one of the components of the grammar an [AP N']$_{N'}$ sequence is adjectivized;

an AP is compounded with an A;
the *Ú* suffix is raised at the level of Logical Form in order for it to have scope over the AP N'
    sequence.

      My general remarks about these alternatives are as follows.
The adjectivization of an N' in the lexicon is highly problematic, and it is also extremely marked
    as an instance of a syntactic (post-lexical) derivational process, which would even violate the
    Weak Lexical Integrity Hypothesis.
The postulation of the involvement of an AP in either lexical or syntactic compounding would
    also be a rather exceptional solution.

I consider suffix raising (morphological quantifier raising) at LF (in the spirit of Pesetsky (1985)) a rather marked and problematic pseudo-morphosyntactic solution serving to guarantee the correct interpretation of the constructions under investigation.

Moreover, it seems that none of the above-mentioned accounts could naturally capture the fact that the presence of the (A)P is required for *Ú* to be attachable to the noun stem. This could only take the form of an ad hoc stipulation.

The majority of these (rather marked) possibilities are also unavailable in LFG for theory internal reasons. The one which would be least problematic is the lexical adjectivization of an N' constituent. However, even this would have two extremely marked aspects to it. On the one hand, lexical processes typically involve X^0 elements, although sometimes even linguists using an LFG framework are forced by the complexity of certain data to postulate X' units in the lexicon which undergo derivational processes (e.g., a lexical V' is assumed by Simpson (1991) for Warlpiri and by Ackerman (1987) and Laczkó (1994) for Hungarian). On the other hand, and this is the more serious problem of the two, in the case of the phenomena analyzed by Simpson (1991) Ackerman (1987) and Laczkó (1994) the constituent lexically incorporated in the V' is a (designated) argument of the verbal head while in the case of the *Ú* adjectival constructions under discussion this incorporated element appears to be an adjunct, which renders the *exceptional lexical incorporation into N'* account highly implausible.

On the grounds of these considerations, in the next section I will offer an account which will avoid the problems pointed out above by assuming more unmarked processes and which will provide a principled way of capturing the generalization that the AP preceding the *Ú* adjective is obligatory in the construction.

3. The new account

First, I will outline the new analysis by concentrating on the attributive use of APs headed by *Ú* adjectives (3.1.) as a first approximation, then on the basis of their predicative use I will modify it in an important respect (3.2.). This will be followed by a brief comparison of *Ú* with a synonymous Hungarian suffix: *S* (3.3.).

3.1. *Ú* is a morphologically bound predicate

The fundamental idea is as follows. I assume that *Ú* is not merely a category changing suffix but it is also an argument taking predicate. Consider (1) again. It can be argued that *Ú* is a morphologically bound two-place predicate whose SUBJ argument is realized by the noun stem this suffix is attached to and its second argument which is mapped onto the XCOMP function is expressed by the AP preceding the *Ú* adjective. Consider the lexical form of *Ú* in the spirit of such an analysis in (8).

(8)   -(j)ú/-(j)ű, $[N\_\_]_A$,   '-ED   <SUBJ, XCOMP>'
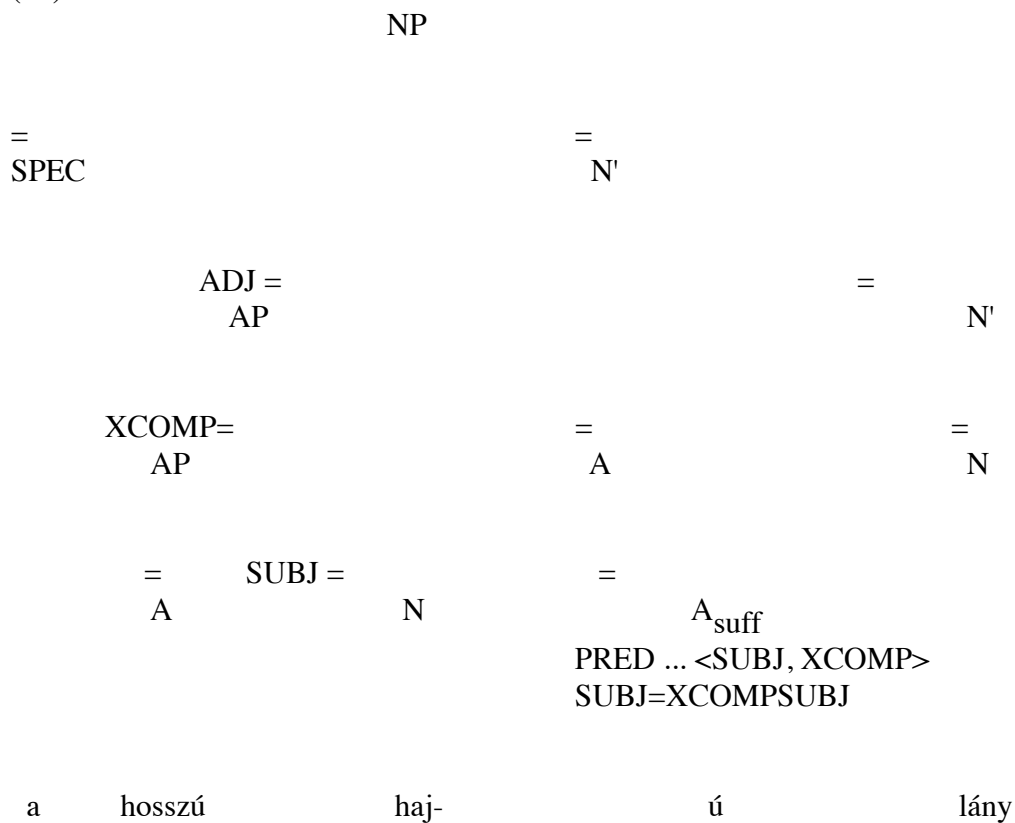   =   SUBJ=

The (sublexical) functional annotations encode the required relationships between the elements of the (new) lexical forms resulting from the attachment of the suffix to noun stems. The *Ú* suffix will be the structural and functional head and the noun stem will realize the SUBJ argument. The lexical form of *hajú* 'haired' for instance, is shown in (9) and the annotated c-structure of (1) is
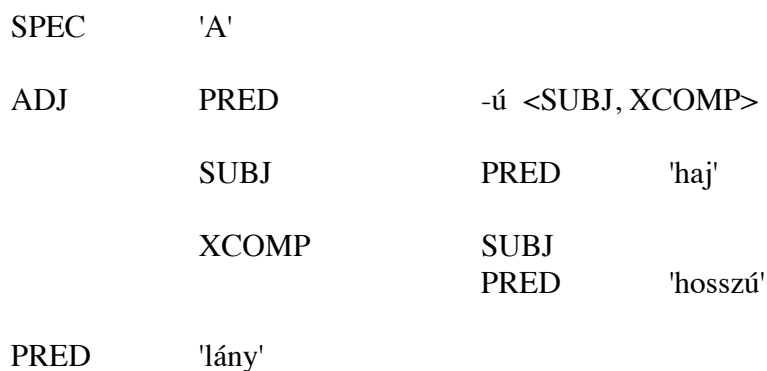
demonstrated in (10).

(9)　　　haj-　　　ú,　A, 'HAIRED <SUBJ, XCOMP>'
　　　SUBJ=　 =

(10)

　　　　　　　　　　　　　　　　　NP

=　　　　　　　　　　　　　　　　　　　　　=
SPEC　　　　　　　　　　　　　　　　　　N'

　　　　　　　ADJ =　　　　　　　　　　　　　　　　　　=
　　　　　　　　AP　　　　　　　　　　　　　　　　　　　　　　N'

　　　　　　XCOMP=　　　　　　　　　　　=　　　　　　　　　　=
　　　　　　　AP　　　　　　　　　　　A　　　　　　　　N

　　　　　=　　　　SUBJ =　　　　　　　　　=
　　　　　A　　　　　　　N　　　　　　　　A$_{\text{suff}}$
　　　　　　　　　　　　　　　　　　　PRED ... <SUBJ, XCOMP>
　　　　　　　　　　　　　　　　　　　SUBJ=XCOMPSUBJ

　　a　　　hosszú　　　　　haj-　　　　　　　　ú　　　　　　　　lány

The (simplified) f-structure derived from (10) is shown in (11).

(11)

　　　　SPEC　　　　　'A'

　　　　ADJ　　　　　PRED　　　　　　　　　-ú <SUBJ, XCOMP>

　　　　　　　　　　　SUBJ　　　　　　PRED　　　　'haj'

　　　　　　　　　　　XCOMP　　　　　SUBJ
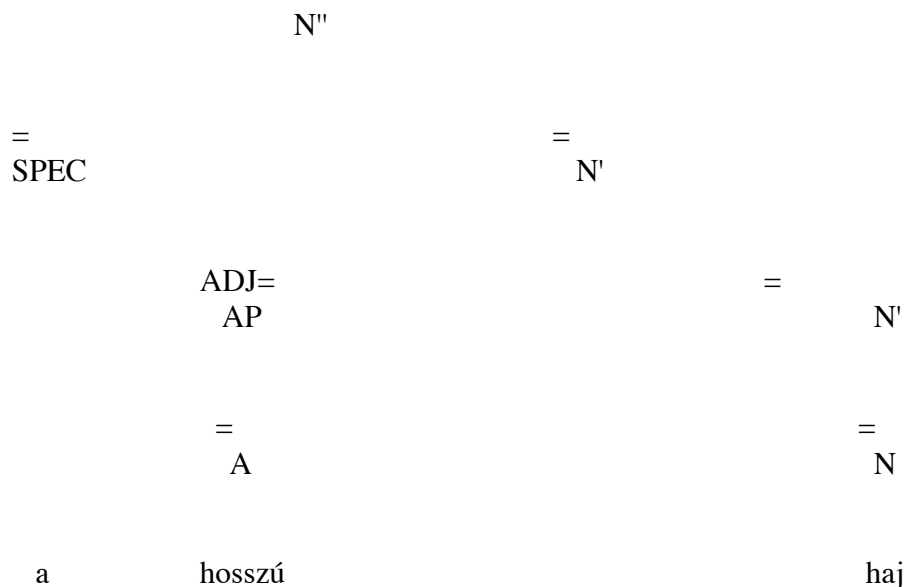　　　　　　　　　　　　　　　　　　　PRED　　　　'hosszú'
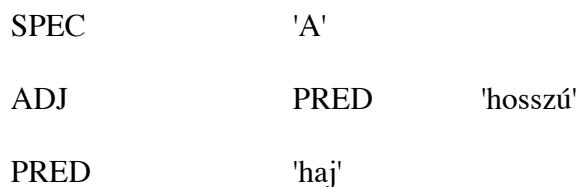
　　　　PRED　　　　　'lány'

And now let us compare the c-structure (10) and the f-structure (11) of *a hosszú hajú lány* 'the

long-haired girl' with the corresponding structures of *a hosszú haj* 'the long hair', (12) and (13), respectively.

(12)

```
                        N"

=                                       =
SPEC                                    N'

        ADJ=                                =
          AP                                  N'

          =                                   =
          A                                   N


    a          hosszú                         haj
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(13)

```
        SPEC                'A'

        ADJ         PRED        'hosszú'

        PRED        'haj'
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As can be seen, in (12) and (13) the adjective *hosszú* 'long' is an ordinary adjunct of the noun head (*haj* 'hair'), while in (10) and (11) *hosszú hajú* 'long haired' is related in the same way to the head *lány* 'girl'; however, the adjective *hosszú* 'long' is the XCOMP argument of the adjective *hajú* 'haired', or, more precisely, of the adjectivizing suffix *Ú* functioning as a predicate.

3.2. The modified solution

So far, we have concentrated on the attributive use of APs headed by *Ú* adjectives. However, if we also wish to account for their predicative use, the necessity of an important modification in the analysis will become obvious. Consider the following example.

(14)   a. A lány hosszú haj-ú.
            the girl long hair-Ú
            'The girl is long-haired.'

        b. A lány hosszú haj-ú volt.
            the girl long hair-Ú was

'The girl was long-haired.'

As (14a) shows, the copula does not appear in Hungarian sentences in present tense, 3rd person, singular when adjectives (or nouns) are used predicatively. From this it follows that even when the copula is present in the sentence (in all the other cases, e. g., in (14b)) it cannot be taken to be the most 'central' (ultimate) predicate. The central predicate is the *Ú* adjective, or, on our present account, the *Ú* suffix. In this respect, it is irrelevant how we analyze these clauses with a copula. In the spirit of the classical LFG approach to copulas in English passive sentences (cf. Bresnan (1982b)) we can assume that the copula is a 'raising' predicate subcategorizing an XCOMP argument whose predicate is *Ú*. Or, alternatively, we can take the copula to be the structural head responsible for expressing verbal features like tense, person and number and the *Ú* predicate to be the functional head (along the lines of Ackerman (1987) and Laczkó (1995)). The important point for our purposes is that on either account the ultimate functional head of the sentence is the *Ú* predicate.

In the light of these considerations, we are faced with a two-fold problem. It is fairly unquestionable that the NP *a lány* 'the girl' is the SUBJ argument in (14). Consequently, as opposed to the approach to *Ú* adjectives in attributive constructions outlined above (3.1.), we are led to the conclusion that in these sentences the *Ú* predicate has as many as three arguments instead of two: *a lány* 'the girl', *haj* 'hair', *hosszú* 'long'. It also appears to be straightforward that *hosszú* 'long' is an XCOMP argument in both cases. The two interrelated problems are as follows.

How can we offer a uniform account of the attributive and predicative constructions, when intuitively in the former *haj* 'hair' and in the latter a *lány* 'the girl' appear to be the SUBJ arguments?

If *hosszú* 'long' is the predicator of an XCOMP argument then its SUBJ argument in both cases has to be controlled by an argument of the matrix predicate, which bears a semantically unrestricted grammatical function. In both cases it is *haj* 'hair' that is to be considered the controlling argument. The question is what grammatical function this argument should receive in the predicative construction type.

The most plausible solution to both problems is as follows. I assume that the *Ú* suffix is a three-place predicate in both attributive and predicative constructions and it assigns the functions shown in (15) to its arguments.

(15) -(j)ú/-(j)ű, A <SUBJ, OBJ, XCOMP>

In this way we can offer a uniform account of both uses. For instance, the arguments of *Ú* in (14) will receive the following functions:
a lány 'the girl' ~ SUBJ,
haj 'hair' ~ OBJ,
hosszú 'long' ~ XCOMP.
In attributive constructions, the SUBJ argument of *Ú* is not expressed within the AP ultimately headed by the *Ú* suffix, instead, it is semantically linked to, or syntactically controlled by, the NP head whose ADJ modifier is the attributive AP. This analysis of the attributive use of *Ú* constituents can be naturally related to the attributive use of (present) participial constructions. Consider the following examples.

(16) a. a könyv-et olvas-ó lány
          the book-acc read-Part girl
          'the girl reading the/a book'

      b. a kertés-t zöld-re fest-ő fiú
          the fence-acc green-onto paint-Part boy
          'the boy painting the fence green'

The simplified lexical forms of the two participial predicates are as follows.

(17) a. olvasó, V$_{Part}$ 'READING <SUBJ, OBJ>'

      b. festő, V$_{Part}$ 'PAINTING <SUBJ, OBJ, XCOMP>'

One of the most important characteristics of such participial constructions is that they do not contain the SUBJ argument of their predicate, instead, depending on our choice of alternative devices, this argument is semantically linked to, or syntactically controlled by, the head of the matrix NP, in exactly the same way as I have outlined in the case of attributive *Ú* constituents. Consider the c-structure and f-structure of (16b) in (18a) and (18b), respectively, on an account assuming syntactic control.

(18) a.

                                         NP

                                          =
                                         N'

                     ADJ=   =
                      VP   N'

       OBJ= XCOMP=   =   =
         NP$_{case}$ AP$_{case}$ V   N

       a kerítést   zöldre   festő   fiú
       b.

       ADJ   SUBJ

                    OBJ   'a kerítést'

                    XCOMP   PRED   'zöldre'

SUBJ

PRED   'festő'

PRED   'fiú'

It is significant to note at this point that even if somebody rejects the idea that the NP head syntactically controls a genuine SUBJ argument (a grammatical argument in a-structure) of such a participial predicate in an attributive constituent at least they do have to postulate some kind of a link between this NP head and a semantic argument of the participle (in semantic structure or lexical-conceptual structure). Without the postulation of such a relationship it is impossible to guarantee the correct interpretation of these NPs. Given that these Hungarian participles cannot be used predicatively, I will illustrate this point by means of the corresponding English constructions. Compare the following examples.

(19)   a. the boy painting the fence green
        b. Painting the fence green, the boy decided to paint the gate red.

It is obvious that in (19b) the unrealized SUBJ argument of *painting* is controlled by the SUBJ of *decided*. By analogy, it is natural to assume that *painting* also has either an ordinary grammatical SUBJ argument in its a-structure or a semantic argument in its semantic (or lexical-conceptual) structure. The correspondence between these arguments in (19a) and (19b) is rather straightforward. From these considerations it follows that if we assume that $Ú$ is a predicate and if we compare it with these participial predicates in their attributive and predicative uses then the uniform treatment of the attributive and predicative occurrences of $Ú$ is a necessity and not an ad hoc solution. Moreover, it should also be obvious from the foregoing discussion that even in the attributive $Ú$ construction the postulation of a SUBJ grammatical argument (or a subject-like semantic argument) is also unavoidable (otherwise the correct interpretation of these NPs cannot be achieved). Thus, on the basis of these considerations the analysis of attributive $Ú$ constructions outlined in 3.1. would have had to be modified anyway and, in a sense, the predicative use has only made the problem more explicit.

As regards the control of the open argument of XCOMP, in the modified version of the analysis it is the OBJ argument of the $Ú$ predicate that will function as the controller in both the attributive and the predicative uses. In the case of the latter there is no other choice, given that clearly another argument is mapped onto the SUBJ function, and the controller has to be a semantically unrestricted function. If we postulate that $Ú$ has an invariant lexical form (the one shown in (15)) then the controller will be the OBJ argument (*haj* 'hair'). However, if we assume that the $Ú$ predicate used in an attributive constituent has a different lexical form (with two arguments in the a-structure and three semantic arguments in the semantic/lexical conceptual structure) then the controller argument (*haj* 'hair') will be mapped onto the SUBJ function.

At first sight the assumption that the controlling argument realized by the nominal stem has the OBJ function appears to be implausible because in Hungarian OBJ arguments typically take the accusative suffix, which does not happen in this case. However, in the LFG analysis of sublexical structures this is not unusual. For instance, in Simpson's (1991) account of noun incorporation in Greenlandic the verbal suffix functioning as a predicate is attached to a noun stem which is taken to be an argument of the predicate and its grammatical function is INST but

its does not overtly take instrumental case. Also, in both Warlpiri and Hungarian, case endings functioning as predicates are attached to noun stems which realize OBJ functions without any overt case-markers.

Another objection to the postulation of an OBJ function in this case can be that the *Ú* suffix does not seem to be a prototypical transitive predicate. My answer to such a remark is twofold.

On the one hand, occasionally certain complex phenomena may call for a non-typical postulation of a grammatical function for theory-internal reasons. For instance, in the spirit of Bresnan (1982b) we can assume that the NP *a man* in the following example is assigned the OBJ function.

(20)   There is a man here.

On the other hand, the meaning of the *Ú* predicate that I assume much more strongly evokes the notion of (at least) semantic transitivity than that of the copula. This becomes evident if we compare the informal semantic (or lexical-conceptual) structures of *Ú* and *(be)fest* 'paint' in its use exemplified in (16b) and (17b). Compare (21a) and (21b).

(21)   a. *(be)fest* 'paint': **X** PAINTS **Y** and **Y** BECOMES **Z** (where Z is a color)
        b. *Ú*: **X** POSSESSES **Y** and **Y** IS **Z** (where Z is a property)

And the parallel between the a-structures of these predicates ((17b) and (15), respectively) which naturally correspond to their semantic descriptions appears to be straightforward and it can be taken to provide partial justification for my analysis of Ú.

3.3. Another suffix: *S*

Compare (1) and (2) with (22), (23) and (24).

(22)   a kalap-os lány
        the hat-S girl
        'the hatted girl'

(23)   a piros kalap-os lány
        the red hat-S girl
        'the red-hatted girl'

(24)   a. *a haj-as lány
           the hair-S girl
            '*the haired girl'

        b. *a hosszú haj-as lány
           the long hair-S girl
           'the long haired girl'

As these examples show, the English *-ed* suffix has two Hungarian counterparts: Ú, the suffix we have been discussing so far and *-s/-as/-os/-es/-ös* suffix (S, for short). There are two fundamental differences between these two morphemes.

A syntactic difference: in the case of *S* the premodifying AP constituent is not obligatory (cf. (2) and (22)).

A semantic difference: under normal circumstances, the OBJ argument of the *Ú* predicate designates an inalienable/inherent possession/feature of the SUBJ argument and by means of the XCOMP argument, it attributes a property to this possession/feature. Hence the obligatory nature of the premodifying AP realizing this argument. Compare (1) and (2). (2) is ungrammatical, because it does not provide any more information about its denotation than the corresponding NP without the adjective (*a lány* 'the girl') as our image of a girl does contain the property that a girl has hair. By contrast, the OBJ argument of the *S* predicate designates a non- inalienable/non-inherent possession/feature of the SUBJ argument; therefore, the construction is well-formed without any premodifying AP. Compare (22) and (23). Given that our image of girls does not contain the property that all girls wear hats, (22) by itself is acceptable as it adds a semantic feature to the denotation of the NP without the *S* adjective. And as (23) shows, an AP may optionally be present in the construction. It is noteworthy that although there is only one such suffix in English (*-ed*), the presence or absence of an adjectival element in the structure is fundamentally determined by the same semantic principles (cf. Hirtle (1970) and Davis (1992)).

It is also important to note that the semantic generalizations about the possible uses of *Ú* and *S* only capture the fundamental tendencies. There can be a considerable degree of overlap, too. Compare the following examples:

(25) a. a piros torny-ú épület
   the red tower-Ú building
   'the red-towered building'

  b. a piros torny-os épület
   the red tower-S building
   'the red-towered building'

(26) a. *a torny-ú épület
   the tower-Ú building
   'the towered building'
  b. a torny-os épület
   the tower-S building
   'the towered building'

What is surprising in the light of the semantic generalizations above is that (25a) is acceptable despite the fact that it is not an inherent feature of buildings that they have towers.

As regards the syntactic generalizations, there is no exception to the requirement that the premodifying AP should always be present in the *Ú* construction type.

As far as the *S* suffix is concerned, as a first approximation its most plausible analysis, provided that my *Ú* account proves to be tenable, is that it is a two-place predicate with SUBJ and OBJ arguments and it does not have an XCOMP argument. Instead, it can be modified by an XADJ constituent. However, even when the premodifying AP is present in the construction there are more severe restrictions on its behavior than its counterpart in *Ú* phrases. On the one hand,
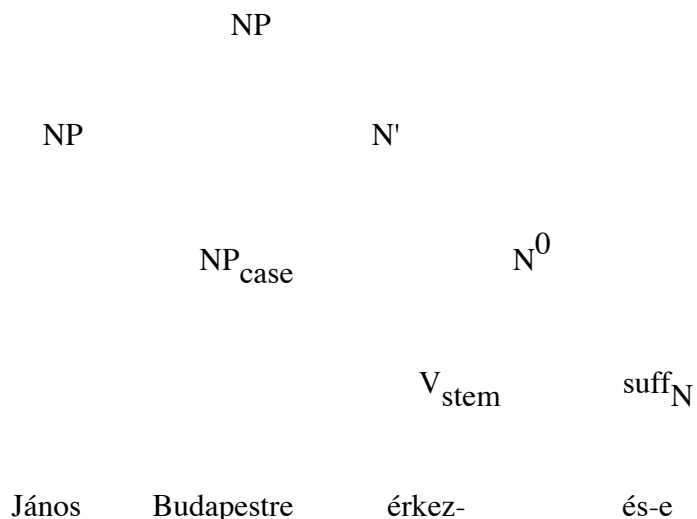
this is much less active syntactically (for instance, it does not normally allow embedding in a comparative construction) and, on the other hand, it is typically realized by unmodified A heads. Consequently, the status of S is more comparable to that of the *-ed* suffix in English than to that of $Ú$.
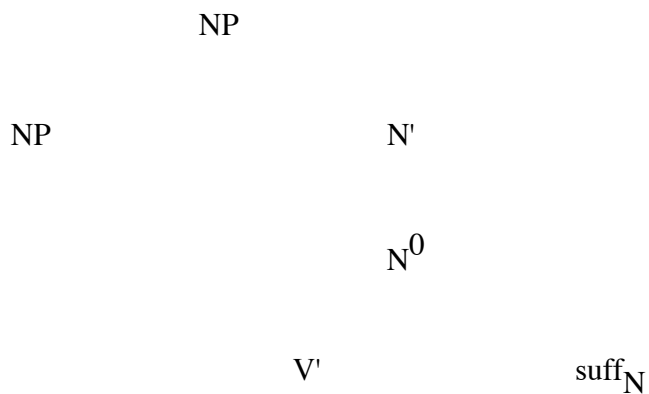
4. Concluding remarks

Hungarian is a language in which, in addition to $Ú$ constructions, there are several unrelated phenomena that can be taken to belong to the class commonly called bracketing paradoxes. Below is a sketchy overview of four such construction types (including $Ú$ phrases).

(27)   a. János Budapest-re érkez-és-e
         John Budapest-onto arrive-NOM-his
         'John's arrival in Budapest'

    b.

$$
\begin{array}{c}
\text{NP} \\
\\
\text{NP} \qquad\qquad \text{N'} \\
\\
\text{NP}_{\text{case}} \qquad\qquad \text{N}^{0} \\
\\
\text{V}_{\text{stem}} \qquad \text{suff}_{\text{N}} \\
\\
\text{János} \quad \text{Budapestre} \quad \text{érkez-} \qquad \text{és-e}
\end{array}
$$

    c.

$$
\begin{array}{c}
\text{NP} \\
\\
\text{NP} \qquad\qquad \text{N'} \\
\\
\text{N}^{0} \\
\\
\text{V'} \qquad\qquad \text{suff}_{\text{N}}
\end{array}
$$

| | | | |
| NP$_{case}$ | | V$_{stem}$ | |

| János | Budapestre | érkez- | és-e |

(28) a. *az ablak alatt-i* virág
the window under-AFF flower
'the flower under the window'

b.
AP

PP   suff$_A$

NP   P

az ablak   alatt-   i

c.
AP

NP   A

P   suff$_A$

az ablak   alatt-   i

(29) a. Egy virág van *az ablak-ban*.
a flower is the window-in
'There is a flower in the window.'

b.
NP$_{case}$

NP   suff$_{case}$

az ablak-   ban

c.

$$NP_{case}$$

$$\begin{array}{ccc}
= & & = \\
SPEC & & N'
\end{array}$$

$$\begin{array}{c}
= \\
N^0
\end{array}$$

$$\begin{array}{ccc}
OBJ = & & = \\
N_{stem} & & suff_{case}
\end{array}$$

az　　　　ablak-　　　　　　ban

(30)　　a. a *hosszú haj-ú* lány
　　　　the long hair-Ú girl
　　　　'the long haired girl'

b.

$$AP$$

$$A$$

$$\begin{array}{cc}
N' & suff_A
\end{array}$$

$$\begin{array}{cc}
AP & N'
\end{array}$$

A

        hosszú   haj-   ú

    c.
                            AP

        AP   A

        A   N~stem~   suff~A~

        hosszú   haj-   ú
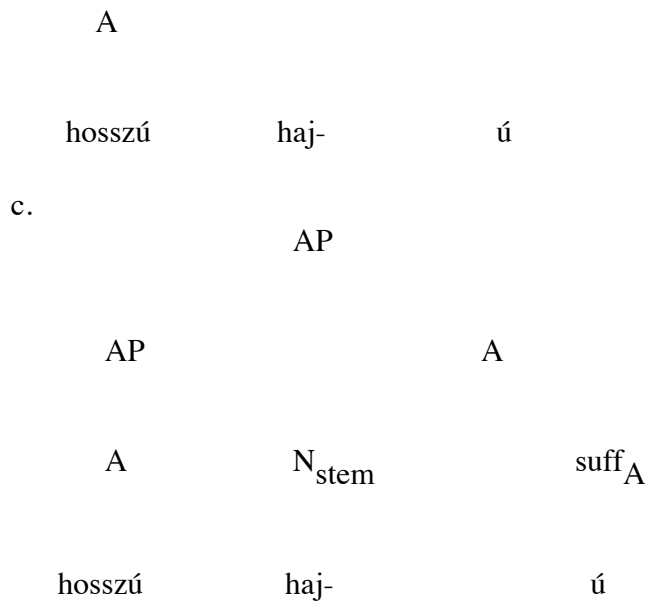
Intuitively, the generalizations are as follows. In (27), a V' constituent consisting of a verb and its oblique complement is nominalized. In (28), an entire postpositional phrase is adjectivized. In (29), the case suffix attached to the noun stem functions as a predicate and takes the rest of the NP as its argument. (30) is our standard example in this paper, and it appears that an N' constituent is adjectivized by *Ú*. In (27b)-(30b), these generalizations are represented and the morphologically more plausible structural descriptions are given in (27c)-(30c).

I cannot go into details here. However, it is worth pointing out an important difference between the first two and the latter two phenomena. In (27) and (28), the function of the suffix is to change the category of the stem it is attached to (V N and P A, respectively), and it can be argued that the new categories simply inherit the a-structure of the input predicate and they take the designated oblique arguments in an ordinary way. By contrast, in (29) and (30), the suffixes can be taken to function as argument-taking predicates.

This brief overview of these 'bracketing paradoxes' has been intended to serve two purposes. On the one hand, it points out (naturally, without any justification) how these complex phenomena can be handled in a principled way in an LFG framework. On the other hand, it also demonstrates that the morphologically bound predicate analysis of *Ú* constructions is motivated by at least one independent Hungarian phenomenon (cf. (29)), in addition to general cross-linguistic considerations.

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