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Dimensions of Movement

From features to remnants

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CHAPTER 13

Phrasal movement in Hebrew adjectives and possessives*

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1. Introduction

The Linear Correspondence Axiom (Kayne 1994), and in particular its reduction of the head parameter to movement, claims that constructions previously analyzed as right headed are in fact derived by leftward movement of the preceding constituent. If, for example, heads universally precede their complements at the base, D°-final structures must be derived by raising a nominal constituent past D° to its specifier, as in Nchufie, in (1), (from Moritz 1994):

(1) a. Míŋ pìíncu wì/í.
child Pincu this
'This child of Pincu.'
b. Mɛ lɔ/ɔ lɔ/ɔ â.
child happy the
'The (specific) happy child.'
c. Fòtó kɛɛŋɔ yì/í.
picture Kengo this
'This picture of Kengo.'
d. [$_{DP}$ [$_{NumP}$ N . . . adj/poss] the/this t_{NumP}].

Languages such as Nchufie with an overt determiner following the head noun and its modifiers provide strong evidence for a nominal raising operation which fronts a phrasal constituent. In this chapter I argue that phrasal movement within DP is in fact more pervasive than the surface position of D°-related morphemes would lead one to expect. In particular, it is proposed that XP raising to spec DP derives some noun initial orders in Hebrew DPs, a language in which the definite marker occurs in DP initial position.[1] This implies that *ha-* in (2) is directly generated on the noun it is prefixed to:[2]

(2) a. Ha-yalda im ha-camot.
the-girl with the-braids
'The girl with braids.'
b. Ha-simla Sel ruti.
the-dress of Ruti
'Ruti's dress.'
c. Ha-simla haxi aruka.
the-dress most long
'The longest dress.'

The goal of the chapter is to show that N-initial orders in Hebrew are derived by various types of movement and to examine the properties of the different movement operations involved. In particular, it is proposed that while construct state nominals (in 3) are derived by head movement (as previously argued in Ritter (1988), (1991), Siloni (1997), and Fassi Fehri (1989), (1993)), attributive adjectival constructions (in 4) are derived by pied-piping an NP/DP constituent across an adjectival head, and free state genitive constructions (in 5) are derived by raising a remnant NP/DP from which the genitive argument has been extracted.[3]

(3) a. Tmunat ha-xamaniot.
picture-CS the-sunflowers
'The picture of the sunflowers.'
b. Be'ayot ha-plitim.
problems-CS the-refugees
'The problems of the refugees.'

(4) a. Ha-mexonit ha-amerika'it ha-aduma.
the-car the-american the-red
'The red American car.'
b. Ha-mexonit ha-aduma ha-gdola.
the-car the-red the-big
'The big red car.'

(5) a. Ha-tmuna Sel ha-xamaniot.
the-picture of the-sunflowers
'The picture of the sunflowers.'
b. Ha-be'ayot Sel ha-plitim.
the-problems of the-refugees
'The problems of the refugees.'

The remnant movement derivation proposed for (5) does not pattern neatly with neither remnant VP-topicalization of the German/Dutch type, nor with the sort of remnant movement argued in Kayne (1998) to be associated with overt quantifier raising in English. Similar to Kaynian remnant movement it is not attested independently of prior extraction from within, yet it appears to target an A-bar position on a par with VP topicalization. And in contrast to both remnant movement types, nominal raising in (5) is obligatory and seems to be triggered by the very features that attract head movement in (3).

Furthermore, phrasal movement within Hebrew DPs is itself heterogeneous. While both the adjectival DP in (4) and the genitive DP in (5) attest to obligatory NP movement to spec DP, the details of these movement operations are substantially different. Most significantly, pied piping of NP across an adjectival head cannot proceed successive cyclically; further raising of NP past higher adjectives requires pied piping of the containing constituent. In contrast, a remnant NP in spec DP may continue successive cyclically to higher specifier positions. The observed differences between these movement types poses the question of how best to distinguish between them. Comparison of the various fronting operations shows phrasal movement to be available as a last resort, suggesting a general preference for moving as little material as possible. Section 2 motivates an analysis of NP pied-piping across attributive adjective heads, Section 3 presents evidence for remnant movement in multiple genitive constructions, and Section 4 integrates these proposals into an analysis of multiple-adjective multiple-genitive DPs.

2. Attributive adjectives

2.1 *Phrasal movement and mirror image ordering*

In the course of developing an antisymmetric argument for generating nominal modifiers as left-hand specifiers universally, Cinque (1996) notes that cross-linguistically, mirror image modifier order is attested only in postnominal position. In other words, to the right of N^0 both Dem–Num–Adj and Adj–Num–Dem are attested, but to the left of N^0 only Dem–Num–Adj is attested. In order to capture the relation between reverse sequential ordering and postnominal position, Cinque (1996) proposes a derivation in which modifier placement is directly implicated in the operation which fronts the head noun. Starting out with the structure in (6) in which the relevant

modifiers are base-generated in specifier positions of functional heads,

(6) $[_{XP}$ X . . . $[_{YP}$ Dem $[_{YP}$ Y . . . $[_{WP}$ Num $[_{WP}$ W . . . $[_{ZP}$ Adj $[_{ZP}$ Z $[_{NP}$ N]]]]]]]]

the NP constituent raises to a position between W and ZP, crossing the adjective; the lower WP then raises to a position between Y and WP, crossing Num; and finally, the lower YP raises to a position between X and YP, resulting in N–Adj–Num–Dem. This section discusses reverse sequential ordering within the class of adjectives, and an extension of the phrasal movement analysis is proposed to account for the relationship between postnominal order and relative order among adjectives in Hebrew.[4]

Attributive adjectives occur in Hebrew in post-nominal position and agree with the head they modify in gender, number and definiteness. In addition, their relative ordering is reversed compared to that of English and other Germanic languages, as in the following sample of examples from Shlonsky (2000):

(7) a. A brown Swiss cow.
b. Para Svecarit xuma.
cow swiss brown
'A brown Swiss cow.'
c. *Para xuma Svecarit.
cow brown swiss

(8) a. My long black table.
b. Ha-Sulxan ha-Saxor ha-arox Seli.
the-table the-black the-long my
c. *Ha-Sulxan ha-arox ha-Saxor Seli.
the-table the-long the-black my

(9) a. A possible massive Israeli bombardment.
b. Hafgaza isra'elit masivit efSarit.
bombardment israeli massive possible
'A possible massive Israeli bombardment.'
c. *Hafgaza efSarit isra'elit masivit.
bombardment possible israeli massive
d. *Hafgaza isra'elit efSarit masivit.
bombardment israeli possible massive

(10) a. Severe personal problems.
b. Be'ayot iSiyot xamurot.
problems personal severe
'Severe personal problems.'

c. *Be'ayot xamurot iSiyot.
problems severe personal

Demonstratives show similar gender/number/definiteness agreement and occur final in the adjective sequence:

(11) a. Ha-para ha-Svecarit ha-xuma ha-zot.
the-cow the-swiss the-brown the-this
'This brown Swiss cow.'
b. Ha-Sulxan ha-Saxor ha-arox ha-hu.
the-table the-black the-long the-that
'That long black table.'

The fact that Hebrew adjectives do observe ordering restrictions, albeit the reverse of the English pattern, supports proposals put forth in favor of a universal ordering of modifiers, and more specifically that adjectival modifiers of the type in (6)–(11) occur in designated, rather than adjoined, positions within DP (Cinque (1994), (1999), Crisma (1995), among others).[5] Accepting a universal hierarchy of adjectives, mirror image ordering in postnominal position could still be derived from a semantic or cognitive preference for having certain adjectives closer to the head noun than others. The fact that cross-linguistically, postnominal adjectives are not necessarily reversed, shows, however, that the preference is not universal, strongly suggesting that these placement phenomena are syntactic in nature. In Welsh, for example, nouns precede adjectives and possessives, yet the unmarked order of adjectives is as in English (from Rouveret 1991):

(12) a. Llyfr newydd Dafydd.
book new david
'David's new book.'
b. Cwpan mawr gwyrdd Sieineaidd.
cup large green Chinese
'A large green Chinese cup.'

While postnominal positioning does not entail reverse ordering, reverse order seems to be restricted to postnominal position. This is seen most clearly in Standard Arabic (henceforth SA). Adjectives predominantly follow the head noun, in which case they show the same reverse ordering as in Hebrew (SA examples from Fassi Fehri (1999)):

(13) a. Saay-un siiniiy-un ʔaxdar-u jayyid-un.
tea-NOM Chinese-NOM green-NOM excellent-NOM
'An excellent green Chinese tea.'
b. ʔal'ab-u bi-l-kurat-i l-kabiirat-i l-jamiilat-i.
I.play with-the-ball-GEN the-big-GEN the-beautiful-GEN
'I play with the beautiful big ball.'

This situation contrasts with the order of prenominal elements. Numerals, for example, may occur in either pre- or post-nominal position. In prenominal position the ordinal precedes the cardinal as in English, but in postnominal position, the cardinal precedes the ordinal:

(14) a. The first five lectures.
b. ʔawwal-u xams-i muhaadaraat-in.
first-NOM five-GEN lectures-GEN
c. L-muhaadaraat-u l-xams-u l-ʔuulaa.
the-lectures-NOM the-five-NOM the-first
d. ??l-muhaadaraat-u l-ʔuulaa l-xams-u.
the-lectures-NOM the-first the-five-NOM

The contrasts in (14) show a language-internal correlation between reverse ordering and N fronting, supporting a phrasal movement approach in which APs raise as part of a constituent containing the head noun. Assuming for now that Hebrew attributive adjectives are heads on the main projection line between D° and N°, the derivation of a DP with a single attributive adjective is as in (15c):[6]

(15) a. Ha-mexonit ha-xadaSa.
the-car.f,s the-new.f,s
'The new car.'
b. Mexonit xadaSa.
car.f,s new.f,s
'A new car.'
c. $[_{DP}\ [_{NP}\ [_{N}$ the-car]] $[_{D'}$ the- $[_{AP}$ new $t_{NP}\ ]$.

A D° head hosting the definiteness agreement prefix associated with adjectives is sister to AP, and the adjectival head takes as its complement NP containing the head N°. Following Borer (1989), Siloni (1997) and Sichel (2001), the definiteness marker is prefixed to N° and does not signal a full DP sister to A°. Sisterhood of A° and NP represents intersection of sets; on the standard assumption that only full DPs are assigned theta-roles, a predication or selec-

tion relation between A° and NP is correctly excluded. Raising of NP to spec DP is triggered by [−INT] definiteness features in D° and ensures feature matching between [+INT] [def] on N° and the head of DP. Assuming [gender]/[number] features in D°, the configuration is on a par with English clauses in which the verb is lower than I° and agrees with the subject in spec IP.[7] Evidence for the positioning of the adjectival definiteness marker in D°, rather than generated directly on the adjective, is provided by the possible intervention of negation and some modifiers between prefix and adjectival head, in (16).[8]

(16) a. [ha-mis'ada ha-**lo** kSera ha-yexida be-bnei brak] nizgera
the-restaurant the-**neg** kosher the-sole in-bnei brak closed
ha-Savu'a.
this-week
'The only non-kosher restaurant in Bnei Brak closed this week.'

b. [ha-yalda ha-**bilti** memuSma'at ha-SliSit] yac'a me-ha-kita.
the-girl the-**neg** disciplined the-third left from-the-classroom
'The third non-disciplined girl left the classroom.'

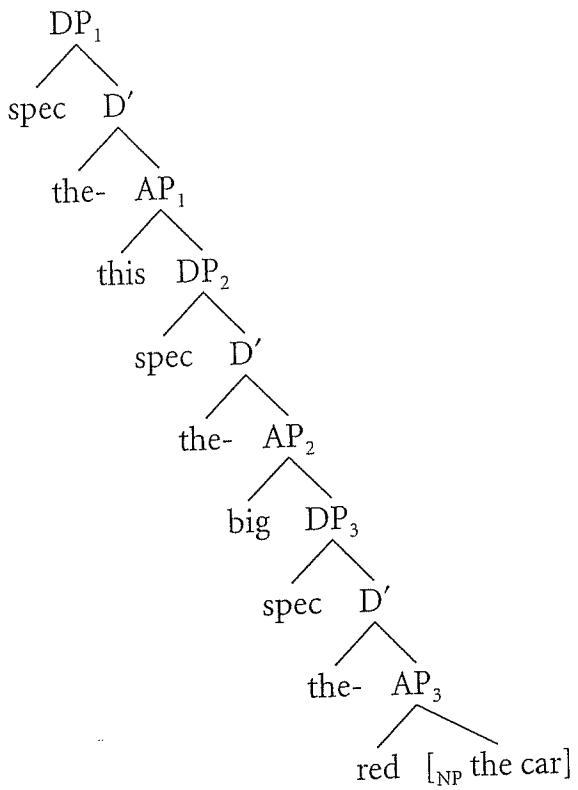
c. Zot [ha-xulca ha-**yoter miday** yekara ha-axrona] Se-ani kona
this the-shirt the-**too much** expensive the-last that-I buy
ha-xoref.
this-winter
'This is the last too expensive shirt that I'm buying this winter.'

d. Ze kvar [ha-pakid ha-**legamrey** mebulbal ha-revi'i]
this already the-clerk the-**completely** confused the-forth
Se-dibarti ito hayom.
that-talked.I with-him today
'This is already the forth completely confused clerk I've talked to today.'

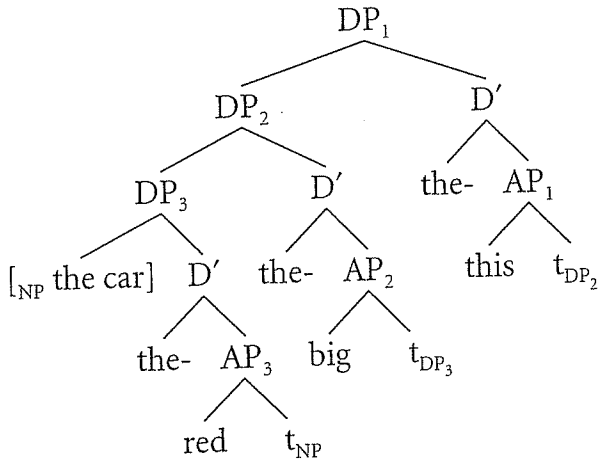
On the minimalist-lexicalist assumption that inflectional material is base-generated on its stem, the possibility of intervening material between *ha-* and adjective suggests that adjectival *ha-* is not an inflectional component of the adjective in the same way that nominal *ha-* is. Instead, it is base generated as head of [−INT] D°, and phonologically attaches to whatever follows, much like the clausal complementizer *Se-*.[9] In contrast, the head of a definite DP containing no adjectives will be phonologically empty, nominal *ha-* being part of the inflectional complex associated with and directly generated on N°. Though the morpheme *ha-* is ambiguous, nominal and adjectival DPs are morpho-syntactically identical, both headed by $D^{\circ}_{\{[-INT]\ [def]\}}$.

Turning to the structure of multiple adjective sequences, A° must be allowed to occur as sister to DP which immediately dominates AP:

(17) a.



b.



The lowest adjective in (17a) has NP as complement and is dominated by D^0 containing *ha-*, as in (15c). This DP is in turn sister to A°, dominated by an additional DP, and so on, such that the relative order of DPs containing adjectives is identical to Romance/Germanic. While for Cinque the order is regulated by selection of functional heads whose specifiers host adjectives, here selection is of an iterating DP. Such iterating D's might be made sense of in

light of the type of evidence presented in Cinque (1999) for clausal functional categories hosting adverbial specifiers, which correspond to various tense, aspectual, and modality dimensions encoded in the clausal system. As it seems rather unlikely that nominal projections contain as many functional distinctions, and are therefore less forthcoming in providing independently attested positions, the recursive structure in (17a) is independently motivated by the overt form of iterating complementizer-like *ha-*.[10] The derivation proceeds as in (17b): NP raises to spec DP_3, DP_3 raises to spec DP_2, DP_2 raises to spec DP_1. Each step in the derivation is triggered by a [–INT] [def] feature on the D° to whose specifier progressively larger DP constituents raise.[11] Once checked, the D° feature is eliminated; hence NP embedded within DP_n in spec DP_{n+1} is always the category against which D_{n+1}'s feature is checked. Multiple checking by NP is possible due to the [+INT] status of its [def] feature.

The phrasal pied-piping derivation in (17) derives the correlation between postnominal adjectives and their reverse order by having APs raise as part of a larger constituent that contains N° as well. Still, it could be claimed that AP fronting and N° raising are separate processes and attempt to capture the dependence of the former on the latter in a different way. Fassi Fehri (1999) denies a phrasal movement analysis on the typological grounds that SA is not postpositional or 'truly' N-A, and argues, along the lines of Chomsky (1993), that N° raising as 'domain extension' is necessary for circumventing a potential Minimality violation incurred by raising of AP_2 over AP_1. For AP_2 to cross AP_1, on that analysis, N° must raise even higher, resulting in N-AP_2-AP_1. While both approaches account for the dependence of adjectival fronting on nominal fronting, the claim that N° raises independently for domain extension adds the ingredient that N^0 ends up preceding all adjectives. The empirical difference between the approaches boils down, then, to the relative position of N°. Phrasal movement predicts that if AP_2 precedes AP_1, so will N° precede AP_1; separate N° movement requires, in principle, that N° also precede AP_2.

The latter requirement appears to be too strong. The broader range of word order permutations allowed in Definiteness Spreading (henceforth DS) contexts in Greek strengthens the conclusion that independent AP raising without nominal raising is unavailable, further supporting the phrasal movement analysis which takes APs to raise as part of a containing nominal constituent. It also shows that separate N° movement relative to adjectives is not an absolute requirement. Crucially, the raising operation does not require movement of noun past adjective generally.

Greek DS involves the optional addition of definite marking morphemes from left to right in front of adjectives and noun. It also licenses word order permutations not possible in non-DS DPs (examples from Androutsopoulou 1994):[12]

(18) Ta tria kala vivlia
the three good books
'The three good books.'

(19) a. Ta tria ta kala ta vivlia.
the three the good the books
b. Ta tria ta vivlia ta kala.
the three the books the good
c. Ta vivlia ta tria ta kala.
the books the three the good
d. Ta vivlia ta kala ta tria.
the books the good the three
e. *Ta kala ta tria ta vivlia.
the good the three the books
f. Ta kala ta vivlia ta tria.
the good the books the three
'The three good books.'

(18) shows a non-DS DP with one determiner and fixed order. (19a) is an example with full DS, allowing the order permutations seen in (19).[13] Following Androutsopoulou (1994 1995), the nominal in (19b) has raised to a specifier higher than the low adjective, and in (19c) it continues to raise to a specifier position preceding the high adjective. (19d) shows raising of the constituent formed in (19b) past the highest adjective, on a par with the mirror image orders of Hebrew and Standard Arabic. The contrast with (19e) shows that raising of *the good* past *the three* must include raising of *the books*, accounted for if APs can only move parasitically, as part of a containing nominal constituent. Note, however, that N° need not be initial for AP_2 to precede AP_1, as seen in (19f); reverse adjectival order requires only that the nominal precede the crossed AP, as seen by the acceptability of both (19d) and (19f). (19f) provides therefore crucial evidence against an 'extension domain' analysis of Semitic N° movement. In the absence of a principled requirement for N° raising in the context of adjective reversals, the motivation for separate yet dependent N° and AP raisings disappears. It follows then that the Semitic

requirement for the noun to precede *all* adjectives must be due to factors independent of AP reversals per se, easily stated with phrasal movement since noun-initial order requires only a single step of movement across the lowest adjective, obligatory in Semitic and optional in Greek. Similarly, the phrasal movement approach provides a simple and straightforward account of the difference between Greek and Semitic, optionality of N-initial placement in Greek correlating with optionality of adjective placement generally. Given the proposal for an iterating D° introducing APs, raising to spec DP is obligatory in Semitic and optional in Greek, in general. An analysis with separate N° and AP raisings, on the other hand, will have little to say about the relationship between Semitic and Greek, let alone the paradigm in (19).

Summarizing this section, consideration of DPs with multiple adjectives argues in favor of a phrasal movement analysis in which N° raises as part of a DP constituent containing adjectives as well. The proposal for AP being introduced by an iterating functional category, overt in Semitic, receives independent motivation through comparison with Greek. The observation that crosslinguistically, optional/obligatory noun placement correlates with optional/obligatory adjective reversal is easily understood if the same category is involved, reducing to a single property of D° what may appear as a substantial crosslinguistic difference at first glance.

2.2 *The head status of attributive adjectives*

2.2.1 *The landing site*

The primary issue concerning adjective placement in Crisma (1995) and Duffield (1999) is whether they are adjoined or occur in designated positions, the latter including specifier and head position. The present proposal seeks to establish some criteria for determining the X-bar status of attributive adjectives and claims that at least in some languages adjectives are heads on the main projection line from D° to NP as previously argued in Abney (1987), Bernstein (1993) for Romance prenominal adjectives, Delsing (1993), and Androstoupoulou (1994). Evidence for the head status of Hebrew attributive adjectives is provided by differences, beyond word order contrasts, observed between adjectives with and without complements, and is further supported by the interaction of adjectives and possessives in Sections 3 and 4. The evidence to be presented depends, to some extent, on theory internal assumptions and considerations, so it is worth reviewing some of the arguments raised in favor of modifiers as XP specifiers, and to consider the

details of a phrasal movement derivation with adjectives in specifier position.

A common argument in favor of various modifiers as XPs in spec is that they do not block instances of movement independently assumed to be X^0 movement, or that they do block movements assumed to be XP movement. In Rumanian, for example, N-initial order arises as a result of N-to-D raising, and demonstratives precede adjectives, as in (20a). Adjectives may also raise to a DP-initial position, as in (20b), though not across a demonstrative (examples from Guisti 1997):

(20) a. Baiatul acesta/acela frumos.
boy-the this/that nice
'This/that nice boy.'
b. Frumosul (*acesta) baiat.
nice-the this boy
c. Baiatul frumos (*acesta).
boy-the nice this
d. Frumosul baiat (*acesta).
nice-the boy this

Evidence for adjectives undergoing AP movement to spec DP in (20b) and (20d) is provided by the fact that the adjective may itself be modified, as in (21) (from Giusti 1992):

(21) Extraordinar de frumos portret
very of nice-the picture
'The very nice picture.'

So based on the motivated claim that adjectives front as XPs plus the observation that demonstratives block adjective raising but not noun raising it can be concluded that demonstratives are XPs. Similarly, Cinque (1999) argues for the specifier status of adverbs based on the fact that there must exist empty head positions between adverbs to host the past participle in its various positions, and to allow verb raising to cross them:

(22) a. Da allora, non hanno ***rimesso*** di solito mica piu sempre completamente tutto bene in ordine.
b. Da allora, non hanno di solito **rimesso** mica piu sempre completamente tutto bene in ordine.
c. Da allora, non hanno di solito mica **rimesso** piu sempre completamente tutto bene in ordine.

d. Da allora, non hanno di solito mica piu **rimesso** sempre completamente tutto bene in ordine.
e. Da allora, non hanno di solito mica piu sempre **rimesso** completamente tutto bene in ordine.
f. Da allora, non hanno di solito mica piu sempre completamente **rimesso** tutto bene in ordine.
since then NEG have.they usually NEG any longer always completely put all well in order
'Since then, they haven't usually not any longer always put everything well in order.'

Given a theory of locality relativized to X/XP movement, (22) on its own clearly shows that adverbs and verbs are distinct. Combined with the independent assumption that participle fronting is an instance of X^0 movement, the conclusion that adverbs are in specifier position can be drawn. Adapting this type of argument to Hebrew DPs yields the opposite conclusion, that adjectives must be heads. On the well motivated assumption that N^0 starts out low, it must have raised. Given mirror-image order, such raising must pied-pipe XPs. Thus the non-blocking effect of adjectives must be due to their head status.

The idea that adjectives are heads when NP movement is involved has two additional general advantages. First, it gives a straightforward account of adjectival agreement, by fully assimilating it to the better understood clausal agreement. As in subject/object verb agreement, the relation is asymmetric, the head element bearing [–INT] phi-features and the NP/DP in spec providing [+INT] features that check against head features. On the adjectives as specifiers analysis, AP and NP are both specifiers. Nothing else said, the mechanism triggering agreement remains obscure.

Consider now a derivation with adjectives in spec of a functional head and phrasal movement crossing the adjective. Assuming that multiple specifiers are excluded, the raising constituent cannot land in a specifier position of the same functional head the adjective is attached to. One possibility is to introduce another functional head above the head whose specifier hosts the adjective:

(23) a. $[_{FP_4}$ spec F_4 $[_{FP_3}$ $[AP_3]$ F_3 $[_{FP_2}$ $[NP]_1$ F_2 $[_{FP_1}$ $[AP_1]$ F_1 t_{NP_1} $]]]]]$
b. $[_{FP_4}$ $[_{FP_2}$ $[NP]_1$ F_2 $[_{FP_1}$ $[AP_1]$ F_1 t_{NP_1} $]$ F_4 $[_{FP_3}$ $[AP_3]$ F_3 t_{FP_2} $]]$

NP raises to spec of FP_2 crossing the AP in spec FP_1, as in (23a). Further raising of FP_2 to spec FP_4, again crossing the adjective, yields the desired order

$N–Adj_2–Adj_3$. On the analysis of adjectives as heads, no additional functional head beyond one dominating AP is required, and in that sense it is a simpler derivation. One could assume, on the other hand, that F_1 hosts definite adjectival *ha-*. Then raising of *ha-* to F_2 allows XP to cross the adjectival specifier and correctly produces *ha-* prefixation. Still, independent evidence for the existence of F_2 is missing. Everything else being equal, it would be preferable to do without F_2 if an alternative is forthcoming, as in the head analysis.

An alternative to (23) raises NP to spec of AP located in spec/adjoined to NP, in the spirit of the VP raising analysis of PP extraposition given in Barbiers (1995):

(24) a. $[_{VP_1}\ [_{PP_1}\ [VP_2]\ [_{PP_2}\ P\ DP]\ t_{VP_2}\ ]]$
b. $[_{NP_1}\ [_{AP_1}\ [NP_2]\ [_{AP_2}\ Adj\ ]\ t_{NP_2}\ ]]$

Subsequent raising of NP_1 to spec of an AP adjoined to a higher projection of NP gives reverse post-nominal ordering, as is the case for the 'extraposed' PPs for which the analysis in (24a) was originally designed. In order to provide for a c-command relation between the raised VP_2 in spec of PP_1 adjoined to VP_1 and its trace, a connectedness approach is taken in which a consituent on a left branch — VP_2 within PP_1 within VP_1 — forms an extended path with the minimal node — VP_1 — dominating c-commander and c-commandee'. This definition in effect eliminates the intervention potential of the embedding VP_1 and PP_1, and in this sense (24a) is syntactically identical to a derivation in which VP raises to spec of a P° merged higher than VP, in the spirit of Kayne (1999). Similarly, merging of A° as sister to NP, with NP raising to spec of DP immediately above AP, requires no special c-command modifications.

A more substantial difference between (24b) and (23), and the head analysis proposed here, is the status assigned to adjectival complements. The present proposal excludes complements of attributive adjectives by generating NP as sister to A° and claims therefore that adjectives which do take complements must be structurally distinct. I now turn to evidence supporting this view.

2.2.2 *The distribution of simple and complex adjectives*

In a number of languages it is possible to distinguish the position of adjectives which do take complements from those which do not. For example, prenominal adjectives in English do not take complements, postnominal ones do; adjectives preceding nominal complements in Italian do not take complements, adjectives following nominal complements do; adjectives obeying ordering restrictions in Standard Arabic may not take complements, adjectives

violating sequential ordering may take complements (Italian examples from Cinque (1994); SA examples from Fassi Fehri (1999)):

(25) a. A proud man/a responsible man.
b. A man proud of his daughter/a man responsible for his actions.

(26) a. I suoi fedeli (*alla causa) sostenitori.
the his faithful to.the cause supporters
'His faithful supporters.'
b. *I sostenitori fedeli alla causa di Gianni sono pochi.
the supporters faithful to.the cause of Gianni are few
c. I sostenitori di Gianni fedeli alla causa sono pochi.
the supporters of Gianni faithful to.the cause are few
'Gianni's supporters faithful to the cause are few.'
d. *Quell'amico piu simpatico di te di Mario.
that friend nicer than you of Mario's

(27) a. S-suhufiyy-u l-faransiyy-u t-tawiil-u.
the-journalist-NOM the-french-NOM the-tall.NOM
'The tall French journalist.'
b. *S-suhufiyy-u [l-faransiyy-u l-ʔasl-i] t-tawiil-u.
the-journalist-NOM the-french-NOM the-original-GEN the-tall-NOM
c. S-suhufiyy-u t-tawiil-u l-faransiyy-u l-ʔasl-i.
the-journalist-NOM the-tall-NOM the-french-NOM the-original-GEN
'The tall journalist of French origin.'

A similar pattern is found in Hebrew. While all adjectives are postnominal, an adjective with a complement is impossible between N and its complements, and grammatical in final position:

(28) a. Ha-tmuna ha-tluya (*al ha-kir) Sel van gox Sel
the-picture the-hanging (on the wall) of van Gogh of
ha-xamaniot.
the-sunflowers
'The hanging picture by Van Gogh of the sunfowers.'
b. Ha-tmuna Sel van gox Sel ha-xamaniot ha-tluya al
the-picture of Van Gogh of the-sunflowers the-hanging on
ha-kir.
the-wall
'Van Gogh's picture of the sunflowers hanging on the wall.'

(29) a. Ha-tipul ha-mitxaSev (*ba-nesibot)
the-treatment the-considerate (in.the-circumstances)
ba-be'aya.
in.the-problem
'The considerate treatment of the problem.'

b. Ha-tipul ba-be'aya ha-mitxaSev ba-nesibot.
the-treatment in.the-problem the-considerate in.the-circumstances
'The treatment of the problem considerate of the circumstances.'

(30) a. Ha-haxlata ha-axra'it (*la-toca'ot) Sel ha-mordim.
the-decision the-responsible (to.the-outcome) of the-rebels
'The responsible decision of the rebels.'

b. Ha-haxlata Sel ha-mordim ha-axra'it la-toca'ot.
the-decision of the-rebels the-responsible to.the-outcome
'The decision of the rebels responsible for the outcome.'

One question posed by the existence of distinct adjective positions is whether they are derivationally related or not. Kayne (1994), for example, argues that prenominal adjectives are relative clauses in which a 'light' predicative AP raises to spec CP:

(31) a. $[_{DP}\ [_{D'}$ the $[_{CP}\ [_{NP}$ man$]\ [_{C'}\ [_{IP}\ t_{NP}\ [_{AP}$ proud of his daughter]]]]]
b. $[_{DP}\ [_{D'}$ the $[_{CP}\ [_{AP}$ proud$]\ [_{C'}\ [_{IP}$ man t_{AP}]]]]

Adjectives with complements are excluded from prenominal position by a general restriction against complex spec CP when C° is null, as in the following contrast:

(32) a. I just read the book about your ancestors ?(that) your son published last year.

b. I just read the book that's about your ancestors *(that) your son published last year.

Alexiadou and Wilder (1998) extend this approach to indirect adjectival modification in Greek (in the sense of Sproat and Shih (1988)). Similar to Hebrew, Greek shows definiteness spreading. Recall that Greek definiteness spreading is optional and correlates with word order permutations:

(33) a. To megalo kokkino vivlio.
the big red book
'The big red book.'

b. *To vivlio kokkino megalo.
the book red big

(34) a. To vivlio to kokkino to megalo.
the book the red the big
b. To megalo to kokkino to vivlio.
the big the red the book
'The big red book.'

The restriction of definiteness spreading to predicative adjectives supports the analysis of (34) as a type of reduced relative clause. On the Kaynian D-CP approach, each AP necessarily introduces a D° head:

(35) a. $[_{DP}\ D^0[_{clause}$ alpha AP]]
b. $[_{DP}\ D^0\ [_{clause}\ [_{DP}\ D^o\ [_{clause}$ alpha AP]] AP]]

alpha stands for a simple DP subject or a DP containing a predicative adjective as in (35b). Raising of AP to spec of CP complement to D° yields (34b).

While Hebrew, like Greek, clearly distinguishes direct from indirect adjectival modifiers, the properties associated with each align differently. In particular, Hebrew definiteness spreading is not restricted to predicative or intersective adjectives (in (38)–(39)), unlike Greek (36)–(37):

(36) a. I italiki (*i) isvoli.
the italian the invasion
'The Italian invasion.'
b. *Is isvoli stin Alvania itan italiki.
the invasion of Albania was Italian

(37) a. O ipotithemenos (*o) dolofonos.
the alleged the murderer
'The alleged murderer.'
b. *O dolofonos itan ipotithemenos.
the murderer was alleged

(38) a. Ha-pliSa ha-italkit le-albania.
the-invasion the-italian to-albania
'The Italian invasion of Albania.'
b. Ha-pliSa hayta me-italia/*italkit.
the-invasion was from-italy/italian
'The invasion was from Italy.'

(39) a. Ha-xaver ha-kodem/ha-yaxid Sel rina.
the-friend the-former/the-single of rina
'The former/only friend of Rina.'
b. *Ha-xaver Sel rina haya kodem/yaxid.
the-friend of rina was former/single

Therefore, the Hebrew definite adjectival prefix should not be treated as D° which introduces CP. On the other hand, neither should the definite prefix associated with complex adjectives in (41), (43), and (45) be treated as agreement, on a par with the agreement associated with simple adjectives in (40), (42), (44):

(40) a. Ha-tmuna ha-tluya.
the-picture the-hanging
'The hanging picture.'
b. Tmuna tluya.
picture hanging
'A hanging picture.'
c. ??tmuna ha-tluya.
picture the-hanging

(41) a. Ha-tmuna ha-tluya al ha-kir.
the-picture the-hanging on the-wall
'The picture hanging on the wall.'
b. Tmuna *(Se-)tluya al ha-kir.
picture that-hanging on the-wall
'A picture that's hanging on the wall.'
c. Tmuna ha-tluya al ha-kir.
picture the-hanging on the-wall
'A picture that's hanging on the wall.'

(42) a. Ha-tipul ha-mitxaSev.
the-treatment the-considerate
'The considerate treatment.'
b. Tipul mitxaSev.
treatment considerate
'Considerate treatment.'
c. ??tipul ha-mitxaSev.
treatment the-considerate

(43) a. Ha-tipul ha-mitxaSev ba-nesibot.
the-treatment the-considerate in.the-circumstances
'The treatment considerate of the the circumstances.'
b. Tipul *(Se-) mitxaSev ba-nesibot.
treatment that- considerate in.the-circumstances
'Treatment that is considerate of the circumstances.'
c. Tipul ha-mitxaSev ba-nesibot.
treatment the-considerate in.the-circumstances
'Treatment that is considerate of the circumstances.'

(44) a. Ha-haxlata ha-axra'it.
the-decision the-responsible
'The responsible decision.'
b. Haxlata axra'it.
decision responsible
'A responsible decision.'
c. ??haxlata ha-axra'it.
decision the-responsible

(45) a. Ha-haxlata ha-axra'it la-toca'ot.
the-decision the-responsible for.the-outcome
'The decision responsible for the outcome.'
b. Haxlata *(Se-) axra'it la-toca'ot.
decision that- responsible for.the-outcome
'A decision that is responsible for the outcome.'
c. Haxlata ha-axra'it la-toca'ot.
decision the-responsible for.the-outcome
'A decision that is responsible for the outcome.'

The contrasts between (40) and (41), (42) and (43), and (44) and (45), show a difference in status between the *ha-* associated with simple adjectives and that associated with complex adjectives. In the former it depends on the definiteness of the modified noun, but in the latter it is obligatory, regardless of the definiteness value of the noun. In fact, it does not have a definite meaning at all as can be seen in the (c) examples which all denote indefinite nominals. Extending the analysis of participial reduced relatives (henceforth semi-relatives) in Siloni (1995) to complex adjectives, the *ha-* of complex adjectives instantiates a D° with an A-bar specifier, the nominal counterpart of C°. The subject DP raises to specifier of matrix DP as depicted in (46):[14]

(46) $[_{DP}\ [_{DP}$ picture $]\ [_{D'}$ ha- $[_{AP}\ t_{DP}$ hanging on the wall]]

Siloni argues at length that the complement of *ha-* in participial semi relatives is a bare VP, excluding elements such as tense, negation, and adverbs which require functional structure beyond VP. The same holds for complex adjectives, seen in (47c), (48b), and (49b), in contrast to full relatives signaled by a *that* (=*Se*) complementizer:

(47) a. AnaSim ha-xoSvim rak al kesef.
people the-think only about money
'People that think only about money.'

b. AnaSim Se/*ha-xaSvu rak al kesef.
people that/the-thought only about money
'People that thought only about money.'

c. AnaSim Se/*ha-hayu axra'im la-toca'ot.
people that/the-were responsible for.the-outcome
'People that were responsible for the outcome.'

(48) a. AnaSim Se-/*ha- lo xoSvim rak al kesef.
people that-/the- NEG think only about money
'People that don't think only about money.'

b. AnaSim Se-/*ha- lo axra'im la-toca'ot.
people that-/the- NEG responsible for.the-outcome
'People that are not responsible for the outcome.'

(49) a. AnaSim Se-/*ha- tamid xoSvim rak al kesef.
people that-/the- always think only about money
'People that always think only about money.'

b. AnaSim Se-/*ha- tamid axra'im la-toca'ot.
people that-/the- always responsible for.the-outcome
'People that are always responsible for the outcome.'

These facts together with the obligatory nature of complex adjective *ha-* in (41), (43), and (45) suggest that Hebrew complex adjectives have a clausal, predicative source, along the lines argued for Chinese indirect modifiers with *de* (Sproat and Shih 1988) and Italian (Cinque 1994). The word order differences between simplex and complex adjectives follow from the semi-relative analysis of the latter: complex adjectives will follow other DP-internal modifiers because they are external to the subject DP within which other modifiers are contained.[15, 16]

Having distinguished simple from complex adjectives, I turn to simple attributive adjectives. Analyses which take attributive adjectives to project as APs in specifier position must explain why prenominal English adjectives along with N-adjacent postnominal adjectives in Italian, Standard Arabic and Hebrew, cannot take complements. A central argument for Cinque's claim that Italian postnominal attributive adjectives are in fact left-adjoined (as opposed to right) is that they obey Emonds' left branch restriction. That restriction states that constituents on a left branch (excluding a genitive in NP, and spec IP and CP generally) must be head final, as in the following examples (from Emonds (1985)):

(50) a. *The man without money's request was denied.
b. The house was three miles (*further than Sue's) away.
c. The play was especially (*for children) boring.

So if attributive adjectives are in a left-hand specifier, right branching complements are excluded on a par with (50). These facts do not directly distinguish between the specifier analysis and the head analysis as both predict lack of complementation. The prediction made by the specifier analysis, however, is less clear, being based on an empirical generalization for which an explanation is still pending. As such, it is entirely possible that the facts falling under the left branch restriction do not have a uniform source, as I now demonstrate for adjectival complementation and modification.

Besides complementation, the restriction covers adverbial modifiers for adjectives on a left branch, at least in English:

(51) a. Your letter arrived recently.
b. *An arrived recently letter.
c. A recently arrived letter.

Assuming (51b) to follow from the left branch restriction, the prediction is that if attributive adjectives in Hebrew are in specifier position, postadjectival modifiers should be ungrammatical as in English. But in fact adjectives may be modified by adverbials on either side:

(52) a. Ha-talmida ha-*Sketa* *miday* ha-axrona.
the-student the-quiet too the-last
b. Ha-talmida ha-*miday* *Sketa* ha-axrona.
the-student the-too quiet the-last
'The last too quiet student.'

(53) a. Ha-pakid ha-*mebulbal legamrey* ha-revi'i.
the-clerk the-confused completely the-forth
b. Ha-pakid ha-*legamrey mebulbal* ha-revi'i.
the-clerk the-completely confused the-forth
'The forth completely confused clerk.'

(54) a. Ha-Se'ela ha-*tipSit lix'ora* Sel rina.
the-question the-silly seemingly of Rina
b. Ha-Se'ela ha-*lix'ora* *tipSit* Sel rina.
the-question the-seemingly silly of rina
'Rina's seemingly silly question.'

The contrast between (28)–(30) (no right branching complementation) and (52)–(54) (right-hand modifiers) may be interpreted in one of two ways. It could indicate that the status of complementation and modification of adjectives with respect to the left branch condition is distinct, though obscured in English, right-hand modification not being subject to the same restrictions as complementation.[17] On the assumption that all left-branch recursion phenomena are on a par, the possibility of a modifier following an adjective directly suggests that attributive adjectives in Hebrew are not on a left branch. Therefore, the complementation restriction has a distinct source, represented by adjectives having NP as complement. So if lack of complementation is taken to indicate a specifier analysis, the occurrence of adverbials to the right requires independent explanation. Otherwise, lack of complementation suggests head position from which the distribution of adverbials should follow. I briefly pursue the latter approach.

Supposing that modifiers of adjectives are in spec AP or DegP no principled ban on righthand modifiers is expected. The ban on complements follows from phrase structure, and positional adverbial permutations follow from optional A° raising crossing its modifier in specifier position, in (55):

(55) $[_{DP}$ D $[_{AP}$ adverb A NP]

If the Hebrew analysis is on the right track it may shed some light on the ban on right-hand modification of adjectives, as in the English (51). Assuming the specifier analysis to be essentially correct for some languages, and the head analysis to be equally correct for others, it is highly unlikely that UG provides for both of the following at the base:

(56) a. $[_{DP}$ D $[_{AP}$ A NP]]
b. $[_{DP}$ D $[_{FP}$ $[_{AP}$ adjective] F° NP]]

Suppose then that AP specifiers arrive in this position via movement from their complement position in (56a), with or without prior N-extraction. As in Hebrew, adjectival complements are immediately excluded. Right-hand adverbials in languages with AP movement to spec F° may now also be excluded: if these are uniformly derived by Adj° raising past its specifier, AP raising to spec F°/D° (in (57)) will block Adj° crossing of the modifier on its way to F°/D°,[18] because placement of AP in spec FP eliminates the potential of Adj° to raise past its modifier to a higher head.[19]

(57) $[_{DP}$ D $[_{FP}$ $[_{AP}$ adverb A (NP)] F t_{AP}]]

2.3 *Demonstrative Placement and 'Typological conflict'*

The claim that Hebrew (and plausibly Standard Arabic too) N-A sequences are derived by phrasal movement may raise a typological eyebrow. Cinque (1996) relates the availability of NP raising across adjectives to its availability across prepositions, i.e. postpositionality. Hebrew however is not postpositional (neither is SA):

(58) a. Dibarti im/al ha-yeladim.
spoke.I with/about the-children
'I spoke with/about the children.'
b. *Dibarti ha-yeladim im/al.
spoke.I the-children with/about

A phrasal movement approach to adjectival DPs suggests therefore that the typological correlation between postpositionality and N-A with reverse adjective order is not air tight, perhaps because the category of the phrase fronting in postpositions is not identical to the category fronted in N-reverse Adj structures (DP vs. NP); or because prepositional structures may derive from a 'post-positional' phase by head raising P° across a previously fronted DP.[20]

In any case, the Hebrew DP appears not to be an isolated example of 'typological conflict'. The implication that NP movement does not strictly correlate with postpositionality suggests, furthermore, a phrasal movement approach to demonstrative placement alternations according to which demonstratives are generated highest in the adjectival sequence. Cinque (1996) notes that given underlying Dem(onstrative)-Num(ber)-N order, preposi-

tional languages (those with head movement but no phrasal movement) are expected to observe the orders in (59a–c), but not the order in (59d):

(59) a. N–Dem and N–Num
b. Dem–N and N–Num
c. Dem–N and Num–N
d. *N–Dem and Num–N

If N raises as a head past Dem, it necessarily precedes Num, in (59a), though it may raise less, either past Num alone, as in (59b), or to a position lower than Num, in (59c). It may not, on the head movement analysis, cross Dem without crossing Num. Hebrew and Welsh, among other languages, present counterexamples, since (59d) is attested:

(60) a. SloSet ha-yeladim ha-ktanim ha-elu. (Hebrew)
three the-children the-little the-these
'These three little children.'
b. Y pump llyfr newydd hyn gan John are wleidyddiaeth. (Welsh)
the five books new these of John on politics
'These five new books by John about politics.'

To account for this pattern, Cinque proposes that demonstratives are generated lowest in the sequence of adjectives. In some languages (French, Spanish) demonstratives raise overtly, and in Hebrew and Welsh they remain in-situ, following other adjectives.[21]

A demonstrative-movement analysis is unavailable within the present approach, which denies independent AP raising.[22] In other words, demonstrative-initial/demonstrative-final alternations cannot be derived by raising the demonstrative itself from a low position. The denial of independent adjective/demonstrative raising implies instead that an XP constituent containing noun and adjectives raises past a demonstrative head generated highest in the adjectival sequence. An advantage of XP pied-piping over independent demonstrative movement is its straightforward explanation of the fact that the alternation is precisely between initial and final positions in the adjectival sequence, assimilating it to the full reverse orderings of Hebrew and Standard Arabic. On an independent movement analysis, on the other hand, it remains accidental why the demonstrative ends up in initial position when it is not final, i.e. when it raises.

More concretely, the Welsh demonstrative in (60b) follows other postnominal adjectives due to phrasal movement of the noun and its adjectives to

spec of the demonstrative, a high head. Welsh adjectival ordering besides demonstrative placement follows the English pattern, in contrast to the fully inverted Hebrew pattern (from Rouveret 1994):

(61) a. Cwpan mawr gwyrdd Sieineaidd.
cup large green Chinese
'A large green Chinese cup.'

b. Buwch ddu gorniog.
cow black horned
'A black horned cow.'

c. Y ferche fach dawel hon.
the girl little smart this
'This little smart girl.'

d. Y llyfrau rhagorol hyn.
the books excellent these
'These excellent books.'

e. Y fford gul hon.
the road narrow this
'This narrow road.'

So suppose that in Welsh N^0-movement raises the noun across XP adjectives in specifier positions, but that demonstrative placement is on a par with Hebrew, phrasal movement appling in the final step across a demonstrative head. Intervention contrasts in Welsh construct DPs (DPs with genitive complements and no determiner) support a demonstrative/adjective distinction along these lines. An adjective may be placed between the head noun and genitive but a demonstrative may not (from Rouveret 1994):

(62) a. Llyfr newydd Dafydd.
book new David
'David's new book.'

b. Merch bert brenhines ddoeth.
daughter pretty king smart
'The pretty daughter of a smart king.'

(63) a. *Mab hwn y brenin.
son this the king

b. Mab y brenin hwn.
son the king this
'The son of this king.'

Assuming an N° raising analysis of construct nominals (see below), an XP adjective in (61) would not block raising, correlating with the 'English' adjective pattern being derived by N° raising across adjectives rather than NP pied-piping of adjectival material. Assuming the Welsh demonstrative to be a head, the ungrammaticality of (63a) follows from an HMC violation, due to the blocking effect produced by the demonstrative head.[23, 24]

The phrasal movement analysis of adjective-final demonstratives predicts that these should be found only in postnominal position. If that turns out to be correct, reverse demonstrative placement shows that the 'typological conflict' found in Hebrew and Standard Arabic is in fact pervasive: phrasal movement may occur in prepositional languages as one step of derivation. Accordingly, the phrasal movement option should probably not be parametrized to distinguish full grammars, and not even construction types in the broad sense implied by typologies such as V–DP/DP–V, P–DP/DP–P, N–A/A–N, etc.

3. Genitive DPs

Consideration of multiple adjective constructions in the previous section has suggested that more than the noun alone raises to a position preceding adjectives. Interactions between genitives in multiple genitive DPs point to a similar conclusion, that a constituent larger than N° must sometimes be targeted by the operation which raises nominals across genitives.[25] In contrast to the pied-piping approach to adjectival syntax, the syntax of multiple genitives attests to raising of NP to spec DP with prior Theme extraction from NP, i.e. a version of remnant movement.[26]

As is well known, Hebrew, like other Semitic and Celtic languages, has two genitive constructions, the free state (henceforth FS) and the construct state (henceforth CS):

(64) 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.'

In both the genitive DP follows the head noun. Among the many differences between the two, FS includes the genitive Case-related morpheme *Sel*, and its

head noun is marked for definiteness. In CS there is no Case morpheme or definite marker on the head noun; DP definiteness correlates with definiteness of the complement:[27]

(65) [man'ul [delet [beit ha-mora]]]
lock door house the-teacher
'The lock on the door of the teacher's house.'

Descriptively, overt definiteness of the most embedded complement, *ha-mora*, correlates with definiteness of the most embedded CS, *the teacher's house*, which correlates with definiteness of the containing CS *the door of the teacher's house*, and so on.

The approach to Hebrew genitive formation developed in Ritter (1991) and Siloni (1994) derives both CS and FS by N° raising past the genitive (or *Sel* + genitive in FS) in specifier position. In CS N° is in D° and the genitive in spec of a functional head immediately below it; in FS N° is lower than D° and *Sel*+genitive remains in base position. Here I will argue that some of the differences between CS and FS are better understood if the head movement analysis of CS is maintained and a remnant movement approach is adopted for FS. For CS DPs I adopt the head-raising analysis given in Siloni (1994):

(66) $[_{DP}\ [_{D'}$ picture-CS$_1$ $[_{AgrgenP}$ the-sunflowers$_2$ t_1 $[_{NP}$ t_1 t_2]]]]

The Theme in (66) raises to spec Agr_{gen} where it is assigned structural genitive Case under spec-head agreement with N in Agr_{gen}, a configuration which also gives rise to definiteness agreement between Theme and N°. Further raising of N° to D° is triggered by strong features in D°. Consequently, the definiteness feature on N° is in a position from which it scopes over the entire DP. The following contrast in adjective placement has been taken as evidence, on the uniform head raising approach, for CS genitives being located higher than the genitive in FS, because only the latter may be preceded by adjectives:

(67) a. Tmunat ha-xamaniot *ha-yafa.*
picture-CS the-sunflowers the-beautiful
'The beautiful picture of the sunflowers.'
b. *Tmunat *yafa* ha-xamaniot.
picture-CS beautiful the-sunflowers
c. Ha-tmuna *ha-yafa* Sel ha-xamaniot.
the-picture the-beautiful of the-sunflowers
'The beautiful picture of the sunflowers.'

Borer (1999), however, analyzes a number of asymmetries in multiple genitive constructions as pointing to the conclusion that the structural difference between CS and FS must be more significant than a uniform head raising analysis would suggest. It is argued that while CS are indeed derived by head movement,[28] N-initial order in FS is due to generation of the possessor/agent as a right-hand specifier of NP, removing the empirical motivation for noun fronting. Assuming the LCA of Kayne (1994) and its ban on right adjunction and movement to be correct, the facts reported in Borer are shown below to be compatible with an antisymmetric approach to FS.[29] It is proposed that FS non-derived nominals are formed by leftward movement of a phrasal constituent containing the noun across a left-hand possessor in specifier position, supporting the analysis of English possessives given in Kayne (1999), and of Dutch nominalized infinitives in Hoekstra (1999).

First, in possessive DPs headed by a non-derived nominal and including an Agent and Theme, both follow the noun and are marked with *Sel*. The relative ordering between the two is free (in 68), in contrast with rigid Ag–Th order observed in derived nominals (in 69) (examples (68)–(72) from Borer (1999)):

(68) 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
'Van gogh's picture of the sunflowers.'

(69) a. Ha-harisa Sel ha-cava et ha-ir.
the-destruction of the-army ET the-city
b. *Ha-harisa et ha-ir Sel ha-cava.
the-destruction ET the-city of the-army
'The army's destruction of the city.'

To account for (68) within a head movement approach, it could be claimed that in addition to N° raising, Theme optionally raises past Agent as in, for example, German scrambling. Given the derivation of CS formation in (66) combined with some version of Minimality/Shortest Move, such an approach leads to the expectation that CS formation should be possible both with Theme, given (68a), and Agent given (68b). But CS formation in non-derived nominals with multiple arguments is possible only with Theme (in 70). This contrasts with the situation in derived nominals, where it is possible only with Agent (in (71)):[30]

(70) 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-S.Fs

(71) a. Harisat ha-cava et ha-ir.
destruction.CS the-army ET the-city
'The army's destruction of the city.'
b. *Harisat ha-ir Sel ha-cava.
destruction.CS the-city of the-army

On the assumption that CS involves head movement to D°, N-movement will be blocked in (70b) by *Sel* located in a low Agr_{gen} head associated with Theme. More specifically, the structure of a simple FS DP includes an Agr_{gen} projection, the head of which hosts *Sel*:

(72) $[_{DP}\ [_{NP}$ the-picture $t_1]\ [_{D'}$ $Sel_2\ [_{Agr\text{-}genP}\ [_{DP}$ the-SF$]_1\ t_2\ t_{NP}\ ]$

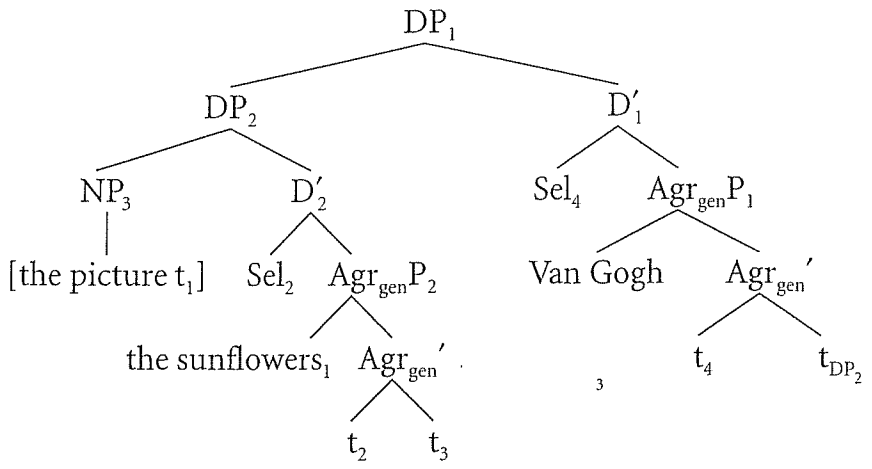
As in CS formation, Theme raises to spec Agr_{gen} for Case checking. Notice now that if *Sel* is in head position, nominal fronting may only occur as an instance of NP movement, in other words a remnant NP which, following Theme extraction, is exhausted by the noun. Since N° in (72) is not in Agr_{gen}, definiteness agreement between genitive DP and noun fails to arise, as expected. Assuming that NP raising to spec DP is triggered by the very D° features which trigger head movement in CS, the question arises as to why the lower NP and not the closer Theme raises to check these features. As a full DP, however, whatever [−INT] features are associated with the head noun of Theme are checked within that DP, and its Case features in spec Agr_{gen}. The noun within the remnant NP, on the other hand, hosts features which must be checked within its extended projection. Thus raising of NP across Theme is triggered by D° and sanctioned by Shortest Move.

Consider now the derivation of a multiple *Sel* construction. The base structure projects two D°-Agr_{gen}° sequences, the higher associated with Agent, and the lower with Theme,[31] [32]:

(73) $[_{DP_1}\ [_{D'_1}$ D° $[_{Agr_1P}$ van gogh Sel $[_{DP_2}\ [_{D'_2}$ D° $[_{Agr_2P}$ spec Sel $[_{NP}$ picture s.f.]]

First, Theme raises to spec Agr_2 for case checking, followed by raising Sel_2 to D^o and $[_{NP}$ picture $t_1]$ to spec DP_2, as in (72). DP_2 then further raises to spec DP_1, triggering Sel_1 to D_1 and producing the order Theme-Agent:

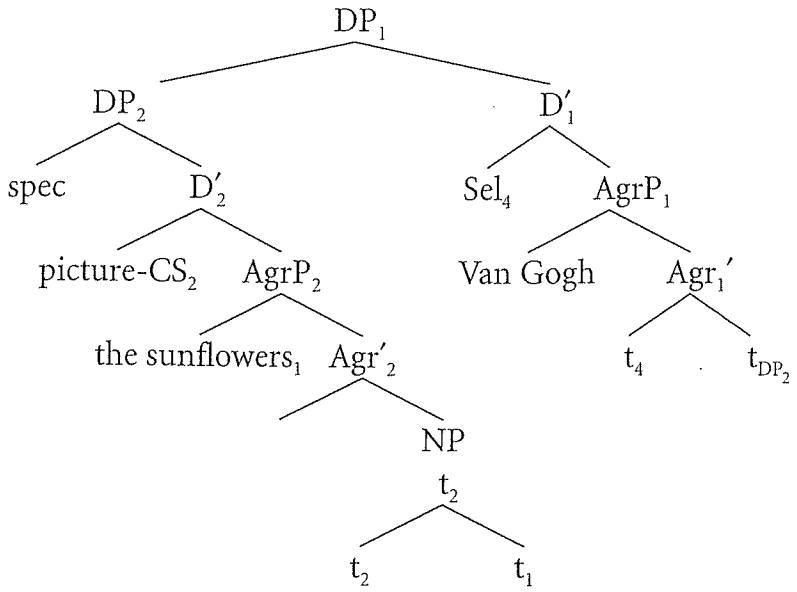
(74)



At the point in the derivation in which the remnant NP is in spec of the lower DP_2, it may, alternatively, raise successive cyclically directly to spec DP_1 without pied-piping DP_2. Successive cyclic raising of NP to spec DP_1 derives (68b), in which Agent precedes Theme. In other words, pied piping of DP in whose spec NP is positioned must be optional, as opposed to its obligatory nature in adjectival derivations. The pattern suggests that obligatory pied piping in adjectives cannot be directly reduced to a locality principle which favors raising of the closer, containing DP, over raising of its spec; the optionality seen in multiple genitives implies, on the contrary, that DP_2 and the remnant NP in its specifier must be equidistant from D_1.[33] If locality is not an issue, the difference between adjectival and genitive DPs must be related to the status of specifiers, such that the constituent in spec DP_{gen} is further attractable, and the constituent in spec DP_{adj} is not.[34]

Returning to CS formation and the asymmetry in (70), CS formation with Theme will occur within the lower DP_2. DP_2 then raises to spec DP_1, exactly as in (74):

(75)



To exclude CS formation with Agent, nothing further need be said. If Agr_2 hosts *Sel* it blocks N° raising to Agr_{gen}, and CS in DP_1 is impossible:

(76) $[_{DP1spec}$ picture-CS_1 $[_{AgrP_1}$ van gox t_1 $[_{DP_2}$ $[_{Agr/gen_2}$ the-sunflowers$_2$ Sel_3 $[_{NP}$ t_1 $t_2]]]$

If the remnant movement approach to FS non-derived nominals is on the right track, it suggests that spec DP, the landing site, is an A-bar position. The A-bar status of spec DP_{gen} is confirmed by reconstruction effects in multiple *Sel* constructions. Regardless of order, a reflexive or bound variable are interpreted as Theme (from Shlonsky 1988):[35]

(77) a. Ha-tmuna Sel dan Sel acmo.
the-picture of Dan of himself
b. Ha-tmuna Sel acmo Sel dan.
the-picture of himself of Dan
'Dan's picture of himself.'

(78) a. Ha-tmuna Sel kol xayal Sel imo.
the-picture of every soldier of mother-his
b. Ha-tmuna Sel imo Sel kol xayal.
the-picture of mother-his of every soldier
'Every soldier's picture of his mother.'

Recall that the order N–Th–Ag in (77b) and (78b) is derived by raising [N-Th] to spec of a higher DP above the possessor/agent. The fact that reflexives and bound variables are possible suggests movement to an A-bar position, allowing

reconstruction to base position, in which Theme is c-commanded by possessor/agent. Following Huang (1993) among others, I assume reconstruction is possible with A-bar moved predicative XPs in addition to argument DPs. Absence of weak crossover effects further suggests that (77) and (78) cannot be due to independent raising of Theme:

(79) Ha-tmuna Selo$_1$ Sel ima Selo$_1$.
the-picture of-his of mother of-his
'The picture of him that belongs to his mother.'
'The picture of his mother that belongs to him.'

(79) is grammatical and ambiguous, reflecting the genitive permutations discussed above. Relevant here is the first interpretation, in which depicted precedes possessor — had the pronoun raised to an A-bar position independently of NP fronting, a weak crossover violation would be expected contrary to fact. But if the pronoun raises as part of XP, no pronoun movement per se takes place, removing the potential for a WCO violation. The combination of reconstruction effects and lack of WCO violation supports phrasal raising to spec DP, a position allowing reconstruction.

Though a full typology of NP/XP movement within DP is premature, it may be possible to relate a number of the properties attested in this section to better understood movement distinctions. On the one hand, movement seems to be triggered by features otherwise associated with heads rather than arguments. Yet the successive cyclic option, reconstruction effects, and the DP peripheral landing site suggest a version of A-bar movement. A relationship to clausal topicalization is likely, especially in view of the fact that remnants in German may be topicalized though not scrambled (Müller 1998). This conclusion, if correct, may shed more light on the nature of *Sel* raising from Agr$_{gen}$ to D° as related to the syntax of residual V2 contexts (Rizzi (1995)).

4. Adjectives and possessives combined

A major challenge to the phrasal pied-piping approach to adjective placement proposed in Section 2 is that genitives in FS nominals follow adjectives rather than precede them (in 80). And a challenge to the analysis of FS and CS as both involving genitive raising to spec Agr$_{gen}$ is that in CS, adjectives follow the nominal complement. Compare (80a) with (81a):

(80) a. Ha-tmunot (ha-gdolot) ha-axronot Sel ha-xamaniot.
the-pictures (the-great) the-last of the-sunflowers
'The last (great) pictures of the sunflowers.'
b. *Ha-tmunot Sel ha-xamaniot (ha-gdolot) ha-axronot.
the-pictures of the-sunflowers (the-great) the-last

(81) a. Tmunot ha-xamaniot ha-axronot.
pictures.CS the-sunflowers the-last
'The last pictures of the sunflowers.'
b. *Tmunot ha-axronot ha-xamaniot.
pictures.CS the-last the-sunflowers

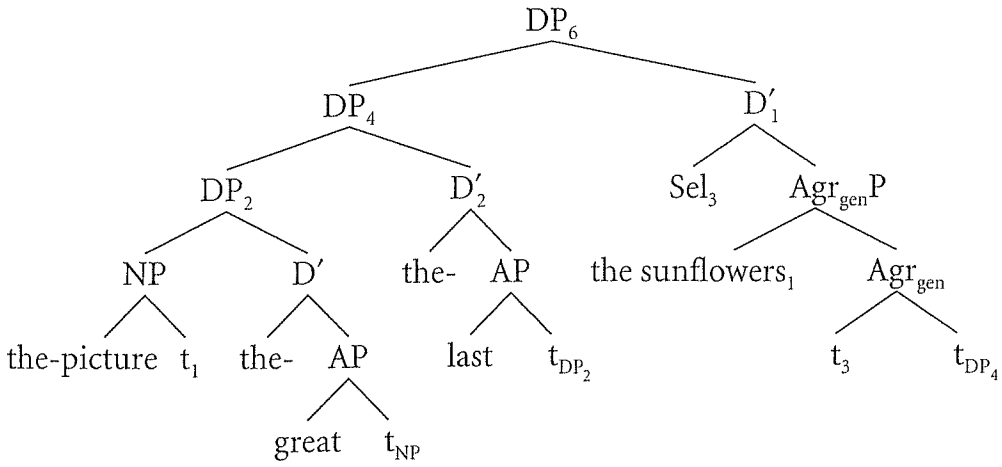
Recall that the derivation of adjective placement is by phrasal pied-piping, and the derivation of FS involves remnant movement. While both movements target spec DP, it has been shown that remnant raising can occur either successive cyclically, from spec DP to a higher spec DP, or by pied-piping the containing DP. NP raising to spec of an adjectival DP, on the other hand, may not feed further NP raising; the containing DP must be pied-piped along. The analysis of (80) and (81) demonstrates that the only compatible phrase structure features the very movement restrictions found in adjectival and possessive DPs considered in isolation, hence supports the derivations proposed in Sections 2 and 3.

In order to accommodate DPs containing adjectival and possessive constituents, and on the assumption that both are headed on the main projection line between D° and NP, the first question concerns the hierarchical organization of adjectival projections and *Sel* projections. Consideration of DPs with multiple adjectives and multiple genitives suggests that adjectival DPs must be generated lower than genitive DPs:

(82) $[_{DP}$ spec D $[_{AgrP}$ spec Sel $[_{DP/adj}$ spec ha- $[_{AP}$ last $([_{DP/adj} \ldots])$
$[_{NP}$ ha-picture $[_{DP}$ ha-sunflowers]]]]

To see this, consider how a derivation of an FS nominal modified by adjectives would proceed from (82). NP containing the head noun and its complement raises to spec of adjectival DP, and from this point pied-pipes containing DPs to spec of highest DP_{adj}. Theme extracts to spec Agr, followed by *Sel* raising from Agr° to D° and raising of highest DP_{adj} to spec of matrix DP:[36]

(83)



If an additional DP-Agr layer is present above DP_6 a freely ordered multiple *Sel* construction will be derived: either DP_4 raises to higher spec, producing N–Adj*–Agent–Theme, or else the containing DP_6 raises (essentially as in (74)) giving N–Adj*–Th–Ag. As in derivations with genitives only, the specifier of a genitive–related DP is extractable. And extraction of DP_2 from spec of adjectival DP_4, deriving the ungrammatical N–Adj–Ag–Adj–Th, is blocked just as in adjectival DP derivations. In other words, the phrase structure according to which DP_{gen} is higher than DP_{adj} derives the grammatical orders and excludes the impossible ones consistent with the syntax of these DPs considered in isolation. No new movements are required to derive a multiply modified FS DP from (82).

Consider, as an alternative, a structure in which adjectival DPs are generated higher than genitive DPs:[37]

(84) $[_{DP_1}$ the- $[_{AP}$ last $[_{DP_2}$ the- $[_{AP}$ great $[_{DP_3}$ D $[_{Agr/genP}$ Sel $[_{NP}$ the-picture the-sunflowers]]]]]

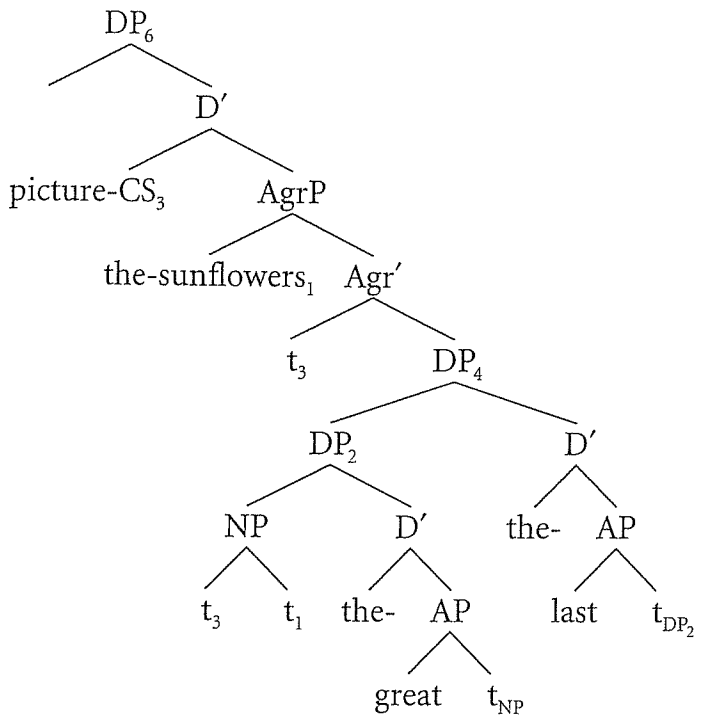
(84) has no grammatical output. Theme extracts to a low spec Agr_{gen}, and NP raises to spec DP_3 and from there to spec DP_2. Pied-piping of DP_2 to spec DP_1 is necessary for reverse adjectival order, but pied piping of DP_2 across higher adjectives will now necessarily include the Theme. If DP_2 raises to spec DP_1 reverse adjectival order is derivable, but adjectives are incorrectly interspersed, as in the ungrammatical N–Adj–Th–Adj*. If, on the other hand, the remnant NP strands Theme in DP_3 and crosses the higher adjectives successive cyclically, reverse order of adjectives is not derived. To accommodate adjectives preceding the genitive together with reverse adjectival order Theme must raise beyond adjectival DPs, straightforwardly represented by the phrase structure in (82) in which DP_{gen} is higher than DP_{adj}.[38]

A number of conclusions can be drawn on the basis of (82) and (83). First,

the impossibility of extraction from spec of an adjectival DP does not appear to be related to its external syntax (a form of barrierhood): in (83) DP_{adj} occupies the same position as the Theme related DP occupies in (74); yet extraction of the latter specifier is possible. This strengthens the conclusion that the internal configuration of DP determines extractability of its specifier. At the same time, extraction of a constituent from within spec DP_{adj} must be possible. The only option for Theme extraction consistent with the Strict Cycle Condition is that shown in (84), from within an NP embedded within spec DP_{adj}.

Consider now a derivation of a CS nominal modified by adjectives proceeding from (82). The derivation is identical to (83) up to the point at which NP containing noun and complement reach spec of highest DP_{adj} and Theme extracts to spec $Agr_{gen}P$. From here N° raises from within NP embedded in highest DP_{adj} to $Agr_{gen}°$, where definiteness agreement and genitive case checking occur, and from there to D°. The order N–Th–Adj–Adj is derived, giving the modified CS DP shown in (81a):

(85)



A welcome result of the head analysis of adjectives is that it allows a unified approach to genitive case checking (in spec $Agr_{gen}P$ in both CS and FS) by independently blocking ungrammatical N–Adj–Th order. Direct N° raising to D_6 is blocked by Adj° just as it is blocked by *Sel* in example (76). The lowest position from which N° movement may be launched is spec DP_4, a point at which APs have already been crossed by noun and Theme.

Comparing the derivation of FS in (83) with the CS derivation in (85)

shows that DP_4 raising to spec of DP_6 fails to occur when head raising is an option, as it is when *Sel* is not generated. Neither is it attested independently of feature checking in D_6: when these features are checked by head movement no additional phrasal movement takes place, confirming the idea pursued throughout that the type of phrasal movement seen in Hebrew is triggered by features usually associated with head movement. The general impossibility of pied-piping XP when X^0 movement is possible follows from the same economy principle which prefers feature movement to full category movement (Chomsky 1995). From this perspective the kind of phrasal movement seen in Hebrew (pied piping and remnant movement) is a last resort operation, activated by the presence of a higher head.[39]

Word order in DPs in which the head noun and its complement are each modified by adjectives falls out naturally from (85). As discussed in Borer (1999) among others, the only possible order is a nested one. Both adjectives follow head noun and genitive. The first adjective modifies the genitive, and the second noun modifies the head noun (examples from Borer):

(86) a. Kis'ot ha-kita ha-xadaSa ha-civonim.
chairs.m,p the-class.f,s the-new.f,s the-colorful.m,p
'The new class's colorful chairs.'

b. *Kis'ot ha-kita ha-civonim ha-xadaSa.
chairs.m,p the-class.f,s the-colorful.m,p the-new.f,s

(87) a. Madaf ha-sfarim ha-avim ha-lavan.
shelf.m,s the-books.m,p the-thick.m,p the-white.m,p
'The white shelf with thick books.'

b. *Madaf ha-sfarim ha-lavan ha-avim.
shelf.m,s the-books.m,p the-white.m,s the-thick.m,p

When Theme is modified, the Theme and its adjective are generated within DP_{adj} sister to the head noun. Raising of DP to spec Agr_{gen} raises an N–Adj sequence, with subsequent N^0 to D^0 giving N_1–N_2–Adj_2–Adj_1. As in (85), DP_4 may not raise and the ungrammatical N_1–Adj_1–N_2–Adj_2 and Adj_1–N_1–N_2–Adj_2 are not derived.

5. Conclusions

The primary goal of the analysis has been to provide a descriptively adequate account of various noun initial constructions in Hebrew. Consideration of

multiple adjective and multiple genitive DPs leads to the conclusion that not all Hebrew N-initial orders are created equal. In particular, while construct state nominals are, by assumption, derived by N° raising, adjectival placement is derived by phrasal pied-piping, and free state genitives by raising a remnant NP from which Theme extracts for Case checking. All fronting operations seem to be triggered by strong features in D°, yet the latter two exhibit significantly different properties. An NP raised to spec DP_{adj} is itself frozen in place, yet extraction of N° or its complement is possible from NP. A remnant NP in spec DP_{gen}, on the other hand, may either raise or pied pipe the containing DP, but extraction from within its specifier seems to be excluded.

A principle favoring head movement over phrasal movement has been proposed, suggesting that phrasal movement is possible as a last resort. But since potential HMC violations cannot generally be circumvented by XP movement, it still remains to be determined what in the grammar makes this option available. These questions are not unrelated: if N–(non-reversed)–Adj structures (as in Celtic and many Romance languages) currently analyzed as involving head raising can be shown to involve XP movement, such movement would necessarily proceed from spec to spec without pied piping. From this perspective, the X/XP distinction should be recast as +/– pied piping, plausibly related to specifier properties, with implications for the differences between adjectival and possessive DPs studied here.

Notes

* For helpful comments and discussion I thank Marcel Den Dikken, Julia Horvath, Hagit Borer, Richard Kayne, Ur Shlonsky, Tali Siloni, Alain Rouveret and audiences at the Potsdam Workshop on Remnant Movement, NELS 30, and CAL 5. All errors are my own.

1. Abstracting away from the position of quantifiers. See Shlonsky (1991), (2000), Ritter (1991), and Danon (1996) for discussion.

2. As previously claimed in Borer (1989), Siloni (1994).

3. See Shlonsky (2000) and Cinque (2000) for related proposals regarding the derivation of Semitic/Celtic DPs. A central difference between these and the present approach is that the former deny the existence of N° movement while here it is argued that N° and NP movement coexist.

4. See Shlonsky (2000) for similar conclusions and extensive discussion of the cardinal/ordinal number system across Semitic.

5. See Ritter (1991) and Siloni (1994) for adjectives adjoined to NP, across which N

movement applies. See Duffield (1999) for discussion of the specifier/adjunction distinction and its relation to adjective ordering.

6. See Androutsopoulou (1994), (1996) for a closely related analysis. The structure of (15b) is assumed to be identical, with phonologically null indefinite morphemes. See Section 2.2 for arguments for the head status of attributive adjectives and a semi-relative analysis of complement taking adjectives.

7. By LF raising of Adj° to D° or [FF] movement of adjectival phi-features in overt syntax.

8. Examples in (16) contrast with other modifiers which may not intervene between the prefix and adjectival head, including some degree modifiers and adverbials:

i. ha-xulca ha-yekara beyoter/*ha-xulca ha-beyoter yekara.
the-shirt the-expensive most the-shirt the-most expensive

ii. ha-pakid ha-mebulbal tamid/*ha-pakid ha-tamid mebulbal.
the-clerk the-confused always the-clerk the-always confused

The problem with (i) and (ii) must be related to syntactic or lexical properties of particular modifiers, not to a general adjacency or raising requirement. I set aside the question whether these modifiers are syntactically identical to the ones in the text, as well as the precise location of negation and modifiers in (16).

9. See also Androutsopoulou (1994, 1995, 2000) for the proposal that an adjectival, rather than nominal, determiner heads Greek/Albanian DPs with adjectival modification.

10. The possibility of D° iteration supports attribution of a primarily embedding function to D°, along the lines of Scabolszi (1994), compatible with the idea that [definiteness] is not interpretable in D°. The idea that adjectives are all dominated by the same functional structure may imply that ordering of adjectives at the base is semantic, syntactic differentiation and selection being excluded, as suggested by E. Doron (p.c.).

11. Crucially, however, NP itself may not raise successive cyclically from spec DP_n to spec DP_{n+1} — such a derivation would produce N-initial order with straight adjective sequencing, contrary to fact. Such orders do exist — in Irish and Welsh for the most part (though see discussion of demonstrative placement below) and in the post-nominal portion of Romance DPs, and have been analyzed as instances of N° raising. The question is whether it is empirically possible to distinguish N° raising from successive cyclic NP raising (from spec to spec), and what the relevant facts might be. I return to this issue below.

12. For extensive discussion and analysis see Androutsopoulou (1994), (1996). See Alexiadou and Wilder (1998) for an alternative.

13. Without altering adjectival scope.

14. Unlike the Kaynian D–CP structure, however, the clausal portion of semi-relatives does not include CP. Instead, raising is to the left of D°, and spec DP must be an active landing site.

15. As seen above for simple adjectives, and demonstrated below for possessive structures.

16. A remaining issue is why simple adjectives may not easily occur in predicative

positions, as indicated by ?? for (40c), (42c), and (44c). The marginality of these examples is not a peculiarity of semi-relatives. As discussed in Doron (1983) it is attested also in full relative clauses introduced by the clausal complementizer *Se*:

i. ISa Se- *(hi) yafa/xaxama.
woman who (cop) pretty/intelligent

I assume that whatever in the grammar requires an overt clausal copula in (i) excludes simple adjectives in the less than clausal constituent embedded under *ha-*.

17. Noted in Hoekstra (1999) who distinguishes right branching sisters to lexical heads (complementation) from sisters to functional heads (modification, including a DegP projection) to allow (51c).

18. If adjectival modifiers are related to a DegP projection, DegP raises to spec F°, and again A° raising past a modifier in its spec is blocked.

19. A reviewer points out that the account of left-hand modification leaves open left-hand complementation facts as in the German example below. An NP complement to Adj° will block all adjectival complementation, left or right.

i. a. Der zu seiner Frau treue Mann.
the to his wife faithful man
'The man faithful to his wife.'
b. *Der treue zu seiner Frau Mann.
the faithful to his wife man

On the present analysis, the only source for adjectival complementation is a predicative relative clause, implying that the type of XP predicate raising proposed by Kayne (1994) and Alexiadou and Wilder (1998) should be dependent on an operation fronting the complement past predicative adjective.

20. Kayne (1999), for example, proposes a derivation of English infinitives such as *John tried to sing* which includes a stage in which *to* is preceded by the VP *sing* (corresponding abstractly to a 'postpositional' phase), followed by raising of *to*.

21. Similarly, Bruge (1996) argues that the prenominal demonstrative in *este hombre* ('this man') raises from its low position in *el hombre este* ('the man this') based on the fact that in post-nominal position the demonstrative follows other adjectives.

22. On the relatively standard assumption that at least in the relevant cases, demonstratives are syntactically like adjectives (agreement properties, structural position, etc.).

23. See sections immediately below for further discussion of construct genitives and genitive/adjective interactions.

24. For the proposal that demonstratives may be heads or XPs in spec see also the analysis in Bernstein (1997) of French and Germanic demonstrative reinforcement structures of the sort in (i):

(i) a. Ce livre jaune ci.
this book yellow here
'This yellow book.'

b. Ce marchand de vin ci.
this merchant of wine here
'This wine merchant.'

where it is argued that phrasal movement places the noun and other modifiers to the left of the demonstrative head *-ci*, as in (ii):

(ii) $[_{DP}\ ce_i\ [_{FP}\ [_{XP_k}$ livre jaune] $[_{FP}\ t_i\ [_{F'}$ -ci $t_{XP_k}\ ]]]]$

The existence of two demonstrative elements in some languages (see Bernstein (1997) for further examples in Swedish and non-standard English and for a structure in which *ce* and *ci* start out in spec-head configuration) directly supports the claim that demonstrative elements may be heads, i.e. the Welsh demonstrative is the counterpart of French *ci* 'reinforcer' and plausibly Spanish *esta* (see Roca (1996) for a head analysis of Spanish demonstratives).

25. 'Genitive' is intended as a cover term for DP-internal DPs — agents, themes, possessors, etc., whether complements or modifiers.

26. See Shlonsky (2000) and Cinque (2000) for phrasal movement in CS genitives, further discussed below.

27. See Siloni (2000) for extensive discussion of definiteness agreement, and its limitation to [+def] complements: indefinite complements appear not to impose indefiniteness on the containing DP. If so, [def] is on a par with [wh] and [neg] features which attract only positively specified constituents, suggesting its status as an affective operator feature (in the sense of Rizzi 1995) rather than phi-feature.

28. Of the complement head on Borer's analysis.

29. See Sichel (to appear) for relative scope in multiple genitives as empirical motivation for favoring leftward-phrasal movement over right-hand merge and movement.

30. The derivation to be proposed is limited to FS non-derived nominals, derived nominals are presented for comparative purposes only. For analysis, see Siloni (1997), Borer (1999), Shlonsky (2000), and references cited there.

31. I assume, for simplicity, that Agent is generated external to NP, in spec of higher Agr_{gen} P. See Sichel (2001b) for further discussion.

32. See Den Dikken (1998) for an alternative approach to single genitives generated as small clause predicates. An extension of that structure to multiple genitive constructions would yield, if Agents and Themes are both to be thought of as small clause predicates, a structure in which the Agent predicate takes as its subject another small clause with Theme as predicate. I set this option aside as it is unclear how it derives CS genitives, as well as binding facts, since Agent would not c-command Theme at the base.

33. See Pesetsky and Torrego (2000) for a similar configuration in which TP and spec TP are attractable by C°, and a definition of distance in terms of c-command: "Y is closer to K than X if K c-commands Y and Y c-commands X". Since there is no c-command between DP_2 and the remnant in its specifier they are equidistant from D_1 and both are candidates for attraction.

34. Perhaps because features of NP in spec DP_{adj} are immediately eliminated upon checking, but features of the remnant in spec DP_{gen} remain active and attractable due to *Sel*

raising from Agr° to D° with the consequence that DP_{gen} ceases to be a phase in the sense of Chomsky (1999). I leave this as an open question as more facts should be considered in order to determine a fuller typology of successive cyclicity vs. pied-piping. Especially relevant is the status of Welsh; if obligatory successive cyclic NP movement is involved in the derivation of adjectival constructions, the interaction between locality and the content of specifiers might be more complex than Hebrew alone suggests.

35. See Hoekstra (1999) for similar facts in Dutch nominalized infinitives.

36. Theme extraction from deeply embedded NP in (83) is potentially problematic. The alternative is to allow Theme to raise directly from its base position to spec Agr_{gen}, a countercyclic derivation if NP/XP then targets lower adjectival specifiers. I will assume that 'late extraction' is in principle available, as in extractions from specifiers of CP:

i. Who_1 do you wonder $[_{CP}$ [which pictures of t_1] are on the table]

37. Cinque (2000) argues for the order in (84) for Celtic and Semitic construct state genitives, with the projection hosting free state prepositional genitives higher, above matrix DP (roughly the position assigned to both types of genitive DP in (82)). That structure produces the Semitic difference in adjective placement ((80) vs. (81)) as well as Celtic placement facts, at the cost of having distinct genitive-related projections for CS and FS.

38. Note that the choice between (82) and (84) leads to different conclusions regarding successive cyclic movement vs. pied piping: with AgrP low, Semitic shows full pied-piping across the board, and Celtic has successive cyclic raising up to the point of high PP, suggesting that the choice between movement options is determined parametrically, per grammar. With a single AgrP high, as in (82), both language types are mixed, the choice between movement options depending on the particular specifiers involved.

39. See Shlonsky (2000) for an almost opposite conclusion, that a higher head 'freezes' phrasal movement. More generally, the two approaches differ in conclusions regarding the interaction between the X°/XP status of modifiers and availability of phrasal movement. While here it is assumed that a higher head will block head movement, leaving phrasal raising as the only option, Shlonsky (2000) argues that a modifying head freezes phrasal movement from below and an XP modifier forces it. A point by point comparison is beyond the scope of the chapter, as the different conclusions reached correlate with differences in the particular structures assigned to various modifiers.

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