The syntax of Hungarian auxiliaries:
a dependency grammar account

András Imrényi
Jagiellonian University, Cracow
Chair of Hungarian Philology
Poland
`imrenyi.andras@gmail.com`

Abstract

This paper addresses a hot topic of Hungarian syntactic research, viz. the treatment of "discontinuous" constructions involving auxiliaries. The case is made for a projective dependency grammar (DG) account built on the notions of *rising* and *catenae* (Groß and Osborne, 2009). Additionally, the semantic basis of the dependency created by rising is described with a view to analogy and constructional meaning.

1 Introduction

The topic of this paper is the word order pattern illustrated below.

(1) János el fog utazni Párizsba.
John away will.3SG travel Paris.to
'John will travel to Paris.'

(2) Részt akar venni a kiállításon.
part.ACC wants take the exhibition.on
'He/she wants to take part in the exhibition'

Both examples include a discontinuity, with the auxiliaries *fog* 'will.3SG' and *akar* 'wants' intervening between two parts of the complex verbs *elutazni* 'to travel away' and *részt venni* 'to take part', respectively. Under the standard assumption that the finite auxiliaries are the roots here, taking lexical verbs as their infinitival complements, the simplest DG analysis incurs a projectivity violation:

(3)
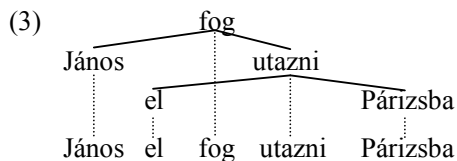
The goals of the paper are twofold.

Firstly, I will compare possible analyses of the construction, and argue for a projective DG account along the lines of Groß and Osborne

(2009). In particular, it will be proposed that while *utazni* acts as the governor of *el* (licensing its appearance), the latter element takes the auxiliary as its head (a case of rising). Formal evidence in favour of the account will come from ellipsis, coordination, prosodic structure, and the placement of adverbs.

Secondly, with the above syntactic analysis in mind, I will turn to the issue whether the dependency created by rising has any associated meaning or function. It will be argued that it does, but in a way which crucially involves aspects of (clausal) constructional semantics.

The paper is concerned with a syntactic construction rather than the word class of auxiliaries. It has to be mentioned, though, that both traditional (Lengyel 2000) and generative approaches (Kenesei 2008) to Hungarian tend to narrow down the group to a few elements (including *fog* 'will' but excluding *akar* 'want', for example). I side with Kálmán C. et al. (1989), however, who identify Hungarian auxiliaries on the basis of syntactic and prosodic behaviour; roughly, appearance in the kind of construction illustrated in (1) and (2) above. I regard verbs which participate in this construction (in other words, which are collexemes of it in terms of Stefanowitsch and Gries, 2003) as auxiliaries, when and to the extent that they do so. However, this does not prevent them from being verbs, i.e. "auxiliary" is not viewed here as a distinct (let alone closed) word class of Hungarian.

In section **2**, I will present the relevant data, and make three observations against which the analyses will be matched. Section **3** compares four syntactic accounts, two each from the traditions of phrase structure grammar and dependency grammar. Section **4** addresses the relationship between rising and constructional meaning. Finally, summary and conclusions follow in section **5**.

2 Data and observations

In this section, I make three observations about the construction, which will serve as a basis for evaluating analyses in section **3**. These observations are highlighted below for convenience.

1. There is a syntactic relationship between the verb modifier (VM, e.g. *el, részt*) appearing to the left of the root auxiliary and the infinitive (e.g. *utazni, venni*, with the *-ni* infinitive suffix) on its right.

2. There is also a syntactic relationship between the VM (e.g. *el, részt*) and the root auxiliary (e.g. *fog, akar*).

3. The three elements (i.e. the VM, the root auxiliary and the infinitive) form a grammatical unit, which, however, is subject to word order variation.

2.1 The link between VM and infinitive

The first, rather trivial observation is that in patterns like *el fog utazni* 'he/she will travel away' and *részt akar venni* 'he/she wants to take part', there is a syntactic relationship between the first and the third element. This relationship is one of licensing: the so-called verb modifiers (*el* 'away', *részt* 'part.ACC') could not occur in these structures were it not for the lexical verbs appearing in an infinitive form.

The two elements form a semantic unit with a higher or lower level of compositionality (cf. the oft-cited example *berúg* 'get drunk', where the VM *be* literally means 'in', and *rúg* literally means 'kick'). In addition, it is noteworthy that there is often a morphological dependency between the two elements: for example, the *-t* accusative suffix of *részt* 'part.ACC' is assigned by *venni* 'to take.' While morphological dependencies are considered separable in principle from syntactic ones (cf. Mel'čuk 1988), there is a clear tendency for such dependencies to hold between elements which are also syntactically related.

In Hungarian linguistics, the term "verb modifier"[1] (also known as "preverb") denotes a category of elements with the following properties: "(i) they occupy the position immediately preceding the verb,[2] and (ii) in the typical case they form semantically a complex verb with the base verb" (Kiefer 2003: 17). Thirdly, it can be added that the VM + verb sequence tends to behave as a single phonological word, with the word-initial stress of Hungarian falling on the first syllable of the unit.

VMs come in two subgroups, illustrated by the expressions in (4) and (5).

(4) a. moziba   megy
       cinema.to goes
       '[he/she] goes to cinema'
    b. újságot   olvas
       newspaper.ACC   reads
       '[he/she] reads newspaper' / '[he/she] is engaged in newspaper-reading'

(5) a. ki-megy
       out-goes
       '[he/she] goes out'

    b. el-olvas
       away-reads
       '[he/she] reads [to the end]'

Whereas the VMs of the complex verbs listed in (4) satisfy an argument of the base verb, so-called verbal particles such as *el* 'away', *be* 'in' and *ki* 'out' fail to do so (cf. Kiefer ibid.). Nevertheless, there is considerable agreement in the literature that the two types of VMs are amenable to essentially the same syntactic analysis, cf. the analogous examples in (6).

(6) a. moziba fog menni
       '[he/she] will go to cinema'

    b. újságot akar olvasni
       '[he/she] wants to read newspaper'

    c. ki fog menni
       '[he/she] will go out'

    d. el   akarja   olvasni
       away   wants.DEF.OBJ   read
       '[he/she] wants to read it'

In conclusion, it would be hard to deny that there is a relationship between VMs and infinitives in the construction under study. The link is evident at several levels of analysis including the lexicon, morphology, syntax and semantics. From a syntactic perspective, the relationship can be defined as licensing, a point that will be taken up later in section **3**.

2.2 The link between VM and auxiliary

Less immediately apparent is the fact that there is also a syntactic relationship between the VM and the root auxiliary. Although the two ele-

---

[1] As a reviewer points out, the term may be misleading as VMs are not in fact modifiers (in the sense of being adjuncts). However, I still adopt it, following standard practice in Hungarian grammar (cf. É. Kiss, 2002: 67).
[2] At least in so-called neutral clauses, cf. section **2.3**.

ments are adjacent, adjacency alone is clearly insufficient to establish the link as syntactically significant. For instance, in *this obviously contrived example*, *this* and *obviously* have little to do with one another.

However, the following data strongly suggest that the VM and the root auxiliary are more intimately related.

(7) A: János el   fog   utazni Párizsba?
         John away will.3SG travel   Paris.to
         'Will John travel to Paris?'

     B: Igen, el   fog.
         yes   away will.3SG
         'Yes, he will.'

In speaker B's utterance, the VM and the root auxiliary together form a well-formed clause. This would hardly be possible in the absence of a direct syntactic relationship (more specifically, a dependency) between them.[3] In particular, the analysis in (3) is rendered unlikely, since it implies the possibility of eliding an intermediate element (*utazni* 'travel') while preserving the phonological content of elements both above and below it in the tree. We will see in section **3** that this goes against what seems to be a valid generalization about the relevant cases of ellipsis.

A second argument for a direct syntactic link between the VM and the root auxiliary comes from prosodic structure. As noted above, VMs immediately preceding their base verbs form a single phonological word with them; for example, '*elutazik* '[he/she] travels away' has a single stress assigned to the first syllable. Importantly, a similar situation holds when the VM is followed by an auxiliary. For example, in '*el fog* '*utazni* '[he/she] will travel away', *el* and the first syllable of *utazni* are stressed, while *fog* is unstressed, presumably because *el* and *fog* belong to the same phonological word. Under the reasonable assumption that elements forming phonological words tend to be syntactically closely related, this suggests that there is a direct link between *el* and *fog* in the syntactic hierarchy.

Thirdly, the distribution of certain adverbs also supports the conclusion that the VM and

the root auxiliary form a tightly integrated unit. For example, the epistemic adverb *talán* 'perhaps' cannot occur between the VM and the auxiliary (8a), only between the auxiliary and the infinitive (8b) or externally to the VM + auxiliary + infinitive pattern (8c, 8d).

(8) a. *János el talán fog utazni Párizsba.

     b. János el fog talán utazni Párizsba.

     c. János talán el fog utazni Párizsba.

     d. János el fog utazni talán Párizsba.
         'John will perhaps travel to Paris.'

Finally, the following coordination pattern also suggests the existence of a direct link between the VM and the auxiliary. Coordinating *el akar* and *el is fog* (where *is* means 'also') would hardly be possible if VM + auxiliary sequences were not grammatical units.

(9) J. el   akar és el   is   fog utazni Párizsba.
    J. away wants and away also will travel Paris.to
    'John wants to, and also will, travel to Paris.'

All in all, ellipsis and coordination facts, prosody, and the distribution of adverbs such as *talán* 'perhaps' provide converging evidence that the adjacency between the VM and the root auxiliary is syntactically significant. Precisely how this can be incorporated in a DG analysis is an issue to be addressed in section **3**.

2.3   Evidence that the three elements form a grammatical unit

Finally, a third observation about the construction is that the VM, the auxiliary and the infinitive form some kind of grammatical unit. In this regard, note first that strings such as *el akar utazni* and *el fog utazni* can be substituted by one-word predicates with a similar discourse function (10, 11).

(10) a. János el akar utazni Párizsba.
         'John wants to travel to Paris.'
     b. János elutazna   Párizsba.
         John   away.travel.COND.3G Paris.to
         'John would [gladly] travel to Paris.'

(11) a. János el fog utazni Párizsba.
         'John will travel to Paris.'
     b. János elutazik   Párizsba.
         John away.travel.3SG Paris.to
         'John is [soon] travelling to Paris.'

Secondly, the strings mentioned can be coordinated (12) or elided by gapping (13). In the latter example, *pedig* is a marker of topic shift.

---

[3] As a reviewer observes, disjointed elements may appear in answer fragments, cf. German [*Wem gefällt das?* 'Who likes that?] *Mir* ~~gefällt das~~ *nicht* 'Not me.' However, speaker B's utterance in (7) crucially includes the root auxiliary, whereas in the German example, the root verb is elided. It seems plausible to suppose that remnants which do include the root must be continuous.

(12) János el akar utazni és el is fog utazni P.-ba.
   'J. wants to, and also will, travel to Paris.'

(13) J. el fog utazni Párizsba, Mari pedig Rómába.
   'J. will travel to Paris, and Mary to Rome.'

Such facts are easiest to explain if the VM + auxiliary + infinitive pattern is treated as a grammatical unit. However, it is important to observe that the unit in question is highly flexible. In particular, the word order of its elements is subject to variation, as demonstrated by the examples below.

(14) János el fog Párizsba utazni.
   'John will travel to Paris.'

(15) JÁNOS fog elutazni Párizsba.
   'It is John who will travel to Paris.'

As (14) shows (compared with (1)), the relative position of the infinitive and its dependent is not fixed by the construction: *Párizsba* 'to Paris' may precede as well as follow its head *utazni* 'travel.' And as (15) illustrates, certain sentence types may also rearrange the order of the VM and the auxiliary. When an identificational focus (cf. É. Kiss 1998a) such as *JÁNOS* is present in the structure, it attracts the finite auxiliary to its right, and the VM is attached to the infinitive. More precisely, it is attached to the infinitive which licenses it, a qualification made necessary by examples such as (17).

(16) János el   fog tudni   utazni Párizsba.
    John away will be.able travel Paris.to
   'John will be able to travel to Paris.'

(17) JÁNOS fog tudni elutazni Párizsba.
   'It is John who will be able to travel to P.'

In Hungarian linguistics, examples such as (14) and (16) are often called neutral clauses, whereas patterns like (15) and (17) are known as non-neutral ones. Roughly, whereas a neutral declarative clause answers the question *What happened?* or *What is the situation?*, a non-neutral one is felicitous under more special communicative circumstances. The generalization that VMs immediately precede the finite verb or auxiliary is construction-specific. Clauses with identificational foci, a negative particle, an interrogative pronoun, etc. display a different word order (see also section **4**).

   To conclude this section, the facts are fairly complex but substitution, coordination and ellipsis tests do suggest that the VM + auxiliary + infinitive pattern forms some kind of grammatical unit. However, this unit is hardly a uni-

tary block that always appears in exactly the same form. Rather, it is subject to significant variation regarding the word order of its elements. In section **3**, I will argue that this unit status combined with a high degree of flexibility can be best captured with the notion of catenae as proposed by Osborne et al. (2012).

3   Competing analyses

We are now in a position to assess competing syntactic analyses of the construction. The main criterion for evaluation will be the extent to which they comply with the observations made in the previous section. Of the four accounts to be considered, the first two come from the tradition of phrase structure grammar. These will be presented in **3.1**, followed by a comparison of two DG-based solutions in **3.2**.

3.1   Phrase structure grammar

In the last decades of the 20th century, phrase structure grammar enjoyed a virtual monopoly in analyses of Hungarian word order, so much so that even those not committed to Chomskyan generative grammar chose to adopt it for descriptive purposes. Thus in their classic paper on the system of Hungarian auxiliaries, Kálmán C. et al. (1989: 52) assigned the tree diagram in (19) to the sentence below.

(18) A MIGÉRT részt akart venni a kiállításon.
   'MIGÉRT [name of Hungarian company] wanted to take part in the exhibition.'

(19)
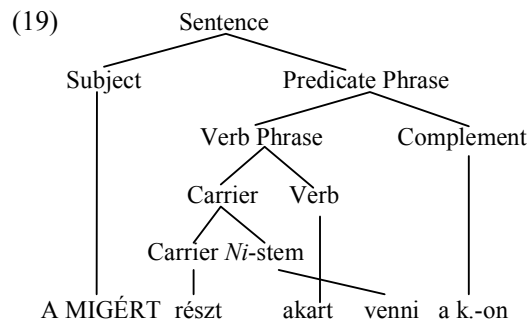
Dated as it undoubtedly is, the account is not without merits. Firstly, it captures the intuition that the three elements form a grammatical unit (**2.3**): specifically, *részt akart venni* 'wanted to take part' is analysed as a VP within the predicate phrase. Secondly, the relationship between the VM *részt* 'part.ACC' and the infinitive *venni* 'take' is signalled (cf. **2.1**), with the two forming a constituent called "carrier" in the VP.

   On the other hand, the link betweeen the VM *részt* 'part.ACC' and the auxiliary verb *akart*

'wanted.3SG' is not directly indicated, despite evidence from prosodic structure ('*részt akart 'venni*), coordination (*részt akar és részt is fog venni* 'wants to, and will, take part') and the placement of adverbs.[4]

(20) a. *részt mindenképpen akart venni

    b. részt akart mindenképpen venni

    c. mindenképpen részt akart venni

   d. részt akart venni mindenképpen
      'wanted to take part by all means'

As shown in (20), the adverb *mindenképpen* 'by all means' has the same distribution vis-à-vis *részt akart venni* 'wanted to take part' as *talán* 'perhaps' did with respect to *el fog utazni* 'will travel away' in (8). This suggests that *részt* and *akart* form a tightly integrated unit.

The biggest problem with (19) though is that it violates the No Crossing Branches principle widely adopted in the tradition of phrase structure grammar. Kálmán C. et al.'s flexible approach to what passes as a well-formed tree is problematic because it grossly overgenerates the set of possible sentences. In the absence of clearly defined restrictions on the emergence of discontinuities, any word order is predicted to be possible, and the analysis is lacking explanatory power.

The second phrase structural analysis considered here is couched in transformational generative grammar. Rather than presenting a specific account found in the literature, I will attempt to come as close as possible to complying with the observations made in section **2** as well as the basic assumptions of the theory. Also, the analysis will only make use of ideas that are present in one or another version of the standard generative model of Hungarian (see in particular É. Kiss, 1998b, 2002).

Transformational generative grammar allows one to recognize the link between the VM and the infinitive at an underlying level of representation, and to let movement rules produce the surface word order. Thus, under the account in (21), the VM and the (non-finite) verb form a constituent at "deep structure" before the VM is moved out of the VP into a phrase called PredP, cf. É. Kiss (2008).

(21)
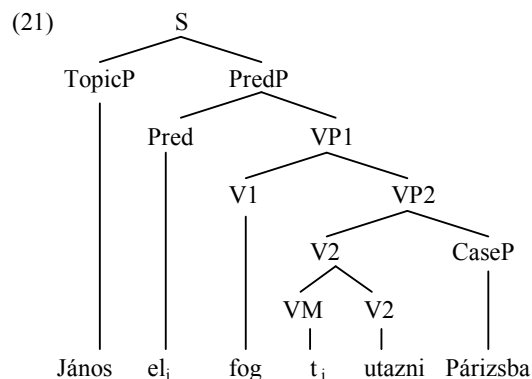
This analysis has the advantage of being more restrictive, and therefore theoretically more appealing, than the proposal of Kálmán C. et al. (1989).[5] The price paid for this is the introduction of underlying representations and transformations, which rival theories such as LFG and HPSG reject on account of their perceived lack of psycholinguistic plausibility and practical (computational linguistic) utility.

More importantly for the present discussion, while (21) is consistent with the observation that there is a syntactic link between the VM and the infinitive, and also goes some way toward recognizing the relationship between the VM and the auxiliary,[6] it fails to reflect the unit status of the VM + auxiliary + infinitive pattern. To the extent that the argumentation in section **2.3** was sound, this puts the account at a disadvantage.

3.2 Dependency grammar

As noted in the introduction, the simplest DG representation of the construction involves a projectivity violation.[7] The analysis is repeated in (22) below.

(22)

---
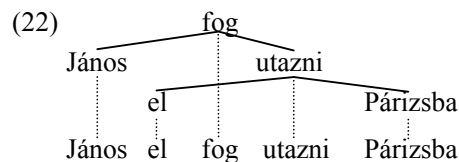
[5] The tree in (21) is simplified in ways that do not crucially affect the argumentation. Technically, the VM is in Spec,PredP, and $Pred_0$ may be the landing site of the finite verb (cf. É. Kiss 2008: 131). Thus, the VM and the finite verb may enter a Spec-Head configuration.

[6] This is so if the VM and the auxiliary are in a Spec-Head relationship, cf. footnote 5.

[7] In Nivre's formulation, "A dependency graph satisfies the constraint of projectivity with respect to a particular linear order of the nodes if, for every arc *h* [head]→ *d* [dependent] and node *w*, *w* occurs between *h* and *d* in the linear order only if *w* is dominated by *h*" (2005: 10).

The diagram signals the syntactic relationship between the VM and the infinitive, with *utazni* 'travel' identified as the head of *el* 'away.' Secondly, the root auxiliary, the infinitive and the VM form a dependency chain (cf. Hudson 1990: 99), hence a unit of DG. However, the tree in (22) implies that the adjacency of *el* and *fog* is merely a fact of word order; there is no direct dependency between them.

As is well known, versions of DG can be built either with or without the assumption of projectivity (cf. Nivre 2005: 10). Here, what needs to be established is whether there are any empirical reasons for rejecting (22). As suggested in **2.2**, the main counter-argument comes from the following type of ellipsis:

(23) A: János el   fog utazni Párizsba?
        John   away   will travel Paris.to
        'Will John travel to Paris?'

    B: Igen, el   fog.
   yes   away will.3SG
        'Yes, he will.'

Ellipsis is a hugely complex phenomenon, and a fully predictive account of when it is or is not possible may be an elusive research objective.[8] However, it seems fairly clear that given the structure in (22), one does not expect *utazni* to be elided while both its head *fog* 'will.3SG' and its dependent *el* 'away' are unaffected.

According to Rosta (2006: 176), "[e]llipsis involves the deletion of the phonological content of some syntactic structure, and it seems to operate rather as if (the phonology of) a branch of the syntactic tree were snipped off. Thus if the phonological content of one node is deleted, then so must be the phonological content of all nodes subordinate to it." Although this formulation is almost certainly too restrictive, as Rosta himself concedes (note especially gapping phenomena, cf. (13) and Osborne, 2005: 275–280), it does seem to be a valid generalization for the case at hand. When a sentence is reduced to a combination of elements including the root (let us call it its "core"), the

core ought to be a "network within the network", with its internal structure describable by a continuous set of dependencies.

For this reason, and the further points made in **2.2**, I propose the following representation of the syntactic structure of (1), following Groß and Osborne (2009).[9]

(24)
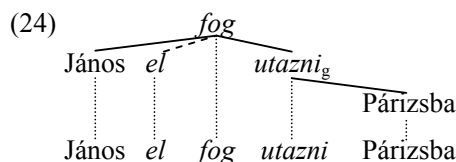
Groß and Osborne (2009: 53) crucially separate the notions of governor and head. A word's governor is the word licensing its appearance. By contrast, its head is the word that immediately dominates it. Although by default, the governor and the head are the same word, the two functions may also be associated with different nodes of the structure. In such cases, however, the head must be higher up in the tree than the governor; in other words, only "rising" can occur, not "lowering."[10]

The analysis in (24) expresses that the governor of *el* is *utazni*; this is marked by the *g* subscript of the latter. The dependency produced by rising is distinguished by a dashed dependency edge. Importantly, rising is understood only metaphorically here, since Groß and Osborne's approach is strictly non-derivational (cf. Groß and Osborne, 2009: 54). Hence, there is no such claim that the head of *el* should have been *utazni* at an underlying level of representation. For arguments supporting rising-based analyses of linguistic phenomena, see Groß and Osborne (2009: 56–64).

By separating governor and head, the analysis conforms to the observation that the VM is syntactically related to both the infinitive and the root auxiliary. Especially significant is the fact that the kind of ellipsis seen in (23) follows naturally from the proposal, which was not the case with (22). What is yet to be seen, though, is whether the grammatical unit status of the VM + auxiliary + infinitive pattern is accounted for under these assumptions.

Broadly speaking, the issue is what kinds of units larger than the word a syntactic DG analysis can recognize. One traditional unit type is the DG equivalent of a phrase or constituent. In contrast with phrase structure grammar, DG treats constituents as units implied by a network of word-to-word relations (Hudson, 2007: 121) rather than as unique nodes of the tree. A theory-neutral definition of constituents, also applicable to DG, is as follows:

(25) Any node plus all the nodes that that node dominates. (Osborne, 2005: 254)

In (24), there are only two multi-word constituents: *utazni Párizsba*, and *János el fog utazni Párizsba*. By contrast, *el fog utazni* does not count as a constituent, since it does not include all the nodes that its root (*fog*) dominates.

Another established unit type recognized by DG is the dependency chain, i.e. a continuous non-branching line of $h \rightarrow d$ relations. According to Hudson (1990), "a word's phrase consists of the union of all its down-chains." In (24), the following complete down-chains of *fog* 'will.3SG' can be identified: *fog* → *János*; *fog* → *el*; and *fog* → *utazni* → *Párizsba*. Again, *el fog utazni* as analysed in (24) is not captured by the concept.
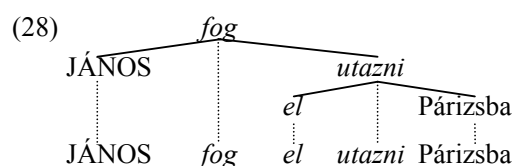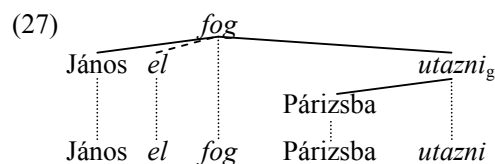
Recent years, however, have seen the recognition of a new, more inclusive unit type implied by the dependency network. Building on previous work (notably O'Grady, 1998, and Osborne, 2005), Osborne et al. (2012: 359) introduce a unit type called *catena* (Latin for 'chain'), defined over a D-tree as follows:

(26) A word, or a combination of words which is continuous with respect to dominance.

The catena concept is more inclusive than that of constituents/phrases because it does not require the unit to include all the nodes dominated by a given element. Also, it is more inclusive than traditional dependency chains since it also captures combinations of words consisting of a head and multiple dependents (schematically: $d_1 \leftarrow h \rightarrow d_2$). Finally, single words also count as catenae, which is again an extension on the previous concept of chains.

In this paper, it is not my goal to defend the catena concept (for this, see e.g. Osborne and Groß, 2012, and Osborne et al., 2012). Suffice it to say that there is considerable evidence (especially from ellipsis, analytic predicates, and idioms) suggesting that the concept is highly operational. For the present discussion,

what is important is that *el fog utazni* is a catena (marked by italics in (24)). Hence, the analysis conforms not only to the observations made in **2.1** and **2.2** but also to the point that the three elements form a grammatical unit (**2.3**). Moreover, since the concept is defined in terms of dominance relations only, it is sufficiently flexible to accommodate word order variation. Thus, the examples in (14) and (15) can receive the following analyses, in which the three elements still form catenae.[11]

(27)

```
                fog
    János   el            utazni_g
                  Párizsba

    János   el   fog   Párizsba   utazni
```

(28)

```
            fog
    JÁNOS         utazni
                el      Párizsba

    JÁNOS   fog   el   utazni  Párizsba
```

The proposal results from a happy marriage of empirical and theoretical considerations. On the one hand, there is strong empirical evidence for a direct link between the VM and the root auxiliary (cf. **2.2**), as signalled in (24) and (27). On the other, the independently motivated theory of rising and catenae provides a simple way of accounting for this as well as other relevant observations.

Also noteworthy is the fact that DG fares much better than phrase structure grammar in expressing the unit status of the VM + auxiliary + infinitive pattern. Constituency-based approaches either struggle to reflect this intuition but fail to produce a satisfactory account, cf. Kálmán C. et al. (1989), or ignore the issue altogether, cf. the analysis couched in transformational generative grammar. By contrast, the proposed DG account is flexible and restrictive enough to be faithful to the facts while also having strong theoretical appeal.

At the same time, a possible objection to the rising analysis still remains. In particular, under the assumption that dependencies ought to have an associated meaning or function, it is

---

[11] Two reviewers make the point that VMs may be analysable as clitics. If this is indeed the case, then the vertical projection lines of VMs have to be removed under the conventions of Groß (2011: 60). Since the dependency edges would still be the same, the basic validity of the analyses is not at stake. Whether a clitic analysis is necessary is an issue left for future research to resolve.

yet to be seen if the dependency created by rising also conforms to this requirement. In what follows, I argue that rising has a key role in coding aspects of constructional meaning.

4 Rising and constructional meaning

Since the inception of modern DG, the idea that dependencies have an associated meaning or function seems to be shared by most dependency grammarians. Tesnière already claimed that "there is never a structural connection without a semantic one" (1959: 44, my translation). And while Hudson rejects the view that dependencies are primarily a matter of meaning, he does contend that meaning is one of the properties that they "bring together", "along with word order, agreement, case choice, and so on" (2007: 130). Witness also the convergence between DG and construction grammar/CxG (Osborne and Groß, 2012, and references therein), which hinges on the notion that dependencies have a semantic side to them. After all, the basic tenet of CxG is that lexicon and syntax form a continuum, with syntactic constructions as well as morphemes, lexemes, etc. described as pairings of meaning and form.

Exceptions, however, have also been allowed by some theorists. Thus, Hudson argues that the "subject or object of a verb need not have any semantic relation to that verb at all" (2007: 130), *It seems to be raining* being an example. Even more importantly for the present discussion, he posits an "extractee" dependency between *what* and *can* in the sentence below (2007: 131).

(29)
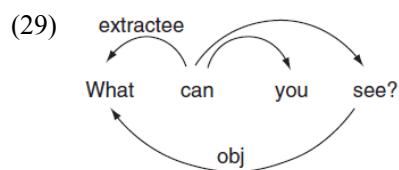
English non-subject wh-questions involve rising according to Osborne and Groß (2009: 52). In *What can you see?*, *can* is the head of *what* just as Hudson's surface analysis (above the string of words) has it. Therefore, it is significant that for Hudson, "such dependencies [as extractee] are concerned with very little but word order, and have little claim to semantic justification" (2007: 131). This suggests that the dependency created by rising perhaps does not, and need not, have an associated meaning.

Clearly, though, the word order of English wh-elements can at least receive semantic *mo-*

tivation (if not *justification*). Since they contribute a key aspect of constructional meaning (making a wh-question what it is), their prominent and distinctive linear position is natural. And while in non-projective versions of DG, the attested word order would not entail a dependency between the wh-word and the root auxiliary, there are independent reasons for subscribing to that account (e.g. the ellipsis in *What can you see and what can't you?*). In the final analysis, the dependency created by extraction or rising can be seen as "bringing together" both a semantic property (the special function of wh-questions as endowed to the construction by the wh-element) and formal ones (distinctive word order and prosody).

Generalizing from this, one may hypothesize that (certain) dependencies created by rising play a part in coding "global" aspects of constructional meaning, independently of any "local" (lexically motivated) semantic relationship between the two elements. More specifically, there may be a significant correlation between rising and sentence types (grounded in illocutionary force distinctions).[12]

As we return to Hungarian, it seems plausible to develop a similar account of the semantic background to the word order of VMs. To begin, note that whereas VMs immediately precede their base verbs in neutral positive declarative clauses lacking auxiliaries (30a), they follow them in sentence types which depart from this function in terms of illocutionary force or polarity:

(30) a. János   el-utazott   Párizsba.
        John   away-travelled.3SG   Paris.to
        'John travelled to Paris.'
     b. Hova   utazott   el   János?
        where   travelled.3SG away   John?
        'Where did John travel?'
     c. PÁRIZSBA utazott el.
        'It is to Paris that he/she travelled.'
     d. Nem   utazott   el   Párizsba.
        not   travelled.3SG away   Paris.to
        'He/she did not travel to Paris.'

---

[12] A similar reasoning may apply to other "meaningless" dependencies such as the subjects of English and German weather verbs (*it rains*, *es regnet*). As Jespersen remarks, "the need for this pronoun [English *it*, German *es*, etc.] was especially felt when it became the custom to express the difference between affirmation and question by means of word order (*er kommt, kommt er?*), for now it would be possible in the same way to mark the difference between *es regnet* and *regnet es?*" (Jespersen, 1924: 25).

The function of a neutral positive declarative clause such as (30a) is to profile the occurrence of an event relative to a mental space (in the sense of Fauconnier 1985). Here, the listener learns about the occurrence of a travelling event in the past (a mental space distinct from the present), involving John as the mover and Paris as the goal. At the core of the construct is the predicate *elutazott*, which has the function of a schematic clause. It may also stand by itself meaning 'He/she travelled away.' With respect to this clausal core, *János* 'John' and *Párizsba* 'to Paris' simply elaborate the mover and the goal, respectively.

By contrast, (30b,c,d) depart from the function of (30a) in one or another way. (30b) is used to inquire about John's destination; (30c) identifies Paris as the goal to the exclusion of other possibilities; and finally, (30d)'s speaker denies the occurrence of the travelling event. Although not all deviations from the neutral positive declarative clause type are signalled in this way, it is reasonable to suggest that the inversion of VM and finite verb plays a prominent role in coding clause type distinctions.[13]

From this perspective, the word order (and by implication, the rising) of the VM in the Hungarian auxiliary construction can be motivated by two interrelated facts. Firstly, the auxiliaries in question set up mental spaces in which an event unfolds. For example, *fog* 'will' sets up a space for talking about future events, *akar* 'want' a space for discussing somebody's intentions, etc. Since mental spaces are also implicit in the semantic structures of one-word predicates, it is natural to roll space-building verbs and verbs denoting events in those spaces into complex predicates. As noted in **2.3**, VM + auxiliary + infinitive patterns have a function analogous to that of VM + V sequences. The word order of the VM in the former can be seen as a reflex of complex predicate formation motivated by such analogies.

Secondly, the resulting word order has the advantage of allowing for a salient and regular way of expressing clause type distinctions. Consider the following parallels:

	positive	*negative*
past	elutazott 'he/she travelled away'	nem utazott el 'he/she did not travel away'
present	elutazik 'he/she is travelling away'	nem utazik el 'he/she is not travelling away'
future	el fog utazni 'he/she will travel away'	nem fog elutazni 'he/she will not travel away'

Table 1. Polarity and word order in Hungarian

In all three tenses, VM + finite verb/auxiliary order is associated with positive polarity, and a different linearization with its opposite. If the VM did not precede the root auxiliary in the future tense, *fog elutazni* and *nem fog elutazni* would stand in opposition, and the semantic contrast would be coded less saliently as well as less regularly across the paradigm.

To conclude, I have argued in this section that the word order (and assuming projectivity, the rising) of VMs codes important global aspects of constructional meaning. Firstly, it establishes a formal parallel between catenae with analogous functions (cf. the left-hand column in Table 1). Secondly, the VM + auxiliary pattern of neutral declarative clauses allows for a salient and regular way of coding sentence type distinctions (cf. the three rows in the table). It seems likely that other "meaningless" dependencies such as Hudson's "extractee" and the subject of English weather verbs (cf. footnote 12) may receive a similar motivation.

5 Conclusions

In this paper, I made the case for a projective DG analysis of the Hungarian auxiliary construction. In **2**, evidence was presented that in VM + auxiliary + infinitive patterns, there were syntactic links both between the VM and the infinitive and between the VM and the auxiliary. In addition, it was argued that the three elements formed a grammatical unit. In **3**, four analyses were compared, with the result that only the DG account based on rising and catenae conformed to all of the above observations. Finally, section **4** highlighted aspects of constructional meaning and analogy as motivating factors for the form of the construction.

Acknowledgments

---

[13] Compare also Goldberg's (2006: 166–182) account of English subject-auxiliary inversion (SAI). According to Goldberg, SAI as a "sytematic difference in form" signals a "systematic difference in function" (178) vis-à-vis prototypical sentences (which are positive and declarative). However, "it is certainly not the only possible device" (181) in this capacity. For a more detailed account of English and Hungarian inversion, see Imrényi (2012).

References

Barta, Csongor, Ricarda Dormeyer and Ingrid Fischer .2004. Word order and discontinuities in a DG for Hungarian. *Proceedings of the 2ⁿᵈ Conference on Hungarian Computational Linguistics*. Juhász Nyomda, Szeged. 19–27.

Duchier, Denys and Ralph Debusmann. 2001. Topology dependency trees: A constraint based account of linear precedence. *Proceedings from the 39ᵗʰ annual meeting of the ACL*. 180–187.

É. Kiss, Katalin. 1998a. Identificational focus versus information focus. *Language* 74: 245–273.

É. Kiss, Katalin. 1998b. Mondattan. In: É. Kiss Katalin, Kiefer Ferenc and Siptár Péter, *Új magyar nyelvtan.* Budapest: Osiris. 1–184.

É. Kiss, Katalin. 2002. *The syntax of Hungarian.* CUP, Cambridge.

É. Kiss, Katalin. 2008. Tagadás vagy egyeztetés? *Magyar Nyelv* 104: 129–143.

Fauconnier, Gilles. 1985. *Mental spaces: Aspects of meaning construction in natural language.* MIT Press, Cambridge MA.

Gerdes, Kim and Sylvain Kahane. 2001. Word order in German: A formal dependency grammar using a topology model. *Proceedings from the 39ᵗʰ annual meeting of the ACL*. 220–227.

Goldberg, Adele. 2006. *Constructions at work: the nature of generalization in language.* OUP, Oxford.

Groß, Thomas. 2001. Clitics in Dependency Morphology. *Depling 2011 Proceedings*: 58–68.

Groß, Thomas and Timothy Osborne. 2009. Toward a practical dependency grammar theory of discontinuities. *SKY J. of Ling.* 22: 43–90.

Heine, Bernd. 1993. *Auxiliaries: cognitive forces and grammaticalization*. OUP, Oxford.

Hudson, Richard. 1990. *English Word Grammar.* Blackwell, Oxford.

Hudson, Richard. 2000. Discontinuities. In: Kahane, Sylvaine (ed.), *Les grammaires de dépendance. Traitement automatique des langues 41*. Hermes, Paris. 7–56.

Hudson, Richard. 2007. *Language networks. The new Word Grammar*. OUP, Oxford.

Imrényi, András. 2012. Inversion in English and Hungarian: comparison from a cognitive perspective. In: Hart, Christopher (ed.), *Selected Papers from UK-CLA Meetings*, *1*. 209–228.

Jespersen, Otto. 1924. *The philosophy of grammar.* George Allen & Unwin Ltd, London.

Kálmán C., György, Kálmán László, Nádasdy Ádám and Prószéky Gábor. 1989. A magyar segédigék rendszere. *Általános Nyelvészeti Tanulmányok* XVII: 49–103.

Kenesei, István. 2008. A segédigék. In: Kiefer Ferenc ed. *Strukturális Magyar Nyelvtan 4. A szótár szerkezete.* Akadémiai Kiadó, Budapest. 615–620.

Kiefer, Ferenc. 2003. A kétféle igemódosítóról. *Nyelvtudományi Közlemények* 100: 177–186.

Lengyel, Klára. 2000. A segédigék és származékaik. In: Keszler, Borbála (ed.), *Magyar grammatika.* Nemzeti Tankönyvkiadó, Budapest. 252–258.

Mel'čuk, Igor. 1988. *Dependency Syntax: Theory and Practice.* The SUNY Press, Albany, N.Y.

Nivre, Joakim. 2005. *Dependency grammar and dependency parsing*. Vaxjo University.

O'Grady, William. 1998. The syntax of idioms. *Natural Language and Linguistic Theory* 16: 279–312.

Osborne, Timothy. 2005. Beyond the constituent: A dependency grammar analysis of chains. *Folia Linguistica* 39: 251–297.

Osborne, Timothy and Thomas Groß. 2012. Constructions are catenae. Construction Grammar meets Dependency Grammar. *Cognitive Linguistics* 23 (1): 163–214.

Osborne, Timothy, Michael Putnam and Thomas Groß. 2012. Catenae: Introducing a novel unit of syntactic analysis. *Syntax* 15 (4): 354–396.

Rosta, Andrew. 2006. Structural and distributional heads. In: Kensei Sugayama and Richard Hudson (eds.), *Word Grammar. New perspectives on a theory of language structure*. Continuum, London. 171–203.

Stefanowitsch, Anatol and Stefan Th. Gries. 2003. Collostructions: Investigating the inter-action between words and constructions. *International Journal of Corpus Linguistics* 8 (2): 209–43.

Tesnière, Lucien. 1959. *Éléments de syntaxe structurale.* Klincksieck, Paris.