OVERT SCOPE IN HUNGARIAN

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Abstract. The focus of this paper is the syntax of inverse scope in Hungarian, a language that largely disambiguates quantifier scope at Spell-Out. Inverse scope is attributed to alternate orderings of potentially large chunks of structure, but with appeal to base-generation, as opposed to non-feature-driven movement as in Kayne 1998. The proposal is developed within mirror theory and conforms to the assumption that structures are antisymmetrical. The paper also develops a matching notion of scope in terms of featural domination, as opposed to c-command, and applies it to otherwise problematic cases of pied piping. Finally, the interaction of different quantifier types is examined, and the patterns are explained invoking morphological considerations on one hand and A′-reconstruction on the other.

1. Introduction

This paper has two goals. The more general goal is to argue that there is a significant set of structures where the assumption of overt scope assignment can be maintained without complementing it with non-feature-driven movements. The descriptive goal is to account for direct and inverse scope in Hungarian, with specific reference to the differential behavior of quantifiers. The theoretical tools will be developed and substantiated in the context of Hungarian.

Kayne (1998) proposes that scope is predominantly assigned by the overt movement of quantifiers into feature-checking positions such as the specifiers of negation, *only*, or a distributive operator. According to this analysis, the reason why, in languages like English, these movements are not visible is that further leftward movements (for instance, that of a remnant VP) mask them.

(1) $[_{VP}$ marry no one]
     $[_{NegP}$ no one$_i$ $[_{VP}$ marry $t_i]]$
     $[_{WP}$ $[_{VP}$ marry $t_i]_j$ $[_{NegP}$ no one$_i]$ $t_j]$

The same combination of overt operator-feature checking and subsequent remnant movement can generate inverse scope; for example, the scoping of *no one* over the matrix verb *force*:

(2) [$_{VP}$ force you to marry no one]
     [$_{NegP}$ no one$_i$ [$_{VP}$ force you to marry t_i]]
     [$_{WP}$ [$_{VP}$ force you to marry t_i]$_j$ [$_{NegP}$ no one$_i$] t_j]

As has been noted by various authors, the remnant movements that restore the initial order in this proposal do not seem to be triggered by lexical features.[1] In this paper, we adopt the overt operator-feature checking part of Kayne's theory but argue that the surface orders that seem to involve non-feature-driven movement or chains need not be due to movement or chain relations at all; instead, they may be "base generated" (i.e., trivial, one-member, chains). On our analysis, the remnant VP in (1)–(2) precedes *no one* without having gotten into its surface position by movement.
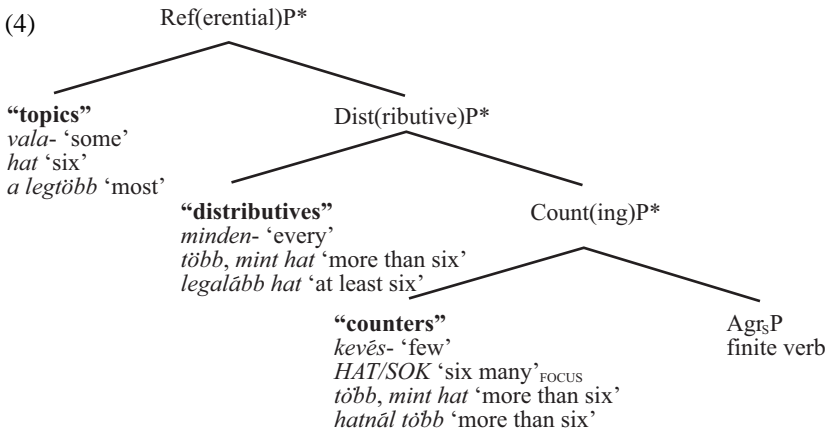
For about 20 years, Hungarian has been known to use surface linear order for the expression of topic, focus, and quantifier scope. (See Brody 1990; Hunyadi 1981, 1999; É. Kiss 1981, 1987, 1992, 1998; Szabolcsi 1981, 1997; among others.) More specifically, phrases in the preverbal field line up in an order that is dictated by their quantifier type, not by their grammatical function. For instance, as the examples in (3) show, an *every*-phrase in the preverbal field must precede a *few*-phrase, but which of the two is the subject and which is the object is immaterial. A further important fact is that linear order in this preverbal field corresponds to scopal order; the *every*-phrase that comes first invariably scopes over the *few*-phrase:

(3) a. Minden ember   kevés filmet   nézett meg.
         every   man-NOM few   film-ACC viewed PRT
         'Every man viewed few films.'
         viz. *every*$_{Subject}$ > *few*$_{Object}$
     b. Minden filmet   kevés ember   nézett meg.
         every   film-ACC few   man-NOM viewed PRT
         'Few men viewed every film.'
         viz. *every*$_{Object}$ > *few*$_{Subject}$
     c. *Kevés ember   minden filmet   megnézett / nézett meg.
         few   men-NOM every   film-ACC PRT-viewed / viewed PRT
     d. *Kevés filmet   minden ember   megnézett / nézett meg.
         few   film-ACC every   man-NOM PRT-viewed / viewed PRT

Szabolcsi 1997 proposed to capture these facts by saying that quantifiers move to designated functional projections to check a feature in overt syntax. Movement to these positions takes place irrespective of whether the quantifier interacts with another quantifier in the sentence, contra Fox 1999, for example. Therefore, scope is simply a by-product of feature-checking movements.

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[1] Müller (2000), for example, proposes that the problematic movements in Kayne 1998 are instances of "repair," motivated by Williams's (1998) principle "conserve VP-shape."

The relevant positions greatly resemble those postulated by Beghelli and Stowell (1997) for the Logical Form of English, so we largely follow their labels: Referential Phrase, Distributive Phrase, and Counting Quantifier Phrase. In Hungarian, they are easily identifiable by surface clues. Using the labels in (4), a preverbal quantifier in CountP (or focus) triggers the inversion of the verbal particle if the verb has one (cf. *nézett meg* in (3)), one in DistP does not; quantifiers in RefP can be followed by unfocused adverbs like *tegnap* 'yesterday', those in DistP cannot. See Szabolcsi 1997 for a discussion of the distribution and the semantics of these types. The diagram in (4) gives a small sample of the operators that move to these positions. For space reasons only the determiners of the quantifiers are shown.[2,3]

(4)

Ref(erential)P*

"**topics**"
vala- 'some'
hat 'six'
a legtöbb 'most'

Dist(ributive)P*

"**distributives**"
minden- 'every'
több, mint hat 'more than six'
legalább hat 'at least six'

Count(ing)P*

"**counters**"
kevés- 'few'
HAT/SOK 'six many'$_{\text{FOCUS}}$
több, mint hat 'more than six'
hatnál több 'more than six'

$\text{Agr}_\text{S}\text{P}$
finite verb

If Hungarian was a strictly verb-final language, then, according to what we have just said, a counting quantifier could never scope above a universal, because the checking position of the counter is below that of the universal in the preverbal field. However, Hungarian can leave most XPs in postverbal position. Example (5) illustrates that a preverbal *few*-phrase can take wider scope than a postverbal universal. But a postverbal quantifier does not always take narrower scope than a preverbal one; whether it does depends, for many

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[2] Some quantifiers only occur in one of these positions (e.g., *minden film* 'every film' in DistP, *hatnál több film* in CountP). Some others are compatible with more than one position, with interpretation varying accordingly (see Szabolcsi 1997 for discussion):

(i) [$_\text{RefP}$ Mari tegnap   [$_\text{DistP}$ több, mint hat filmet [$_\text{AgrSP}$ megnézett]]]
       Mary yesterday   more than six film-ACC   PRT-saw

(ii) [$_\text{RefP}$ Mari tegnap   [$_\text{CountP}$ több, mint hat filmet [$_\text{AgrSP}$ nézett meg]]]
       Mary yesterday   more than six film-ACC   saw   PRT

We assume that such quantifiers occur with more than one feature content in the lexicon. A similar phenomenon is observed in Russian, where the surface correlate is whether the quantifier triggers subject agreement (Pesetsky 1982, Rapoport 2000).

[3] In this paper we ignore the preverbal contrastive/exhaustive focus in order to abstract away from its specific properties, but what we say about counting quantifiers carries over to focus.

speakers, on stress. In (5), the narrow-scoping postverbal universal is destressed relative to the preverbal *few*-phrase. In (6), both have primary stress, and the postverbal universal takes wide scope.

(5) "Kevés filmet   látott minden ember.   (Direct scope)
    few   film-ACC saw   every   man-NOM
    'few > every'

(6) "Kevés filmet   látott "minden ember.   (Inverse scope)
    few   film-ACC saw   every   man-NOM
    'every > few'

This paper focuses on questions raised by these two sentence types:

1.   In what kind of position is the postverbal quantifier in (5)?
2.   How is inverse scope obtained?

We argue that the overt syntax of scope relies on four distinct devices: movement to operator-feature checking positions, feature inheritance via specifier-head agreement (i.e., pied piping), a way to alternate the order of specifier and complement that preserves the (Kaynean) antisymmetry of structure, and reconstruction into successive cyclic A′-positions.

2. Reiteration of Ref–Dist–Count

We first address the position of the postverbal quantifier in the direct scopal structure in (5). We assume that all feature checking is by overt movement. Therefore we would want to assume, at least as a working hypothesis, that the universal in (5) is overtly in the specifier of DistP. This can be achieved by postulating that the operator series Ref–Dist–Count reiterates itself above all inflectional heads and possibly above the verbal heads. The idea of reiterative syntax was introduced in Hallman 1998; the specific proposal in (7) follows Szabolcsi 1997 and É. Kiss 1998.[4]

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[4] We take the feature-checking behavior of quantifiers to be analogous to that of *wh*-phrases. They all are free to check their relevant features in any domain that contains an appropriate functional head, and they move to (in representational terms, form a chain with) their actual checking position in a successive step (i.e., locally linked fashion). A reviewer asks how the fact that quantifiers do not necessarily move to the lowest available scope position is compatible with minimality and the requirement that all movement be triggered. We assume that features that are interpretable in principle (e.g., number, dist, or *wh*) may or may not be interpreted in a given position (number, for example, is interpreted on the subject but not on Infl; *wh* on the selected C head but not in the argument position or the intermediate landing position of the *wh*-phrase). See Brody 1997a,b, for an approach to checking (bare checking theory) based on such assumptions; notice that the [±interpreted] distinction used here is different from the [±interpretable] distinction in Chomsky 1995. A functional head may have a feature that is interpreted (in which case the specifier can be the head of a chain) or it may have a feature that is not (in which case the specifier can only be an intermediate link of a chain); see the analysis of *wh*-chains in Brody

In (7), the Kleene stars indicate recursion of a single category; this recursion is entirely independent of the reiteration of the Ref–Dist–Count series. The surface data make clear that the preverbal (pre-Agr$_S$) series has only a single Count, but from the scope interactions observed postverbally we infer that the other series contain Count*. (This is somewhat similar to having just one landing site per clause for overt *wh*-fronting in English.) Agr$_S$ marks the position of the finite verb, and it is preceded by only one Ref–Dist–Count series. We believe that the preverbal quantifier series does not have a distinguished status; it just so happens that the finite verb is pronounced in the Agr$_S$ position.
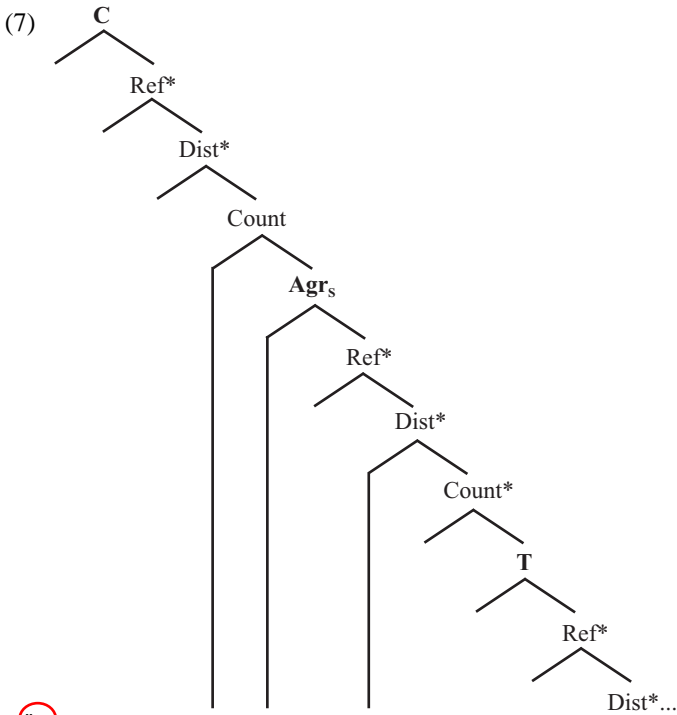
(7)

typo: delete "

"Kevés filmet   látott "minden ember.   (Direct scope [=(5)])
few   film-ACC saw   every   man-NOM
'few > every'

Thus, quantifiers in the preverbal field line up in strict observance of the Ref–Dist–Count order, given that this field contains just one scopal series. Quantifiers in the postverbal field may occur in any order, given that this field contains several scopal series without overt elements to mark their boundaries, wherefore two adjacent quantifiers may belong to two different series.

Let us introduce here some terminology pertaining to quantifier types. We will say that quantifiers are rank ordered based on the relative positions of the checking sites in a single series. Topical indefinites and *most*-phrases outrank distributive quantifiers, which outrank counters. A corollary is that a lower ranking quantifier takes wider scope than a higher ranking one iff they are in two separate operator series, the lower ranking quantifier being in the higher series. This is what is happening in (5).

As we explain in section 6, what quantifier type a given phrase belongs to is determined by its head or by its specifier.

3. Preview of the Generalizations Regarding Inverse Scope

Using the ranking terminology of section 2, this section provides a preview of the descriptive generalizations that constitute the subject matter of this paper.

The relative scope of preverbal quantifiers is typically determined by their linear order. Preverbal quantifiers scope over postverbal ones by default. But a postverbal quantifier may scope inversely, over a preverbal or another postverbal quantifier.

Given a pair of quantifiers Q1 and Q2, where Q1 precedes Q2 and Q2 is postverbal, the possibilities for unmediated inverse scope (Q2 > Q1) are as follows (regarding "mediated" inverse scope see note 21):

(i)   When Q2 ranks higher than Q1, Q2 > Q1 is unproblematic. For most speakers, Q2 on this interpretation receives high stress relative to Q1.
(ii) When Q2 ranks lower than Q1, Q2 > Q1 is possible only if Q2 itself is not a counter and, moreover, there is no negation or focus or counter linearly intervening between Q1 and Q2. Inverse scope in these cases does not seem to depend on a characteristic intonation contour.
(iii) When Q1 and Q2 belong to the same quantifier type, they pattern with (i), with one exception. When Q1 is a preverbal counter and Q2 is a postverbal counter, Q2 > Q1 is impossible. This can be seen to correlate with the fact that the preverbal CountP is the only category that does not allow recursion.

In sum:

(8) Can   ... *Q1* ... *Q2*   be interpreted as Q2 > Q1?
     a.   ... ref/dist ... count ...   no
     b.   ... count V ... count ...   no
     c.   ... V ... count ... count ...   yes
     d.   ... dist/count ... dist ...   yes
     e.   ... ref ... # ... dist ...   yes, unless # = negation, focus, or a counter
     f.   ... ref/dist/count ... ref ...   yes

This paper proposes two distinct ways to create inverse scope. One that orders the complement before the specifier is motivated in sections 4 and 5 and formalized in section 7. How it accounts for the ranking generalizations, save for (8e), is discussed in section 9.1. Another way we propose to create inverse scope in the residual (8e) case is A′-reconstruction; this is introduced and elaborated in section 9.2.

There are two kinds of data that the proposal in this paper does not seek to account for. Any quantifier may occur clause initially with a fall-rise intonation. Such contrastively topicalized, or left dislocated, phrases take narrower scope than all or at least some operators to their right, see É. Kiss 1987, Büring 1997, and Krifka 1998. To our knowledge, no one has suggested that scope inversion under the fall-rise contour is the same as other cases of inverse scope; we note that in Hungarian it does not respect rank order and is not subject to the intervention constraint in (8e). The other issue we ignore in this paper is the fact that contrastive foci and counting quantifiers have some restrictions of their own. Thus, we note but do not seek to explain the fact that there is no CountP or FP recursion in the preverbal field as well as the fact that a focus or counting quantifier can occur postverbally only if a similar quantifier or negation occurs preverbally. These issues are not taken up in part because of limitations of space and in part because this paper seeks to address certain theoretical issues pertaining to quantifier scope rather than offer a full description of all matters Hungarian, and we believe that the constraints on FP and CountP have to do with focus, not with quantifier scope per se.

4. Inverse Scope, First Try: Preposing

We now turn to the more difficult question of how inverse scope is obtained. Given that our goal is to encode scope in overt syntax, the obvious solution is Kayne's (1998). According to this proposal, quantifiers check their features in overt syntax (this is what we have been doing). Feature checking may be followed by movement of the remnant to a projection Kayne calls WP, to resolve word-order discrepancies. This is illustrated with the inverse scopal sentence (6), repeated here. The resulting structure is interpreted using reconstruction, forced by the Proper Binding Condition in view of the fact that CountP contains the trace of the operator *minden ember* 'every man'.

(9)
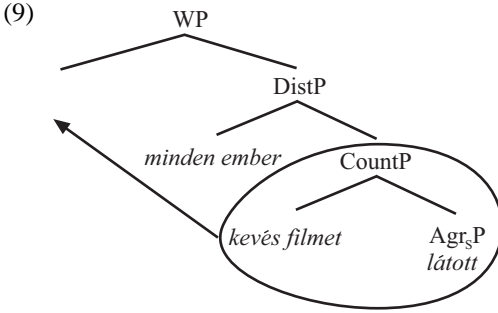
(6)   "Kevés filmet   látott "minden ember.   (Inverse scope)
      few   film-ACC saw   every   man
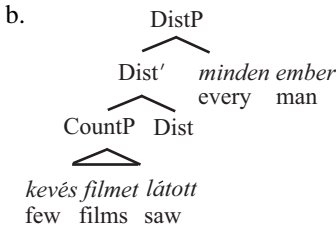   'every > few'

The above application of movement to WP is problematic, because it has no identifiable trigger. We note that movement to WP is not a privilege of structures dominated by CountP. As (10)–(11) illustrate, the same inverse scopal option is available when the higher quantifier is in RefP and the lower is in DistP (the particle-verb order indicates that the lower quantifier is in DistP, not CountP).

(10) [a "legtöbb filmet Ref   [legalább "hat ember   Dist [megnézte]]]
      the most   film-ACC   at-least six man-NOM   PRT-viewed
      'most > at least six'

(11) [legalább "hat ember   Dist [megnézte]] [a   "legtöbb filmet Ref]
      at-least six man-NOM   PRT-viewed the most   film-NOM
      'most > at least six'

The phenomenon can be replicated with two RefP or two DistP quantifiers (note the Kleene stars in (4) and (7)). We cannot even say that preposing has a particular semantic function or discourse function that might be encoded in a feature that drives the movement. No one in the Hungarian literature has suggested that it has such a function; we have not been able to find one, either. In other words, the movement seems to be entirely optional.

5. Inverse Scope, Second try: Pre-Antisymmetry X-bar Theory

Let us indulge for a moment in wishful thinking. Suppose that X-bar theory allowed the following two base-generated ordering options. The crucial difference is that the specifier of Dist comes first in (12a) but last in (12b).

(12) a.

```
              DistP
             /￣\
    minden ember   Dist′
    every   man   /￣\
              Dist   CountP
                     /￣\
              kevés filmet látott
              few   films  saw
```

b.

```
              DistP
             /￣\
        Dist′   minden ember
       /￣\     every   man
  CountP  Dist
   /￣\
kevés filmet látott
few   films  saw
```
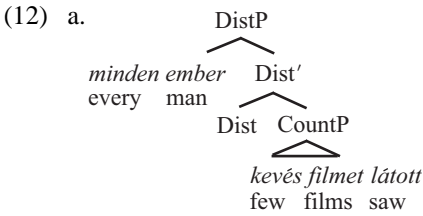
The potential advantages of (12) are obvious. Because (12b) is not derived from (12a) by movement, there is no need for a movement trigger.[5] Moreover, because (12a) and (12b) have the same hierarchical structure, they have the same interpretation; the interpretation of (12b) does not require reconstruction of 'few films' into the scope of 'every man'.

By assuming the availability of (12b), we make some further empirical predictions. Because the complement that precedes the specifier may be an arbitrarily large chunk of the sentence, we predict, for instance, that a quantifier can scope inversely over a sequence of quantifiers interpreted linearly, which is correct.

(13)   The scope interpretation Q3 > Q1 > Q2 can be linearized as [[Q1 Q2] Q3].[6]

Also, given that the same "complement precedes specifier" option can be used in more than one projection, we predict that a scopal sequence can be linearized in a mirror image fashion, which is again correct.

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[5] The movement/chain-free approach to these constructions to be advocated in this paper may be applicable to other cases where the missing-trigger problem is encountered. Whether a particular remnant movement that restores the "original order" is feature driven is at least partly an empirical question. For example, Koopman and Szabolcsi (2000) argue that a variety of "order-restoring" but feature-driven remnant movements participate in the formation of verbal complexes, whereas Brody (1997a) proposes an approach similar to the one outlined in this paper for both verbal complexes and for inverse scopal structures.

[6] The tree in (i) illustrates (13). Because three-quantifier sentences are difficult to judge, we use an example where CountP is replaced by a focused phrase: the two have the same word order

(14)   The scope interpretation Q3 > Q2 > Q1 can be linearized as [[[Q1] Q2] Q3].[7]

A third important prediction concerns the question of which quantifiers can take inverse scope. As will be detailed in section 9, we would predict that inverse scope respects rank order in the following sense (although the empirical facts will turn out to be more complex):

and scopal properties. The choice of RefP and DistP quantifiers ensures that RefP has distributive wide scope over DistP (we thank a reviewer for raising this question).

(i)

```
                          RefP
                         ⌒
                   Ref′      a legtöbb fiú [Q3]
                  ⌒             'most boys'
             DistP  Ref
            ⌒
   sokszor [Q1]  Dist′
    'often'      ⌒
             FocP   Dist
            ⌒
csak a szünet után [Q2]  Foc′
'only after the break'   ⌒
                     AgrP   Foc
                    ⌒
                 jött meg
                'arrived PRT'
```
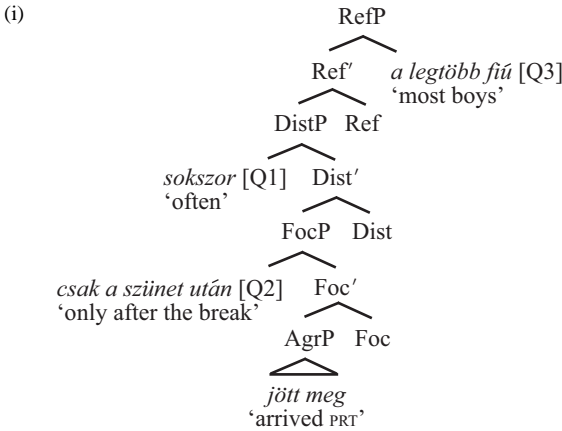
Q3 > Q1 > Q2: 'There are more boys who on many occasions arrived only after the break than boys who did not do so.'

[7] The tree in (i) illustrates (14).

(i)

```
                              RefP
                             ⌒
                       Ref′      a legtöbb fiú [Q3]
                      ⌒             'most boys'
                 DistP  Ref
                ⌒
           Dist′   sokszor [Q1]
          ⌒          'often'
      FocP   Dist
     ⌒
csak a szünet után [Q2]  Foc′
'only after the break'   ⌒
                     AgrP   Foc
                    ⌒
                 jött meg
                'arrived PRT'
```
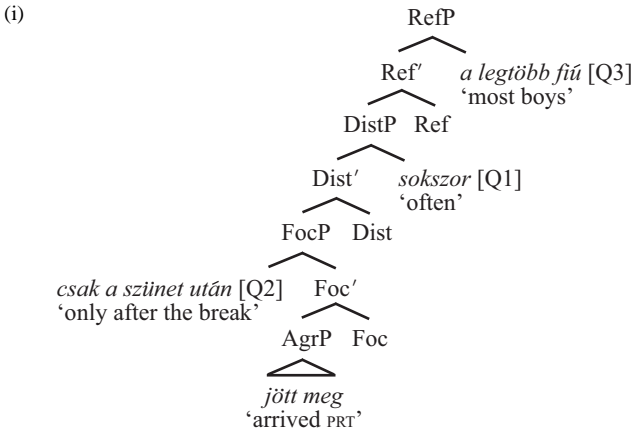
Q3 > Q2 > Q1: 'There are more boys who on many occasions arrived only after the break than boys who did not do so.'

(15) A lower ranking quantifier does not take inverse scope over a higher ranking one.

The fact that counting quantifiers do not scope inversely over distributives or topics bears out this prediction in English as well as Hungarian (see Liu 1990, Beghelli & Stowell 1997, Szabolcsi 1997).

(16) Every man saw few films.
    a.   'every > few'   (Direct scope)
    b.   *'few > every'   (Inverse scope)

(17) Minden ember   [tavaly]   látott kevés filmet.[8]
       every   man-NOM last-year saw   few   films-ACC
    a.   'every > few'   (Direct scope)
    b.   *'few > every'   (Inverse scope)

In sum, the structures we are imagining have various attractive properties. However, (12b) is highly unusual. Although not all current syntactic theories prohibit it explicitly, it has rarely if ever been proposed in recent years to base-generate specifiers to the right of complements. Theories which assume that syntactic structures are (for whatever reason) antisymmetrical exclude (12b) on principled grounds. This is because in (12b), the higher unit (*minden ember* 'every man') follows, rather than precedes, the hierarchically lower elements.

Therefore, in the best case we would hope to find a theory in which (12a) and (12b)—or their equivalents—coexist in a principled manner and in which, preferably, antisymmetry is also respected.

6. Scope as Featural Domination

Kayne's program of making scope a matter of overt syntax has another important component: a particular definition of c-command. Kayne observes that the specifier of a specifier appears to be able to scope out, as illustrated by the ability of *every girl* to bind *her* in (18), which is unexpected under many definitions of c-command:

(18) Every girl's father loves her.

Must the derivation of (18) involve the extraction of *every girl* to a more prominent position in overt or covert syntax? Kayne's (1994:18) definition of c-command in fact delivers the desired result without such movement:

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[8] The presence of focused *tavaly* 'last year' is necessary for the counting quantifier to occur postverbally, as noted in section 3.

(19) X c-commands Y iff X and Y are categories and X excludes Y and every category that dominates X dominates Y.

We propose that there is a perhaps simpler way to obtain the same result: by abandoning the traditional graph-theoretic notion of scope and defining it in terms of feature domination:[9]

(20) Scope: α scopes over β iff α's features dominate β.

Note that the purely graph-theoretic notion of c-command had been a natural concept for scope at stages of the theory when the wide-scope taker could occupy a variety of different positions in the structure. It could be a specifier, whether or not it was involved in feature sharing, and it could be an adjoined phrase or head, or even a sister-adjoined phrase in Reinhart's original work that introduced the notion of c-command. These days, and especially in our theory, where scope is a by-product of the checking of operator features, a wide-scope taker is always a head or it is a specifier that shares operator features with a head. Therefore, we do not need a purely graph-theoretic notion of scope relating two arbitrary nodes. We can say that scope taking is always through the agency of a head.

Consider (21).

(21)
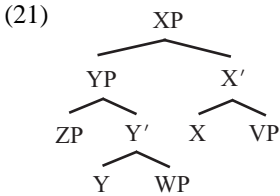
By specifier-head agreement, ZP shares features with Y and YP with X. YP has the features of Y and XP the features of X. By domination, both Y and ZP scope over WP and VP, and both X and YP scope over VP.[10]

Let us take *minden lány* 'every girl' to illustrate what it means in semantic terms that scope taking is through the agency of a head. (For the reader's

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[9] This alternative comes naturally in mirror theory; see Brody 2000 and section 8 of this paper. For expository convenience, we present the basic idea using traditional X′-theory.

[10] An additional requirement is that the relevant feature be of the percolating sort. For example, the natural assumption that referential (φ) features do not percolate up explains why (i) is not a condition C violation.

(i) <u>Her</u> father loves <u>Mary</u>.

The same might be involved in the explanation of the unacceptability of (ii), although, as a reviewer points out, Reinhart and Reuland (1993) exclude it independently because *every girl* and *herself* are not co-arguments of the same predicate.

(ii) *<u>Every girl</u>'s father loves <u>herself</u>.

convenience, we write out the illustration using English, but the same is claimed to hold for Hungarian.) Beghelli and Stowell (1997) and Szabolcsi (1997) argued in detail that the existential and distributive scopes of distributive universals can be and should be distinguished, much like it has been argued for indefinites, by the same authors, by Reinhart (1997), and others. Although the denotation of *every girl* remains the traditional generalized quantifier-theoretic denotation (the set of properties every girl has), in *Every girl had a soda* distributivity is provided by the Dist head, and *every girl*, which occurs in its specifier, contributes a witness set.[11] Because *every girl* is a principal filter, it has a unique witness: the set of girls. (To avoid confusion, the prime symbol is retained in its X-bar theoretic sense and interpretation is indicated by boldfacing.)

(22) a. *Dist* is interpreted as $\lambda P \lambda \wp \forall x[x \in \text{witness}(\wp) \to P(x)]$
   b. *every girl* is interpreted as $\lambda P \forall x[\mathbf{girl}(x) \to P(x)]$
   c. If the complement of *Dist* is interpreted as β, *Dist′* is interpreted as $\mathbf{Dist}(\lambda y[\beta])$.
   With *every girl* in its specifier, *DistP* is interpreted as $\mathbf{Dist}(\lambda y[\beta])(\mathbf{every\ girl})$, i.e.,
   $\lambda P \lambda \wp \forall x[x \in \text{witness}(\wp) \to P(x)]$ $(\lambda y[\beta])$ $(\lambda P \forall x[\mathbf{girl}(x) \to P(x)])$, which reduces to $\forall x[\mathbf{girl}(x) \to \lambda y[\beta](x)]$.

In *Every girl's mother had a soda*, *every girl* does not occur in the specifier of Dist: *every girl's mother* does. To facilitate this, the combination of *every girl* with *'s mother* is interpreted using Szabolcsi's (1992:257) semantics for pied-piping.

(23) When *every girl* occurs in the specifier of Y $\neq$ Dist, and Y′ is interpreted as γ, YP is interpreted as $\lambda Q[\mathbf{every\ girl}(\lambda y[Q(\gamma(y))])]$, with the type of Q chosen as appropriate for YP.

(24) a. *'s mother* is interpreted as **mother-of**
   b. *every girl* is interpreted as $\lambda P \forall x[\mathbf{girl}(x) \to P(x)]$
   c. By (23), *every girl's mother* is interpreted as:
   $\lambda Q[\lambda P \forall x[\mathbf{girl}(x) \to P(x)]$ $(\lambda y[Q(\mathbf{mother\text{-}of}(y))])]$, which reduces to $\lambda Q \forall x[\mathbf{girl}(x) \to Q(\mathbf{mother\text{-}of}(x))]$.

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[11] A witness set of a generalized quantifier is an element of the quantifier that is also a subset of the set the quantifier lives on (Barwise & Cooper 1981; Beghelli, Ben-Shalom & Szabolcsi 1997). Whereas universals and definites have unique witnesses, indefinites do not. For example, any set containing (more than) two girls and no non-girls is a witness of *(more than) two girls*. Beghelli et al. (1997) and Szabolcsi (1997) propose that the existential closure involved in the analysis of these expressions always applies to variables ranging over their witnesses. Besides other advantages, this solves the same problem that motivated Reinhart's (1997) appeal to choice functions.

Every girl's mother is a universal, as expected. When it occurs as the specifier of DistP, it contributes to interpretation in the manner of (22). Its unique witness is the set of mothers who are mothers of girls.[12]

As regards word order, this approach correctly predicts that the position of the larger phrase is determined by the quantifier type of its specifier. In our terms, this is so because the relevant operator feature of the specifier is inherited by the containing phrase, and the overt movement of the latter serves to check this operator feature in the appropriate functional projection. This prediction receives striking confirmation in Hungarian, where word-order position is contingent not only on relatively crude denotational semantic properties such as increasingness/decreasingness or principal filterhood but also on finer nuances of feature composition. As mentioned in note 2, the quantifier *hatnál több film* 'more than six films (morphological comparative)' occurs only in CountP, whereas *több, mint hat film* 'more than six films (syntactic comparative)' may occur either in CountP or DistP. These properties are fully inherited by the quantifiers *hatnál több film vetítése* versus *több, mint hat film vetítése* 'the screenings of more than six films'.

Let us now demonstrate the usefulness of the featural-domination notion of scope on Hungarian material. We will use two constructions whose syntax is discussed extensively in Szabolcsi 1994. They involve an operator phrase ('few boys', 'every boy', etc.) lodged in a left branch; cases where we truly have no reason to believe that this operator phrase is capable of moving out. One is a possessive construction with a nominative possessor DP. Hungarian

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[12] In the spirit of the overall proposal, we are assuming by default that when *every girl* occurs in a complement position inside a DP, it finds a DP-internal Dist to check features with. This assumption is supported by the fact that many speakers find that the scope of such a universal is trapped inside the DP. These speakers judge that whereas (ib) can mean the same thing as (ia), (iib) cannot mean what (iia) can.

(i)   a. Every girl's oldest relative attended the potluck.
      b. The oldest relative of every girl attended the potluck.
(ii) a. Every girl's oldest relative brought a different dish.
          Can mean: 'a dish that was different from what the other oldest relatives of girls brought'
      b. The oldest relative of every girl brought a different dish.
          Cannot mean: 'a dish that was different from what the other oldest relatives of girls brought'
          Can only mean: 'a dish that was different from what, say, I brought'

This is explained if the occurrence of *every girl* in the specifier of some DP-internal Dist prevents the percolation of its [+dist] feature to *the oldest relative of every girl*, whence the latter does not occur in the specifier of Dist at the sentence level (which would be a precondition for the desired interpretation of singular *a different*, as observed in Beghelli & Stowell 1997). Alternatively, if a quantifier apparently in complement position within DP does scope out, it may be that constituency is only apparent and the quantifier in fact moved out. This is what Dorfman, Levon, and Leu (2002) argue for the 'every' > 'some' reading of the following VP-preposing structure, supported by English gapping and Swiss German word-order data:

(iii) Fond of every boy some girl is.

But given that DP-internal quantification is not well understood, we do not pursue this matter any further in this paper.

possessors are extractable, but this is so only when they are in the dative; nominative possessors never extract. The other construction is a left-branching one interpreted as the complex event nominal 'talking with DP'. The argument DP in this case is "adjectivalized" by an item that is literally the participial form of the copula but in this case acts as a mere formative. This DP is again absolutely immobile. Relevantly to us, however, both the nominative possessor and the adjectivalized argument occur on the left edge of the containing phrases and can reasonably be assumed to be specifiers, or specifiers of specifiers.

Let us now turn to data that show that these immobile specifiers scope over the sister of the container. The sentences in (25) contain the negative polarity item *valamit is* 'anything, *lit*. even something'. This must be within the scope of a downward-entailing operator. The downward entailing phrase *kevés fiú* 'few boys' licenses it in all three examples:

(25) a. [Kevés fiútól]   tanultam valamit   is.
           few   **boys**-from learned-I something even
           'There were few boys from whom I learned anything.'
    b. [Kevés fiú   apjától]   tanultam valamit   is.
           few   **boys**' fathers-from learned-I something even
           'There were few boys from whose fathers I learned anything.'
    c. [Kevés fiúval   való beszélgetésből] tanultam valamit   is.
           few   **boys**-with being talking-from   learned-I something even
           'There were few boys from talking with whom I learned anything.'

Next, note that plural definites and distributive universals license two quite distinct interpretations of *something different*. The plural only allows an anaphoric interpretation. The distributive universal allows a bound reading; see Beck 2000. Again, the immobile specifier determines what interpretation of *something different* the big noun phrase licenses.

(26) a. [A fiúktól]   mást   kaptam.   (Only anaphoric)
           the boys-from different-ACC got-I
           'I got something different from the boys (than what I got from, say, Mary).'
    b. [A fiúk   szüleitől]   mást   kaptam.
           the boys' parents-from different-ACC got-I
           'I got something different from the boys' parents (than what I got from, say, Mary).'
    c. [A fiúkkal   való beszélgetésből] mást   tanultam.
           the boys-with being talking-from   different-ACC learned-I
           'I learned something different from talking with the boys (than what I learned from, say Mary).'

(27) a.   [Minden fiútól]   mást   kaptam.   (✓ bound)
           every boy-from different-ACC got-I
           'I got something different from every boy (i.e., different things
           from different boys).'
      b.   [Minden fiú   szüleitől]   mást   kaptam.
           every boy's parents-from different-ACC got-I
           'ca. For every pair of boys x and y, I got something different from
           x's parents than from y's parents.'
      c.   [Minden fiúval   való beszélgetésből] mást   tanultam.
           every boy-with being talking-from   different-ACC learned-I
           'ca. For every pair of boys x and y, I learned something different
           from talking with x than I did from talking with y.'

Finally, we point out a suggestive correlation in English between negative
fronting, bound *different* readings, and *wh* pied-piping. The correlation
appears to corroborate the proposal that what is traditionally thought to be a
matter of scoping indeed is a matter of domination by some inherited feature.

(28) a.   From no boys' fathers did I learn anything.
      b.   I got <u>something different</u> from <u>every boy</u>'s parents.
      c.   From whose father did you learn this?

(29) a.   *From talking with no boys did I learn anything.
      b.   *I learned <u>something different</u> from talking with <u>everyone</u>.
      c.   *From talking with whom did you learn this?

To conclude, it seems that replacing the c-command definition of scope
with one as feature domination is attractive. We are now looking for a theory
in which this move is not simply possible but perhaps the only natural choice.

7. Inverse Scope and Mirror Theory

Sections 5 and 6 sketched out a proposal that follows Kayne's (1998) insight
regarding overt scope but removes some problematic or unnatural aspects of
the execution. Both sections ended with a wish. Section 5 called for a theory
that makes the "complement precedes specifier" treatment of inverse scope
possible while observing antisymmetry, and section 6 called for a theory in
which the definition of scope in terms of feature domination is independently
motivated. In sections 7 and 8 we argue that one such theory is mirror theory,
put forward in Brody 1997a, 2000, for reasons entirely independent of matters
of quantification under discussion here. In section 9 we show that mirror
theory also offers a natural framework within which to address the issue of
why different quantifiers have different inverse scope-taking abilities.
    In this paper, we do not attempt to give a general introduction to mirror
theory, and only single out the features that are relevant to us.

7.1 The Separation of the Interpretive and the Structural Senses of Specifier and Complement

In standard theories, the terms *specifier* and *complement* have two senses. In the interpretive sense, the specifier is a feature-sharer and the complement is a selected dependent. In the structural sense, the specifier is a left daughter node and the complement is a right daughter node. Mirror theory separates the interpretive and the structural senses, and in this way it allows some freedom in how the interpretive and structural properties match up. The feature-sharer will always be a left daughter, as standard (i.e., feature sharing is specifier-head agreement). But whether the selected dependent occurs as a left or a right daughter depends on its morphological relation to the head. Mirror theory takes a specific statement of a generalization akin to the mirror principle to be an axiom of the theory: Y is a right daughter of X in syntax iff Y-X forms a morphological word. It follows that if the selected dependent is a right daughter in syntax, the head that selects it will be suffixed to it in morphology. When the head is not suffixed to the selected dependent, the latter must be a left daughter. (For more discussion of specifiers and complements, see Brody 2000:sect. 4.)[13]

Additionally, in mirror theory the phrasal node versus head distinction is eliminated. The projection line X–X′–XP "telescopes" into a single node X. In this paper, we do not discuss the implications and advantages of this simplification, except for a single one relating to scope and c-command in section 8. (For further discussion, see Brody 2000:sect. 3.1.) For the purposes of this section, one can think of telescoping as just a matter of notation.

Given the requirement that the right daughter of a head H must form a morphological unit with H, the traditional core structure of the sentence in (30a) is analyzed as in (30b).
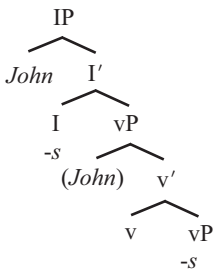
(30) a. Traditional: b. Mirror-theoretic:
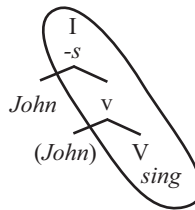
Instead of being derived by head movement, morphological structure is read off the encircled complement series. It is read off in the reverse order, as a

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[13] Mirror is only concerned with when a head is suffixed to its selected dependent; it says nothing about, and therefore does not exclude, a head being suffixed to its feature-sharer (which appears to be the case with focus markers in West African languages, for example).

consequence of the Mirror axiom. Whether the morphological word is pronounced at the top of the complement series or lower we take here to depend on considerations regarding feature strength; it is spelled out in the highest strong position it occupies.

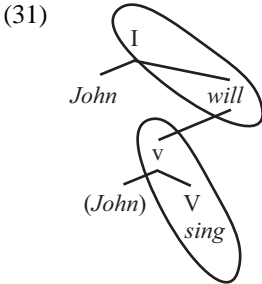In cases where no morphological relation is involved, as for example between an auxiliary and a verb in English, Mirror forces the structure to be as in (31), where v–V must be the specifier of *will* as a consequence of these elements not forming a morphological unit.

(31)

7.2 *"Complement Precedes Specifier" in Mirror Theory*

In section 5 we argued that we need a theory in which the selected dependent of a head can occur either on the right, following the feature sharer (as in (12a)), or on the left, preceding the feature sharer (as in (12b)). In mirror theory, if a head can be read either as a suffix or a nonsuffix, its selected dependent may freely occur as a right daughter or a left daughter. This offers a natural way to formulate our analysis.

When can a head be read either way? One obvious possibility is that when the given head is systematically empty in the given language, it would be empirically vacuous to claim that it is a suffix or a free-standing element (unless independent considerations force us to read it one way or the other). This is precisely the case with the operator heads Count, Dist, and Ref in Hungarian. These empty heads may or may not be suffixed onto the verb. In the spirit of mirror theory, this should allow their selected dependents (their complements in the interpretive sense) to occur either as right daughters or left daughters.[14]

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[14] In mirror theory, the question whether a selected dependent appears as a right daughter or as a left daughter of the head is determined by whether or not the head is a suffix—such choices must have morphological consequences. The theory inescapably commits us to this much. The more specific claim that the systematic emptiness of the operator heads allows them to be ambiguous with respect to suffix status may turn out to be wrong, and future research may replace it with an empirically superior condition. But languages like West Greenlandic appear to lend preliminary support to the morphological explanation. West Greenlandic has a variety of operator suffixes, whose relative scope is determined by the order of suffixation, as expected under the mirror principle. Additionally, the order of suffixes seems to determine the scopes of the free-standing operators that are related to them (Bittner 1995). In other words, the overt suffixation of the head seems to eliminate scope ambiguity between the free-standing dependents.

How is this idea executed? To obtain a structure that mimics inverse scopal (12b) we need more than the ability of selected dependents to occur on either side of the selecting head. The selected dependent needs to be able to precede both the head *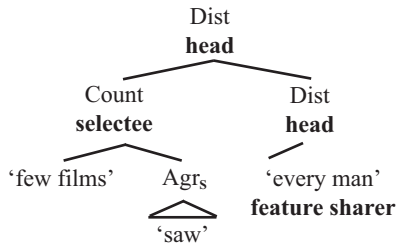and* the feature sharer. Because each node can have only one left daughter, this requires an innovation with respect to what we have discussed so far. It is presented in (32b); see Brody 2000:sect. 4.4. and esp. note 18.

Structure (32a) corresponds to the order where both quantifiers are preverbal, cf. (12a). In structure (32b), the empty Dist head has two segments. The feature sharer 'every man' is the left daughter of the lower segment. The selected dependent Count, which dominates 'few films' and the inflected verb (and whatever material may occur immediately postverbally) is the left daughter of the higher segment. This structure is "base generated"; it does not come about by adjunction, and the structure has crucial properties that make it different from standard adjunction.[15]

(32) a.   Direct:

Dist
head

'every man'   Count
feature sharer   **selectee**

'few films' Agr_s

'saw'

  b.   Inverse:

Dist
head

Count   Dist
selectee   **head**

'few films' Agr_s 'every man'
                          feature sharer

'saw'
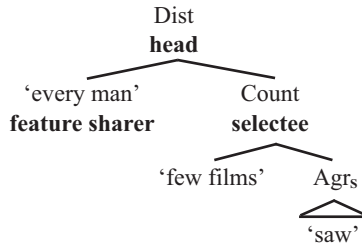
The basic possibility to generate Dist as a complement of Dist follows from the fact that such a constellation exists even without "two-segment heads"; see the Kleene stars in (4) and (7). This constellation results in a two-segment head when two such heads join forces in picking up the dependents. The well-formedness conditions of two-segment structures largely follow from the fact

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[15] There is another potentially relevant approach. Edwin Williams's 1998 work as well as his recent 2000 monograph manuscript contain an operation he calls "flip" that could be equally useful here if it was appropriately extended from inflectional structure to syntactic specifiers and complements. However, before this is done, it is difficult to judge to what extent the result would or could differ from the relevant aspects of mirror theory.

that features percolate upward, never downward. First, for the two heads to qualify as segments of one category, they must have identical features. Therefore, the feature-sharer must be the left daughter of the lower of the two heads; this ensures that its features percolate to the higher one. If a phrase shares features with the higher head, those features would not percolate down and the two heads would be inescapably interpreted as two distinct categories, each needing its own dependents. Second, the operator phrase 'every man' must form a chain with its trace (lower copy). Chain formation requires that the features of the head of the chain dominate the features of the lower members of the chain, corresponding to the traditional scope/c-command requirement on chain formation. Therefore, 'every man' must be in a position to percolate its features to a node that dominates the chunk of the sentence that contains the copy (or copies) of 'every man'.[16] This is possible only if 'every man' shares features with the lower segment and Count (which contains the lower copies) is the selectee of the higher segment of the same head. We assume that feature percolation between two identically labeled heads is optional; if it does not take place, the structure is well formed only if both heads have their own appropriate dependents.[17]

Now recall our definition of scope:

(33) Scope: α scopes over β iff α's features dominate β.

In both (32a) and (32b), 'every man' scopes over 'few films' because it shares features with the distributive head Dist that dominates 'few films [saw]'. The case of (32a) is trivial. In (32b), the unit 'every man' shares features with the lower Dist head. The lower and higher Dist heads must share all features to form a single two-segment category, and they legitimately do so by feature percolation. The two-segment head Dist dominates 'few films'. Compare this with the status of 'few films' in (32b). Although it is to the left and higher, its features are trapped because Count is crucially a selected dependent, not a feature-sharer. Therefore it does not scope over the linearly second quantifier 'every man'. This is how the

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[16] If the features involved are of the percolating sort, this predicts the possibility of movement into the specifier of a specifier—not a traditionally c-commanding position. But Hallman (2000) argues that precisely such a result is necessary for the formalization of Sportiche's (1999) theory where NP moves to D, rather being generated as its complement.

[17] An additional requirement that two-segment heads be word-internal rules out the possibility of (i) as an equivalent of (32a).

(i)
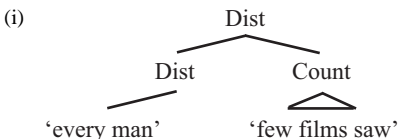
interpretation of (32b) comes to differ from that of standard adjunction structures.[18]

8. Antisymmetry and Scope in Mirror Theory

Now we can address whether the structure in (32b) is antisymmetrical. In relatively theory neutral terms, the relevant aspect of antisymmetry requires higher elements to precede lower elements; this is what the wishful thinking structure (12b) violated. Let us say that a node X is higher than Y if the node immediately dominating X nonimmediately dominates Y. Using this definition, indeed, the higher unit (the selectee) in (32b) precedes the lower distributive element.

Why do we need this theory-neutral talk? Given the syntactic structures mirror theory generates, this approach does not need c-command as a primitive notion. Instead, c-command constraints are stated in terms of dominance (see Brody 2000:51–52 and section 6 on scope). This means that we cannot ask whether its structures are antisymmetrical in the literal technical sense of the LCA, which is stated with reference to c-command. But we can ask whether the structures are of the kind that the LCA is intended to allow. This is what we have just done. Indeed, as observed in Brody 2000 (p. 53), mirror theory does not provide means with which nonantisymmetric structures can be built and therefore it does not need a separate principle to ensure antisymmetry.

Mirror theory—in fact, any theory that adopts the assumption that phrasal projections are represented by a single node (cf. ''telescope'' in Brody 2000, esp. section 3.1)—appears to be necessarily committed to the assumption that

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[18] In section 1 we mentioned that, for many speakers, the inversely scoping quantifier must bear primary stress. This observation is due to Hunyadi (1981). Hunyadi (1999) assumes that when two operators are within the same prosodic domain, one may reduce the stress of the other and is thereby interpreted as scoping over the other. This process of stress reduction is governed by a specific hierarchy Hunyadi postulates (sentential operator > quantifier > nonquantifier > verb). In inverse scopal structures, stress reduction does not take place (i.e., both the preverbal, narrow-scope and postverbal, wide-scope quantifiers are stressed). He accounts for this by assuming that each of the quantifiers is located in a separate prosodic domain.

Without attempting to provide our own stress-reduction algorithm, we point out that the structures proposed above map onto prosodic domains correctly. The edges of maximal projections are aligned with the edges of prosodic domains. By a prosodic domain we mean the domain between Prosodic Word and Intonational Phrase. By maximal projections we mean XP itself or, when XP is in a position where it shares features with some head Y, then YP. We propose that the syntax/prosody mapping in Hungarian refers to the right edge only. Hence, the right edge of XP (YP) aligns with the right edge of the prosodic domain and there are as many prosodic domains as there are distinct right edges of XPs (YPs). In view of these definitions, a structure where all selected dependents occur as right daughters will constitute a single prosodic domain, but each occurrence of a selected dependent as a left daughter (''inversion'') will split prosodic domains. Quantifiers then serve as heads of these prosodic domains. Because there can be only one head in the prosodic domain, quantifiers of the same prosodic domain undergo stress reduction (according to the hierarchy proposed by Hunyadi). Quantifiers occurring in different prosodic domains remain stressed. We thank László Hunyadi and Stefan Benus for discussion on these matters.

elements in head-chain type relations must be in a relation of domination rather than c-command (independently of whether the relation involves chains or some other notion as in fact is the case in mirror theory). There are then two reasons to eliminate c-command from the theory and to use in its place only the concept of domination. First, domination is simpler than c-command, which is a rather problematic concept for various reasons (see Epstein, Groat, Kawashima & Kitahara 1998; Brody, 2000b). Second, having both c-command and domination as primitives is clearly less preferable than having only the simpler of the two. Because the only remaining case in mirror theory is c-command by a specifier, this can be naturally and straightforwardly reduced to domination using the independently motivated specifier-head relation. This is what we have already done with respect to scope in section 6, although for expository purposes within the X′-theoretical framework.[19]

So the fact that mirror theory does not rely on a purely graph-theoretic notion of c-command but replaces it with one involving dominance bears on the other issue on our agenda: We are now using a theory in which the definition of scope in terms of feature domination is not just one option but the only natural one.[20]

9. The Interaction of Different Quantifier Types

In this section we discuss the empirical coverage of the proposal in terms of the interaction of different quantifier types. Two descriptive generalizations are as follows:

(34) Counting quantifiers do not scope inversely over distributives or topics.

(35) Distributives can scope inversely over either counters or topics.

Generalization (34) is known from Liu 1990, Beghelli and Stowell 1997, and Szabolcsi 1997.

(36) Every man saw few films.
      *'few' > 'every'   (Inverse)

(37) Minden ember   [tavaly]   látott kevés filmet.
      every   man-NOM last-year saw   few   film-ACC
      *'few' > 'every'   (Inverse)

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[19] It may be possible to simplify mirror theory further, eliminating specifier-head agreement (on this see Chomsky 2000, Starke 2001), in which case only the notion of domination will remain (Brody, in prep.).

[20] The proposal here deviates from Brody 2000 (p. 52), where it was assumed that percolation from the specifier of a specifier is not possible. That gave certain results that are not reproducible given our present assumptions, that Qs overtly move to designated heads. For alternatives in the present framework, see section 6.

Generalization (35) is exemplified by (38)–(39) for English and (40)–(41) for Hungarian. Recall that topical indefinites share a feature with Ref, the highest scopal category:

(38)   Few men saw every film.
         'every' > 'few'   (Inverse)

(39)   Someone (that I know) helped everyone.
         'every' > 'some'   (Inverse)

(40)   Kevés filmet látott minden ember.
         few film-ACC saw every man-NOM
         'every' > 'few'   (Inverse)

(41)   Valamit kölcsönadott mindenki.
         something-ACC lent everyone
         'every' > 'some'   (Inverse)

We propose that (34) is to be accounted for by tightening the conditions under which a selected dependent can precede the feature sharer. This account will effectively predict (42).

(42)   A lower ranking quantifier does not scope inversely over a higher ranking one.[21]

The inverse readings of (39) and (41) obviously contradict (42). We will argue that the tightening we propose is nevertheless correct and these latter examples are due to reconstruction, not to "complement precedes specifier." The claim that the two kinds of inverse scope are due to two distinct grammatical devices is supported by the fact that they are subject to different conditions. Specifically, the inverse scoping we attribute to reconstruction is blocked by the intervention of certain operators, but the inverse scoping we attribute to "complement precedes specifier" is not.

9.1 "Complement Precedes Specifier" Respects Ranking Order

The simplest explanation of why (34) holds might be that counting quantifiers cannot take inverse scope at all. This is not true, however. In the postverbal domain, two counters can be interpreted in either order.

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[21] More precisely, we predict that a lower ranking quantifier does not take "unmediated" inverse scope over a higher ranking one. A case of "mediated" inverse scope would be this:

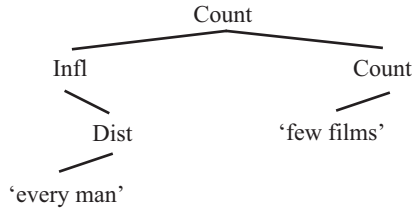   (i)   'every' > 'few' > 'most' linearized as: [[few V most] every]

The fact that *every* outranks *few* enables the chunk [*few V most*] to occur to the left of *every*. Inside this chunk, we find the legitimate *few > most* scope relation (the two quantifiers are in different series, even separated by the verb). By transitivity, *every* scopes over *most*. This is theoretically legitimate and factually attested.

Example (43) allows inverse scope because the lower scopal series have Count* and two counting quantifiers have the same rank, thus "complement precedes specifier" is available.

(43) Tegnap   nézett   meg hatnál több   filmet   kevés ember.
      yesterday viewed PRT   more-than-six films-ACC few   people
      ·more than six' > 'few'   (Direct)
      ·few' > 'more than six'   (Inverse)

Similarly, a counter is capable of taking inverse scope over another counter in English and in OSV sentences in Japanese (Keiko Muromatsu and Kimiko Nakanishi, p.c; we assume that floated quantifiers are counters). This suggests that the restriction must be stated in terms of the ranking hierarchy.

Before we start, note that traditionally one thinks of deriving inverse scope by first generating a structure that has the desired linear order and then rearranging it (by QR, for example) so that it carries the desired inverse scope interpretation. In our theory, we must start with generating a structure that carries the correct interpretation, and the question is whether this can be done using a linear order where the lower scoping quantifier precedes the higher scoping one. This is how we will proceed.

Because the "complement precedes specifier" option is entirely local in that it pertains to two dependents of the same head, our proposal already comes close to predicting (34)/(42). Consider the structure in (44), with Infl any of the inflectional heads Agr_S, T, and so on.

(44)

Count
  / \
'few films' Infl
    / \
    Dist
    / \
 'every man' ...

This structure carries the 'few' > 'every' interpretation, and in fact this is the only kind of structure that may do so. As was pointed out in section 2, a lower ranking quantifier can scope over a higher ranking one only if they are in two separate scopal series, with the higher ranking one in the lower series. The question is whether (44) has a linear order variant in which 'every man' precedes 'few films' but the scope relation is maintained, so that in fact 'few films' scopes inversely over 'every man'. Our proposal already excludes any possibility for the Dist node that dominates 'every man' to be ordered directly above (before) the Count node that dominates 'few films'. Given that Dist is not the complement of the same Count head that 'few films' is the specifier of, the "complement precedes specifier" ordering option does not come into play. The only other possibility would be to remnant-move the Dist chunk to

some WP right above Count in a nonlocal fashion, but in section 4 we argued against the use of any movement that does not serve to check a feature; therefore this is also excluded.

We are not quite done yet, however. As our proposal stands, the unavailable inverse scoping can be obtained by ordering Infl, the complement of Count, before its feature-sharing specifier:

(45) To be excluded:

```
                      Count
                    /       \
              Infl           Count
                 \              \
                  Dist          'few films'
                     \
                     'every man'
```

The tree in (45) expresses the same scope relation as (44), but the counter now linearly follows the distributive. The general form of the problem is this:

(46) If a category that separates two scopal series can occur as a left
      daughter, (42) can be violated.

The task is then to exclude this possibility. We propose to exclude it with reference to the fact that the categories that separate scopal series are Agr_S, T, Agr_O, v, and V; see (7). They need to form the morphological word V-v-Agr_O-T-Agr_S by suffixation. We argue that this is disrupted if one member of the sequence occurs as a left daughter.

To spell this out more precisely, we assume that Mirror is a biconditional.[22]

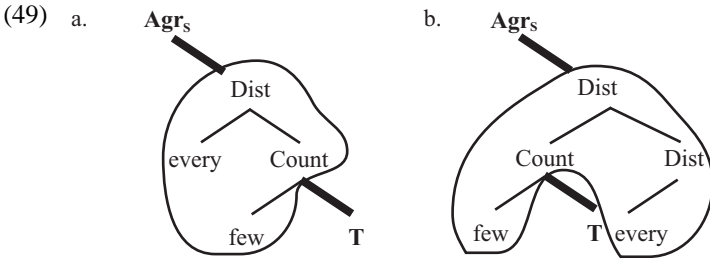(47) Mirror: Y is a right daughter of X iff Y-X form a morphological word

Two issues need to be attended to before we can say that (47) excludes (45). The first concerns the problem that, independently of the issue of inverse scope, the components of the morphological word are separated by scopal categories. The formation of the morphological word must ignore these. This can be stated as follows:

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[22] As noted in Brody 2000, the biconditional formulation of Mirror encounters some descriptive difficulties. Potential solutions to most of these problems were proposed in the cited work. The main remaining difficulty (apart from the case of sentence-final adverbials, where the data seem less clear) was that in translating Kayne's analysis of focus to mirror theoretical terms (Brody 2000, n. 14) the verb was positioned on a specifier branch and it was not clear how it created a morphological unit with T/Infl. If, however, focus is higher than T/Infl, no such problem arises: the V is then a complement of T/Infl, which itself occupies the specifier branch.

(48)   Y-X form a word iff either Y is the right daughter of X, or all categories between the two that do not participate in the word form a subtree T s.t. the root of T is the right daughter of X and Y is the right daughter of a terminal of T. That is:

   a.   **X**   or   b.   **X**

             Y   subtree

                                                                Y
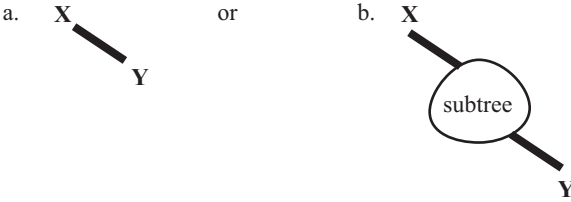
Notice that (48) is compatible with either (49a) or (49b), where Agr_S = X, T = Y, and Dist, Count plus their feature sharers form the relevant subtrees:

(49)   a.   **Agr$_S$**   b.   **Agr$_S$**

                Dist   Dist

        every   Count   Count   Dist

             few   **T**   few   **T** every

It is moreover reasonable to require that the heads in the main projection line of the subtree be empty. (This is not meant to exclude languages like Japanese and Korean, where quantificational morphemes are suffixed to the verb: in that case, those morphemes are indeed part of the word.)

   Returning now to our question—does (48) exclude (45)? It does when Infl is a nonhighest member of the inflectional sequence, because Infl and the higher members must form a morphological word. If Infl is the highest member (i.e., the rightmost suffix), then Infl itself can be a left daughter. This could be a problem if Agr_S, which marks the position of the finite verb in Hungarian, were the highest member of the inflectional sequence; we would predict, incorrectly, that inverse scope can violate the ranking order in the preverbal field. A natural solution to this problem is to assume that what we call Agr_S is not the highest member: there is at least one (nonovert) further member of the inflectional sequence above it, which however has no scopal series of its own. Plausible candidates are the lower C heads as in Rizzi 1997 or the heads corresponding to the higher subject position of Cardinaletti 1997. The need for this head to get suffixed onto the overt finite verb forces the pre-Agr_S quantifier sequence also to obey the ranking generalization in (42).[23]

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[23] See also Brody and Szabolcsi 2000 for an alternative approach.

9.2 Reconstruction into Successive Cyclic A′-Positions

Our theory now predicts that a lower ranking quantifier does not take inverse scope over a higher ranking one. This prediction is descriptively too strong. Example (50a) exhibits a mild ambiguity (in the judgment of Hunyadi 1999, also of one reviewer of the present paper) although, as (50b) shows, the checking position of 'something' (Ref) is higher than that of 'everyone' (Dist). Likewise, (51) is ambiguous.

(50) a.   [$_{Ref}$ Valamit [$_{Dist}$ mindenki [$_{AgrS}$ kölcsönadott]]]
              something-ACC everyone-NOM lent
      b.   *Mindenki   valamit   kölcsönadott.
              everyone-NOM something-ACC lent

(51) Valamit   kölcsönadott "mindenki.
      something-ACC lent   everyone-NOM
      'every' > 'some'

Similarly surprising is (52), which has a reading that cannot be expressed using only direct scope; witness the unacceptability of (53), the closest approximation. The problem is that the Ref-quantifier 'most' scopes, but cannot linearly occur, between a Dist and a Count-quantifier.

(52) Minden tanár   hatnál több   példát   adott   fel   a legtöbb
      every   teacher more-than-six problem-ACC assigned PRT the most
      osztályban.
      class-in
      ✓ 'for every teacher x, for most classes y, x assigned more than six
      problems in y'

(53) *Minden tanár   a   legtöbb osztályban hatnál több
      every   teacher-NOM the most   class-in   more-than-six
      példát   adott   fel.
      problem-ACC assigned PRT

These data appear to indicate that no theory of inverse scope that relies solely on rearranging the material of a sentence that expresses the desired reading with direct scope can be descriptively fully adequate.[24]

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[24] É. Kiss (1987, 1998) proposes that all scope relations in Hungarian are expressed in overt syntax and derives inverse scope by Stylistic Postposing, an operation that leaves interpretation and stress intact but changes the linear order of expressions. Examples (50) and (52) present a problem for É. Kiss's theory as much as they do for our solution so far. Additionally, Stylistic Postposing being less local than our "complement precedes specifier" option, it allows to violate the ranking generalization. It predicts for example that (i) has an inverse scopal reading which we believe does not exist (see the discussion in Szabolcsi 1997).

Short of throwing out the results of section 9.1, these data can be accommodated by invoking an additional device—either feature (covert) movement/chains or reconstruction. We develop the reconstruction option, relying on the assumption that operators move to their actual checking positions successive cyclically, leaving copies in the lower series. The desired interpretation of (51) then utilizes the bold-faced copies:[25]

(54) Valamit [$_{AgrS}$ kölcsönadott [$_{Ref}$ (valamit) [$_{Dist}$ **mindenki** [$_T$ [$_{Ref}$ (v**alamit)** [$_{Dist}$ (mindenki) [$_v$

This move however raises serious questions. Reconstruction being more powerful than the "complement precedes specifier" technique discussed earlier, how do we know that reconstruction is not the only inverse scoping device? And why does it not wipe out all the rank-order effects? Our answer to both questions is based on the following observation:

(55) Reconstruction (as relevant here) is blocked by intervening focus, counting quantifiers, and negation.[26]

(i) Nem látott minden filmet   hatnál több   ember.
     not saw   every   film-ACC more-than-six men
     a.   'not' > 'every' > 'more than six'   (Direct)
     b. *'not' > more than six' > 'every'   (Inverse)

[25] Once reconstruction is introduced for the sake of examples like (50) and (52), it will account for some linear orders that are not produced by the "complement precedes specifier" options pointed out in (13) and (14) of section 5. For example, reconstruction will "lower" the counting quantifier with *kevés* 'few, little' into the position marked by the underscore:

(i) Kevés példát   adott   fel minden tanár _ egynél   több   osztályban.
     few   problems assigned PFX every   teacher one-than more   class-in
     'Every teacher used few problems in more than one class (i.e., teachers rarely reused problem sets).'

(ii) Kevés leckét adott   fel minden tanár   legalább három osztályban _.
     little homework assigned PFX every   teacher at-least three class-in
     'For every teacher, there were at least three classes in which she assigned little homework.'

[26] In this paper, we do not examine what explains the blocking effect in (55). Two remarks are in order, however. First, the kind of reconstruction involved in (55) must be distinct from the process that assigns narrow scope to contrastive topics (left dislocation, preposed phrases with fall-rise intonation). The latter is not blocked by focus, counters, or negation. For example:

(i) Mindenki\/ nem nevetett.
     everyone   not laughed
     'It is not the case that everyone laughed.'

Second, the blocking effect involved in (55) is distinct from that discussed in Beck 1996. Most conspicuously, universals are not on the list of blocking operators in (55) but they block Beck's LF-movement. The interveners relevant in (55) may be tied together by being information foci. The divergence between the two sets is understandable. Pesetsky (2000) proposes to reinterpret Beck's LF-movement as feature movement and to adopt Honcoop's (1998) operator/restrictor split semantics. If (55)-type A′-reconstruction is not a case of operator/restrictor split, we do not expect it to be blocked by the same interveners.

We illustrate blocking with negation, where the judgments are very straightforward. Example (56) has two readings: (a) is the scoping that matches linear order, and (b) is an inverse reading obtainable by ordering the complement before the specifier, as in the mirror-theoretic proposal. But (56) lacks readings (c) and (d), which could be obtained if the counting quantifier 'more than six questions' reconstructed into the scope of negation.[27]

(56)   Hatnál több kérdést nem értett meg mindenki.
       more-than-six question-ACC not understood everyone
       a.   ✓'more than six' > 'not' > 'every'
       b.   ✓'every' > 'more than six' > 'not'
       c.   *'not' > 'every' > 'more than six'
       d.   *'not' > 'more than six' > every'

Example (57), on the other hand, has no inverse reading at all. The order 'every' > 'some' contradicts the ranking generalization, unlike 'every' > 'more than six' in (56b), and reconstruction is again blocked by negation.[28] The reading in (57c) contrasts with (51), where no intervener blocks reconstruction.[29]

(57)   Valamit nem értett meg mindenki.
       something-ACC not understood everyone-NOM
       a.   ✓'some' > 'not' > 'every'
       b.   *'every' > 'some' > 'not'
       c.   *'not' > 'every' > 'some'
       d.   *'not' > 'some' > 'every'

The same blocking effects are obtained if the intervening negation is replaced by an intervening counting quantifier or contrastive focus.

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[27] The remaining two readings, given here as (i) and (ii) are unavailable, irrespective of whether the DistP is a universal, which cannot scope directly above negation, or something else that is capable of scoping directly above negation.

   (i)   *Dist > 'not' > 'more than six'
   (ii)   *'more than six' > Dist > 'not'

This supports the account in the text. Reading (i) is predicted to be out because the preverbal quantifier cannot reconstruct across negation and (ii) because the postverbal Dist cannot come between Count and Neg by "complement precedes specifier."

[28] The impossibility of reconstruction cannot be attributed to *valami* 'something' being a positive polarity item, because in (57c) the intervening universal would shield it from negation, cf. *Not everyone saw something*. See Szabolcsi 2002.

[29] For example (57), the reading presented in (i) remains unavailable, but the reading in (ii) is perfectly okay with the choice of a DistP that can scope directly above negation. On our account this is explained by the fact that "complement precedes specifier" can bring Dist between Ref and negation:

   (i)   *Dist > 'not' > 'some'
   (ii)   'some' > Dist > 'not'

Thus, the descriptive generalization is this: inverse readings that go against rank order are possible only if they are obtainable by reconstruction, subject to the blocking effect in (55).

The blocking effect shows that "complement precedes specifier" and reconstruction are distinct grammatical devices responsible for inverse scope. Neither fully subsumes the coverage of the other.[30] The blocking effect also ensures that the strongest ranking effect exemplified in the main body of the paper (i.e., a counter does not scope inversely over a distributive quantifier or a topic) is not wiped out even by reconstruction. The reason is that this interpretation would require that the distributive quantifier or topic be reconstructed into the scope of the counter, which is one of the things (55) prohibits.

Finally, could we have invoked covert movement or feature movement instead of reconstruction? We would not wish to argue that there is no way to restrict feature/covert movement to obtain just the right results, but we can point out that two straightforward implementations would make incorrect predictions. If feature/covert movement targets the same scopal specifier positions that overt movement might fill, then it cannot derive the inverse readings of (50)–(52), where the lower ranking universal scopes inversely over the higher ranking topical indefinite. To derive these, one would need either the assumption of non-feature-checking landing sites as with traditional QR or the assumption that there is a whole series of "invisible" operator-feature checking positions on top of the clause that is reserved solely for feature/covert movement. If, on the other hand, feature/covert movement has no designated target or can target such an invisible series, it cannot rule out (58) and (59), the indicated inverse readings of which are unimaginable.

(58)   Minden ember kevés filmet   nézett meg.
       every   man   few   film-ACC saw   PRT
       *'few' > 'every'   (Inverse)

(59)   Kevés filmet   nézett meg hatnál több   ember.
       few   film-ACC saw   PRT more-than-six people
       *'more than six' > 'few'   (Inverse)

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[30] Inverse readings as in (6) can be obtained in two ways: by "complement precedes specifier" (because the linearly second QP is higher ranked) and by reconstruction (because there is no offending intervener). As we have noted, most speakers require high stress on the inverse scoping quantifier in such examples, whereas for some others, the stress pattern is not relevant. This might be attributed to the assumption that the first set of speakers prefer the "complement precedes specifier" structure whenever possible (see n. 18 on this intonational correlate), but the second set of speakers do not care. As a reviewer points out, this idea predicts that the group of speakers who do not need high stress on a quantifier to get inverse scope for it (i.e., they can derive it freely via reconstruction) would still require high stress just in case there is a blocking of reconstruction. This prediction is indeed borne out.

10. Summary

In the first five sections of this paper, we introduced the basic properties of inverse scope constructions in Hungarian and discussed some promising but problematic analyses. Section 6 set out evidence from pied-piping for a featural-domination definition of scope. In section 7, some aspects of mirror theory that were relevant to our analysis were introduced. We showed how mirror theory helps explain the possibility of the curious "complement precedes specifier" order and explicated the notion of scope this approach leads to. In section 9, we discussed additional generalizations relating to inverse scope and different kinds of exceptions to these. We offered a modular analysis with two different mechanisms interacting to cover the data.

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