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How to cite

SHLONSKY, Ur. Government and binding in Hebrew nominals. In: Linguistics, 1988, vol. 26, n° 6, p. 951–976. doi: 10.1515/ling.1988.26.6.951

This publication URL: https://archive-ouverte.unige.ch/unige:83225
Publication DOI: 10.1515/ling.1988.26.6.951

Government and binding in Hebrew nominals[1]

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Abstract

This paper is primarily concerned with binding in nominal expressions in Hebrew and WH movement of genitive NPs from within them. I first present the paradigm of extraction found in Romance and sketch some of the outstanding accounts for this paradigm that have appeared in the literature. I propose a reformulation of the minimality condition in order to account for the Romance extraction facts.

Moving on to Hebrew, it is shown that the relative freedom in the order of postnominal arguments is misleading and that they must be represented hierarchically. I propose to implement this observation by positing a null expletive subject in the specifier position of NP and coindexing it with the postnominal argument which is highest in the hierarchy.

It is then shown that positing a null subject in SPEC/NP provides a straightforward means of accounting for binding relations within NP, invoking strict, that is, 'branching-node', c-command and not m-command.

The obligatory presence of a null subject rules out WH movement through SPEC/NP in Hebrew since there is independent evidence from inversion configurations in clauses that expletive pro *must be coindexed with a phonetically realized NP at S-structure in order to be 'identified'.*

The two other theoretically possible strategies for extraction from NP are then discussed. Extraction from a position which is doubled by a clitic is shown to proceed freely without stranding pro, *since the clitic supplies it with features. Last, it is shown that a restricted class of predicate-nominal expressions headed by an inherently relational noun license extraction of a genitive NP from within them. I argue that such relational NPs do not have a specifier position since there is no notion of thematic hierarchy within such nominals which requires structural implementation. In the absence of a SPEC/NP, antecedent government of the postnominal trace is implemented by an intermediate trace adjoined to NP. Crucially, only predicate nominals admit such extraction because only non-argument NPs license adjunction to themselves.*

Linguistics 26 (1988), 951–976 0024–3949/88/0026–0951 $2.00

1.0. Setting the stage

1.1. *Extraction from inside NP in Romance*

Cinque (1980), as well as Milner (1982), Zubizarreta (1979), and Torrego (1986), discovered that extraction from NP in Romance is restricted to subjects of NP. Although it is not obvious what constitutes the subject of NP, the research reported in these and other works has refined a number of syntactic diagnostics which serve to uniquely characterize one argument of NP as its subject.

A number of authors have suggested that the characterization of the subject in NPs is determined according to a thematic hierarchy according to which the possessor (or source) argument is more prominent than the agent (or experiencer), which is yet higher on the scale than the theme argument. Consider the following French examples (from Aoun 1985, citing Zubizarreta).

(1) a. Le portrait d' Aristote de Rembrandt de Pierre
[theme] [agent] [possessor]
'The portrait of Aristotle of Rembrandt of Pierre'
b. Le portrait d' Aristote de Rembrandt
[theme] [agent]
'The portrait of Aristotle of Rembrandt'
c. Le portrait d' Aristote
[theme]
'The portrait of Aristotle'

According to this hierarchy, *de Pierre* is characterized as the subject in (1a), *de Rembrandt* as the subject in (1b), and *d'Aristote* as the subject in (1c). As shown in (2)–(4) below, only the arguments characterized as subjects by the thematic hierarchy are extractable from inside NP.

(2) a. Pierre, dont$_i$ [le portrait d'Aristote de Rembrandt t_i], ...
Pierre, of whom$_i$ [the portrait of Aristotle of Rembrandt t_i], ...
b. *Rembrandt, dont$_i$ [le portrait d'Aristote t_i de Pierre], ...
Rembrandt, of whom$_i$ [the portrait of Aristotle t_i of Pierre], ...
(3) a. Rembrandt, dont$_i$ [le portrait d'Aristote t_i], ...
Rembrandt, of whom$_i$ [the portrait of Aristotle t_i], ...
b. *Aristote, dont$_i$ [le portrait t_i de Rembrandt], ...
Aristotle, of whom$_i$ [the portrait t_i of Rembrandt], ...
(4) Aristote, dont$_i$ [le portrait t_i], ...
Aristotle, of whom$_i$ [the portrait t_i], ...

Similarly, the genitive NP *di Gianni* in the Italian sentence (5a) below is ambiguous between an interpretation as the theme of the desire and the

experiencer of it. Yet the WH-moved counterpart of (5a), namely (5b), preserves only the experiencer interpretation. Since an 'experiencer' argument is higher on the thematic hierarchy than a 'theme' argument, only the former reading is maintained under extraction (Giorgi and Longobardi to appear) (G & L).

(5) a. Abbiamo ricordato il desiderio di Gianni.
We remembered the desire of Gianni.
b. Gianni, di cui abbiamo ricordato il desiderio ...
Gianni, of whom we remembered the desire ...

Moreover, it has been pointed out (Cinque 1980; Milner 1982) that a prenominal possessor in French and Italian can express only the thematically most prominent argument within NP. Thus, the contrast between (6b) and (6c) below is due to the fact that in (6c), the possessive pronoun expresses the theme, that is, the object portrayed and not the agent or possessor, while the possessor in (6b) is construed as the owner of the portrait or as the artist (agent) who painted the portrait. The grammaticality of (7b) is due to the fact that, in the absence of a thematically more prominent argument, the theme is taken to be highest in the hierarchy and hence is expressible by means of the possessive pronoun.

(6) a. Tu as vu le portrait d'Aristote de Rembrandt.
b. Tu as vu son portrait d'Aristote.
You saw his portrait of Aristotle.
c. *Tu as vu son portrait de Rembrandt.
You saw his portrait of Rembrandt.
(7) a. Tu as vu le portrait d'Aristote.
b. Tu as vu son portrait.
You saw his portrait.

The above considerations naturally lead to the hypothesis that the structural subject position in NP, that is, its specifier, SPEC/NP, serves as an 'escape hatch' which extracted elements must move through in order for extraction to be licit. Only genitive arguments which can independently appear in the SPEC/NP, or be 'possessivized', in the terminology of G & L, where this idea is explicitly defended, may subsequently be extracted.[2]

If movement through SPEC/NP is obligatory for WH extraction from inside NP, then a SPEC filled by a possessor maximal category X_1^{max} will block extraction of another argument, for example, Y_1^{max}. The operator *dont*$_1$ in (8b) cannot move through SPEC/NP, since that position is filled by *son*$_1$, and so it must move directly to the sentential COMP; hence the ungrammaticality of (8b).

(8) a. Tu as vu son$_1$ portrait d'Aristote$_1$.
You saw his portrait of Aristotle.
b. *Aristote, dont$_1$ tu as vu [son$_1$ portrait t$_1$] ...

Yet we have seen that the 'opacity' of NP to extraction by nonsubjects is evidenced even when there is no prenominal possessor. In (2b) and (3b) above, for example, a thematically less prominent genitive argument is inextractable even though SPEC/NP is not occupied by a possessor. Cinque proposes that a covert subject is present even when an overt one is not. Following Aoun (1985), we may say that SPEC/NP is obligatorily coindexed with the postnominal subject in (2b). Thus, SPEC/NP, although empty of a lexical NP, is nevertheless inaccessible to *dont*$_1$ or to its trace, since it is coindexed with the possessor argument, *de Pierre*, as in (9).

(9) *Rembrandt, dont$_1$ [le$_1$ portrait d'Aristote t$_1$ de Pierre$_1$], ...
Rembrandt, of whom$_1$ [the portrait of Aristotle t$_1$ of Pierre], ...

The intriguing question, of course, is why extraction from NP should proceed through SPEC/NP. Cinque viewed the restrictions of extraction from NP as evidence that the specified-subject condition (SSC) constrains variables in NP. In his analysis, variables in NP differ from variables in sentences insofar as the former are treated as anaphors by the binding theory, which subjects them to condition A. Thus, a postnominal variable inside NP must be bound within that NP, by its specifier.

1.2. *Enter the empty-category principle*

Recent theoretical developments suggest that the ECP rather than the binding theory is responsible for the restriction on extraction from NP.[3] I will adopt that view. While the formulation of the ECP in Chomsky (1981) invoked a disjunctive requirement (lexical government or antecedent government), recent years have seen a convergence of opinion around a conjunctive formulation (lexical government [or government by a θ-assigning head] and antecedent government).[4] Section 2.4 below is a contribution to the conjunctive approach. I will first show, on the basis of data from Hebrew, and basing myself largely on the work of Borer (1984), that certain contrasts can be explained solely on the basis of the availability or unavailability of antecedent government. I will then argue that a conjunctive rather than a disjunctive formulation of the ECP is to be preferred on grounds of simplicity.

As Torrego (1986) argues, the Romance facts discussed above appear

to independently support the conjunctive approach to the ECP. The distinction between extraction of a subject which is licit and extraction of a nonsubject which is not, cannot be adequately captured by an ECP which is satisfied merely by head (lexical) government. This is so because the arguments of NP, insofar as they are all θ-marked by N, would all be equally head-governed by it. If, however, antecedent government is required in addition to head government, then the restriction on extraction falls out rather naturally: only a subject may be extracted from NP, because only a subject can have a proper antecedent within NP, that is, an element in the specifier position coindexed with the postnominal subject.

The next obvious question is why antecedent government of a postnominal variable cannot be satisfied by an antecedent external to NP. In other words, why is (10a) and not (10b) a licit configuration with reference to the ECP?

(10) a. $[_{CP}NP_i \ldots [_{IP} \ldots [_{NP}SPEC_1[_{N}N\ NP_1]]]]$
b. $[_{CP}NP_i \ldots [_{IP} \ldots [_{NP}SPEC[_{N}N\ NP_1]]]]$

Within the framework of Chomsky (1986b), government is constrained by a locality condition, the minimality condition (MC). The MC restricts government to the domain of the governing head. Chomsky's own proposal is that in a configuration such as (11) below, α is a minimality barrier for the government of β by δ when α is the immediate projection of γ, a zero-level category distinct from β (Chomsky 1986b: 42).

(11) $\delta \ldots [_{\alpha} \ldots \gamma \ldots \beta \ldots]$

Yet this would not give the right results for the extraction cases under consideration, since it entails that the postnominal variable, β in (11), must find its antecedent within N′, α in (11). The MC must, then, be adjusted to account for the fact that antecedent government holds between an element in the specifier position and an element dominated by N′. Suppose that α in (11) is not the immediate projection of γ, but its maximal projection. This would achieve the desired result for the link between SPEC$_i$ and t$_i$ in (10a) above. However, such a reformulation has the unwanted result that SPEC$_i$ is now ungoverned, since by the MC, it must be governed within N^{max}. More generally, it has the unwanted result that specifiers are not accessible to government from outside the maximal projection which dominates them. Chomsky himself discusses these various technical questions, as have a number of other linguists, each opting for a somewhat different formulation.[5]

I suggest that the difference between the complements of X^0, which must be governed within X^{max}, and the SPEC/X^{max}, which is accessible to government by an element outside X^{max}, can be captured by incorporating

directionality of government into the definition of minimality. I will define a minimality barrier as (16), putting aside some obvious difficulties.[6]

(12) ECP (conjunctive formulation):
A nonpronominal empty category must be
(i) head-governed AND
(ii) antecedent-governed.

(13) Head government:
X head-governs Y iff
(i) $X \in \{A,N,P,V\}$ AND
(ii) X m-commands Y AND
(iii) no barrier intervenes.

(14) Antecedent government:
X antecedent-governs Y iff
(i) X and Y are coindexed AND
(ii) X c-commands Y AND
(iii) no barrier intervenes.

(15) Barrier:
α is a barrier for the government of β iff
(i) α immediately dominates γ, γ a blocking category for β OR
(ii) α is a blocking category for β, $\alpha \neq IP$.[7]

(16) Minimality barrier:
α is a minimality barrier for the government of β by δ iff $\alpha = \gamma^{max}$ which includes β and excludes δ and where γ governs β in the canonical direction.

Given (16), δ in (17a) cannot govern β, while in (17b) it can.

(17) a. $\delta \ldots [_\alpha \ldots \gamma \ldots \beta \ldots]$
b. $\delta \ldots [_\alpha \ldots \beta \ldots \gamma \ldots]$

A minimality barrier blocks government of a postnominal trace in NP by an antecedent external to it. Movement through SPEC/NP is therefore forced by the ECP, and the contrast between (2a) and (2b) above is accounted for.

Yet the definition of a minimality barrier in (16) allows a third option for satisfying the ECP, namely, government of a postnominal trace by an antecedent adjoined to NP. In the configuration (18) below, δ is adjoined to α. Since δ is not excluded by α, there is no minimality barrier separating it from β, which it can govern.

(18) $[_\alpha \delta [_\alpha \ldots \gamma \ldots \beta \ldots]$

While such a configuration is not attested in Romance (viz. G &L), it is found, under certain conditions, in Hebrew, and it is to the discussion of extraction from NP in Hebrew that we now turn.

2.0. Extraction from inside NP in Hebrew

2.1. *Extraction through SPEC/NP*

Hebrew displays a paradigm of extraction facts which is rather different from that found in Romance. The classical examples of extraction of a postnominal argument, such as in (2a), (3a), and (4) above, are not found in Hebrew. Sentences such as those in (19b) and (19c) are completely unacceptable, as discussed originally in Borer (1984).[8]

(19) a. Ra?i-t tmuna (šel Rembrandt) (šel Aristo) šel Hanan.
Saw-you(f) picture of Rembrandt of Aristotle of Hanan
'You saw a picture (of Rembrandt) (of Aristotle) of Hanan.'
b. *Šel mi ra?i-t tmuna (šel Rembrandt šel Aristo)?
Of who saw-you(f) picture of Rembrandt of Aristotle
'Whose did you see a picture of Rembrandt of Artistotle?'
c. *Mi ra?i-t tmuna (šel Rembrandt) (šel Aristo) šel?
who saw-you(f) picture of Rembrandt of Aristotle of
'Who did you see a picture (of Rembrandt) (of Artistotle) of?'

The only way to form a question out of (19a) is to pied-pipe the entire NP, as in (20).

(20) $[_{NP}$tmuna (šel Rembrandt) (šel Aristo) šel mi] ra?i-t?
picture of Rembrandt of Aristotle of who saw-you(f)
'A picture of who did you see?'

It appears, then, that NP in Hebrew constitutes an opaque domain with respect to extraction: an entire NP may be extracted, but not an argument within it. Let us assume that the reason for that is that SPEC/NP is blocked for movement out of NP. In section 4.2 below, I will attempt to justify this claim and elaborate upon it. For now, let us merely assume it. If, indeed, movement out of NP cannot proceed through the specifier position, WH movement will leave an ungoverned trace within NP, and the ECP will rule out the resulting structure.

2.2. *Extraction from a clitic-doubled position*

Borer has shown, however, that extraction from NP is possible when the trace is doubled by a coindexed clitic, as in (21).[9]

(21) Ze mi_i še-ra?i-t tmuna (šel Rembrandt) (šel Aristo)
this who that-saw-you(f) picture (of Rembrandt) (of Aristotle)
šel-$o_i t_i$.
of-him
'This is whoever you saw a picture (of R.) (of A.) of.'

In (21), the trace of the extracted element is antecedent-governed internally to NP by the doubling clitic.[10] When the clitic is contraindexed with the trace, that is, when it doubles a different argument in NP, or when it is a free pronoun, extraction is illicit since the trace stands in violation of the ECP.

(22) a. *Ze mi_j še-ra?i-t et tmunat-o_i.
this who_j that-saw-you(f) ACC picture-him_i
šel Rembrandt$_i$ t_j
of Rembrandt$_i$

b. *Ze mi_j še-ra?i-t et tmunat-o_i.
this who_j that-saw-you(f) ACC picture-him_i

Since antecedent government is satisfied by the clitic internally to NP in (21), an additional antecedent within NP, in, for example, the specifier position, is rendered unnecessary and the restriction of extraction in Romance to elements which can independently appear as prenominal possessors need not be respected. Indeed, we find that any of the (three) arguments of the noun *tmuna* 'picture' may be extracted if their position is doubled by a coindexed clitic.[11] Alongside (21) above, we find (23a) and (23b) below.

(23) a. Ze mi_i še-ra?i-t tmuna (šel Hanan) (šel Aristo) šel-$o_i t_i$.
this who that-saw-you(f) picture of Hanan of Aristotle of-him
'This is whoever you saw a picture (of Hanan) (of Aristotle) of.'

b. Ze mi_i še-ra?i-t tmuna (šel Hanan) (šel Rembrandt)
this who that-saw-you(f) picture (of Hanan) (of Rembrandt)
šel-$o_i t_i$.
of-him.
'This is whoever you saw a picture (of Hanan) (of Rembrandt) of.'

2.3. *Extraction from Hebrew NPs and the conjunctive ECP*

Note, now, that the distinction between extraction through SPEC/NP which is disallowed in Hebrew, as illustrated in (19b) and (19c) above, and licit extraction out of a clitic-doubled position, as in (21), can only be captured by reference to antecedent government, since it is the presence or absence of an appropriate antecedent which determines the well-formedness of these examples. If one adopts the disjunctive ECP, that is, the formulation according to which the ECP can be satisfied by head government alone, one must assume that N in Hebrew is not a proper head (or lexical) governor. If it were, extraction from NP would always be possible. Yet there seems to be no other evidence that N in Hebrew is a

defective head, for it assigns both case and θ roles, and it defines a minimality barrier for government.

Under the conjunctive version of the ECP, N is unmarked. It is an adequate head governor and the distinction between (19b) and (19c) and (21) depends on antecedent government alone. The peculiar character of Hebrew, under this approach, has nothing to do with the properties of N as a governor; rather, it is reduced to the stipulation that movement may not proceed through SPEC/NP. Indeed, supporting evidence is required for this latter claim, and it is precisely to that task that sections 3 and 4 are dedicated.

2.4. *Extraction from predicate nominals*

Now consider (24) and (25).[12] With a subclass of predicate-nominal constructions, where the predicate nominal is a relational noun, extraction from within NP is well formed.

(24) a. Hu xaver/yedid/?av/?em/?ax šel ?ayelet.
he friend/acquaintance/father/mother/brother of Ayelet
'He is a friend/acquaintance/father/mother/brother of Ayelet.'

b. Šel mi hu xaver/yedid/?av/?em/?ax?
of whom he friend/acquaintance/father/mother/brother
'Whose friend/acquaintance/father/mother/brother is he?'

(25) a. Xašav-t še hu xaver/yedid/?av/?em/?ax šel ?ayelet.
thought-you(f) that-he friend/acquaintance/father/mother/
brother of Ayelet.
'You thought that he is a friend/acquaintance/father/mother/
brother of Ayelet.'

b. Šel mi xašav-t še-hu xaver/yedid/?av/?em/?ax?
of whom thought-you(f) that he friend/acquaintance/father/
mother/brother
'Who did you think that he is a friend/acquaintance/father/
mother/brother of?'

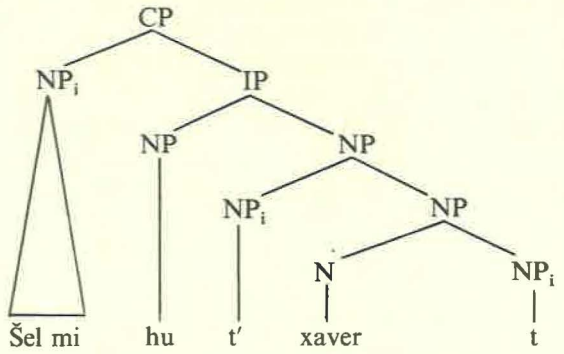
In (26), it is shown that the genitive NP is, indeed, extracted, since it obeys the *complex noun-phrase constraint*, a conventional diagnostic for movement.

(26) *Šel mi pagaš-ti et ha-?iša še-hu xaver?
of who met-I ACC the-woman that-he friend
'Who did I meet the woman that he is a friend of?'

My claim is that (24b) instantiates the configuration illustrated by the phrase marker in (27), that is, extraction proceeds by adjunction to NP.[13]

The ECP is satisfied in (24b), since the postnominal trace is antecedent-governed by an intermediate trace adjoined to NP.

(27)



The restriction of extraction to predicate nominals follows from and provides empirical evidence for Chomsky's (1986b) stipulation that adjunction is only possible to nonarguments, since only a predicate NP tolerates adjunction to itself. It is only in predicate nominals that one finds cases of licit (non-clitic-doubled) extraction.

Again, these data are neutral with reference to head government, which we may take to be independently satisfied. They crucially demonstrate the relevance of antecedent government and, moreover, show that it may hold in an A′ chain between a position adjoined to X^{max} and a complement of X without violating the minimality condition as formulated in (16) above.

To summarize briefly, we have tried to show that a particular statement of the ECP reduces the theoretically possible configurations for extraction of a postnominal argument out of NP to three: movement through SPEC/NP, movement by adjunction to NP, and extraction from a position doubled by a clitic. All three are subject to certain restrictions: extraction through SPEC/NP is restricted to subjects, as determined by the thematic hierarchy; extraction from a clitic-doubled position is possible only where clitic doubling is independently available, as in the construct state in Hebrew; and movement by adjunction to NP is possible when NP is a predicate.

Many intriguing questions remain. In the following sections I will attempt to provide at least a tentative answer to one of them: what is it about the grammar of Hebrew nominals that precludes movement through SPEC/NP? What accounts for the contrast between the Romance examples (2) and (3) above and their Hebrew counterparts in (19b) and (19c)?

3.0. The structure of nominals in Hebrew

3.1. *The superficial structure*

As a point of departure, two observations must be made about the structure of nominals in Hebrew.[14]

(28) a. An argument may not appear prenominally in NP, including a possessive pronoun.
b. The linear order of postnominal arguments is *agent theme* in derived (process) nominals and free in underived ones.

Observation (28a) is illustrated in (29) and (30) and observation (28b) in (31) and (32) below.[15]

(29) a. Ha-tmuna šel Picasso šel ha-ʔalmot me-Avignon tluya ba-
the-picture of P. of the-demoiselles from-Avignon hangs in-
muzeum.
the museum
'Picasso's painting of the Demoiselles d'Avignon hangs in the museum.'
b. *(Šel) Picasso ha-tmuna šel ha-ʔalmot me-Avignon tluya
(of) P. the-picture of the-demoiselles from-Avignon hangs in-
ba-muzeum.
the museum
c. *(Šel) ha-ʔalmot me-Avignon ha-tmuna šel Picasso tluya
(of) the-demoiselles from-Avignon the-picture of P. hangs in-
ba-muzeum.
the museum
d. *Šel-o ha-tmuna šel ha-ʔalmot me-Avignon
of him the-picture of the-demoiselles from-Avignon hangs in-
tluya ba-muzeum.
the-museum
e. *Šel-a-hen ha-tmuna šel Picasso tluya ba-muzeum.
of-them the-picture of P. hangs in-the museum

(30) a. Ha-harisa šel ha-barbarim et Rashidiye.
the-destruction of the-barbarians ACC Rashidiye
'the barbarians' destruction of Rashidiye'
b. *(Šel) ha-barbarim ha-harisa et Rashidiye.
(of) the-barbarians the-destruction ACC Rashidiye
c. *(Et) Rashidiye ha-harisa šel ha-barbarim.
(ACC) Rashidiye the-destruction of the-barbarians
d. *Sel-a-hem ha-harisa et Rashidiye.
of-them the-destruction ACC Rashidiye

e. *Ot-a ha-harisa šel ha-barbarim.
ACC-her the-destruction of the-barbarians

(31) a. Ha-harisa šel ha-barbarim et Rashidiye.
b. *Ha-harisa et Rashidiye šel ha-barbarim.

(32) a. Ha-tmuna šel ha-muzeum šel Picasso šel ha-ʔalmot me-
the-painting of the-museum of Picasso of the Demoiselles of-
Avignon.
Avignon
'the museum's painting by Picasso of the Demoiselles d'Avignon'

b. Ha-tmuna šel Picasso šel ha-muzeum šel ha-ʔalmot me-
the-painting of P. of the-museum of the Demoiselles of-
Avignon.
Avignon
'Picasso's painting of the museum of the Demoiselles d'Avignon'

c. Ha-tmuna šel ha-ʔalmot me-Avignon šel ha-muzeum šel
the-painting of the Demoiselles of-Avignon of the-museum of
Picasso.
P.
'the Demoiselles d'Avignon's painting of the museum by Picasso'

d. Ha-tmuna šel ha-muzeum šel ha-ʔalmot me-Avignon šel
the-painting of the-museum of the Demoiselles of-Avignon by
Picasso.
Picasso
'the museum's painting of the Demoiselles d'Avignon by Picasso'

e. Ha-tmuna šel Picasso šel ha-ʔalmot me-Avignon šel ha-
the-painting of P. of the Demoiselles of-Avignon of the-
muzeum.
museum
'Picasso's painting of the Demoiselles d'Avignon of the museum'

f. Ha-tmuna šel ha-ʔalmot me-Avignon šel Picasso šel ha-
the-painting of the Demoiselles of-Avignon of P. of the-
muzeum.
museum
'the Demoiselles d'Avignon's painting by Picasso of the museum's'

Considering first the underived nominals, it is a question of some interest, given their free surface arrangement, whether there is any hierarchical order among the arguments of N or whether they can be represented by a 'flat' structure.

3.2. *Internal hierarchy inside nominals*

G & L propose a diagnostic for determining the internal hierarchy of arguments in NP and the following discussion is based largely on their work. Consider, first, the fact that in (33) below, with the pronoun referentially dependent on *Hanan*, the two genitive phrases may freely interchange their interpretations as possessor and agent, as shown in the glosses (33b) and (33c).[16]

(33) a. ʔavdu kol ha-mixtavim šel Hanan$_i$ šel ʔim-o$_i$
lost all the-letters of Hanan of mother-his
b. All of Hanan$_i$'s letters by his$_i$ mother were lost.
c. All of his$_i$ mother's letters by Hanan$_i$ were lost.

Yet, when we replace *Hanan* by a quantified NP, such as *kol xayal* 'every soldier', the only possible interpretation which maintains the bound reading of the pronoun is one where the quantified NP is understood as the possessor and the NP containing the pronoun as the agent. (34a) can only be interpreted as (34b), not as (34c).

(34) a. ʔavdu ha-mixtavim šel kol xayal$_i$ šel ʔim-o$_i$.
lost the-letters of every soldier of mother-his
b. 'The letters belonging to [every soldier]$_i$ which were written by his$_i$ mother were lost.'
c. ?*The letters written by [every soldier]$_i$ which belong to his$_i$ mother were lost.'

These data strongly suggest that the possessor argument c-commands the agent and not vice-versa. This being the case, (34c) is ruled out since the pronoun 'his', which is embedded within the possessor argument, is not c-commanded, hence cannot be interpreted as bound by the agent 'every soldier'.

Further evidence that the possessor argument c-commands the agent can be elicited from (35). This sentence is once again unambiguous: the anaphor *acmo* 'himself' may be interpreted only as the author of the letters, not as their possessor.

(35) a. ? ʔavdu ha-mixtavim šel Hanan$_i$ šel ʔacmo$_i$.
lost the-letters of Hanan of himself
b. Hanan's letters by himself were lost.
c. * Hanan's letters of himself's were lost.

Note, again, that linear order of *Hanan* and *himself* in (36a), *every soldier* and *his mother* in (36b) does not matter. The interpretation of (36a) and (36b) is identical to that of (34a) and (35a).

(36) a. ??avdu ha-mixtavim šel ?im-o$_i$ šel kol xayal$_i$.
lost the-letters of mother-his of every soldier
b. ?avdu ha-mixtavim šel ?acmo$_i$ šel Hanan$_i$.
lost the-letters of himself of Hanan

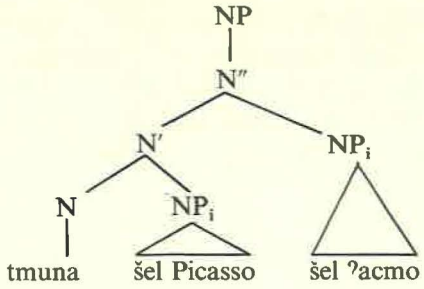
One may, thus, conclude that a thematic hierarchy is observed in Hebrew, despite the fact that no argument ever appears prenominally, as it does in Romance.

This hierarchy is maintained also among the pair *agent* and *theme* as shown in (37). (37a) is ambiguous: either one of the arguments, *Picasso* or *Matisse*, can be interpreted as the painter. In (37b) and (37c) only *Picasso* can be construed as the agent. Similarly, in (38a) and (38b), the bound-pronoun construal is available only when the NP *kol gever* is understood as the painter or photographer and *?im-o* 'his mother' as the person photographed.

(37)	a.	Ha-tmuna šel	Picasso šel	Matisse
		the-picture of	Picasso of	Matisse
			AGENT	THEME
			THEME	AGENT
	b.	Ha-tmuna šel	Picasso šel	?acmo
		the picture of	Picasso of	himself
			AGENT	THEME
			*THEME	AGENT
	c.	Ha-tmuna šel	?acmo šel	Picasso
			THEME	AGENT
			*AGENT	THEME
(38)	a.	Ha-tmuna šel	[kol gever]$_i$ šel	?im-o$_i$
		the-picture of	every man of	mother-his
			AGENT	THEME
			*THEME	AGENT
	b.	Ha-tmuna šel	?im-o$_i$ šel	[kol gever]$_i$
			THEME	AGENT
			*AGENT	THEME

Consider, now, what sort of phrase structure ought to be assigned to Hebrew nominals. Let us assume that the argument which appears immediately to the right of the head N is generated as its sister, under N′, while the next argument to the right appears under N″, as in (39).[17]

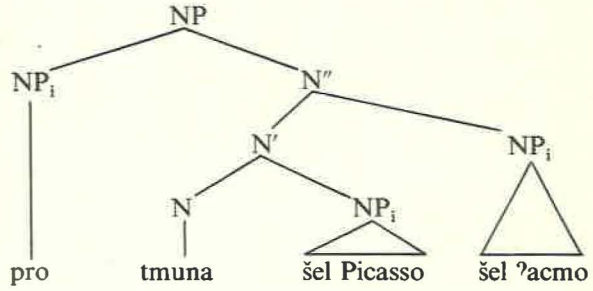
(39)



Clearly, the structure in (39) is insufficient to characterize the binding relations among the arguments of N, since information about the thematic hierarchy is not encoded in it. Let us assume, then, that as in Romance, the thematically most prominent NP is associated with the specifier position. The difference between Hebrew and Romance is reduced to conditions on phonetic realizability: in Romance a prenominal possessor may be overt (although it does not have to be; see [2a] above), while in Hebrew it must be phonetically null. Pursuing the analogy with Romance one step further, let us say that the null element in SPEC/NP is a null pronoun, or pro. Furthermore, let us assume that pro in SPEC/NP is expletive, in the sense that it is not assigned any θ role but, rather, is associated by coindexation with a postnominal argument in the manner of a postverbal subject and a preverbal pleonastic.[18]

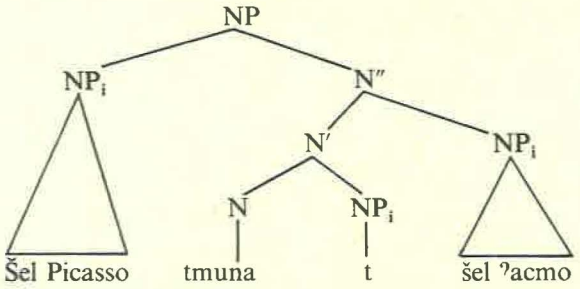
The thematic hierarchy is represented in NP in Hebrew by coindexing the most prominent argument in NP with the prenominal pro. The S-structure representations of, for example, (37a) above is, thus, (40). The prenominal expletive is coindexed with the postnominal argument *Picasso*, in accordance with the thematic hierarchy. The anaphor *?acmo* is also coindexed with *Picasso*, which is its understood antecedent. The binding of the anaphor is mediated by pro, which c-commands it.

(40)



I have argued elsewhere, (Shlonsky 1988a, following Chomsky 1986a) that expletives are replaced in LF by the arguments with which they are associated. It is reasonable to believe that the thematic hierarchy must be maintained in LF, since it determines interpretation. Therefore, *Picasso*, and not the anaphor, will replace pro in LF, yielding (41).

(41)



Since the specifier position in NP asymmetrically c-commands all the other argument positions in NP, and since it is always the element which is highest in the thematic hierarchy which is associated with that position, we derive the result that possessors bind agents and themes, and agents bind themselves.[19]

The reading with the reverse thematic roles, that is, with *ʔacmo* bearing the possessor role and *Picasso* the agent role, is ruled out since under such a reading, pro would be coindexed with *ʔacmo* and hence replaced by it in LF, yielding a representation in which the anaphor lacks an antecedent.

This analysis extends to binding in derived nominals as well. In (42a) below, pro is coindexed with *Hanan* and it, in turn, binds the anaphor. In the LF representation (42b), *Hanan* replaces pro.

(42) a. pro$_i$ ha-ʔahava šel ha-mora$_i$ ʔet ʔacma$_i$ yeduʔa ba-rabim.
the-love of the-teacher ACC herself known to-the-many
'The teacher's love for herself is well known.'

b. Šel a-mora$_i$ ha-ʔahava t$_i$ et ʔacma$_i$ yeduʔa ba-rabim.

On the basis of the data discussed in this section, I conclude that Hebrew NPs are generated with a specifier which is an A position. Let us hypothesize that the specifier position is not optional in Hebrew NPs but is always represented, even when it is not required by binding theory. This, even a simple NP like (43) below contains a prenominal specifier position, coindexed with the postnominal argument.[20]

(43) a. Tmuna šel kof
picture of monkey
'a picture of a monkey'

b. pro$_i$ tmuna šel kof$_i$

This accords with the observation that in Romance, the notion of thematic prominence is a relative one: in monoargumental NPs, it is the single argument which is construed as the 'subject' of NP.

The discussion of the structure of NP in Hebrew yields the hypothesis that even in the absence of a phonetically realized possessor, Hebrew NPs are endowed with a prenominal specifier which is filled by a phonetically null expletive. Turning now to the extraction data, it seems that this hypothesis leads to a paradox.

4.0. Extraction from NP

4.1. *The problem*

I have argued that in order for extraction in (44) below to be consistent with the ECP, WH movement must proceed through SPEC/NP and leave a trace in it which can antecedent-govern the trace in the original extraction site. I claimed that the unavailability of this option in Hebrew is due to the fact that SPEC/NP is blocked to movement.[21]

(44) *(Šel) mi rait tmuna?
(of) whom saw-you(f) picture
'Who did you see a picture of?'

But given our discussion in 3.3, (44) must be represented as (45) where antecedent government is fully satisfied. The prenominal pro is coindexed with, c-commands, and hence antecedent-governs the trace in the extraction site.

(45) *(Šel) mi rait [$_{NP}$ pro$_i$ tmuna t$_i$]?

The prediction implied by the postulation of pro in NP is that the pattern of extraction from NP in Hebrew ought to parallel that of Romance where 'subjects', that is, elements coindexed with the specifier position, can be freely extracted.

If the ECP is satisfied in (44), then we must attribute its ungrammaticality to something other than the ECP. Indeed, I will now argue that this restriction is due to an independently motivated restriction on extraction which has to do with the conditions under which null expletive subjects are licensed in Hebrew.

4.1. *Condition on expletive pro in Hebrew*

In Shlonsky (1988a, 1988b), I noted that while postverbal subjects are perfectly acceptable in Hebrew in a variety of environments, they

nevertheless cannot be extracted over long distances, For example, (46b) and (47b) below are perfectly acceptable variants of (46a) and (47a), respectively.

(46) a. Lo yada-ti me-ʔeize sifriya sfarim neʔlmu.
NEG knew-I from-which-library books disappeared
'I didn't know which library books disappeared from.'
b. Lo yada-ti me-ʔeize sifriya neʔlmu sfarim.
NEG knew-I from-which-library disappeared books

(47) a. Lo yada-ta ʔim sefer nafal ʔal ha-ricpa.
NEG knew-you(m) whether book fell on the-floor
'You didn't know whether a book fell on the floor.'
b. Lo yada-ta ʔim nafal sefer ʔal ha-ricpa.
NEG knew-you(m) whether fell book on the-floor

Let us assume that in postverbal subject constructions such as the (b) variants of (46) and (47), the postverbal subject is coindexed with a null expletive pro in SPEC/IP; the structure of (46b), for example, is (48).[22]

(48) I didn't know from which library [$_{IP}$ pro$_i$ disappeared books$_i$].

Note, now, that (49), derived by WH-moving the subject *sfarim* 'books' over the island formed by *me-eize sifriya* 'from which library', is unacceptable.

(49) a. *ʔeize sfarim lo yada-ti me-ʔeize sifriya neʔelmu.
which books NEG knew-I from-which library disappeared
'Which books didn't I know which library (they) disappeared from?'
b. *Ma lo yada-ta ʔim nafal ʔal ha-ricpa.
what NEG know-you whether fell on the floor
'What didn't you know whether (it) fell on the floor?'

Note that typical WH-island violations in Hebrew are perfectly acceptable, as noted in Reinhart (1982), when the moved element is a nonsubject.

(50) a. ʔeize sfarim lo yada-ti me-ʔeize
which books NEG knew-I from-which
sifriya ha-studentim šoʔalim?
library the-students borrow
'Which books didn't I know which library the students borrow from?'
b. Ma lo yada-ta ʔim Hanan hepil ʔal ha-ricpa?
what NEG knew-you whether Hanan dropped on the-floor
'What didn't you know whether Hanan dropped on the floor?'

While a subject/nonsubject asymmetry with reference to extraction is suggestive of an ECP effect, I argue that an ECP-driven account would

predict that the extraction of postverbal subjects over an island in LF ought to be as unacceptable as its counterpart in the syntax, since both instances of extraction would leave an ungoverned trace. Yet that prediction is not borne out, as illustrated in (51a) and (51b), which are perfectly good examples of a WH *in situ*.

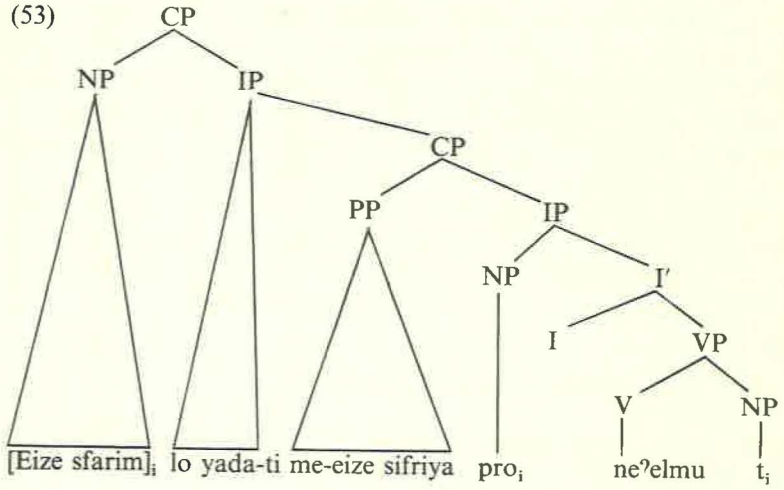
(51) a. Mi lo yada me-ʔeize sifriya neʔelam ma?
who NEG knew from-which library disappeared what
'Who didn't know from which library what disappeared?'
b. Mi lo yada ʔeifo nafal ma?
who NEG knew where fell what
'Who didn't know where what fell?'

Crucially, now, Borer (1984) notes, a WH *in situ* which occupies the subject position, and not the postverbal one, cannot be LF-extracted:

(52) a. *Mi lo yada me-ʔeize sifriya ma neʔelam?
who NEG knew from-which library what disappeared
'Who didn't know from which library what disappeared?'
b. *Mi lo yada ʔeifo ma nafal?
who NEG knew where what fell
'Who didn't know where what fell?'

What these data show is that a postverbal trace is properly governed while a preverbal one is not. We may thus assume that in (49), the subject is extracted from the postverbal position where it can leave a trace which satisfies the ECP. In effect, then, the relevant S-structure for, for example, (49a) above is as in (53).

(53)



How, then, are we to explain the impossibility of syntactic movement of a postverbal subject? The proposal in Shlonsky (1988a, 1988b) is that a configuration such as (54a) below is ruled out in Hebrew because pro is not properly identified within it. (54a) contrasts with the acceptable configuration (54b), which contains a lexical postverbal subject.

(54) a. $[_{\delta} \ldots \text{pro}_i \ldots \text{V} \ldots t_i \ldots]$
b. $[_{\delta} \ldots \text{pro}_i \ldots \text{V} \ldots \text{NP}_{\text{lex/i}} \ldots]$

The pro module of UG imposes the following condition:

(55) Feature assignment (or recoverability):
Coindex pro with phonetically overt grammatical features.

In Italian, overt features are supplied directly by AGR. The postverbal subject is dispensible and may thus move. In Hebrew, on the other hand, third person AGR is somewhat impoverished and cannot itself supply all the overt features. Therefore these features must be supplied by the postverbal subject itself.[23] When it is extracted, pro, is, in effect, left stranded without the features necessary to identify it. This is so because the postverbal trace of extraction is nonovert, and the features which it can supply to pro are, therefore, themselves nonovert. As condition (55) must be satisfied at S-structure, the postverbal subject may be extracted at LF, as long as the ECP is satisfied.

One further condition on the identification of pro needs to be made explicit, and that is that the element supplying the features of pro (that is, AGR or the postverbal subject) must be contained within a certain domain relative to pro. Crucially, an extracted WH word in COMP cannot satisfy this condition, for otherwise (49) above would not be ruled out. What needs to be said is that the features which serve to identify pro must be part of the A-chain of which pro is a member, with 'chain' construed as an 'extended chain' which includes both V and AGR, in addition to the NP in SPEC/IP and the postverbal subject.[24] In Italian, presumably because of its rich system of agreement, pro's features are read off from AGR. In Hebrew, the postverbal subject is crucially involved in the feature-assignment process. In both languages, pro's features are assigned by some member(s) of the chain (pro_1, AGR_1, V_1, NP_1). Feature assignment by a fronted WH word in an A′ position is ruled out because the WH word is not a member of pro's chain.

4.2. *An account of extraction from NP in Hebrew*

Returning, now, to extraction from NP, note that extraction out of a nominal is structurally equivalent to movement of a postverbal subject out of a WH island in clauses. This is because in both cases antecedent government must be satisfied internally to IP or NP, and the antecedent in both instances is in the specifier position. The relevant configuration of extraction out of NP is thus (56), which is identical, except for the categorial signature, to (54a) above.

(56) $[_{\text{NP}} \ldots \text{pro}_i \ldots \text{N} \ldots t_i \ldots]$

(56) is ill formed for precisely the same reason that (54a) is ill formed: pro cannot be supplied with the appropriate features and is left unidentified.

Yet we have seen that extraction out of NP in Hebrew is possible in two other ways: when the trace is doubled by a clitic and when extraction proceeds by adjunction to NP. Consider, first, the former case, which is illustrated schematically in (57).

(57) $[_{\text{NP}} \ldots \text{pro}_i \ldots \text{N} + \text{clitic}_i \ldots t_i \ldots]$

The crucial point here is that the clitic, being phonetically overt and fully specified for number and person, can support the null subject and so allows the postnominal argument (the doubled NP) to move.[25] Pro satisfies condition (55) by coindexation with the clitic, and from the point of view of the pro module, the postnominal argument is redundant. In section 2.2 above, we saw that no thematic hierarchy is respected in extraction from clitic-doubled position (see the discussion of [23a] and [23b] above). In the configuration (57), then, antecedent government of t_1 is implemented by the clitic and not by pro.

The case of extraction out of predicate nominals is more problematic. Given our discussion so far, the configuration that needs to be considered is (58).

(58) $\text{wh}_i \ldots [_{\text{NP}} t_i [_{\text{NP}} \ldots \text{pro}_i \ldots \text{N} \ldots t_i \ldots]$

Above, I argued that extraction from a predicate nominal may proceed by adjunction to NP, in order to satisfy antecedent government of the postnominal trace. Yet the structure given in (58) raises two problems: first, if SPEC/NP is occupied by pro, then antecedent government is satisfied internally to NP and, in any case, adjunction is superfluous. Second, pro in (58) is unidentified because there is no overt element to supply it with features.

To resolve these difficulties, I wish to capitalize on the fact that extraction is possible only from NPs headed by inherently relational nouns. This class of nouns differs from, for example, *book*-type nouns in that they inherently determine the kind of relation that holds between the head and its argument, as noted by Partee (1983, cited in Lyons 1986). While in a NP such as 'John's book', the relation of *book* to *John* is

contextually determined (*John* may be the possessor or agent of *book*), in 'John's brother' it is lexically determined. This being the case, there is no need to specify any sort of thematic hierarchy within *brother*-type nominals, since the relation which the argument has to the head N is fixed.

We have argued that the determination of thematic prominence in Hebrew NPs is represented by coindexation with the 'subject' position in NP. Let us now suppose that the unique property of NPs headed by inherently relational nouns is that they do not require a 'subject' position, a specifier of NP. The generalization that this move is designed to capture is that while the subject position plays a crucial role in determining the interpretation of noninherently relational NPs such as 'book', it plays no role in *brother*-type nominals.

On the assumption that inherently relational nouns do not require a subject position, we may assume that the proper configuration for extraction from a predicate nominal is (59), rather than (58) above.

(59) $wh_i \ldots [_{NP}t'_i[_{NP}N \ldots t_i \ldots]$

In (59), t'_1 plays the role of antecedent governor for t_1. Since there is no SPEC/NP in (59), there is no pro and no feature identification problem. The crucial contrast between the grammatical (60a) and the unacceptable (60b) is reduced to the possibility of adjunction to a predicate NP in (60a) and the subsequent satisfaction of the ECP, as opposed to the impossibility of adjunction to the nonpredicate nominal in (60b) and the resulting violation of the ECP.

(60) a. Šel mi hi xavera?
of whom she friend
'Whose friend is she?'

b. *Šel mi rai-t xavera
of whom saw-you(f) friend
'Whose friend did you see?'

4.3. *Conclusion: the difference between Hebrew and Romance*

By way of a conclusion, let us consider what the essential difference might be between Hebrew and Romance. The inextricability of genitive arguments out of NP in Hebrew as contrasted with their extractability in Romance cannot be straightforwardly accounted for in terms of some variation in the pro-drop parameter, This is so for two reasons. First, in the absence of an agreement morpheme in NP in Romance, a pro in SPEC/NP would be as unidentified as it is in Hebrew, leading to ill-formed extraction configurations. Second, the extraction facts from NP seem to be essentially the same in French and Italian, but only Italian, and not French, has rich agreement. Since pro-drop in French is a great deal more restricted than in Italian, one would expect extraction from NP in French to be similar to the pattern found in Hebrew, which is not the case.

Received 7 April 1988
Revised version received
21 June 1988

University of Haifa

Notes

1. I am especially indebted to S. Lappin for comments and discussion. Thanks to E. Doron, A. Giorgi, and E. Ritter for discussions of some of the issues considered in this paper and to two *Linguistics* referees. Thanks also to S. Abney, who entertained the core idea of section 3.3 himself but went on to pursue others. Needless to say, no one but me is responsible for the contents of this paper. Correspondence address: Department of English, University of Haifa, Mount Carmel, Haifa 31999, Israel.
2. See also Torrego (1986) for elaborations of this idea.
3. But see Aoun (1985) for a different view.
4. Stowell (1981, 1986), Jaeggli (1982), Torrego (1986), Chomsky (1986b), to cite only a few works.
5. Chomsky (1986b, class lectures 1987), Rizzi (1987), Giorgi and Longobardi (to appear).
6. Such as the loss of an ECP-driven account for that/trace effect, or for the contrast discussed in Giorgi and Longobardi (to appear) between extraction from postverbal NP subjects which are internal to VP and those adjoined to it.

   I follow Chomsky (1986b) and Rizzi (1987) in assuming that m-command (maximal-projection c-command) is relevant for head government and c-command (branching-node c-command) for antecedent government and binding.
7. α is a blocking category for β iff α is not L-marked and α dominates β. See Chomsky (1986b: 14).
8. I am putting aside the issue of extraction from construct-state nominals, which display rather different properties, as discussed in, for example, Ritter (this volume), Borer (1988).
9. For reasons that need not concern us here, WH movement from a clitic-doubled position is not possible in regular questions in Hebrew but only in free relative constructions. See Borer for analysis.

   In a number of Arabic dialects, on the other hand, WH movement from a clitic-doubled position is possible also in regular interrogatives, as shown by the following example from Egyptian (Wahba 1984: 54, ex. 81):

   (i) $miin_i$ ʔili l-walad sara? kitaab-u_i?
   who_i that the-boy stole book-his_i
   'Whose book did the boy steal?'

   For discussion of this difference between Hebrew and Arabic, see Shlonsky (1988a).

10. A free relative construction such as (21) observes the complex-NP violation, a fact discussed in Borer (1984):

    (i) *Ze mi_i še-šam'ati šmu'a še-tmuna (šel Rembrandt)
    this who that-heard-I rumor that picture (of Rembrandt)
    (šel Aristo) šel-o_i tluya ba-muzeum.
    (of Aristotle) of-him hangs in-the-museum
    'This is whoever I heard a rumor that a picture (of R.) (of A.) of hangs in the museum.'

    Thus, the fronted WH word in (21) is related to a trace and not to a resumptive clitic.
11. Independent evidence for the existence of a thematic hierarchy in NP in Hebrew will be provided in section 3.2.
12. From Borer (1984: 98, note 31, citing E. Doron, personal communication).
13. See Doron (1983) for arguments that predicate nominals have the structure [$_s$ NP NP].
14. See Berman (1978), Borer (1984), Ritter (this volume).
15. Several comments are in order: the properties of derived nominals, such as the appearance of an accusative case marker, are not relevant to the discussion at hand. Nor will I offer an explanation for the obligatory order of constituents in the nominal expressions illustrated in (31).

    Various pragmatic and stylistic considerations govern the ordering of the *šel* arguments in the NPs of (32). Many speakers find some of the examples in (32) quite awkward. I do not understand the considerations which motivate the choice of one variant of (32) over another. I do believe, however, that all possibilities should be admitted IN PRINCIPLE.

    Finally, in this section, as in section 2.1 above (see note 8), I put aside construct-state nominals.
16. The marginal status of (33)–(36), noted by a *Linguistics* referee, is probably due to the fact that a noun such as *mixtav* 'letter' preferably takes only one *šel* argument, while the other argument is introduced by a preposition such as *mi-* 'from'. The point of these examples is not their status in absolute terms, but rather the interpretations which they admit.
17. Giorgio and Longobardi (to appear). I assume that the genitive preposition *šel* is merely a case marker in this context and not a true preposition, just like French *de* or Italian *di*. See Borer (1984) for a different analysis.
18. A number of authors have contended, on the basis of examples such as those in (1), that a pleonastic element is barred from appearing in the specifier position of NP (for example, Williams 1985).

    (i) *there's book
    *there's destruction of the city

    Yet, it is possible that the unacceptability of (i) is due to extraneous factors, namely, that *there* is incompatible with the genitive *'s*, perhaps because *'s* realizes an inherent case which is associated with the θ role borne by the subject of NP (Chomsky 1986a), and pleonastic elements, by definition, cannot bear θ roles.

    Note, moreover, that expletive *there* is possible as a subject of *Acc-ing* NPs, where the genitive morpheme *'s* does not appear (Abney 1987: 112).

    (ii) I approve of [there being a literacy exam for political candidates].

    This leaves open the status of *it*, which, as Abney notes, may appear as subject in both *Acc-ing* and *Poss-ing* gerunds.

    (iii) I worried about [it being too obvious that Charlie was lying].
    (iv) I worried about [its being too obvious that Charlie was lying].

    Perhaps, the cooccurrence of *it* and *'s* is due to the fact that *it* in (iv) is actually a quasi-argument and not a true pleonastic. Only *it* is possible as the subject of gerunds derived from true unaccusative verbs:

    (v) ?I worried about [it appearing that Charlie was lying].
    (vi) *I worried about [its appearing that Charlie was lying].

19. The phrase marker (40), while satisfying binding condition A, violates condition C. This is so since the argument *Picasso*, an R-expression, is itself c-commanded by pro. Note that this is a more general problem, which extends to all expletive–argument pairs, as for example in (i) below.

    (i) $There_1$ suddenly appeared [three soldiers]$_1$.

    Rizzi (1987) proposes that an argument coindexed with a nonargument is not subject to binding conditions. See Shlonsky (1988a: ch. 5) for a different view.

    A *Linguistics* reviewer questions whether the (extended) chain of pro and the postnominal argument does not violate case theory by having two case positions. The case assigned internally to NPs is, I assume, an inherent case, which is assigned jointly with a θ role (Chomsky 1986a). Since pro in NP is expletive, that is, it bears no θ role, inherent case is not assigned to it but only to the θ-bearing argument which appears postnominally. Hence the chain bears only the θ role, as required.
20. As we shall see momentarily, it is crucial that SPEC/NP not be accessible as an escape hatch for extraction out of NP. In other words, what needs to be prevented is a configuration such as (i).

    (i) $wh_i \ldots [_{NP} t_i N\ t_i]$

    The proposal in the text achieves this result by stipulating that that specifier position is an obligatory A position which is occupied by a null pronominal. An alternative would be to say that the subject position is optional but that when it is generated, it must be generated with pro.
21. One *Linguistics* referee noted that for him/her, (44) sounds acceptable. I have no explanation for this judgment.
22. See Pollock (1983).
23. Recall that in Hebrew, argument pro drop is not acceptable with third person inflection. Only number and gender, but not person, are overtly marked in the third person past inflection.
24. See Chomsky (1986b: 75) for relevant discussion.
25. The system of Hebrew pronominal (possessive) clitics makes overt distinctions in person and number, as shown in the following table:

beit 'house'	-i	1s	'my house'	-enu	1pm 'our house'
	-xa	2ms	'your house'	-xem	2pm 'your house'
	-ex	2fs	'your house'	-xen	2pf 'your house'
					*archaic form
	-o	2ms	'his house'	-am	3pm 'their house'
	-a	2fs	'her house'	-an	3pf 'their house'
					*archaic form

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The semantics of 'many' as a weak determiner*

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Abstract

The semantic analysis of 'many' poses a number of significant difficulties for the theory of generalized quantifiers. It is weak, as indicated by the fact that it can appear as the determiner of a postcopular NP in existential 'there' sentences. However, unlike most other weak determiners, it does not satisfy the intersection or symmetry conditions. I propose an interpretation of 'many' which involves a comparison set that is, in part, defined relative to context. This interpretation entails that 'many' is not intersective or symmetrical, but conservative and monotone increasing. I characterize the distinction between weak and strong determiners in terms of an extended cardinality condition, which 'many' satisfies. I use this condition to explain the contrast between weak and strong determiners in postcopular NPs in existential 'there' constructions. I argue that this analysis of existential 'there' sentences avoids many of the difficulties which the theories presented by Barwise and Cooper (1981), Keenan (1987), and Keenan and Stavi (1986) encounter.

Barwise and Cooper (1981) (B&C) extend Montague's (1974) analysis of the quantifiers 'every', 'some' ('a(n)'), and 'the' to natural-language determiners in general. Within the framework of the theory of generalized quantifiers which they develop, a determiner denotes a function from an N′ extension to a set of sets which is in the denotation of the entire NP. The semantic interpretation of the determiner 'two', for example, is a function from an N′ set A to the set of sets containing (at least) two As. The sentence

(1) Two men are happy.

is true iff the denotation of the predicate 'is happy' is an element of the set of sets denoted by 'two men', that is, iff the set denoted by 'is happy'

Linguistics 26 (1988), 977–998 0024–3949/88/0026–0977 $2.00