

On the configurationality of Hungarian Dative constructions: An experimental study*

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The present paper reports on the findings of two experiments designed to establish the (non-)configurational nature of Hungarian dative constructions. Phenomena from the realm of Conditions A and C of Binding Theory and the scope taking properties of non-increasing quantifiers were used to create stimuli which were tested in native speaker acceptability judgment experiments. The test based on Condition A showed a clear hierarchical asymmetry between the two internal arguments, while those based on quantifier scope and Condition C did not provide evidence either for a hierarchical or non-hierarchical approach to internal constituent structure. It is argued that these tests failed because of reasons independent of structural relations between constituents.

Keywords: *configurationality, Hungarian, dative structures, binding, quantifier scope*

1 Introduction

The present paper aims to follow up on the configurationality debate regarding the Hungarian Verb Phrase. More specifically it will report on two experiments aimed at establishing the (non-)configurational nature of the internal arguments in dative constructions, thereby extending the debate which has previously been limited to the more general Subject-Object relation. The results of the experiments will show that there is some, but yet still inconclusive evidence in favor of a configurational approach to the syntax of the internal arguments.

In section 2 I will introduce the key phenomena which have been used in the debate as well as distinguishing those that can serve as adequate tests for establishing internal argument relations. In section 3 I will present the design and results of the two experiments which used these phenomena as testing tools. In section 4 I will discuss why some of the tests failed to produce conclusive evidence in favor of either approach and why, even so, the results of the two experiments still show that a configurational approach is preferable. Section 5 will conclude the paper.

2 State of the debate

The most thoroughly worked out theory of the Hungarian VP is that by É. Kiss (1987a, 1987b, 1991, 2002 and 2003), which relies on a number of phenomena to argue that the constituents of the VP are base generated in a non-configurational manner. The main merit of the approach developed by É. Kiss can be viewed as its ability to provide an explanation for a wide range of data in an intuitive and simple way. However, this theory

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is hybrid in nature, involving (mutual) c-command, linear ordering and the thematic hierarchy in a direct manner to account for the observable (a)symmetries in the post-verbal region. There have been configurational analyses developed, such as Horváth (1986), Marác (1989) and Speas (1990), however these rely on auxiliary hypotheses and theory internal assumptions which are more difficult to maintain in more recent versions of transformational theory.

Surányi (2006a) reviewed the phenomena, which have been used to support the non-configurational approach, and argued that in fact some of the data provide inconclusive evidence for the flat structure hypothesis, while there is further data that favor a configurational analysis coupled with scrambling movement.

There is also a more recent theory developed by É. Kiss (2008). In this version of the theory the base structure of the constituents is initially hierarchical, but during the derivation this structure flattens out, thereby both symmetries and asymmetries can be accounted for. The flattening out is made possible by an appeal to Phase Theory, in such a way that when a phasal boundary (which in Hungarian is restricted to the *v*P) is reached in the derivation, the elements left within that phase are free to linearize in any order. At present I will not differentiate between these two approaches as both are hierarchical at the point of the merger of the constituents.

As noted above, most of the data which has been analyzed by the cited works concerns subject-object (a)symmetries. While data of this type is the natural starting point in the research for structural relations between arguments, the full picture of constituent configurationality can only be gained if this inquiry is made more complete by a systematic survey of the relevant phenomena pertaining to the relation between the internal arguments. Albeit this relation might be more elusive to capture than in the case of the subject-object hierarchy, due to factors such as the potential base structure variation of accusative-dative hierarchies, and the uncertainty of the argumenthood of the dative constituent in the case of certain verbs.

In what follows I will give a brief overview of the main phenomena which have been appealed to in the debate thus far (section 2.1). I will then provide a more detailed discussion of the data that are relevant to establishing the (non)-configurational nature of internal argument relations (section 2.2). For ease of comparability, in this review I will follow the presentation of Surányi (2006a).

2.1 Phenomena relevant for the Subject-Object relations

There are a number of phenomena, which have been implicated in the debate on the configurationality of the Hungarian VP. Most of these I will not devote a lot of space to, as they are either well explained by both the flat VP approach and the scrambling approach, and thus are not good tools for the purpose of this paper; or they are not well adaptable to experimental testing of the two internal arguments. Therefore I will only briefly review the most important of them here.

The most apparent indication that constituents within the VP may conform to different ordering principles is the fact that they exhibit free surface word order, contrary to elements higher up in the clausal structure. While this observation may be taken to support an analysis which claims that constituents are freely merged in any order in a flat structure, the same result can be reached by assuming a scrambling operation which has been argued for in partially free word order languages such as German and Japanese.

The lack of Weak Crossover effects (WCO)¹, and Superiority phenomena were taken as further indicators that the Hungarian VP lacks a hierarchical constituent structure. However, these properties of Hungarian can be explained via scrambling as well. In the case of WCO, scrambling can occur prior to the A-bar movement of the phrase containing the bound element, resulting in a derivation in which crossover, and thus deterioration of grammaticality, does not arise. Likewise, scrambling of the base structure can be used to explain why superiority phenomena, which require the relative base order of *wh*-elements to be kept when fronted, are not present in Hungarian. If it is assumed that *wh*-movement is possible either from the base order or the scrambled order, then all possible word orders are accounted for. Since both the scrambling and the flat structure approach explain the lack of these phenomena in Hungarian, no test based on them would be able to make a distinction between the two competing theories.

Another group of phenomena concerns *that*-trace effects and movement of a *wh*-element across a [SpecCP], which is filled by another *wh*-element (as observed by É Kiss 1987). It has been noted that in configurational languages like English, the complementizer blocks the extraction of a subject (but not the object) from a local clause, this phenomena is known as the *that*-trace effect. In Hungarian the *that*-trace effect is not observable, subjects and objects are extractable according to the same conditions, thus it can be argued that there is no hierarchical distinction between them. Similarly, the movement of a subject *wh*-phrase across a *wh*-filled [SpecCP] yields ungrammaticality in English, but a similar movement with an object *wh*-phrase results merely in degradation of acceptability. In Hungarian no such differences can be observed.

Surányi (2006a,b) argues, that these observations can be explained independently of the hierarchical differences between the constituents at base structure. The lack of *that*-trace effects has been correlated with *pro*-drop (Perlmutter 1971), as well as with the availability of *v*P-internal subjects (Bennis 1986; Szczegielniak 1999). Concerning *wh*-extraction, there are also possible explanations, which do not rely on the configurationality of constituents, such as the possibility of multiple specifier configurations (Rudin 1988) or the potential availability of a *v*P-internal surface subject position (Sabel 2002). These theories have been developed on the basis of configurational languages, thus the potential non-configurationality of Hungarian is not at issue.

Since tests based on *that*-trace effects would be expected to distinguish between subjects and objects and not between two internal arguments, these tests were not included in the present study.

¹ WCO effects obtain when there are two constituents in an asymmetrical hierarchical relation, where the higher constituent contains a variable β that is bound by an element α within the lower constituent. If α is A-bar moved to a position higher than β , there is a deterioration in acceptability (the “effect”) (Postal, 1971; Wasow, 1972). This is illustrated by the following English example:

(i) ? *Who*_i does *his*_i mother love *t*_i ?

If α is the object and β beta is the subject, then in languages like English, where the subject asymmetrically c-commands the object, α is assumed to be lower than β . This does not seem to be the case in Hungarian, where an object-subject WCO effect does not obtain.

2.2 Phenomena related to the present experiments

In what follows I will expand on three phenomena, two from the realm of binding and one from that of quantifier scope taking that will form part of the perception experiments reported in this paper. These observations were also made before, but have not been adapted specifically for the testing of internal argument relations. This will be expanded on in section 3. Here I will examine how they have been used in the debate thus far.

2.2.1. Condition C

The formulation of Condition C of Binding Theory makes it a candidate to be used to pinpoint hierarchical differences between two constituents. If the two c-command each other, then if a referential expression in one is bound by a co-referential element in the other, ungrammaticality should arise, regardless of surface word order. This is so, because Condition C calls for there to be no such point in the derivation where an r-expression is c-commanded by a co-referential element. É. Kiss claims that this is exactly the case, as sentences with a post-verbal phrase containing an r-expressions and another phrase realized by a coreferential pronouns (as arguments) are deemed to be ungrammatical, such as the following example taken from É. Kiss (2002):

- (1) **Tegnap felhívta [a fiúk_i anyja] [őket_i].*
 yesterday up.called the boys mother.POSS them
 ‘Yesterday the boy’s mother called them.’

Surányi (2006a) reports on data that suggest that native speaker judgments are much more varied than what would be expected based on a flat VP account. 10 out of 25 informants found the sentences of the type illustrated by (1) to be degraded, but not wholly ungrammatical, while 7 found them to be acceptable, and 8 rejected them as ungrammatical. Surányi goes on to suggest that the degradation of these sentences might be due to factors independent of hierarchical conditions on binding. Citing Varga (1981) he observes that there is a preference for pronouns to occur close to the verb post-verbally, and not to be separated from it by a stress bearing element. Thus if the subject is fronted to a topic position and the accusative pronoun is left in an immediate post-verbal position there is a significant improvement in grammaticality judgments, whereas similar improvement is not attested if the pronoun is in the subject constituent.

Thus data from the realm of Condition C do not give as clear an indication of structural hierarchies as its formulation would theoretically make possible. There are possibilities to get a more detailed picture of this set of data by including structures that involve a silent *pro* instead of an overt pronoun, such as the following.

- (2) *Mi van Péterrel?*
 ‘What have you heard of Peter?’
- a. *?Végül Péter_i főnöke fel hívta pro_i.*
 eventually Peter.NOM boss.POSS.NOM up called
 ‘Eventually Peter was called by his boss.’
- b. **Végül Péter_i főnökét fel hívta pro_i.*
 eventually Peter.nom boss.poss.acc up called
 ‘Eventually Peter called his boss.’

Surányi notes that although judgments with these types of sentences also do not yield strong evidence, they showed a tendency to support the assumption that the subject is structurally higher than the object, as subject pronouns co-referring with object possessors are perceived to be much worse than their opposite counterparts.

2.2.2 Condition A

While it is not straightforward as to what Condition C indicates as far as subject-object hierarchies are concerned, structures that exhibit violations of Condition A provide some more direct evidence in favor of a configurational approach, as can be seen in the following example, taken from É. Kiss (2008):

- (3) a. *A kurzuson tanultak egymástól_i a diákok_r.*
 the course learned eachother.from the students
 ‘It was at the course where the students learned from each other.’
 b. **A kurzuson tanult egymás_i a diákoktól_r.*
 the course learned eachother the students.from
 ‘It was at the course where the students learned from each other.’

While this data can be taken to serve in favor of a hierarchical approach, it has also been claimed that the asymmetry between the elements in this case is not in terms of their syntactic positions but rather the positions that they occupy on the Thematic Hierarchy (É. Kiss, 1991, 1994b). A configurational approach would explain this observation in a straightforward way, relying on the structural relation between the two constituents: subject anaphoras are ungrammatical since they cannot be bound in their base position by the object antecedent.

2.2.3 Quantifier Scope

Surányi (2006a,b) claims that besides explaining the observations that have traditionally been called upon to support the flat VP approach, the configurational/scrambling approach can explain additional phenomena that fall out of the range of the competing theory. One such phenomenon is the observation (Szabolcsi 1997, Surányi 2002) related to the scope taking properties of post-verbal non-increasing Quantifier Phrases (QP). As discussed in Surányi (2004), there is an asymmetry in terms of scope possibilities for *few*-QPs depending on which constituent they occur in, as exemplified by the following sentences (taken from Surányi (2004)).²

- (4) *Tavaly végzett el...*
 last year completed....
 a. *minden diák kevés kurzust.* (S>O, *O>S)
 every student.NOM few courses.ACC
 b. *keves kurzust minden diák.* (S>O, O>S)
 few courses.ACC every student.NOM
 O>S:
 ‘It was last year that all of the courses were such that few students completed them.’

² The postverbal arguments are not meant to have a focused discourse-structural status.

S>O:

‘It was last year that few of the students completed every course.’

- c. *minden kurzust kevés diák.*
every course.ACC few students.NOM
- d. *kevés diák minden kurzust.*
few students.NOM every course.ACC

The contrast can be explained by assuming that non-increasing QPs like *few*-QPs cannot take inverse scope higher than their A-position (see Szabolcsi 1997, and references therein). Thus while *minden* ‘every’ is free to scope over *kevés* ‘few’ regardless of which constituent it occurs in, *kevés* can only take scope over *minden* if it is hierarchically higher at its base structure A-position, or at its scrambled A-position (Surányi 2006a). In the case of (4b), the object *few*-QP is in its scrambled A-position, taking scope over the subject. In the case of (4c): the subject *few*-QP takes scope over the object from the subject base position. This observation can be exploited to detect hierarchical asymmetries between constituents. Furthermore, while the explanation for such phenomena is available in the case of the hierarchical approach, it requires a direct reliance on linear order on a flat-VP approach.

3 The Experiments

The experiments were conducted in two sets. Tests were based on observations regarding Conditions A and C of Binding Theory, and the scope of non-increasing QPs as presented in section 2.2.

When the verbs for the target sentences were chosen, a number of factors were considered in order to maintain control over the variables involved. High frequency ditransitive verbs were preferred in order to facilitate informants in imagining the contexts where the target sentences could have been uttered. It was anticipated, based on Haider and Rosengren (2003), that there might be verbal classes with a different base order of constituents. The observations made there were that the thematic roles given by the verb can have an influence on the base order of the internal arguments; this possible factor was also taken into consideration when the verbs for the study were selected.

The results of the first experiment showed that in order to achieve more conclusive evidence, data needed to be collected in administered sessions, in order to achieve a common ground of understanding with informants as to what their judgments should be based on, and to immediately answer potentially arising questions.

3.1 Experiment 1

Experiment 1 was conducted with 8 informants via an online questionnaire. For this experiment 4 verbs were chosen, *alárendel* ‘to subordinate’, *átad* ‘to give over’, *bemutat* ‘to introduce’ and *elárul* ‘to betray’. In the case of the Condition A and C based tests the informants had to give acceptability judgments on a 7 point scale, while they had to choose between possible scope readings in a multiple-choice format.

3.1.1 Condition A

For the Condition A test, sentences were constructed using the above verbs in sets of 4. Each set contained a verb in first person singular, followed by a pronoun and a reflexive pronoun alternating between different cases and word orders to produce the 4 possible variations, as shown below.

- (5) a. *Elárultam egymást_i nekik_r*
betrayed.1sg eachother.acc them.dat
- b. *Elárultam nekik_i egymást_r*
betrayed.1sg them.dat eachother.acc
- c. *Elárultam egymásnak_i őket_r*
betrayed.1sg eachother.dat them.acc
- d. *Elárultam őket_i egymásnak_r*
betrayed.1sg them.acc eachother.dat
'I betrayed them to each other.'

These target sentences were embedded in contexts such that they were always the initial sentence of the condition, and the following context made it clear that the pronoun and the reflexive were co-referential.

If a configurational base structure is assumed than the surface word orders represented in (5) can each be possibly assigned one of the structures in (6).

- (6) a. [ACC [DAT]] accusative > dative base hierarchy
- b. [DAT [ACC]] dative > accusative base hierarchy
- c. [ACC [DAT [*t*_{ACC}]]] dative > accusative base hierarchy with scrambling
- d. [DAT [ACC [*t*_{DAT}]]] accusative > dative base hierarchy with scrambling

Owing to the formulation of Condition A, it was expected that if the internal arguments are configurational, then there would be a discernable pattern in the acceptability judgments in such a way that there would be either a 1-2-1 pattern or a 3-1 pattern in received acceptability scores. A 1-2-1 pattern would be made up of one variant which received clearly higher scores than the other three, one which received clearly lower scores than the others, and two whose scores place them between the highest and lowest ranked variants. A 3-1 pattern would arise if one variant was clearly better than the rest, which did not show significant difference relative to each other. Let us see why the options in (6) give rise to these expectations.

It was anticipated that one of the four possibilities, either (6a) or (6b), the variants that did not involve scrambling, would represent the base order of the constituents in such a way that Condition A would be violated, and would thus be marked down significantly. Another one of the two non-scrambled variants, would turn out to be grammatical, this would be the one representing the base structure of constituents in such a way that that Condition A is adhered to. The remaining two possibilities, (6c) and (6d) represent surface word orders that result from the scrambling of the constituents in such a way that a trace is left in their base positions. It was anticipated that these structures would exhibit scores between the grammatical and ungrammatical variants, since the surface word order would affect the binding relations between antecedent and anaphor. This could happen in two possible ways: (i) in the base order the antecedent

precedes and binds the anaphor, then as a result of scrambling, the anaphor is moved to precede the antecedent in the surface word order leaving behind a trace in a bound position, it is possible that this surface word order will result in a *deterioration* of grammaticality due to the interference the pre-posed anaphor causes to the processing of the binding relation between the antecedent and the trace; (ii) in the base order the antecedent does not bind the anaphor, thus violating Condition A, however then as a result of scrambling the antecedent precedes the anaphor in the surface word order, it is then possible that the surface word order allows for an *amelioration* of the Condition A violation through the linear precedence of the antecedent. It was hypothesized that informants would either show both (i) and (ii), resulting in a 1-2-1 patterning of the acceptability scores. Or, they would show neither (i) nor (ii), in which case a 3-1 pattern would emerge. This pattern would be made up of 3 structures deemed to be grammatical and 1 deemed to be ungrammatical, as the constraint of Condition A calling for there to be a point in the derivation such that the anaphor is bound by the antecedent would be satisfied in the base order (either (6a) or (6b)) as well as the two scrambled word orders, in essence singling out the incorrect base order. It was also thought possible that a 2-2 pattern would arise, which would indicate that the surface word order did not effect the binding relations.

3.1.2 Condition C

Tests based on Condition C were similarly constructed. In this case one of the constituents consisted of an r-expression embedded in a possessed noun phrase, and a pronoun. As with in the case of the Condition A test, all 4 possibilities, exemplified below, were presented to the informants, who were asked to rate them on a 7 point scale.

- (7) *Elárultam...*
 betrayed.1sg...
- | | | | | | | | |
|----|--------------------------|--------------------------|-------------------------|----|--------------------------|--------------------------|----------------------|
| a. | <i>János_i</i> | <i>apósát</i> | <i>neki_r</i> | c. | <i>János_i</i> | <i>apósának.</i> | <i>ő_r</i> |
| | John's | father-in-law.ACC | he.DAT | | John's | father-in-law.DAT | he.ACC |
| b. | <i>neki_i</i> | <i>János_i</i> | <i>apósát.</i> | d. | <i>ő_i</i> | <i>János_i</i> | <i>apósának.</i> |
| | he.dat | John's | father-in-law.ACC | | he.acc | John's | father-in-law.DAT |
- 'I betrayed John's father-in-law to him.'
 'I betrayed him_i to John_i's father-in-law.'

Since Condition C of Binding Theory is formulated within the field of the same theoretical assumptions, but with conditions mirroring those of Condition A, the results were expected to be also mirroring those of the Condition A based test. Notably the same two types (1-2-1, 3-1) of patterning of grammaticality judgments were expected. Here again it was hypothesized that deterioration and amelioration as described in (i) and (ii) above would either determine the judgments of the scrambled structures and thus result in a 1-2-1 pattern, or a 3-1 pattern would emerge. In this case however the one singled out would not be the incorrect base order, but the correct one, as Condition C calls for there not to be a point in the derivation where an r-expression would be c-commanded by an antecedent. This condition would be violated in the incorrect base order as well as both of the structures resulting from scrambling.

To give an illustration, let us assume an accusative > dative base order. If this is so, then of the examples given above if a 3-1 pattern emerges then (7a) would be singled out as the correct variant while (7b-d) would receive lower scores, but these would be clustered together. In case of 1-2-1 pattern, again (7a) would be singled out with the

highest score, and the variant representing alternate base order (7c) would receive the lowest score of the four. The two remaining variants, representing scrambled orders (7b) and (7d) would receive scores between the two extremes.

3.1.3 Scope of QPs

Target sentences of the QP scope based test were also designed with the same four verbs as for the Condition A and C test. For each verb there were again four target sentences to be judged. The variation in the target sentence sets arose from the combination of different word orders and case of the constituents, as exemplified below.

- (8) *A megszállás alatt árultak el...* (m.r.= member of the resistance)
 the occupation under betrayed PRT...
- | | | | |
|----|--|----|--|
| a. | <i>kevés kémnek minden ellenállót.</i> | c. | <i>kevés ellenállót minden kémnek.</i> |
| | few spy.dat every m.r.acc | | few m.r.acc every spy.dat |
| b. | <i>minden ellenállót kevés kémnek.</i> | d. | <i>minen kémnek kevés ellenállót.</i> |
| | every m.r.acc few spy.dat | | every spy.dat few m.r.acc |
- ‘It was under the occupation that few members of the resistance were betrayed to each and every spy.’
 ‘It was under the occupation that to few spies were betrayed all members of the resistance.’

The target sentences were presented to the informants without a context. Then the two possible scope readings were paraphrased and presented in a multiple-choice format. The informants were asked to identify the reading that they could associate with the target sentence, there were also options identifying both readings as possible as well as identifying that neither of the readings is possible for the informant.

The results were expected to pattern in a way as to mark one of the four stimuli as not ambiguous while both possible scope readings were available in the other three. This was expected because there would be only one variant where the *few* quantifier would be hierarchically lower than the universal quantifier throughout the derivation: in the base hierarchy without scrambling movement. Since this would be the only variant in which *kevés* could not take scope over *minden*, ambiguity would not arise. If the *few*-QP in this one variant had dative case marking, then the base hierarchy of the constituents would be identified as accusative > dative, if it was marked for accusative case, the base hierarchy would be dative > accusative. It was expected that ambiguity would be observed if the informants marked both scope readings as possible.

3.1.4 Results and Discussion

The results for the Condition A based test are given in the table below. The four columns present the mean acceptability judgment scores of the four variants associated with each verb. The grammatical case of the antecedent and the anaphor are given in the top row, the constituent which is higher linearly precedes the lower one.

	Anaphor.ACC Antecedent.DAT	Antecedent.DAT Anaphor.ACC	Anaphor.DAT Antecedent.ACC	Antecedent.ACC Anaphor.DAT
bemutat 'introduce'	1,71	2,85	6,00	7,00
alárendel 'subordinate'	1,42	2,71	3,85	5,85
elárul 'betray'	2,00	2,89	4,86	6,85
átad 'hand over'	1,57	2,42	4,57	4,00
average	1,67	2,71	4,82	5,85

Table 1. Acceptability scores for the Condition A based test

If we observe which variants received the highest scores it is apparent that the difference in acceptability judgments is much bigger in terms of the variation in the case of the anaphora, than within the possible word orders associated with a case variant. This result provides strong evidence in support of a hierarchical approach, assuming a structural account of anaphor binding. The patterns for the individual verbs seem to indicate a 1-2-1 pattern as described in section 3.1.1 above, although not in a clear-cut way in all cases. This would indicate that scrambling results in amelioration and deterioration in the case of anaphora binding. The order which received the highest over all scores was the order in which an accusative antecedent preceded a dative anaphor (the rightmost column), indicating that the base hierarchy of the two internal arguments is accusative > dative. The order that received the lowest score was the one in which the dative antecedent followed the accusative anaphor (the leftmost column), pointing to the same conclusion.

The results of the Condition C based tests are presented in the table below, the information relating the linear order and case of the r-expressions/pronouns is structured in the same way as in Table 1. The scores indicate the extent to which the subjects found the binding relation between the possessor r-expression and the pronoun in its co-argument acceptable.

	Pronoun.ACC R-exp.DAT	R-exp.DAT Pronoun.ACC	Pronoun.DAT R-exp.ACC	R-exp.ACC Pronoun.DAT
bemutat 'introduce'	3,14	2,28	2,57	3,00
alárendel 'subordinate'	2,42	2,42	2,57	3,00
elárul 'betray'	3,42	2,42	3,00	3,00
átad 'hand over'	2,28	2,83	3,00	2,71
average	2,82	2,48	2,78	2,92

Table 2. Acceptability scores of the Condition C based test.

What is apparent from these results is that the neither of the expected patterns surfaced, in fact each mean figure falls within the 2,28–3.00 range. In other words, all possible variants exhibit rather low scores. This seems to indicate that the two constituents c-command each other in any given variation, therefore there is no apparent hierarchical asymmetry between them (Katalin É. Kiss p.c.). Therefore these results as they stand are not adequate to determine the base hierarchy of the constituents, since in fact they apparently serve as an argument against the configurational approach to internal argument structure. However, if this were the case, then lower scores would be expected for all variants, as they are all supposed to violate Condition C, and thus induce ungrammaticality. This is evident if we consider the Condition A violating variants in the previous test (the leftmost column in Table 1), which received lower scores relative to all of those in Table 2. In fact, while at least one configuration for each verb has received a mean value of 3,00 in the Condition C test, the mean value of the ‘unacceptable’ configuration in the Condition A test is 1,67. If each configuration in Table 2 violates Condition C of Binding Theory, we would expect mean values in the proximity of this latter figure. Thus in fact this test serves as argument in favor of neither of the two approaches.

The results for the QP scope based tests are given in the following table.

	every.ACC few.DAT	few.DAT every.ACC	few.ACC every.DAT	every.DAT few.ACC
ad ‘give’	ambiguity	ambiguity	no ambiguity	no ambiguity
alárendel ‘subordinate’	no ambiguity	ambiguity	ambiguity	ambiguity
elárul ‘betray’	ambiguity	no ambiguity	ambiguity	ambiguity
bemutat ‘introduce’	no(slight) ambiguity	no ambiguity	slight ambiguity	ambiguity

Table 3. Results in terms of ambiguity of the quantifier scope based test

In this case there are no raw scores, rather the possibility of ambiguity was assessed from the result of the multiple-choice test. Word order and case variants are indicated as before.

Recall that the expected results for the QP scope based tests were such that there would be one word order variant in which there would be no ambiguity in terms of scope readings for the two quantifiers. This hypothesis is borne out, but not entirely to the expected degree. There are two verbs where more than one variant was observed as not ambiguous. Of these the case of *ad* ‘give’ seems to be explainable on the lines that non-ambiguity arises when the *few* quantifier is on the accusative constituent regardless of the surface word order. This would suggest that when scope taking occurs in the derivation, the accusative constituent is in an asymmetrical position with relation to the dative constituent. Recall that the initial observation made regarding scope taking of *few* was that it could not take inverse scope higher than its A position, thus this data would indicate that, at least in the case of *ad* the base structure is dative > accusative. On these

lines the other three verbs tested point to a different base order, since in their case non-ambiguity arises when the *few* quantifier is in the dative constituent. The most interesting case of these three is *elárul* ‘betray’, which produced one case of non-ambiguity, however in the unexpected *few*.DAT > *every*.ACC surface word order, where non-ambiguity would only be expected if it was a scrambled order, however in such a case the *every*.ACC > *few*.DAT would also be expected to exhibit similar non-ambiguity, but as the table shows, it does not. Of the other two verbs *elárul* ‘betray’ shows the expected results as discussed in section 3.1.3, while *bemutat* ‘introduce’ shows a similar pattern to *ad*, however this pattern points to a different potential base hierarchy.

Since the results of the QP scope test are to a degree in conflict with the results of the Condition A test I will not attempt to unify the two to arrive at a definite base hierarchy for the verbs tested. But the fact that both of the tests showed some patterning may be taken as an indication of hierarchies between the two constituents. I will thus take these results as supporting evidence for the hierarchical view. After the completion of Experiment 1 it was believed that this difference in results between the three tests may be reduced if the design of the experiment was modified. Recall that when determining the possible scope readings the informants were presented with four options, which included both possible scope interpretations. It was hypothesized, that by presenting these, the judgments of the informants might have been influenced in such a way that one of the presented readings ruled out the other, when in fact that should also have been available. This point was influential in the design of Experiment 2.

The fact that the Condition C test provided evidence not in line with that of Condition A can possibly be explained by independent factors, relating to the design of the experiment. The stimuli in this test contained sentences in which proper names and pronouns were used post-verbally. As noted in section 2.2.1 Surányi (2006a) argued that the preferred position of post-verbal pronouns might be influenced by factors related to pronouns, independent of binding conditions. In this experiment I chose to test four verbs, to control for possible variation between them, this was done at the expense of excluding stimuli which would have tested Condition C violations without the use of pronouns. This was remedied in the second round of experimentation.

In conclusion to the discussion of Experiment 1, it can be noted that results were found which support the hierarchical base structure approach to internal argument structure. However the evidence is conflicting in terms of what this hierarchy is, and whether or not it varies between different verbs/verb classes. Furthermore the Condition C test does not support the hierarchical approach. It is possible that an improved design of the experiment will resolve these issues.

3.2.1 Experiment 2

Experiment 2 was administered because of the perceived problems of experiment 1. While the types of tests used remained unchanged, new target sentences were devised, with a new type of condition for the Condition A and C tests, and new contexts were written for all conditions. To accommodate for these new conditions in terms of testing time and to reduce the burden of the experiment on the informants, two verbs were selected from the four used in experiment 1. There were a total of 14 informants.

A more detailed instruction was written for the informants including sample sentences which had been given grammaticality judgments. The sample sentences dealt with similar Binding Condition violations and scope interpretations, and the informants were asked on their opinion of the judgments that were provided for the sentences, and this provided an opportunity to focus the informants’ attention on what to base their

judgments on. To make judgments more uniform and to ease the task of the informants a 5 point scale was presented and a description for each ‘grade’ was provided for the informants.

The stimuli in the Condition A based test were rewritten in such a way as to involve proper names as antecedents to make binding relations easier to establish. Furthermore a new set of stimuli was introduced involving possessive structures. This was done to see what effect embedding, and thereby distancing the anaphor from the antecedent would have on the results. Below I present one variant from each stimuli group, which were made up of four possible stimuli variants as in Experiment 1. The test sentences were always the first in a larger context which made it clear that the anaphor and the antecedents were co-referential.

- (9) a. *Amikor bemutatod egymást_i [Jánosnak és Annának]_i...*
 when introduce.2SG eachother.ACC John.DAT and Anna.DAT
 ‘When you introduce Anna and John to each other...’
- b. *Miután bemutatattam [Jánosnak és Annának]_i egymás_i apját...*
 after introduce.1SG John.DAT and Anna.DAT eachother father.DAT
 ‘After I introduced John and Anna to each other’s fathers...’

The stimuli in the Condition C based test were also rewritten. The major change in these was the introduction of a new set where the pronouns were replaced with epithets, to marginalize any possible effects independent of binding conditions, namely those relating to pronouns as mentioned above. A set where pronouns were kept in the place of epithets was used as control. I will give an example of an epithet stimulus below, again each group of stimuli contained four possible variants as before.

- (10) a. *Mielőtt átadtam a szerencsétlent_i János_i felettesének...*
 before over.gave.1SG the miserable.ACC John superior.POSS.DAT
 ‘Before I handed over to John's superior that miserable guy...’
- b. *Mielőtt átadtam őt_i János_i felettesének...*
 before over.gave.1SG he.ACC John superior.POSS.DAT
 ‘Before I handed him over to John’s superior...’

In order to control givenness, the target sentences were usually the first sentence in the context. If this resulted in very awkward contexts then the target sentences was embedded within the context, however, the context sentences were constructed in a way that there would be no element preceding the target sentence which could be a potential binder of the anaphor/pronoun within the target sentence. The expected results were the same as in the case of Experiment 1 as described in sections 3.1.1 and 3.1.2.

The stimuli for the test based on quantifier scope were redesigned in such a way that informants had to judge to what extent a question, containing the stimuli matched with an answer that that described one of the possible scope readings. What informants gave judgments on was how well they thought the answer and the question fit. (11) illustrates this condition.

- (11) *Miért mutattál be minden osztályvezetőnek kevesebb, mint
 why showed in every head-of-department.DAT fewer than
 öt új munkatársat?
 five new co-workers.ACC*

Azért, mert a most felvett munkatársak úgy oszlanak el a cégnél, hogy mindegyik osztályvezető alá átlagosan csak néhány kerül közülük, és mivel a cég már elég nagy, nem várhatom el az osztályvezetőktől, hogy minden új munkatársat személyesen ismerjenek.

Because the newly employed co-workers are distributed in the company in such a way that on average only a few of them will work together with each head of a department, and because the company is now fairly large, I can't expect each department head to know every new employee personally.

Scope reading: every > few

For each of the two verbs there were eight conditions: four target sentences were produced with the combination of different case and word order possibilities, and each of these target sentences was presented with two possible scope readings as contexts, one in which the *few*-QP took scope over the *every*-QP and one in which this relation was reversed. The answers were constructed in such a way that they would present one scope reading while blocking out the other. The reason for using questions to present the stimuli was that the *wh*-operator takes scope over the entire clause, thus limiting the scope taking possibilities of the two post-verbal quantifiers to their local domain.

It was expected that informants would give low points to questions that did not entail the scope readings presented in the answers, relative to the points they would give to questions where scope readings were congruent with the context described in the given answer. If the observation about *few*-type QPs proved to be true, the judgments would point to one order-case variant as significantly worse than the other seven, namely one in which the *few*-QP followed the *every*-QP linearly, and the given answer was presented in a context in which *few* took scope over *every*. Out of the eight variants two satisfy this condition differing from each other only in the case of the *few*-QP, the one with the lower acceptance score would be the one which represents the base hierarchy of the two constituents.

3.2.2 Results

I. Condition A

The results for the Condition A based test are given in the table below:

verb	anaphor case	surface word order	average acceptability scores
<i>ad</i> 'give'	dative	DAT > ACC	4.78
		ACC > DAT	4.78
	accusative	DAT > ACC	2.35
		ACC > DAT	2.78
<i>bemutat</i> 'introduce'	dative	DAT > ACC	4.78
		ACC > DAT	5.00
	accusative	DAT > ACC	1.78
		ACC > DAT	2.92

Table 3. Acceptability scores for Condition A based test: plain

verb	anaphor case	surface word order	average acceptability scores
<i>ad</i> 'give'	dative	DAT > ACC	2.78
		ACC > DAT	3.53
	accusative	DAT > ACC	3.85
		ACC > DAT	3.71
<i>bemutat</i> 'introduce'	dative	DAT > ACC	2.78
		ACC > DAT	4.28
	accusative	DAT > ACC	2.21
		ACC > DAT	3.03

Table 4. Acceptability scores for Condition A based test: possessive

As can be seen from the data in table 3, the factor which seems to be crucial in determining the acceptability scores is the case of the anaphor, and not the word order of the constituents. This pattern is, however, not like either of the two (1-2-1, 3-1) predicted patterns or the one (1-2-1) observed in Experiment 1. This 2-2 pattern seems to indicate that the word order of the constituents did not have an effect on the binding relation established when the two constituents were merged into the structure. If this assumption is correct, then this set of data suggests, that the base hierarchy of the constituents is accusative > dative; corroborating the result of the same test in Experiment 1.

The results of the possessive structure stimuli failed to produce the same pattern, and generally received worse scores than their 'plain' counterparts. The scores for *ad* 'give' do not vary enough to draw conclusions. The scores for *bemutat* 'introduce' however show a certain amount of patterning in line with the 3-1 predicted pattern. The stimuli with dative anaphor and an accusative > dative word order received a markedly higher score than the other stimuli in the set. This result also indicates an accusative > dative base order.

II. Condition C

The results of the Condition C based test are presented in the tables below.

verb	pronoun case	surface word order	mean acceptability scores
<i>ad</i> 'give'	dative	DAT > ACC	2.21
		ACC > DAT	2.60
	accusative	DAT > ACC	2.64
		ACC > DAT	3.20
<i>bemutat</i> 'introduce'	dative	DAT > ACC	1.64
		ACC > DAT	3.17
	accusative	DAT > ACC	2.14
		ACC > DAT	3.12

Table 5: Acceptability judgment scores for Condition C test: pronoun

verb	epithet case	surface word order	mean acceptability scores
<i>ad</i> 'give'	dative	DAT > ACC	2.03
		ACC > DAT	2.83
	accusative	DAT > ACC	2.57
		ACC > DAT	3.28
<i>bemutat</i> 'introduce'	dative	DAT > ACC	2.32
		ACC > DAT	3.57
	accusative	DAT > ACC	2.14
		ACC > DAT	3.50

Table 6: Acceptability judgment scores for Condition C test: epithet

The Condition C based test produced some results which are in line with the expectations outlined in section 3.1.2. However these results are only borne out in the case of the verb *bemutat* 'introduce', as highlighted in tables 5 and 6. Based on the results of the Condition A test, it can be argued that the base hierarchy of dative constructions, for the verbs tested, is accusative > dative. In the case of *bemutat* this is corroborated by the Condition C based tests as well; the highest acceptability scores were given to variants where a dative pronoun/epithet is preceded by an accusative name. It is apparent, however, that these scores do not seem to be meaningfully differentiable from the scores of the other varieties. Furthermore the verb *ad* does not show any patterns that would indicate a definite base hierarchy. I will return to the possible issues in relation to this test in section 4.

It is interesting to note that the replacement of the pronouns with epithets did not alter the results, which might indicate that the problems raised concerning the post-verbal distribution of pronouns does not play a significant role, at least as far as their morphology or prosody is concerned.

III. Quantifier scope

The results for the quantifier scope based test are presented in the table below.

word order <i>ad</i>	context	average score	word order <i>bemutat</i>	context	average score
<i>few</i> .DAT>∀.ACC	<i>few</i> > ∀	4.71	<i>few</i> .DAT>∀.ACC	<i>few</i> > ∀	3.96
	∀ > <i>few</i>	3.14		∀ > <i>few</i>	3.92
∀.ACC> <i>few</i> .DAT	<i>few</i> > ∀	3.92	∀.ACC> <i>few</i> .DAT	<i>few</i> > ∀	3.60
	∀ > <i>few</i>	2.57		∀ > <i>few</i>	4.07
<i>few</i> .ACC>∀.DAT	<i>few</i> > ∀	3.64	<i>few</i> .ACC>∀.DAT	<i>few</i> > ∀	4.07
	∀ > <i>few</i>	4.21		∀ > <i>few</i>	4.00
∀.DAT> <i>few</i> .ACC	<i>few</i> > ∀	3.71	∀.DAT> <i>few</i> .ACC	<i>few</i> > ∀	4.21
	∀ > <i>few</i>	4.42		∀ > <i>few</i>	4.00

Table 7: Acceptability judgment scores of the quantifier scope based test.

For each verb the four possible word order variants of with the two quantifiers are further broken down according to the context that they occurred with, resulting in a total of eight variants for each verb.

Recall that it was assumed that the quantifier scope based test worked in such a way that out of the eight possible variants one would be marked as significantly worse than the rest. This would be the variant where the *few*-QP followed the universal quantifier in linear order, and the scope reading offered by the context was such that *few* took scope over *every*, as the theoretical prediction was that in one of these cases the *few*-QP could not take scope over the universal quantifier. There were two potential candidates that qualified for these parameters; the difference between them was the case of the *few*-QP, these stimuli I have highlighted in bold in table 7 above. In the case of *ad* it is apparent that the test failed to produce the result that was expected, as it was neither of the two stimuli, which produced the lowest result. The fact that the lowest result was produced by a variant where the universal quantifier took straight scope over the *few*-QP seems to indicate a major flaw in the design of this test. In the case of *bemutat* the resulting scores seem to be in line with the expectations as the lowest score was produced by one of the candidates, while its minimal pair produced the highest score. Albeit the range between worse and best scores was somewhat compressed. This data indicates that the base hierarchy in the case of *bemutat* is accusative > dative, which is in line with the observations of the Condition A based test of both Experiments as well as the QP scope based test of Experiment 1. The difference in scores seems to be too marginal to be able to be used as an indicator of base order, however there is a pattern which would be unexpected if the base structure was flat.

4 Discussion

The most obvious observation deductible from the two experiments is that the results failed to produce as clear-cut an answer to the research question posed at the beginning of this paper as one could have hoped for considering the theoretical possibilities entailed by the test used in the experiments. The question now arises as to how to interpret the overall results. It is my view that although the results were not optimal, they

still indicate the presence of a structural hierarchy between the two arguments in question. From the data gathered, that hierarchy seems to be accusative > dative. The fact that the test results were not so clear can be seen as evidence that the asymmetry between internal arguments is in a way less apparent than that between the external and the internal arguments, as attested to by the literature cited above.

First let us consider the two tests that did not produce clearly interpretable results. One of these was the test involving scope readings. I believe that the fact that this test did not yield the desired results can be explained by its relative difficulty, and the presence of factors which were not foreseen and thus not controlled properly by the contexts. The difficulty of the experiment lay in that it required very active participation from the informants in terms of imagining situations in which different scope readings were felicitous based on a relatively short context provided. Since for this test each verb had four conditions, diverging from each other in minimal ways, it is possible that the informants did not invest the effort to establish new possible scope readings for each stimulus, but used one that they had already established. This is supported on the one hand by the feedback from the informants about the difficulty of the task and by such cases as the following: one of the informants marked a question-answer pair in this test as unacceptable, but when the administrator elaborated the context for ease of comprehension, the informant changed her initial evaluation to a four (almost completely grammatical). Situations like this suggest that the stimuli related to the scope interpretation of two post-verbal quantifiers involved added amounts of complexity which made them unsuitable for experiments of this sort, due to the increased number of variables to be controlled. One way of possibly overcoming this obstacle would be to increase the number of informants so as to decrease the diverging effect that individual strategies for achieving scope interpretation have.

The Condition C based test suffered from a similar problem. It was noted in Surányi (2006a) that the results may have been influenced by the preference of post-verbal pronouns to occur in a position adjacent to the verb. This effect was believed to have been countered by the use of epithets. Since the epithets did not produce significantly different results to the pronouns it can be stated that, if there is an effect related to pronouns in these cases it is not associated with their morphological or prosodic properties. This factor may possibly be related to the subject and object *pro*-drop property of Hungarian, more specifically, the possible accessibility requirements (Ariel 1990) that overt and covert pronouns impose on their antecedents in a *pro*-drop language.

There is however, some independent evidence which casts some doubt on the proper interpretation of the results of tests based on classic formulations of Condition C. Binding relations and co-reference have been extensively studied with acceptability judgment experiments by Gordon and Hendrik (1997) (hence forth G&H). Their findings indicate that there is a difference between the predictive capacity of the three Conditions of Binding Theory, more specifically, while Conditions A and B predict with relative accuracy the acceptability judgments of native speakers, this is not the case with respect to Condition C.³ It was found for example that in structures where a name is

³ The notion that the phenomena dealt with by Condition C differ from those dealt with by Condition A is supported by studies such as Grodzynsky and Reinhart (1993), which made the observation using language acquisition and aphasia studies that Conditions A is more robust than Conditions B and C. Their claim is that Condition A is the only domain where true variable binding occurs, thus divorcing binding from co-reference in general.

linearly preceded by a pronoun, co-reference is seldom established, even when there is a lack of a c-command relation between the two. These findings accord with those of the present study in that both found that Conditions A and C show a difference in their ability to predict native speaker acceptability judgments.

It is apparent from their reported results of the experiments testing Condition C that the scores of acceptability judgments tend to reach lower than expected points for stimuli that are theoretically predicted to be grammatical. Conversely for those stimuli predicted to be ungrammatical the acceptability judgment points are higher than expected. Acceptability judgments are thus placed on a spectrum which is compressed compared to what is theoretically predicted, resulting in smaller differences between acceptability scores of individual variants.

The results for the two following stimuli which were tested by G&H and can be compared with the results of the present study are presented below with their proportion of acceptance. First let us consider stimuli that can highlight the subject object asymmetries in English.

- | | | | |
|------|----|---|-----|
| (12) | a. | <i>His_i roommates met John_i at the restaurant.</i> | .29 |
| | b. | <i>He_i met John_i's roommates at the restaurant.</i> | .22 |

It can be seen that these results show that while the variant which is predicted to be correct by Binding Theory reaches an acceptability rate of only .29, there is still a difference between it and the variant deemed incorrect by the Theory. The results in G&H also point to potential differences between verbs, and thus are in line with the findings of the present study concerning Condition C. Compare the proportions of acceptance of the following stimuli with those of their structural counterparts in (12).

- | | | | |
|------|----|---|-----|
| (13) | a. | <i>Her_i brother visited Lisa_i at college.</i> | .29 |
| | b. | <i>She_i visited Lisa_i's brother.</i> | .35 |

With respect to dative constructions the G&H study made the following observations, in this case the number indicates the average acceptability score given on a 6 point scale:

- | | | | |
|------|----|---|------|
| (14) | a. | <i>Jane introduced Bill_i to his_i new teacher.</i> | 5.61 |
| | b. | <i>Jane introduced his_i new teacher to Bill_i.</i> | 2.65 |

When compared with the results of Experiment 2 the score for structure like the one in (14a) with the verb *bemutat* received the score 3.17, the highest score in the set, while the counterpart for (14b) received 3.12, the second highest score. This difference between English and Hungarian may be due to a possible difference between the English dative PP which *contains* the pronoun, and the Hungarian *neki*, which may be analyzed as the dative pronoun itself, not embedded in a PP. It is not as yet clear as to what *neki* is structurally, as it can either be structurally complex, involving a silent *pro* element, thus being on par with its English PP counterpart, or an NP, in which case it is structurally parallel with the accusative NP, unlike the English dative constituent.

Nonetheless, as shown above in section 3.2.2 (II. Condition C), this test produced results that show some patterning that seem to be systematic enough that their occurrence is not explainable by chance, (at least in the case of one of the verbs) allowing for the conclusion that there are structural differences between the constituents. Combined with the findings of G&H, it can be stated that there are more factors at play

concerning phenomena related to Condition C, which require a more elaborate approach in testing (a)symmetries of the present type, than the one assumed in the tests reported on in this paper.

If these results can be taken as an indication that phenomena associated with Condition C of Binding Theory are not clear evidence for either a flat or a hierarchical structure, then the need for establishing a point in the derivation where the two constituents are in a symmetric relationship is weakened. This can possibly serve as a counterargument to ‘phasal flattening’ approach outlined in É. Kiss (2008).

5 Conclusion

The goal of this paper was to test (non)-configurational nature of the internal arguments in Hungarian dative constructions, and if possible to establish what base hierarchy of these constituents is. To do this, three tests, based on phenomena which have played key roles in the debate on configurationality, were used in two experiments. The results of these tests could not conclusively establish the base hierarchy. The Condition A based tests strongly support a hierarchical base structure with an accusative > dative hierarchy. The Condition C based tests failed to clearly support either the flat or the hierarchical VP approach. Furthermore, these experiments are in line with others which show that classic Condition C does not accurately predict native speaker behavior to the same extent as Condition A. The quantifier scope based test gave some evidence in support of a hierarchical base structure, but was less clear on what that hierarchy may be. In light of these results it is the conclusion of this paper that the phenomena traditionally cited in the debate on configurationality cannot be relied on in a straight forward way to conclusively establish the nature of the hierarchical relation of internal arguments to each other, therefore empirical investigations in this area will need to rely on more sophisticated methods than those that are often assumed to yield hard and fast results.

Appendix 1: Examples of stimuli used in Experiment 1

In this appendix I present the stimuli used in experiment 1. Because of lack of space I could only present all variants of each stimuli for one of the cases in the Condition A test, however all stimuli for the Condition A and C tests were created with the same alternations. Where it is not spelled out ‘C’ stand for ‘context’.

Condition A:

Target sentences were given with contexts to

- (1) *Alárendeltem egymásnak_i őket_i.* (2) *Alárendeltem őket_i egymásnak_i.*
 subordinate1.SG eachother.DAT them.ACC subordinate1SG them.ACC eachother.DAT

- (3) *Alárendeltem nekik_i egymást_i.* (4) *Alárendeltem egymást_i nekik_i.*
 subordinate1.SG them.DAT eachother.ACC subordinate1SG eachother.ACC them.DAT
 ‘I subordinated them under each other.’

C: Így papíron úgy tűnik, mintha mindkettőjüknek lenne még egy beosztottja. (C=Context)
 This way on paper it seems as if both of them had one more subordinate.

- (5) *Bemutattam egymásnak_i őket_i.* (6) *Elárultam egymásnak_i őket_i.*
 introduce.1SG eachother.DAT them.ACC betrayed.1SG eachother.DAT them.ACC
 ‘I introduced them to each other.’

C: A week after that they met again,
 and today is their wedding.

C: I think that there should be no secrecy
 in a marriage.

- (7) *Átadtam egymásnak_i őket_i.*
 gave.over.1SG eachother.DAT them.ACC
 ‘I gave them over to each other!’

C: This wasn’t the first time that the two brothers used this trick to go home from the precinct.

Condition C:

- (8) *Alárendeltem János_i apósának őt_i.* (9) *Bemutattam őt_i János_i apósának.*
 subordinate1sg. John’s father-in-law.dat him introduce.1sg him John’s F-in-L.dat
 ‘I made John work under his father-in-law.’

- (10) *Elárultam János_i apósát neki_i.* (11) *Átadtam neki_i János_i apósát.*
 betrayed.1SG John’s F-in-L.ACC him give.over.1SG him John’s F-in-L.DAT
 ‘I betrayed John’s father in law to him.’

Conditions

Subordinate: I didn’t think that it would bother John that his father-in-law was his boss.

Introduce: It’s strange, but in fact John has never met his father-in-law before.

Betray: I know that John likes his father-in-law, but he needed to know what happened to the family’s savings.
 I had to tell him how John was treating his wife.

Give over: John/John’s father was drunk again and due to the regulation I could only let him leave with a relative.

QP scope:

Recall that in this test there were also 4 variants for each stimuli presented below the arose by alternating the case and the word order of the two internal constituents. In some cases this resulted in the use of different contexts than the ones presented.

- (12) *A cégnél rendeltem alá kevés férfinek minden nőt.*
 at the company subordinate few men.dat every woman
 ‘It was at the company that I placed every woman under a few men (bosses).’

- C1:** Out of the men who had subordinates only a few had women subordinates.
C2: There were a few people who had subordinates and all of them were male.

(13) *A hetedik osztályban adtam minden tanulóknak kevés feladatot.*
 the seventh grade.in gave1sg every student.DAT few tasks.ACC
 'It was in the seventh grade that I gave every student few tasks (to do).'

- C1:** Every student received few tasks.
C2: There were few students who received all of the tasks.

(14) *A megszállás alatt árultak el minden kémnek kevés ellenállót.*
 the occupation under betrayed every spy.DAT few resistants.ACC
 'It was under the occupation that few members of the resistance were betrayed to every spy.'

- C1:** Few members of resistance were betrayed to each and every spy.
C2: Every spy knew about only a few members of the resistance.

(15) *A múlt heti értekezleten mutattam be kevés részvényesnek minden új munkatársat.*
 the last week's meeting introduced.1sg few shareholders.dat every new
 coworker.acc
 'It was at the meeting last week that I introduced many new co-workers to few shareholders.'

- C1:** There were few shareholders and every new co-worker was introduced to them.
C2: I introduced the new co-workers to the shareholders, but there were only a few of them to whom I introduced all of the co-workers.

Appendix 2: Examples of stimuli used in Experiment 2

For this experiment, like experiment 1 there were four variants for each of the conditions presented, some of the conditions differed slightly from those presented due to change in meaning as a result of changing the case of the constituents.

Condition A test

There were two types of stimuli, (1) represents the 'regular' while (2) represents the more complex, possessive structure. The stimuli with *kiad* 'to give out' were created in the same fashion; due to lack of space I will not present these. Minimal pairs to (1) and (2) were produced by varying the word order of the constituents.

(1) *Amikor bemutatod egymást_i [Jánosnak és Annának]_i....*
 when introduce2.sg eachother.acc John.dat and Anne.dat
 'When you introduce John and Anne to each other....'

- C:** ...mention it to them that they both know me.

(2) *Miután bemutattam egymás_i apját [Jánosnak és Annának]_i...*
 after introduce1.SG eachother's fathers.ACC John.DAT and Anne.DAT
 'After I introduced their fathers to John and Anne,....'

- C:** '...the four of them sat down in a corner and the two young people asked lots of questions about the other's childhood.'

Condition C test

In this test, as in the case of the condition A test there were two types of stimuli, which differed from each other only in the use of pronouns instead of epithets, here I will give only the epithet versions. Both the epithet and pronoun variants had minimal pairs based on word order variations

- (3) *Mielőtt átadtam a szerencsétlent, János, felettesének...*
 before gave.over.1sg the miserable.ACC John's s upperior.DAT
 'Before I handed John, that miserable guy over to his boss...'

C: I thought a lot about what to do, John is a nice guy, and I know that he will probably lose his job as an officer, but if I don't follow regulations, then I will also lose my job.

- (4) *Amikor bemutattam a szerencsétlennek, János, új főnökét...*
 when introduced.1sg the miserable.DAT John's new boss.ACC
 'When I introduced his new boss to that miserable guy, John...'

C: ...it was apparent that John will have a very difficult time. I knew that John doesn't like the kind of people who don't always mean what they say.

QP scope test

In this test informants had to judge how well a question fitted the given answer. The answers gave the contexts for the different scope readings that were thought to be available in his question. (5) represents stimuli where the few-QP had accusative case, while (6) represents the stimuli where the few-QP had dative case. The minimal pairs to (5) and (6) arose from varying the word order of the constituents. Similar stimuli were constructed with the verb *bemutat* 'introduce', I will not give examples of those due to lack of space.

- (5) *A parancsnokság miért adott ki minden űrhajónak
 the command why gave.out every spaceship.DAT
 kevesebb, mint öt műszert?
 fewer than five instruments.ACC
 'Why did the (central) command give every spaceship fewer than five instruments?'*

Every > fewer than 5 context

Because they wanted each spaceship to perform fewer than five experiments, so that they would have ample time for them.

Fewer than 5 > every context

Because the spaceships needed to perform different experiments and for the most part they didn't need the same instruments, there were fewer than five instruments that all of the spaceships needed.

- (6) *A parancsnokság miért adott ki minden műszert kevesebb, mint öt
 The command why gave.out every instrument.ACC fewer than five
 űrhajónak?
 spaceships.DAT
 'Why did the (central) command give every instrument to fewer than five spaceships?'*

Every > fewer than 5

In the past every spaceship got one from each of the instruments, but these new instruments are so expensive that they can afford only three or four of each.

Fewer than 5 > every

Because only the best prepared crews can do all of the experiments and only these spaceships need to be fully equipped. The other spaceships only have routine tasks, they ferry supplies to these research ships, or they take space tourists to the moon, after all this is a major source of income.

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