RESEARCH IN AFROASIATIC GRAMMAR II

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Phrasal movement in Hebrew DPs*

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The paper focuses on interactions between genitive constituents in complex DPs and argues for a phrasal movement approach to N-initial order, in which N^0 arrives in its surface position due to movement of a phrasal constituent NP. While languages displaying NP-Determiner order attest, potentially, to NP movement to spec DP most obviously and directly, consideration of the binding and scope properties of multiple genitives shows that phrasal movement to spec DP may be more pervasive than the relative order of N^0 and D^0 alone would lead one to expect.[1] The syntax of genitive constituents, I argue below, is directly related to the movement operation which fronts N^0 as part of a phrase. More specifically, permutation in the relative order of genitives is parasitic upon phrasal movement of NP to spec DP, independently motivated by properties of N^0 and D^0. Starting out with an overview of the derivation of N-initial order and related issues of restrictiveness, the paper proceeds to examine the syntax of multiple genitives and its implications for a fuller understanding of the nominal fronting operations available in DP.

1. Introduction

Studies of the configuration of Semitic noun phrases have contributed significant insight into the structure of DP. The fact that the head noun in these languages typically precedes adjectives and genitives, together with the alternation in genitive realization known as the construct-state / free-state alternation, have provided strong arguments for there being functional structure above NP (Abney 1987). If NP projections contain hierarchically organized constituents just like VPs, then the occurrence of N-initial orders can only mean that N^0 has raised from its base-generated position within NP. Such raising, in turn, is conceivable only if there is functional material available above NP to host raised N^0, i.e. a D^0 projection, possibly more (see Ritter 1988, 1991; Siloni 1994, 1997; Fassi Fehri 1989, 1993; Lon-

gobardi 1996 for D^0, Num^0, and Agr^0). Differences aside, these studies agree that N-initial orders in construct-state and free-state nominals are uniformly derived by head-movement of N^0 to a higher functional head.

The idea that all N-initial orders attest to N^0-movement and the presence of a DP projection has been challenged in Borer (1996, 1999) based on construct formation in the context of multiple genitive DPs. Agreeing that construct DPs do involve some form of N^0 movement, an asymmetry between Agent genitives and Theme genitives in construct formation is shown to suggest that Agent/Possessor genitives are merged as right-hand specifiers (as in Giorgi & Longobardi 1991), and that Theme genitives may optionally move past them to the right.[2] But if specifiers of NP are merged to the right, following N^0 and its sister, the necessity of an N^0-movement operation to derive N-initial order dissolves, casting doubt on the relevance of a significant portion of data previously taken to motivate a DP layer.

Though it neutralizes the necessity of N^0-movement in free-state DPs, an analysis in terms of right-hand specifiers is not, a priori, more restrictive than the analysis in terms of left-hand specifiers plus movement. In particular, the claim that specifiers may be merged to the right of N', and that complements may move past them, to the right, is at odds with the Linear Correspondence Axiom (Kayne 1994; henceforth, LCA), which severely restricts base-generated structure and movement operations. The LCA states that specifiers are universally merged to the left of X', and that all movement, to the extent that it is upward, must also be left-ward. So as they reduce the need for N-movement, right-hand specifiers and right-ward movement introduce flexibility in terms of directionality, an undesirable consequence from the perspective of UG. As argued here at length, the conclusion that specifiers are merged to the right is not necessary. Furthermore, an LCA-compatible analysis turns out to be preferable on empirical grounds, as shown by the pattern of relative scope among multiple quantified genitive DPs, and its interaction with binding properties.

The paper addresses the tension between these two notions of restrictiveness, i.e. restrictiveness in the movement component and restrictiveness in directionality. Focusing on interactions between genitive DPs in various empirical domains, it is argued that free-state DPs have the Agent merged as left-hand specifier, as in earlier studies. Consequently, some noun fronting operation must be involved. Closer consideration of the binding and scopal properties of multiple genitives reveals, however, the unlikelihood that N-initial orders are uniformly derived by head movement, and it is argued that an analysis consistent with the LCA derives N-initial order by movement of a phrasal constituent larger than N^0. That phrase may indeed contain N^0 alone, giving the appearance of N^0-movement, but in other cases the raised constituent may also contain a genitive Theme. Depending on the amount of material contained in the fronted phrase, the orders N-Ag-Th and N-Th-Ag are derived, the latter by movement of [N + Th] as a constituent, past the

Agent specifier. Permutations in the relative ordering of genitive constituents, from this perspective, follow directly from the noun-fronting operation itself.

The main goal of the paper is to secure a phrasal movement analysis of N-initial order in (non-process) free-state DPs on empirical grounds. The conclusion that phrasal movement is involved raises a new set of questions, some of which are addressed in detail. The paper is organized as follows: Section 2 introduces the construct asymmetry and the solution in terms of right-hand specifiers and rightward movement. Section 3 develops an alternative featuring phrasal movement, and addresses some of the technical issues raised by the approach. In Section 4 new data from scope asymmetries are introduced, and it is argued that the pattern of relative scope strongly favors an analysis of order permutations in which Theme moves to the left of Agent as part of a larger phrase containing N^0. Once the basic ingredients of the analysis and its motivation are in place, Section 5 examines phrasal movement operations in the light of general constraints on movement such as Relativized Minimality (Rizzi 1990) and the Extension Condition (Chomsky 1995), and further refines the derivations proposed in Section 3. The paper concludes with a summary and discussion of issues for further research, in Section 6.

2. The construct asymmetry

In many languages genitive DPs have more than one grammatical realization. These realizations are known in the Semitic literature as the free-state / construct-state alternation. Among the salient properties of construct states observed in (1a) and (1b) are omission of genitive *Sel* and definite *ha-*, and special morpho-phonology (the addition of *-t* in (1b)). In addition, the definiteness value of the matrix and intermediate DPs correlates with definiteness of the most embedded genitive complement, in (2). The definiteness value of the most embedded genitive in (2b) correlates with definiteness of its embedding constituents, though these values are independent in free-states, as in (2a):[3]

(1) a. **ha**-tmuna **Sel** ha-xamaniot (free state)
the-picture of the-sunflowers

b. tmunat ha-xamaniot (construct state)
picture.cs the-sunflowers
"the picture of the sunflowers"

(2) a. man'ul [**Sel** delet [**Sel** bayit [**Sel** **ha**-mora]]] (free state)
lock of door of house of the-teacher
"a lock on a door of a house of the teacher's"

b. man'ul [delet [beyt [ha-mora]]] (construct state)
lock.cs door.cs house the-teacher
"the lock on the door of the teacher's house"

Construct formation is freely available when DP contains a single genitive. The genitive may be construed as Theme (as in (1b)), Agent, or Possessor (in (3)). But when DP includes multiple genitives, construct formation is limited to the Theme (in (4)):

(3) a. tmunat van gox
picture.cs Van Gogh
"the picture by Van Gogh"
b. tmunat ha-asfan
picture.cs the-collector
"the picture belonging to the collector"

(4) a. tmunat ha-xamaniot Sel van gox
picture.cs the-sunflowers of Van Gogh
"Van Gogh's picture of the sunflowers"
b. *tmunat van gox Sel ha-xamaniot
picture.cs Van Gogh of the-sunflowers

The restriction on construct formation is particularly surprising, since the relative order of these constituents is free in free-state (non-derived) nominals (from Siloni 1994 and Borer 1996, 1999):

(5) a. ha-tmuna Sel ha-xamaniot Sel van gox
the-picture of the-sunflowers of Van Gogh
b. ha-tmuna Sel van gox Sel ha-xamaniot
the-picture of Van Gogh of the-sunflowers

Borer (1996, 1999) takes the contrast in (4) as indication that the symmetry in word order observed in (5) is merely superficial. In order for construct formation to be possible in (4a), according to Borer (1996, 1999), the head noun and Theme in a non-derived nominal like (5a) must be in a sufficiently tight structural relation to the exclusion of the Agent. Conversely, the ungrammaticality of (4b) follows if the noun and Agent in (5b), though adjacent, are not in a structural relation of the same sort. In the latter case, it is argued, the noun and Agent come to be adjacent as the result of movement of the Theme to the right, past the Agent, merged as a specifier to the right of [$_{N'}$ N^0 Theme]. That Agents must be merged as specifiers, and Themes as complements under N', follows from the fact that Agents asymmetrically c-command themes independent of order (in (6) and (7), from Shlonsky 1988):

(6) a. ha-tmuna Sel rina Sel acma
the-picture of rina of herself

b. ha-tmuna Sel acma Sel rina
the-picture of herself of rina
"Rina's picture of herself"

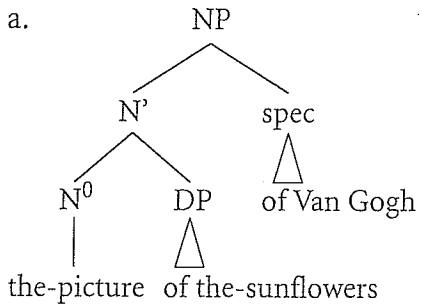
(7) a. ha-tmuna Sel ima Selo Sel kol xayal
the-picture of mother of-his of every soldier

b. ha-tmuna Sel kol xayal Sel ima Selo
the-picture of every soldier of mother his
"every soldier's picture of his mother"

Although a reflexive anaphor is possible in both positions in (6), the reflexive is interpreted as Theme, and the name as Agent, regardless of order. In (7), the quantified expression is interpreted as Agent or Possessor regardless of its position relative to the other genitive. The consistency of interpretation across variation in word order implies, first, that Agents asymmetrically c-command Themes. It also implies that the c-command configuration holding at the base is impervious to the syntactic operation responsible for word order permutation, or in other words, that the movement involved is subject to reconstruction.[4]

The asymmetric c-command of Agents over Themes, is reconciled with the construct asymmetry, according to Borer, if the Agent is merged as a right-hand specifier of NP. N-Ag-Th is derived by right-adjunction of Theme to NP:

(8) a.



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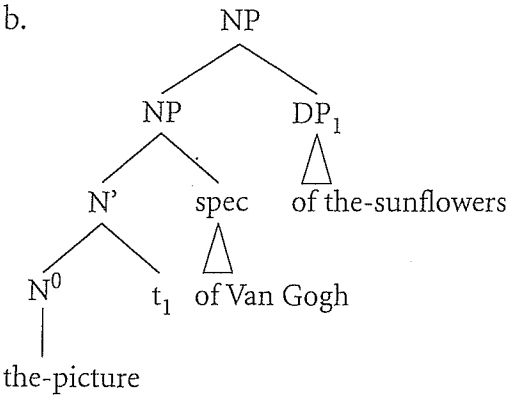


Setting aside the details of the construct formation analysis given in Borer, the structural relation between N^0 and Theme is closer in (8a) than the relation between N^0 and Agent in (8b), and these relations are sufficiently distinct to account for the construct asymmetry seen in (4). Since the trees in (8) have specifiers to the right, N^0 occupies an initial position independent of movement, and the central motivation for a noun fronting operation dissolves.

With a specifier merged to the left, on the other hand, head movement on its own would fail to account for genitive permutation, requiring an additional step of DP_{gen} movement. Given such an independent movement operation, head movement still falls short of adequately distinguishing N-Th and N-Ag, for it remains unclear why a Th scrambled past an Ag allows construct formation and an Ag does not; if anything, positions derived by scrambling (especially if they involve adjunction, as in Webelhuth 1992) should be less amenable to construct formation than the A-position occupied by Ag.

While an analysis of the construct asymmetry in terms of right-hand of specifiers is a priori feasible, it comes at a cost. Though it neutralizes the need for N^0-movement in free-state nominals, an analysis in terms of right-hand specifiers is not necessarily more restrictive than the analysis in terms of left-hand specifiers plus movement. In particular, the claim that specifiers may be merged to the right of N', and that complements may move past them, to the right, is at odds with the Linear Correspondence Axiom (Kayne 1994), which severely restricts base-generated structure and movement operations. The LCA states that precedence relations among terminal nodes are determined by asymmetric structural relations among the phrases which dominate them. Therefore, a c-commanding phrase must *precede* the constituent in its scope, and to the extent that it c-commands X', a specifier merged to the right of X' is no longer an option. Similarly, since movement is necessarily to a c-commanding position, the LCA will preclude a head of a chain from c-commanding and *following* its tail, so neither can rightward movement be available. By rigidly limiting X-bar precedence relations at the base to Spec-X^0-Complement, the LCA in effect eliminates directionality parametrization from the base component and implies that directionality phenomena are derived by movement. Given the general reduction of flexibility suggested by LCA-based restrictions, it becomes important to determine whether right-hand merge and rightward movement are indeed necessary conclusions, and whether an LCA-consistent alternative which avoids the problems faced by head-movement is available.

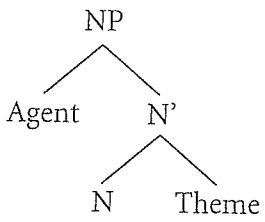
The next section argues that an LCA-compatible alternative is indeed available, and develops an analysis of the construct asymmetry which preserves Borer's basic insight into the constituency of (8a) as a *derived* structure. Consistent with the LCA requirement that specifiers are merged to the left, it is shown that the construct asymmetry follows if Theme comes to precede Agent as a result of [N + Th] movement to the left. The claim that N^0 and Th in N-Th-Ag are contained within

a phrasal constituent which excludes Ag directly explains the construct asymmetry, and is independently supported by additional binding and scope interactions between genitive constituents, presented in Section 4.

3. Phrasal movement in Hebrew DPs

For an analysis of the construct asymmetry to satisfy the LCA, the base-structure of an NP embedded within DP must have a c-commanding specifier precede (= be to the left of) everything in its scope. The requirement directly entails that in multiple genitive constructions, the Ag is merged as a specifier to the left of N'. Recall that although the relative order of Ag and Th is free, the genitive binder is interpreted as Ag, and the bindee as Th, as in (6) and (7) with reflexives and bound pronouns. The fact that binding relations are preserved across word order permutations strongly suggests that these orders are related by movement, and do not represent distinct base generated structures. The conclusion is in fact forced, if, as assumed here, c-command determines precedence at the base: an Ag could not precede and c-command a Th in one base structure, and follow and c-command it in another. Since the movement operation involved does not alter binding relations established at a prior stage in the derivation, it must be subject to reconstruction. Since Ag c-commands Th at the base, the terminal nodes dominated by Ag must linearly precede the terminal nodes dominated by Th, hence Ag must be merged to the left of N':

(9)

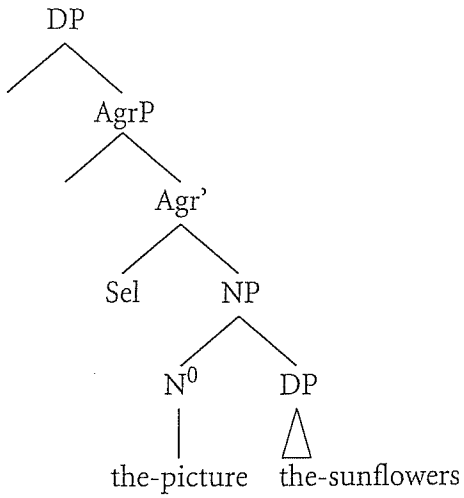


A specifier merged to the left of N', as in (9), entails some form of N-fronting as a necessary step. Therefore, the construct asymmetry must follow from the configuration produced by the movements deriving N-Ag-Th and N-Th-Ag from (9). The previous section has established that a head movement analysis fails to produce the asymmetry in construct formation, because if N^0 raises as a head it ends up closer to the Agent than to the Theme, when in fact construct formation with multiple genitives is limited to Themes. Furthermore, N^0-movement requires an additional operation to front the Theme, but leaves open why this operation should place the Theme closer to N^0 in N-Th-Ag than the Agent is in N-Ag-Th. If, on the other hand, N-Th-Ag is produced by N^0 and Theme raising beyond Agent together, as a phrasal constituent, N^0 will be structurally closer to the Theme than it is to the Agent in N-Ag-Th, and construct formation with Theme is to be expected. Con-

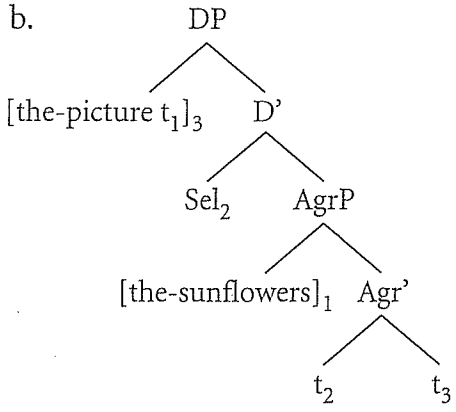
struct formation with an Agent is excluded by the Head Movement Constraint, given the details of the analysis developed immediately below.

Siloni (1994, 1997) argues that genitive Case assignment in construct states is mediated by Agr_{gen}, situated between D^0 and NP. N^0 raising to Agr^0 and DP raising of the genitive to spec AgrP result in genitive Case assignment to DP. Assimilating genitive Case assignment in free states to the configuration proposed for construct state Case assignment, suppose that *Sel*, when present, heads the functional projection Agr_{gen}.[5] The treatment of *Sel* as an Agr^0 head implies that genitive constituents are always merged as ordinary DPs, and as in the construct state, DP_{gen} raises to spec Agr_{gen} for Case checking. Subsequently, *Sel* raises to D^0 and the remnant NP, including N^0 and the genitive trace, raises to spec DP, as illustrated in (10):[6,7]

(10) a.



b.



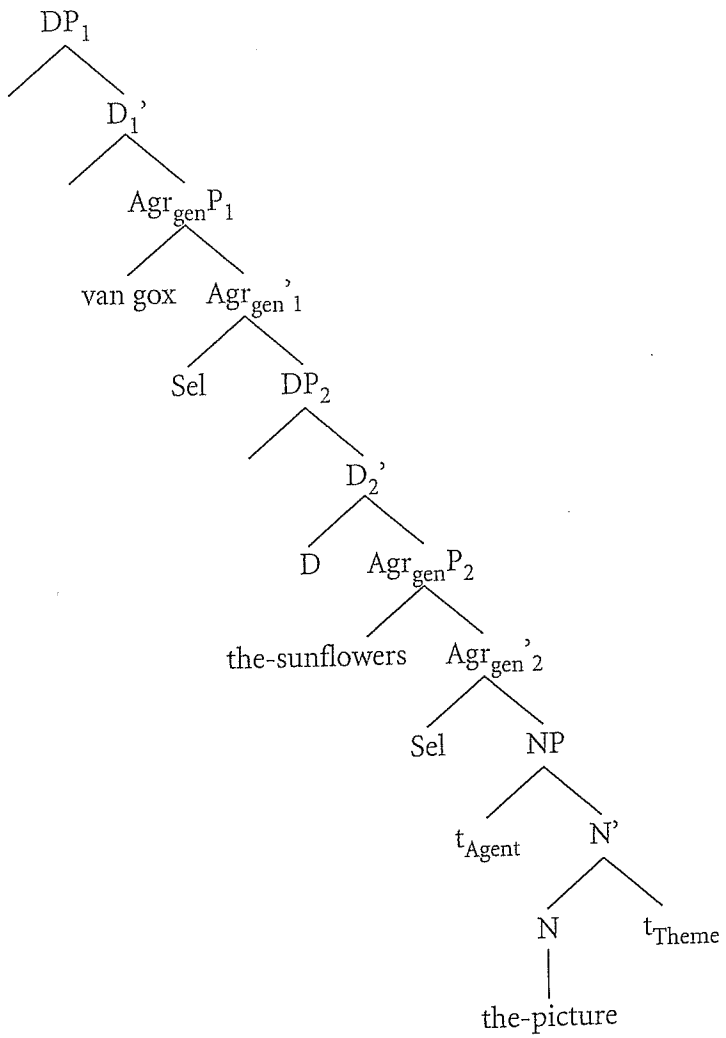
Raising to spec DP of the remnant NP is triggered by features of D^0, and I will assume that these are [+/–def] features: the [+/–def] value inflectionally realized on N^0 must scope over the entire DP. Remnant movement conforms to 'Shortest Move' (Chomsky 1995) because the closer candidate, DP_{gen} in spec AgrP, has all its features checked once it checks Case in that position, and is not a candidate for attraction by D^0 (is not a viable 'probe' in Chomsky's 2001 sense). Regarding the unbound trace contained in the remnant in spec DP, I adopt Muller's (1998)

proposal to replace the Proper Binding Condition (Fiengo 1977; henceforth PBC), which requires all traces to be bound, with a more specific prohibition against lowering, such as the Extension Condition (Chomsky 1995). Since the trace of DP_{gen} is produced by raising, and the remnant NP similarly raises, no violation is expected. If all movement trajectories obey the Extension Condition, a lowering analysis of (10b), in which DP_{gen} lowers to spec AgrP from within the remnant in spec DP, is excluded. Since the Extension Condition requires both movements in (10b) to be of the raising sort, no violation is to be expected on the raising analysis of PBC effects.

Positioning of *Sel* as a functional head immediately explains why it fails to interfere with c-command and binding, since at no point do *Sel* and its specifier form a constituent. Combined with the Head Movement Constraint, which requires all head-movement operations to be local (Baker 1988; Travis 1984; henceforth the HMC), the presence of *Sel* as an Agr^0 head will block head movement from N^0 to D^0. Therefore, overt attraction of N^0 features by D^0 results in pied-piping of NP to spec DP. Assuming with Ritter (1988, 1991), Siloni (1994, 1997), Fassi Fehri (1989, 1993), and Longobardi (1996) that construct DPs are formed by N^0-to-D^0 movement, hence that N^0-movement is in principle an option, the blocking effect imposed by *Sel* is necessary to force the phrasal option; everything else being equal, N^0-movement is preferred.[8] This conception of the choice between head and phrasal movement when both are available recalls the economy condition underlying Procrastinate (Chomsky 1995). Chomsky proposes that covert movement, applying exclusively to morpho-syntactic features, is preferred over overt movement of full constituents, due to an economy condition which selects the least amount of material compatible with a convergent derivation. Assuming that the choice between head and phrasal movement is related to the preference for moving the least amount of material possible, it follows that phrasal movement must be triggered by a potential head-movement violation, in this case the presence of *Sel* in Agr^0.

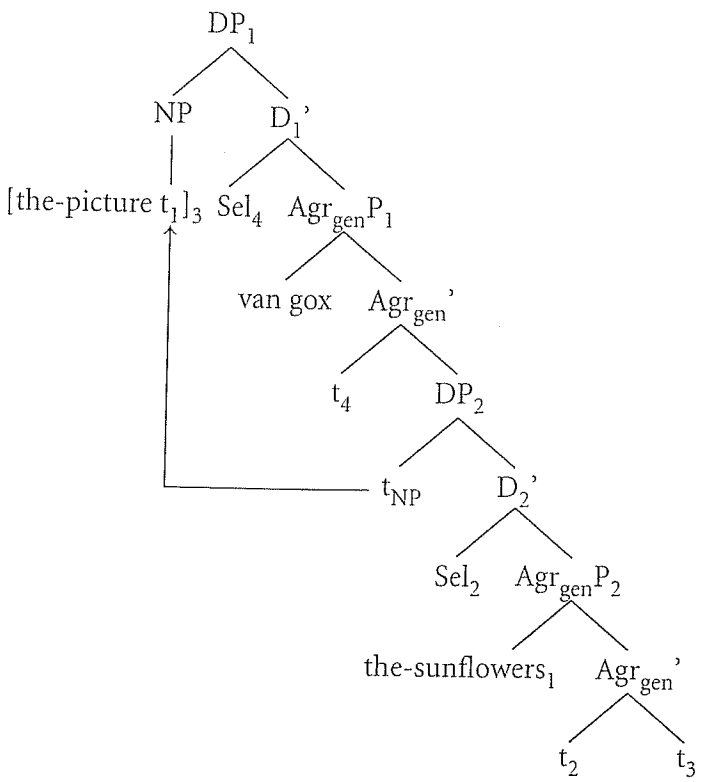
Turning to complex DPs with multiple genitives, these will include multiple AgrP layers for Case checking of genitive DPs, similar to the multiple Case checking positions of clauses. I will assume, however, that unlike full clauses, a DP structure is limited to a single Case checking position. Therefore, each AgrP projection must be introduced by its own DP. The iterating DP structures of (11) can be made sense of, if, as claimed in Szabolsci (1994), D^0 has an embedding function on a par with C^0. In other words, a complex DP with multiple genitives is composed of as many embedded DPs as there are genitive constituents. Accordingly, a DP with two genitive constituents will include two DP-AgrP sequences:

(11)

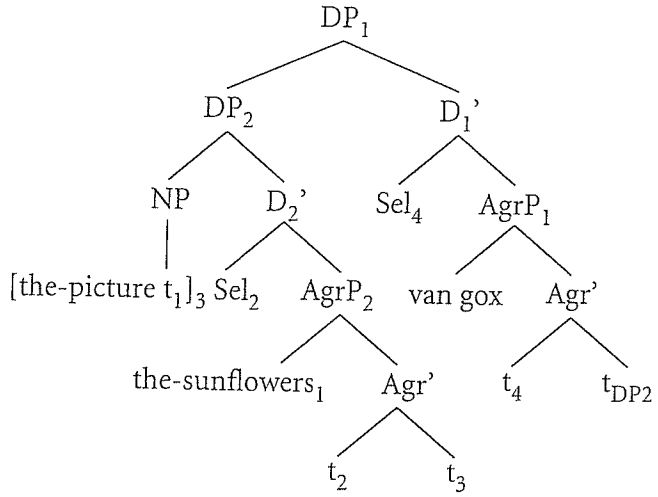


Simplifying for expository purposes, the structure in (11) already has the genitive DPs in their derived positions, spec $AgrP_1$ and spec $AgrP_2$.[9] Proceeding from bottom to top, the lower *Sel* raises to D_2 and NP to spec DP_2. NP raising to spec DP_2 is triggered by [def] features in D_2 and forced by the presence of *Sel* in $Agr_2{}^0$, given the HMC. Similarly, [def] features in D_1 attract N^0, and again, *Sel* in $Agr_1{}^0$ blocks head-movement of N^0 alone. This leaves two options for phrasal movement to spec DP_1. The remnant NP may raise successive cyclically to spec DP_1, deriving N-Ag-Th, in (12). Alternatively, NP may pied-pipe DP_2, in which case N-Th-Ag is derived, in (13):

(12)



(13)



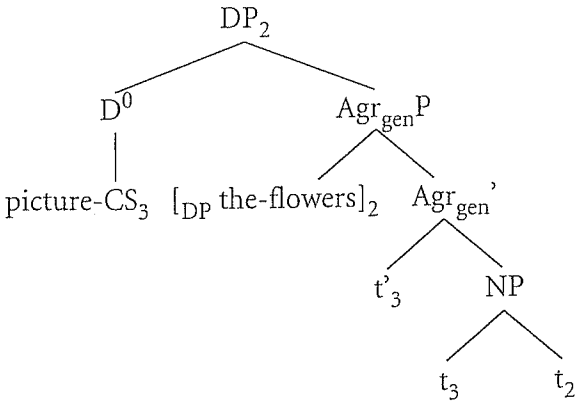
Pied-piping by a specifier of the containing DP in (13) is similar to English *Whose friend's brother did you kiss?* in which a Wh-phrase specifier (embedded within a specifier) pied-pipes its DP. Following Koopman and Szabolsci (2000) I assume that it is mediated by spec-head agreement: the [+interpretable] definiteness features of NP (in the sense of Chomsky 1995) are shared by D^0_2 and its projection. By virtue of the NP in its spec, DP_2 is specified for [+/–def] and is attractable by matrix $D_1{}^0$. NP in spec DP_2 may also be attracted to spec DP_1, as in (12). Being [+INT], its definiteness features do not delete upon movement, and may be further attracted by the matrix DP_1.

The analysis proposed in (12) and (13) derives free relative order of genitive DPs from the options for N-raising to spec of matrix DP, independently required

if [+INT, def] features associated with N^0 are to reach a position from which they scope over matrix DP. Successive cyclic raising of NP from spec DP_2 to spec DP_1 derives N-Ag-Th, and pied piping of DP_2 to spec DP_1 produces N-Th-Ag.

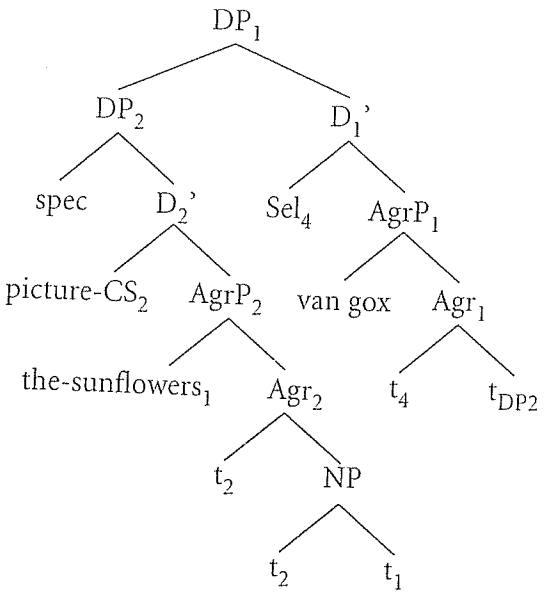
These derivations lay the structural foundations for an LCA-compatible analysis of the construct asymmetry, coupled with the assumption that construct state DPs are formed by N^0 movement (see Ritter 1988, 1991; Siloni 1994, 1997; Fassi Fehri 1989, 1993). In the absence of *Sel*, construct N^0 raises to $Agr_{gen}{}^0$ and DP_{gen} to spec AgrP, resulting in Case checking and definiteness agreement between N^0 and DP_{gen}; further N^0 movement to D^0 accomplishes in one step the combined result of NP to spec DP and *Sel* to D^0 in a free state DP, as in (14) (from Siloni 1994, 1997):

(14)



When DP is embedded within a complex DP as it is in a multiple genitive construction, [def] features of matrix DP_1 will attract $N_{[def]}$ from within DP_2. As in (12) and (13), if matrix DP_1 contains *Sel* in Agr_1, N^0-movement will be blocked. In fact, N^0-movement to matrix D^0 is blocked here independently of *Sel*, since movement from D^0 to Agr^0 constitutes 'improper movement' in the sense of Li (1990), given that $D_2{}^0$ is an A-bar position (not associated with Case-checking) and $Agr_1{}^0$ is an A-position (associated with Case-checking).[10] This leaves only one option for movement to spec DP_1. N^0 must pied pipe DP_2 to spec DP_1, producing the grammatical N.CS-Th-Ag, in (15):

(15)



The syntactic analysis of construct formation given in (14) and (15) takes it to be a local process, internal to the most immediate DP, due to properties of the head-movement operation upon which it is based. The locality of construct formation directly explains why there can be no construct N-Ag-Th counterpart, though construct formation with Ag is possible in a simple DP. We have already seen that whether a higher *Sel* is present or not, N^0 movement from D_2 into matrix DP_1 is blocked, excluding construct formation with Th in N-Ag-Th order, and also excluding double construct formation with both genitives. Another derivation to consider is one in which the Th in DP_2 is in the free-state and associated with *Sel*, and construct formation is with Ag, in DP_1. Continuing to assume that N^0 must reach Agr_1 as a head for Case-checking against Ag, long head-movement of N^0 from NP to Agr_1 is prevented by the lower *Sel* in D_2:

(16)

$[_{DP1}$ spec picture-CS_1 $[_{AgrgenP1}$ van gox t_1 $[_{DP2}$ Sel_3 $[_{AgrgenP2}$ the-sunflowers$_2$ t_3 $[_{NP}$ t_1 $t_2]]]$

*

Finally, consider the remaining option, in which N^0 raises as a head from within a remnant NP in spec DP_2 (the intermediate step in (12)). Phrasal movement of NP to spec DP_2 neutralizes the potential HMC violation incurred by crossing *Sel*, but extraction of N^0 from within a constituent in specifier position is impossible (Koopman & Szabolsci 2000). In sum, if genitive Case checking in construct DPs requires N^0 movement to Agr^0, there is no grammatical derivation leading to N.CS-Ag-Th.

The phrasal movement approach says that in N-Th-Ag order, the noun and theme form a DP constituent located in the specifier of matrix DP. Given that construct formation is internal to a local DP, DP_2 in the specifier of DP_1 may be a construct or free state DP. The absence of this flexibility in the matrix DP follows

from the presence of *Sel* in the lower functional domain and constraints on long head movement. Double construct formation, i.e. construct formation with both Ag and Th, is similarly excluded.

To the extent that the approach is on the right track, it removes the necessity of merging Agents to the right of NP; the constituency of N^0 and Th is represented here, instead, as a derived structure, produced by $[_{DP2}\ N^0 + Th]$ movement to spec DP_1. But in order to secure the phrasal movement approach, it must be shown that the two analyses are empirically distinct, and that the present approach, beyond its phrase-structural benefits, produces better empirical results. Scope interactions, I argue in Section 4, discriminate between leftward phrasal movement, and rightward merge and movement, because unlike the binding asymmetries discussed so far, scope asymmetries do correlate with linear order. As shown below, the scope pattern in DPs with multiple genitives suggests, first, that Agents must be merged to the left of Themes, and so they empirically confirm the restriction imposed by the LCA that a c-commanding constituent is merged to the left of the domain in its scope. In addition, the scope pattern, in conjunction with the binding facts discussed above, provide independent evidence for a phrasal movement derivation of N-Th-Ag.

4. Scope asymmetries

Bound variable and anaphor binding show that Agents asymmetrically c-command Themes, independent of their relative order (see (6) and (7)). This makes binding a good diagnostic for hierarchical structure, but it also means that binding on its own fails to discriminate between the approaches under consideration, as it remains neutral with respect to derivational history. To the extent that N-Ag-Th is derived by rightward Theme movement, this instance of movement produces no new binding effects, hence must be subject to reconstruction.[11] By the same token, if Agents are merged to the left and N-Th-Ag is derived by leftward movement of N + Th, then phrasal movement to spec DP has no effect on binding, and that instance of movement must be subject to reconstruction. Therefore, in order to establish empirically, and independently of the limitations imposed by the LCA, whether a Theme undergoes reconstruction when it precedes an Agent or when it follows it, and whether Ag-Th is a basic order or not, phenomena that are sensitive to word order must be considered.

While the binding asymmetry is not affected by the order of genitives, their relative scope is. When an indefinite Theme precedes a universally quantified Agent, scope is ambiguous, but when an indefinite Agent precedes a universally quantified

Theme, relative scope is rigid and correlates with surface order, as in the following examples:[12]

(17) a. rai'iti ba-ta'aruxa dyokan Sel iSa flemit Sel kol
saw.I at.the-exhibition portrait of woman flemish of every
cayar yadua
painter famous
"At the exhibition I saw every famous painter's portrait of a Flemish woman"
a woman > every painter; every painter > a (different) woman

b. rai'ti ba-ta'aruxa dyokan Sel cayar flemi Sel kol
saw.I at.the-exhibition portrait of painter flemish of every
iSa yedu'a
woman famous
"At the exhibition I saw a Flemish painter's portrait of every famous woman"
a painter > every woman; *every woman > a (different) painter

(18) a. sikur Sel erua be-ramalla Sel kol itona'it isra'elit
report of event in-Ramallah of every journalist.F Israeli
hofi'a ba-amud ha-raSi
appeared on.the-page front
"Every female Israeli journalist's report of an incident in Ramallah appeared on the front page"
an incident > every journalist; every journalist > a (different) incident

b. sikur Sel itona'it israelit Sel kol erua be-ramallah
report of journalist.F israeli of every event in ramallah
hofi'a ba-amud ha-raSi
appeared on.the-page front
"A female Israeli journalist's report of every incident in Ramallah appeared on the front page"
a journalist > every incident; *every incident > a (different) journalist

(17) and (18) demonstrate the effect of word order on relative scope in free state DPs. When an indefinite Theme precedes a universally quantified Agent, as in the (a) examples, relative scope between the indefinite and universal quantifier is flexible and ambiguous, but in the (b) examples, with an indefinite Ag preceding a universally quantified Th, scope correlates with surface order.[13] In (17a) every painter may have painted the same or different Flemish model, the former representing the wide scope interpretation of the indefinite Th, and the latter the reading in which the indefinite falls within the scope of the universal quantifier. Similarly, in (18a) there may have been a single incident covered by every female journalist,

correlating with a wide scope indefinite Th, or different incidents varying with the choice of journalist. On the former reading multiple reports of the same incident will have probably appeared on the same page and on the latter, a report of some incident in Ramallah by any female journalist will usually appear on the front page, as opposed, say, to reports by male journalists.

Scope ambiguity in Th-Ag order contrasts with scope rigidity in Ag-Th order. When the Agent precedes the Theme, as in the (b) examples, scope is frozen, the only interpretation available being the one in which Ag has wide scope over Th. In (17b), the show that I saw exhibited portraits of every famous woman by a particular Flemish painter, say Rembrandt; it cannot mean that every woman's portrait by some Flemish painter or other was exhibited at the show.[14] Similarly, the only reading available in (18b) is the one in which a particular female Israeli journalist, say Amira Hass, covered all incidents in Ramallah (within a contextually determined time-frame). Here too the reading in which Ag (= reporters) varies with Th (= incidents) fails to be triggered.

Relative scope among quantified expressions is sensitive, then, to word order, in a way that A-binding and even binding of a pronoun by a quantifier are not: the order Th-Ag produces flexible scope, and the order Ag-Th produces a single reading which correlates with the surface order of these constituents, Ag taking wide scope over Th. In contrast, binding relations are oblivious to the relative order of Ag and Th. Recall that an anaphor or bound variable Agent preceded by a Theme binder are not licensed. The examples in (19) only have a reading in which the antecedent is construed as Agent or Possessor. The replacement of the second *Sel* associated with the reflexive, with a preposition which unambiguously marks agents, leads to ungrammaticality:

(19) a. ha-tmuna Sel pikaso Sel / *me'et acmo
the-picture of Picasso of / by himself
Picasso = Agent

b. ha-tmuna Sel kol cayar Sel ima Selo / *me'et ima Selo
the-picture of every painter of mother his / by mother his
every painter = Agent

While the binding properties of multiple genitives resemble, roughly, the binding properties of subjects and objects, the scope pattern is closer to what is observed among direct and indirect objects. The scope pattern in Hebrew DPs parallels the distribution of relative scope in English word order permutations such as the dative and locative alternations (Larson 1990). Here too, one order allows ambiguous scope and in the other, scope correlates with surface order (examples from Bruening 2001):

(20) a. The teacher gave an assignment to every student
Free: a > every; every > a
b. The teacher gave a student every assignment
Frozen: a > every; *every > a

(21) a. Maud draped a sheet over every armchair
Free: a > every; every > a
b. Maud draped an armchair with every sheet
Frozen: a > every; *every > a

Comparing the binding pattern in (19) with the scope pattern in (17) and (18) reveals two related differences: first, the effect of order on relative scope, and lack thereof on binding; and second, the ability of Th in Th-Ag order to scope over the Ag when the latter is quantificational, but not when it is a bound variable or anaphor. Both contrasts, I argue below, support the two central ingredients of the analysis of free-state DPs, that Ag-Th reflects the base order of these constituents, and that N-Th-Ag is derived by raising [$_{DP}$ N + Th] to spec of matrix DP. The binding and scope patterns in free state DPs fall out naturally from a combination of the view of frozen and flexible scope developed in Aoun and Li (1989, 1993) and Bruening (2001), and the analysis of weak crossover and scope phenomena proposed in Ruys (2000).

Setting aside for now the difference between operator scope over an operator, and operator scope over a pronoun, relative scope facts provide a relatively straightforward diagnostic for the base generated order and the directionality of reconstructable movement. Recall that binding phenomena leave open the derivational history of N-Th-Ag: if the basic order is Ag-Th, Th movement to the left must be subject to reconstruction, and if the basic order is Th-Ag, Th movement to the right will be subject to reconstruction. The dilemma can be resolved by consideration of the scope pattern, precisely because scope is sensitive to relative order in a way that binding phenomena are not. Assuming that Th narrow scope is produced by Th reconstruction to a position below Ag, it follows that Th-Ag is subject to reconstruction since only in Th-Ag can the first quantifier be interpreted within the scope of the second. If reconstruction frees up scope because it allows a Th to be interpreted below, hence within the scope of the Agent, inverse scope in Th-Ag, in contrast with surface scope in Ag-Th, argues in favor of deriving Th-Ag by Th movement to the left. If Ag-Th were derived by Th movement to the right, inverse scope would be expected in Ag-Th, but here we have seen scope to correlate with surface order.

The idea that narrow scope of Th in N-Th-Ag results from Th reconstruction places the scope facts on a par with binding, and claims that both sets of facts have a common source, the derivational history of DP: Th is interpreted within the scope of Ag in N-Th-Ag because at some (earlier) stage in the derivation, Th

is c-commanded by Ag, as in the structures given above. In N-Ag-Th, on the other hand, there is no stage in the derivation in which Th c-commands Ag; scope is therefore frozen and correlates with surface order.

The proposal to relate patterns of scope rigidity and flexibility to the derivational history of overt movements departs from the more traditional view of scope ambiguity due to May (1985), in which scope ambiguity follows from distinct LF representations produced by the unordered application of covert adjunctions to IP. If the subject quantifier undergoes QR, followed by QR of the object to an external position, the subject quantifier ends up in the scope of the object, as in the LF representation (22b); alternatively, the object quantifier may be the first to adjoin, in which case the subject quantifier is assigned wide scope by subsequent attachment to an external position, as in (22c):

(22) a. Some girl kissed every bride
b. $[_{IP}$ every bride$_2$ $[_{IP}$ some girl$_1$ $[_{IP}$ t_1 kissed $t_2]]]$
c. $[_{IP}$ some girl$_2$ $[_{IP}$ every bride$_1$ $[_{IP}$ t_2 kissed $t_1]]]$

But if LF operations are free to adjoin multiple quantifiers to the same position, it remains unclear what excludes the derivation of scope ambiguity from overt N-Ag-Th. In particular, it becomes crucial to explain what prevents QR of Th to an LF position from which it scopes over the Ag quantifier. Given that Th can move overtly to the left in the derivation of N-Th-Ag, the exclusion of LF movement becomes surprising and would require the introduction of an undesirable distinction between covert movement and its overt counterpart. Conversely, if N-Ag-Th were derived by Th raising to the right, such movement would appear to remove the interpretive option in which Th scopes over the Ag, available in the structure prior to movement. But if flexible scope is indeed derived by free applications of QR, LF reconstruction is of no help, because it would simply reproduce the structure that gives rise to flexible scope. Therefore, an independent restriction on QR would be required to prevent the Th from scoping over the Ag if Ag-Th is a derived order. In addition, the restriction would have to be stated such that it doesn't conflict with the assumed binding reconstruction effect.

Besides the technical issue, a more serious challenge facing an eliminative approach in the spirit of May is that overt movement tends to produce new scope options, rather than to eliminate pre-existing options. This is seen most clearly in configurations which are uncontroversially derived by movement, as in the following example of Japanese scrambling (from Hoji 1985; see also Fox 1999 for recent discussion of a variety of scope reconstruction environments in English). Scrambling of the direct object, in (23b), adds a wide scope interpretation of the object, unavailable in the non-derived SOV order in (23a) (from Aoun & Li 1993):

(23) a. Dareka-ga daremo-o semeta (unambiguous)
someone-NOM everyone-ACC criticized
'Someone criticized everyone'

b. Dareka-o daremo-ga semeta (ambiguous)
someone-ACC everyone-NOM criticized
'Someone, everyone criticized'

Based on rigid and flexible scope alternations such as (23) and the English double object construction, Aoun and Li (1989, 1993) and Bruening (2001) argue that scope flexibility derives from overt movement and reconstruction, rather than unordered application of QR. Though the views differ substantially in detail and in the general conclusions drawn, they agree that relative scope patterns with the hierarchical configuration in the overt component, and in both, QR is constrained such that it may not re-order overt hierarchy.[15] Since QR is constrained such that it may not re-order hierarchy, frozen scope is the expected pattern, everything else being equal. Inverse, or flexible scope, is exceptional, and derives from overt movement of one quantificational constituent over another, the moved constituent having the option of being interpreted, additionally, in its pre-movement site.[16] In (23b), for example, scrambling of the object to a position above the subject creates a new interpretive option, in addition to the option present already in the pre-scrambling structure, in which the subject takes scope over the object. Granting that movement may add an interpretive option, preservation of the pre-movement interpretive configuration implies that scope is sensitive to derivational history, and that scope ambiguity reflects reconstruction.

Returning to free-state DPs, the general conclusion that flexible scope correlates with overt movement of one quantified constituent past another provides a strong argument for taking rigid scope in N-Ag-Th to reflect the order of constituents at the base. If Agents were merged to the right, frozen scope would be expected in N-Th-Ag, contrary to fact. Similarly, narrow scope of Th in N-Th-Ag can only be a product of derivational history, reflecting the stage in the derivation in which Th is c-commanded by Ag, prior to phrasal movement of embedded DP_2 to spec DP_1.

The reconstruction mechanism operating in complex DPs must be derivational in nature. Given the $[_{DP}\ N^0 + Th]$ movement analysis of Th-Ag order, it is not the Th itself which undergoes a change in position. Therefore, the interpretive mechanism underlying reconstruction cannot be based on properties of the output of Th movement. Since the only point in the derivation in which Th is in the scope of Ag is prior to $[_{DP}\ N^0 + Th]$ movement, the interpretive mechanism must refer, in one way or another, to a pre-movement configuration. To see this, consider as an alternative the representational accounts of scope reconstruction presented in Aoun and Li (1989, 1993). On one approach, the calculation of relative scope

takes into account the surface positions of quantifiers and their trace. When one quantificational expression crosses another, the trace of the moved quantifier accounts for its narrow scope reading, and its surface position accounts for its wide scope reading. An alternative representational approach refers to properties of the derived position of the raised quantifier, allowing it more scope options via QR in virtue of its non-theta nature. Both analyses of reconstruction are representational in nature, as they refer to the output of overt movement, and not to an earlier stage in the derivation. But since it is not the Th itself which moves on the analysis developed here, there will be no Th trace or derived position for a representational account to refer to, and reconstruction must refer to the configuration prior to movement.[17]

$[_{DP}\ N^0 + Th]$ reconstruction explains how a preceding Theme can take narrow scope relative to an Agent, but it still remains unclear how a preceding Theme embedded within DP_2 in spec of matrix DP_1 can scope over the Agent. The problem is highlighted by the fact that a Th in this postion cannot bind an Agent anaphor or bound variable, as seen in (19). It turns out, however, that the proposal to have Th embedded within a larger constituent is in fact compatible with general differences between reflexive A-binding, bound variable binding, and relative scope, and that these differences provide independent support for $[_{DP}\ N^0 + Th]$ movement. In particular, A-bar $[_{DP}\ N^0 + Th]$ movement accounts for the absence of new A-binding, and for the fact that bound variable binding appears to pattern with A-binding and not with operator binding.

Since Th raises as part of a larger DP, it will not c-command Ag. Lack of c-command directly explains why a Th preceding a reflexive Ag cannot bind it. But given general differences between A-binding and variable binding, lack of c-command on its own does not explain why a quantificational Th cannot bind a pronoun. While anaphor binding by a Theme embedded within spec matrix DP is expected to be impossible, on a par with (24a), variable binding is known to be more permissive, as in (24b):

(24) a. *[Jill's father] loves herself
b. [[Every six year old girl]'s father] thinks she's a genius

(24a) demonstrates the strict c-command requirement on anaphor A-binding. But since variable binding appears not to require strict c-command by the quantifier, a Th quantifier should bind an Ag bound variable, just as it scopes over an Ag operator. Given the configurational conditions on bound variable binding and relative operator scope proposed in Ruys (2000), the contrast between the impossible variable binding by Theme in Th-Ag, and the possible Theme wide scope in Th-Ag, falls out naturally from phrasal movement of $[_{DP}\ N + Th]$ to an A-bar specifier preceding the Ag.

Ruys (2000) takes contrasts of the sort in (24) to indicate that bound variable licensing and weak crossover are not to be reduced to conditions on a binding relation between operator and pronoun. This is because A-binding requires strict c-command, and binding of a pronoun by a quantifier does not, as in (24b) and the following cases in which the operator is contained within a larger phrase:

(25) a. [Someone in every $city_2$]$_1$ hates it_2
b. [Which picture of which man_2]$_1$ t_1 pleases him_2

Instead, bound variable anaphora is argued to fall within a theory of scope. As such, the relation that licenses bound variable anaphora, though sensitive to hierarchy, is in fact independent of binding and coindexation. The grammatical bound variable reading of (24b), for example, is better understood in terms of scope, in which structural relations alone figure in the licensing of the bound reading of the pronoun. The subject DP c-commands the embedded subject and has scope over it; the quantified expression *every six year old girl* in spec DP has scope over that DP, possibly at LF, due to QR. By transitivity of scope, since the matrix subject scopes over the embedded subject, and the quantifier scopes over the matrix subject, it follows that the quantifier scopes over the embedded subject, hence the bound variable reading of the pronoun. Crucially, however, the determination of relative scope is independent of coindexation: the matrix subject which scopes over the embedded subject does not bind it, as these constituents are not coindexed. Since hierarchy and coindexation do not interact, binding must be irrelevant, as in scope relations among operators which are determined structurally, independent of covaluation.

The alignment of bound variable anaphora with quantificational scope, rather than with A-binding, treats weak crossover violations such as **His mother loves every boy* as scope failures, since the pronoun does not fall within the scope of the quantifier. It also directly explains why the structural conditions on variable pronouns appear to be more liberal than the conditions on anaphors ((24a) vs. (24b) and (25)). Since relative scope among quantifiers is independent of coindexation, and falls naturally outside of a theory of binding, neither is a quantified antecedent required to bind a pronoun in its scope. In other words, the quantified expression need not c-command the pronoun; it is sufficient that it scopes over the pronoun, indirectly, by transitivity. At the same time, alignment of bound variable anaphora with scope theory introduces a complication into the definition of scope, because neither are the conditions on scope of an operator over a pronoun, and scope of an operator over another operator identical. Taking the weak crossover violation in (26a) to be a scope failure, it contrasts minimally with the inverse scope possibility in (26b): a quantificational object can scope over a quantificational subject, but it apparently cannot scope over a pronoun contained within the subject:

(26) a. *His$_1$ mother loves every boy$_1$
b. Someone loves every boy

Just as the conditions on bound variable anaphora are more permissive than the conditions on A-binding, so are the conditions on relative scope among quantifiers more permissive than those imposed on a quantifier and pronoun. This is precisely the pattern observed above in N-Th-Ag order: wide scope of a Th quantifier over an Ag quantifier is possible, while wide scope over an Ag pronoun is excluded. In light of the general pattern in (26), wide scope of a Th embedded within a DP over an external quantifier, but not over an external pronoun, becomes less surprising.

Based on (26) and the general pattern of weak crossover violations, Ruys (2000) concludes that the difference reduces to the position of the quantifier. In (26a) the quantifier fails to scope over the pronoun from an A-position. Assuming that in (26b) scope of the object quantifier over the subject is determined in its A-bar position at LF, scope over another quantifier is possible from an A-bar position. Scope over a pronoun requires an antecedent in A-position, while scope over another quantifier does not, as in the scope principle given by Ruys (2000), in (27):

(27) *Scope Licensing*
A is syntactically licensed to take scope over B iff
a. A c-commands B, B an operator; or,
b. A c-commands B from an A-position

The Scope licensing principle says that LF movement is irrelevant for pronoun binding, since pronouns, by virtue of their not being operators, must fall within the scope of an operator in A-position; quantifiers, in contrast, have the additional option of falling within the scope of a quantifier in an A-bar position, possibly the result of QR at LF.

The wide scope reading of a Theme over a quantificational Agent in N-Th-Ag order and the contrast with variable binding ((20a) and (21a) vs. (22b)) fall into place if movement of [$_{DP}$ N^0 + Th] is to an A-bar position. The ability of a Theme to scope out of a [$_{DP}$ N + Th] follows from the scope principle and transitivity of scope: [$_{DP}$ N + Th] in spec DP$_1$ c-commands the quantificational Ag, and Th scopes over [$_{DP}$ N + Th], on a par with the relation between the quantifier and its containing DP in (24b) and (25).[18] By transitivity of scope, a quantificational Th takes scope over the Ag, producing the wide scope reading of Th relative to Ag. Therefore, if the A-bar status of spec matrix DP (the landing site of [N + Th]) can be independently established, the contrast between scope over an operator and scope over a pronoun will follow from the scope principle in (27). Conclusive evidence for the A-bar status of spec DP is provided by Principle C effects.

Based on reflexive reconstruction, it has been assumed up until now that [$_{DP}$ N + Th] movement is of the A-bar variety. However, slightly more care is needed to

establish the A-bar status of spec DP if Th raises within a larger DP constituent, and binding of a reflexive by Th is independently excluded due to lack of c-command. Typically, the conclusion that a landing site is of the A-bar variety is based on the absence of a new binding configuration, rather than reflexive reconstruction per se. Reflexive reconstruction is observed in both A and A-bar movement, in (28). Crucially, A-movement may also create a new binding configuration, while Wh-movement does not, in (29):

(28) a. [Which pictures of himself$_1$]$_2$ did John$_1$ like t_2 best?
b. [Pictures of himself$_1$]$_2$ seem to John$_1$ [$_{IP}$ t_2 to be on sale]

(29) a. *Who$_1$ does it appear to his own$_1$ mother [that Mary likes t_1 best]
b. John$_1$ appears to his own$_1$ mother [t_1 to like Mary best]

Since the creation of a new binding configuration is the crucial factor distinguishing A and A-bar movement, the absence of such a configuration in [$_{DP}$ [$_{DP}$ N + Th] Ag] is inconclusive as binding is independently excluded by lack of c-command. Priniciple C effects, on the other hand, provide clear evidence for the A-bar status of spec DP. A-bar movement of a constituent containing an R-expression (in complement position) preserves a Principle C violation incurred prior to movement, while A-movement of the same constituent removes the violation:

(30) a. *[Which claim that John$_1$ was asleep]$_2$ was he willing to discuss t_2?
b. [The claim that John$_1$ was asleep]$_2$ seems to him$_1$ [t_2 to be correct]

The diagnostic for A vs. A-bar movement based on Principle C effects is better suited to contexts of phrasal movement since these effects do not depend on c-command from the derived position. If phrasal movement to spec DP is A-bar movement, on a par with (30a), it should be impossible to front a Th containing an R-expression across a coindexed Ag, since A-bar movement does not remove a Principle C violation created by Ag binding the Th. If, on the other hand, [$_{DP}$ N + Th] movement is an instance of A-movement, N-Th-Ag with a Th containing an R-expression coindexed with the Ag should be good, on a par with (30b). As it turns out, the genitive containing an R-expression must be construed as Ag (or Poss), regardless of order:

(31) a. ha-tmuna Selo$_1$ Sel [ima Sel dani$_1$]
the-picture of-him of mother of Dani
b. ha-tmuna Sel [ima Sel dani$_1$] Selo$_1$
the-picture of mother of Dani of-him
"Dani's mother's picture of him" (*his picture of Dani's mother)

The DP in (31a) must be interpreted as Th-Ag, and the DP in (31b) as Ag-Th. In other words, in both orders the genitive containing the R-expression is Ag, and the

pronoun is Th. The situation is similar to the paradigms of reflexive and bound variable binding considered earlier, but it is this case which decisively establishes the A-bar nature of phrasal movement. In particular, the restriction of (31b) to an Ag-Th interpretation follows naturally from the Principle C reconstruction effect with A-bar movement; a Th containing an R-expression is excluded by Principle C. If [$_{DP}$ N + Th] movement were to an A-position, the Principle C violation incurred prior to movement would be expected to disappear.

Having established the A-bar status of spec DP, the scope and bound variable contrast in N-Th-Ag follow now naturally from Ruys' scope principle in (27). The failure of bound variable anaphora is due to the position of [N + Th] in an A-bar specifier, not to lack of c-command. The A-bar status of spec DP also explains why Th wide scope is possible, given the transitivity of scope relations. The combination of reflexive binding, bound variable anaphora, and relative operator scope licensing provide then further support for the view that a Theme raises leftward as part of a larger DP in N-Th-Ag. If this were the basic order, Theme wide scope could perhaps be made to follow from multiple QR in the spirit of May (1985), but that would leave relative scope and bound variable anaphora in N-Ag-Th unexplained. If Th is limited here to narrow scope because it cannot move at LF, neither are reconstruction effects expected.

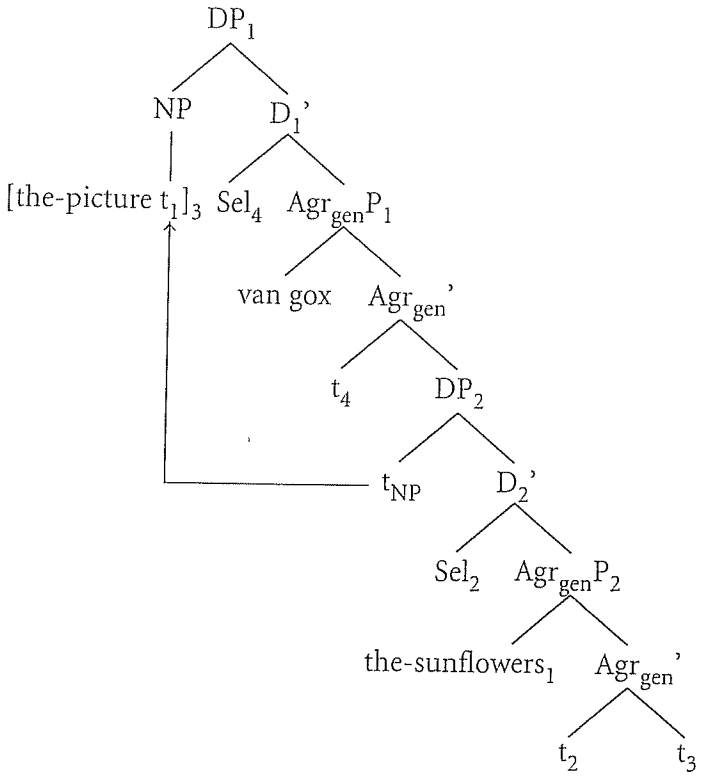
Summarizing, the sensitivity of operator scope to word order and its particular distribution in free state DPs receives a principled explanation if Agents are left-merged and Themes move past them to the left. In light of the correlation between scope ambiguity and overt movement operations developed in Aoun and Li (1989, 1993) and Bruening (2001), ambiguous scope associated with Th-Ag reflects order permutation and movement, and the frozen scope of Ag-Th reflects the order of quantifiers in their derived spec AgrP positions and at the base. Furthermore, adoption of a more constrained approach to LF operations which precludes unordered multiple applications of QR, leads to a direct explanation of relative scope and bound variable binding contrasts in terms of the A-bar status of spec DP. Having secured the basic ingredients of the phrasal movement analysis, I turn now to discuss some of the challenging technical issues raised by the derivation of complex DPs, and in particular the interaction of Ag movement, Th movement and remnant movement.

5. Movement interactions in the derivation of complex DPs

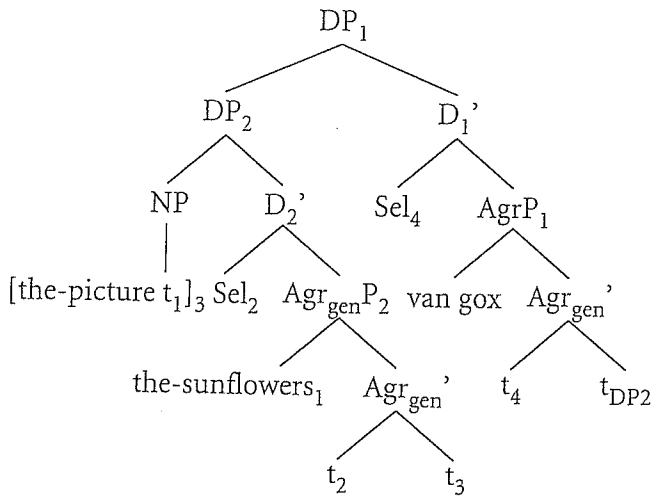
The discussion so far has focused on the empirical evidence for a phrasal movement derivation of N-Th-Ag order. The construct asymmetry, relative scope, and differences between relative scope and bound variable anaphora all support the

conclusion that in N-Th-Ag, the Th is embedded within a larger DP constituent that is attracted to spec of the matrix DP. Assuming the phrasal option to be forced by the presence of the head *Sel*, N-Ag-Th must also be derived by movement of a phrase, the remnant NP, as in the following derivations repeated from above:

(32)



(33)



Word order permutations between Ag and Th are parasitic, on this analysis, on the amount of material moved to spec DP_1. Once the remnant NP reaches spec of DP_2 it may pied-pipe DP_2, or raise successive cyclically. In the latter, Th is stranded in DP_2, leading to N-Ag-Th. A significant advantage of this analysis of a scrambling phenomenon is that by subsuming Th raising under DP_2 raising, it sidesteps the difficulty of identifying a syntactic trigger for scrambling. At least within Hebrew

DPs, the options for phrasal movement produce a scrambling effect which need not be independently triggered. In light of these advantages, it is worth considering some questions not addressed by (32) and (33).

(32) and (33) proceed from the point in which Ag and Th are already in derived AgrP positions. But how do they get there? In a simple DP with a single genitive the question does not arise: movement of a genitive to spec AgrP, followed by *Sel* raising from Agr^0 to D^0, and remnant movement to spec DP will produce a perfectly cyclical derivation. A derivation with multiple genitives, on the other hand, raises at least two questions. The adoption of a constrained theory of A-movement, such as Relativized Minimality (Rizzi 1990) or the Minimal Link Condition (Chomsky 1995), imposes severe restrictions on the interaction of Ag movement and Th movement to spec AgrP positions. In addition, adoption of the Extension Condition (Chomsky 1995) imposes cyclicity on the interaction of Ag movement and successive cyclic remnant NP movement. The issues are related, and taken together suggest that Ag must be merged higher than in (32) and (33), outside of the NP projection that hosts Th.

Consider first the interaction of Th movement and Ag movement. Assuming that both are merged within the same NP, Th will cross Ag in spec NP on its way to spec AgrP, in violation of Relativized Minimality, similar to the potential violation incurred by overt movement of an object past a subject in spec VP. The solutions proposed in Chomsky (1993) and (1995), in terms of domain extension by V^0-movement, and in terms of multiple equidistant specifiers, appear, however, not to apply. Since N^0 raises as part of a larger NP, there is no hope of invoking N^0-movement to Agr^0 to render spec NP and spec AgrP equidistant from the position of Th, as in Chomsky (1993). On the modified general assumptions of Chomsky (1995), the object can raise past the subject in spec vP to an outer and equidistant specifier of vP. Neither does this solution appear to be readily available, as the phonological presence of the genitive Case-checking head (= *Sel*) militates against a Case-checking configuration based on multiple specifiers. But if no escape hatch is available, Th extraction over an Ag should yield a Relativized Minimality violation, contrary to fact. Therefore, the only account of Th movement to AgrP consistent with Relativized Minimality would have the Ag merged in a position in which it fails to interact with Th movement, higher than the AgrP associated with Th.[19]

Having Ag and Th merged within the same NP raises an additional difficulty related to the trajectory of remnant NP movement. Carstens (2000) correctly notes that both Ag and Th must raise prior to remnant NP movement for a principled account of their derived positions to be tenable. If Ag can be pied-piped within NP, and can extract from NP in spec DP_2, it is unclear what prevents the opposite derivation in which Ag raises first to the lower spec AgrP, and Th is pied-piped to spec DP_2, with subsequent extraction to the higher spec AgrP. Genitive pied-piping must indeed be prevented, as it would incorrectly predict symmetry between Ag

and Th in construct formation, binding, and scope. This aspect of the derivation is unproblematic. Assuming with (Koopman & Szabolsci 2000) that extraction from within a specifier is impossible, no genitive DP can be pied-piped with NP to spec of the embedded DP on its way to a higher position, and both Ag and Th will have to extract prior to NP raising. This order of operations, however, produces a violation of the extension condition. If Ag raises prior to NP, as it must, it should not be possible for NP to land in spec DP_2, a lower position. As in the Relativized Minimality problem, the violation is correctly avoided if Ag raising and NP remnant movement do not interact. If Ag is merged above DP_2, remnant movement to spec DP_2 will not violate the Extension Condition. Taking both Relativized Minimality and the Extension Condition into account, the starting point for the derivations in (32) and (33) will have Ag merged within the higher DP_1, introduced as the specifier of a silent head which I label n^0, along the lines of little v^0:[20]

(33) $[_{DP1}\ [_{D'}\ D^0\ [_{AgrP1}\ Sel\ [_{nP}\ Ag\ n^0\ [_{DP2}\ D^0\ [_{AgrP2}\ Sel\ [_{NP}\ N^0\ Th\ ]]]]]]]$

The derivation proceeds as depicted above. Starting at the bottom, Th will raise to spec $AgrP_2$, followed by *Sel* raising to $D_2{}^0$ and remnant NP movement to spec DP_2. Next, Ag raises for Case-checking to spec $AgrP_1$, and upper *Sel* raises to D^0. The choice between NP successive cyclic movement to spec DP_1 and DP_2 pied-piping to spec DP_1 remains unaffected. Similarly, the analyses of the construct state, binding and scope asymmetries are unaffected by the positioning of Ag within DP_1. The crucial point made by the analysis of these asymmetries is that Ag is merged higher than Th and to its left, as it is in (33).

Summarizing, the empirically based claims regarding the derivation of complex DPs, coupled with well motivated constraints on movement such as Relativized Minimality and the Extension Condition, lead to the conclusion that Agents must be introduced by a silent category present in the matrix DP. In particular, the claim that N^0 arrives in its initial position due to phrasal movement eliminates the option of extracting Th over a local Ag via domain-extending head movement, and the overt presence of the Case-checking head militates against a multiple specifier analysis. The conclusion that Th raises as part of $[_{DP2}$ N + Th] suggests that a remnant NP may land in an intermediate position lower than the Ag. The only base structure consistent with these facts and constraints on movement will have the Ag merged sufficiently high, above the landing sites of Th and NP in DP_2. In the spirit of proposals for a 'split' *v*P which may include functional projections above the layer which introduces objects, I have labeled the projection introducing Ag as *n*P, implying that lexical categories are identical in structure. If correct, differences between verbal and nominal categories are related strictly to the nature of the functional categories they are associated with.

6. Conclusions

An overt determiner element following the noun and its complements or modifiers attests, quite directly, to NP-D^0 order and potentially to phrasal movement to spec DP. Consideration of the syntax of multiple genitives in Hebrew (non-process) free-state DPs has shown that evidence for phrasal movement may be more abstract than the relative order of nouns and determiners would lead one to expect. Even though quantificational elements such as determiners typically precede the noun in Hebrew, the combination of binding, scope, and construct asymmetries strongly suggest that N^0 raises into the DP domain as part of a larger phrase which will optionally include a Th genitive. In particular, the combination of binding and scope interactions among multiple genitives can be neatly reconciled by a phrasal movement approach to genitive permutations, independently supported by the construct asymmetry.

Free genitive order turns out to be parasitic, on this approach, on the options available to phrasal movement of a projection of the head noun, independently motivated by the requirement that [def] features scope over DP. To the extent that a phrasal movement analysis can be applied successfully to other cases of order permutation of the scrambling type, it offers a new explanation of the optional nature of scrambling and its apparent lack of syntactic trigger, consistent with the Minimalist requirement that all movement is syntactically triggered. Rather than assigning optionality to the movement component, or to the presence of a morpho-syntactic feature in a numeration, a phrasal movement analysis opens up the possibility that optionality in scrambling is at least sometimes due to pied-piping and optionality in the amount of overt material pied-piped by movement.

At the same time, a number of important questions regarding phrasal movement of this sort and its options remain underdetermined. The idea that the phrasal option is forced by the presence of a functional head and a potential violation of the HMC relies on the assumption that head movement exists and is preferred by economy considerations whenever possible. Clearly, however, not all potential HMC violations can be salvaged by phrasal movement, so conditions on its availability require further elaboration. In addition, a more precise statement of the relevant economy condition awaits further clarification. Head movement may be preferred either because quite generally, and in tension with Shortest Move, the less phonological material moved the better; or because head movement, as in this particular case, may accomplish in one step the combined result of XP to specifier position and Y^0 to head position, suggesting that economy considerations prefer fewer checking operations regardless of the amount of phonological material pied-piped along. Hopefully, these questions will be further addressed in future research.

Notes

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1. See Nkmenji (1995) for a phrasal movement analysis of NP-D^0 in Grassfield Bantu. See Shlonsky (2000) for a phrasal movement analysis of complex determiner, quantifier, and adjective placement phenomena across Semitic, and Cinque (2000) for Semitic and Celtic DPs. See also Fassi Fehri (1999) for a rejection of a phrasal movement analysis of related facts on typological grounds, and an alternative in terms of separate N^0-movement and AP-movement operations. See Sichel (2002) for arguments against separate AP-movement.

2. The labels Agent, Theme, and Possessor (and their abbreviations Ag, Th, Poss) are used strictly descriptively, to refer and distinguish among genitive DPs, without implying that these constituents bear a thematic relation to (non-process) N^0 mediated by argument structure.

3. Construct nouns are glossed noun.CS.

4. I use the term 'reconstruction' pre-theoretically, to mean that the relevant relation, in this case binding, is determined on the basis of a pre-movement configuration. See Section 4 for discussion of the mechanics of reconstruction in these DPs and its derivational nature.

5. See Kayne (1994, 1998), Den Dikken (1998), and Hoekstra (1999) for treatment of English *of* and Dutch *van* as functional heads.

6. See Borer (1989), Siloni (1994), Sichel (2001) for a variety of arguments for taking definite *ha-* to be base generated on N^0 as part of its inflectional makeup. See Ritter (1991, 1995) and Shlonsky (2000) for the claim that it instantiates D^0.

7. The trigger for *Sel* raising remains an open question. Assuming N^0-movement in constructs (see below), D^0 appears to impose two separate requirements: a requirement for [def] and an additional requirement for a head. These are satisfied simultaneously by N^0 to D^0 movement in constructs, and realized in free-states as separate instances of movement, to D^0 and to its specifier. *Sel* raising from Agr^0 to D^0 may then be similar to residual V2 phenomena, as in T^0 to C^0 raising of auxiliaries when spec CP is full. See Pesetsky and Torrego (2001) for similar cases, in which a single step of head movement alternates with the combination of head movement and phrasal movement to its specifier.

8. Though it is certainly not a sufficient condition, as not all potential head movement violations can be circumvented by phrasal movement. See Shlonsky (2000) for a different relation between heads and phrasal movement, based on cross-Semitic differences in the syntax of numerals and demonstratives. On that approach, heads freeze roll-up phrasal movement, the default mechanism for Case-assignment. Detailed discussion of numerals and demonstratives being beyond the scope of this study, the relation between these approaches will not be further pursued.

9. Discussion of some of the issues raised by the interaction of Ag, Th, and remnant NP movement are put off to Section 5, where they are addressed in light of the necessary ingre-

dients of the analysis and general constraints on movement such as Relativized Minimality (Rizzi 1990) and the Extension Condition.

10. The A-bar nature of DP is further supported by NP reconstruction, discussed in more detail in Section 4.

11. On a par with Wh-movement, which may remove an anaphor from the scope of its antecedent, in (i). See below for further discussion.

(i) [Which pictures of himself$_1$]$_2$ did John$_1$ like t$_2$ best?

12. Unlike 'portrait' in (17), 'coverage' in (18) is a derived nominal, used here due to the scarcity of non-derived nominals compatible with multiple genitives. The double presence of *Sel*, however, forces its 'referential' or result reading, in contrast to the process reading obtained with (verbal) *et* on the Theme (Borer 1993). Crucially, the result reading with *Sel* is identical in relevant aspects to non-derived nominals, allowing free genitive order as in non-derived nominals, while replacement with *et* requires Theme to follow Agent as in process derived nominals:

(i) a. ha-sikur Sel ha-eru'a be-ramallah Sel ha-itona'it
the-coverage of the-event in-ramallah of the-journalist
b. *ha-sikur et ha-eru'a be-ramallah Sel ha-itona'it
the-coverage ET the-event in-ramallah of the-journalist

I will assume, accordingly, that result derived nominals with multiple genitives are syntactically no different from non-derived nominals of the picture / portrait sort (see Borer 1993 for further details).

13. Following standard practice, the examples reflecting word order permutations have the first DP as an indefinite and the second as a universal quantifier, to avoid the potential of an indefinite to take wide scope independent of its position.

14. The rigid scope reading of Ag-Th contrasts with the ambiguity obtained by construing the indefinite as Ag and the universally quantified expression as Poss. On that reading, every famous woman may have owned a portrait by some Flemish painter or other. The fact that ambiguous scope in Ag-Poss patterns with ambiguity in Th-Ag is significant, since Poss asymmetrically c-commands Ag (Shlonsky 1988), just like Ag asymmetrically c-commands Th. Accordingly, the derivation of Ag-Poss will be similar to the derivation of Th-Ag, involving a step of [$_{DP}$ N + Ag] to the left of a Poss specifier.

15. By means of the Minimal Binding Requirement in Aoun and Li (1993), which requires variables to be bound by the most local A-bar antecedent, and by Shortest in Bruening, which restricts LF movement to crossing paths, in effect reproducing at LF the hierchical order at the point at which QR is launched.

16. Bruening (2001) actually discusses two exceptions to Shortest, one involving reconstruction, the other due to equidistance and lack of competition for Shortest Move, as in his analysis of NP-PP dative orders. The second exception is irrelevant to present purposes, as it requires the two quantifiers to be at the same distance from a unique quantificational host. Since Ag asymmetrically c-commands Th, they are clearly not equidistant from any position in DP.

17. Note that [$_{DP}$ N + Th] reconstruction does not entail Th reconstruction to its base position in NP. In line with standard assumptions that quantifiers are interpreted outside of the lexical layer at the lowest (Hornstein 1994; Heim & Kratzer 1998), the lowest position of Th interpretation will be spec AgrP. How exactly the derivational nature of [$_{DP}$ N + Th] reconstruction is to be expressed will depend on the theory of reconstruction adopted. On a copy theory of movement with partial deletion at LF (Chomsky 1993), phrasal movement would leave a full copy, with subsequent optional deletion of Th at the head or tail of the chain. Alternatively, a cyclic view of LF interpretation (Chomsky 2001) might have [$_{DP}$ N + Th] interpreted within the scope of Ag on an early DP cycle, provided that DP is a phase.

18. I leave open whether scope of the quantifier over [$_{DP}$ N + Th] is expressed via QR or by some other semantic mechanism, as it must be in some of the examples discussed in Ruys (2000). QR of the antecedent from its complex NP container is excluded on syntactic grounds in donkey anaphora, for example:

(i) [Every farmer who owns a donkey$_1$] beats it$_1$

The restriction against extraction of a specifier from within a specifier (Koopman & Szabolsci 2000), would similarly exclude QR of the Th quantifier from within DP in spec of DP, implying perhaps a semantic mechanism of scope assignment.

19. See Carnie (1995) for a similar problem and solution in the context of Irish non-finite SOV clauses, and Koizumi (1993) and Collins and Thrainsson (1996) for AgrP projections below the merge position of the subject.

20. Thanks to M. Den Dikken (p.c.) for suggesting the possibility of a split *n*P.

References

Aoun, Joseph & Yen-hui Audrey Li (1989). Constituency and Scope. *Linguistic Inquiry, 20*, 141–172.

Aoun, Joseph & Yen-hui Audrey Li (1993). *Syntax of Scope*. Cambridge, MA: MIT Press.

Baker, Mark (1988). *Incorporation*. Chicago: Chicago University Press.

Borer, Hagit (1989). On the Morphological Parallelism between Compounds and Constructs. In Gert Booij & Jan van Marle (Eds.), *Morphology Yearbook*, Vol. 1 (pp. 45–64). Dordrecht: Foris.

Borer, Hagit (1993). Derived Nominals. Ms., University of Massachusetts.

Borer, Hagit (1996). The Construct in Review. In Jacqeline Lecarme, Jean Lowenstamm, & Ur Shlonsky (Eds.), *Studies in Afroasiatic Grammar* (pp. 30–61). Holland Academic Graphics.

Borer, Hagit (1999). Deconstructing the Construct. In Kyle Johnson & Ian Roberts (Eds.), *Beyond Principles and Parameters* (pp. 43–89). Dordrecht: Kluwer.

Bruening, Benjamin (2001). QR Obeys Superiority: Frozen scope and ACD. *Linguistic Inquiry, 32*, 233–273.

Carnie, Andrew (1995). Nonverbal Predication and Head Movement. Ph.D. dissertation, MIT.

Carstens, Vicki (2000). Concord in Minimalist Theory. *Linguistic Inquiry, 31*, 319–355.

Chomsky, Noam (1993). A Minimalist Program for Linguistic Inquiry. In Ken Hale & Samuel Jay Keyser (Eds.), *The View from Building 20* (pp. 1–52). Cambridge, MA: MIT Press.

Chomsky, Noam (1995). Categories and Transformations. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam (2001). Derivation by Phase. In Michael Kenstowicz (Ed.), *Ken Hale: a life in language* (pp. 1–52). Cambridge, MA: MIT Press.

Cinque, Guglielmo (2000). On Greenberg's Universal 20 and the Semitic DP. Talk given at Cortona Conference.

Collins, Chris & Höskuldur Thráinsson (1996). VP-Internal Structure and Object Shift in Icelandic. *Linguistic Inquiry, 27*, 391–444.

Den Dikken, Marcel (1998). Predicate Inversion in DP. In Artemis Alexiadou & Chris Wilder (Eds.), *Possessors, Predicates and Movement in the Determiner Phrase* (pp. 177–214). Amsterdam: John Benjamins.

Fassi Fehri, Abdelkader (1989). Generalized IP Structure, Case, and VS Word Order. In Itzihar Laka & Anoop Mahajan (Eds.), *MIT Working Papers in Linguistics*, Vol. 10 (pp. 75–113).

Fassi Fehri, Abdelkader (1993). *Issues in the Structure of Arabic Clauses and Words*. Dordrecht: Kluwer.

Fassi Fehri, Abdelkader (1999). Arabic Modifying Adjectives and DP Structures. *Studia Linguistica, 53*, 105–154.

Fiengo, Robert (1977). On Trace Theory. *Linguistic Inquiry, 8*, 35–61.

Fox, Danny (1999). Reconstruction, Binding Theory, and the Interpretation of Chains. *Linguistic Inquiry, 30*, 157–196.

Giorgi, Alessandra & Giuseppe Longobardi (1991). *The Syntax of Noun Phrases*. Cambridge: Cambridge University Press.

Heim, Irene & Anglelika Kratzer (1998). *Semantics in Generative Grammar*. Oxford: Blackwell.

Hoekstra, Teun (1999). Parallels between Nominal and Verbal Projections. In David Adger, Susan Pintzuk, Bernadette Plunkett, & George Tsoulas (Eds.), *Specifiers* (pp. 163–187). Oxford: Oxford University Press.

Hoji, Hajime (1985). Logical Form Constraints and Configurational Structures in Japanese. Ph.D. dissertation, University of Massachusetts.

Hornstein, Norbert (1994). An Argument for Minimalism: the Case of Antecedent Contained Deletion. *Linguistic Inquiry, 25*, 455–480.

Kayne, Richard (1994). *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.

Kayne, Richard (2000). A Note on Prepositions and Complementizers. *Parameters and Universals*. New York: Oxford University Press.

Koizumi, Masatoshi (1993). Object Agreement Phrases and the Split VP Hypothesis. In Collin Philips & Jonathan Bobalijk (Eds.), *Papers on Case and Agreement*, Vol. I. *MIT Working Papers in Linguistics* 18 (pp. 99–148).

Koopman, Hilda & Anna Szabolsci (2000). *Verbal Complexes*. Cambridge, MA: MIT Press.

Larson, Richard (1990). Double Objects Revisited: A reply to Jackendoff. *Linguistic Inquiry, 21*, 589–632.

Li, Yafei (1990). X^0-binding and Verb Incorporation. *Linguistic Inquiry, 21*, 399–426.

Longobardi, Guiseppe (1996). On the Typological Unity of Indoeuropean and Semitic Genitive Case. In Jacqeline Lecarme, Jean Lowenstamm, & Ur Shlonsky (Eds.), *Studies in Afroasiatic Grammar* (pp. 179–214). Holland Academic Graphics.

May, Robert (1985). *Logical Form*. Cambridge, MA: MIT Press.

Muller, Gereon (1998). *Incomplete Category Fronting*. Dordrecht: Kluwer.

Nkmenji, Michael (1995). Heavy Pied-piping in Nweh. Ph.D. dissertation, UCLA.

Pesetsky, David & Esther Torrego (2001). T-to-C Movement: Causes and consequences. In Michael Kenstowicz (Ed.), *Ken Hale: A Life in Language* (pp. 355–426). Cambridge, MA: MIT Press.

Ritter, Elizabeth (1988). A Head-Movement Approach to Construct-state Noun Phrases. *Linguistics, 26*, 909–929.

Ritter, Elizabeth (1991). Two Functional Categories in Noun Phrases. *Syntax and Semantics, 25*, 37–62. San Diego, CA: Academic Press.

Ritter, Elizabeth (1995). On the Syntactic Category of Pronouns and Agreement. *Natural Language and Linguistic Theory, 13*, 405–443.

Rizzi, Luigi (1990). *Relativized Minimality*. Cambridge, MA: MIT Press.

Ruys, E. G. (2000). Weak Crossover as a Scope Phenomenon. *Linguistic Inquiry, 31*, 513–539.

Shlonsky, Ur (1988). Government and Binding in Hebrew Nominals. *Linguistics, 26*, 951–976.

Shlonsky, Ur (2000). The Form of Semitic Noun Phrases: An antisymmetric, non-N^0 movement approach. Ms., University of Geneva.

Sichel, Ivy (2001). Studies in the Syntax of Pronouns and Features. Ph.D. dissertation, CUNY.

Sichel, Ivy (2002). Phrasal Movement in Hebrew Adjectives and Possessives. In Artemis Alexiadou, Elena Anagnostopoulou, Sjef Barbiers, & Hans-Martin Gaertner (Eds.), *Dimensions of Movement* (pp. 297–339). Amserdam & Philadelphia: John Benjamins.

Siloni, Tali (1994). Noun Phrases and Nominalizations. Ph.D. dissertation, University of Geneva.

Siloni, Tali (1997). *Noun Phrases and Nominalizations: The syntax of DPs*. Dordrecht: Kluwer.

Szabolsci, Anna (1994). The Noun Phrase. In Franz Keifer & Kathalina Kiss (Eds.), *The Syntactic Structure of Hungarian. Syntax and Semantics, 27*, 179–274. San Diego, CA: Academic Press.

Travis, Lisa (1984). Parameters and Effects of Word Order Variation. Ph.D. dissertation, MIT.

Webelhuth, Gert (1992). *Principles and Parameters of Syntactic Saturation*. New York: Oxford University Press.