

Restrictive Relatives in Modern Hebrew

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RESTRICTIVE RELATIVES IN MODERN HEBREW*

0. INTRODUCTION

The purpose of this paper is to examine Hebrew relative clauses against the background of theoretical developments and grammatical models proposed recently. In particular, I will propose an account of relative clauses in Hebrew in terms of the Extended Standard Theory and the theory of Government and Binding (I have in mind, in particular, references such as Chomsky (1977, 1981) and references cited there.) It will be shown that traditional problems in the account of relative clauses in languages which allow for a resumptive pronoun strategy may be solved using these grammatical models, thus supplying evidence for the validity of the theoretical foundation on which they are based.

In section 1 of this paper I investigate direct object relative clauses and indirect object relative clauses. I examine the properties of relative clause constructions which involve fronting, concluding that fronting moves a pronoun which functions as an operator, and that the movement has the characteristics of Wh-movement. I consider and dismiss the possibility that the pronoun is fronted into an S-initial position, concluding tentatively that the pronoun operator is moved into the COMP position. The examination of other relative constructions, which involve a gap, is shown to motivate a rule of deletion from COMP.

In section 2, I discuss the complementizer system, proposing a rule of complementizer indexing. This rule, once formulated, accounts for the distribution of complementizers, for the environment in which deletion from COMP may occur and for the selection of complementizers in free relatives. The distribution of deletion from COMP, accounted for by the indexing system coupled with an 'Empty COMP' filter supplies conclusive evidence that the pronoun operator is moved into COMP.

In section 3, I address the particular properties of subject relatives.

* Parts of this paper are revised from an older manuscript, bearing the same title. During the time that passed since I first started working on relative clauses I benefited from many discussions of the topics in this paper, which were conducted primarily with Y. Aoun, J. Bresnan, N. Chomsky, E. Doron, N. Elliott, K. Hale, D. Pesetsky, T. Reinhart, K. Safir, and T. Stowell. I would also like to thank anonymous reviewers of NLLT for their comments.

These differ from object relatives in not allowing a resumptive pronoun strategy in certain contexts. I first show that the distribution of subject pronouns in relative clauses cannot be reduced to the phenomenon of pro-drop, which is attested in Hebrew. I then invoke the Binding Conditions of Chomsky (1981) in order to explain the distribution of resumptive pronouns in subject relatives, predicting the right range of facts.

1. OBJECT RELATIVES

1.1. *Gaps and Resumptive Pronouns*

The distribution of resumptive pronouns and gaps in object relatives in Hebrew is given in (1)-(2):

(1) *Direct object relatives:*

- a. raʔiti ʔet ha-yeled she-/ʔasher rina ʔohevet ʔoto
saw-I ACC the-boy that Rina loves him
I saw the boy that Rina loves.
- b. raʔiti ʔet ha-yeled she-/ʔasher ʔoto rina ʔohevet
saw-I ACC the-boy that him Rina loves
- c. raʔiti ʔet ha-yeled ʔoto rina ʔohevet
saw-I ACC the-boy him Rina loves
- d. raʔiti ʔet ha-yeled she-/ʔasher rina ʔohevet
saw-I ACC the-boy that Rina loves

(2) *Object-of-Preposition relatives:*¹

- a. raʔiti ʔet ha-yeled she-/ʔasher rina xashva ʔalav
saw-I ACC the-boy that Rina thought about-him
I saw the boy that Rina thought about.

¹ Hebrew does not have a rule of preposition stranding. Hence the ungrammaticality of (i), which would be the parallel of (1d):

(i) *raʔiti ʔet ha-yeled she-/ʔasher rina xashva ʔal [e]
saw-I ACC the-boy that Rina thought about

Note that the deletion of the PP-pronominal ʔalav would lead to irrecoverable deletion. For some discussion of preposition stranding in Hebrew, see Borer (to appear).

- b. raʔiti ʔet ha-yeled she-/ʔasher ʔalav rina xashva
saw-I ACC the-boy that about-him Rina thought
- c. raʔiti ʔet ha-yeled ʔalav rina xashva
saw-I ACC the-boy about-him Rina thought

(The notation **she-/ʔasher** indicates that in these environments (i.e., immediately following the head of the relative) either the complementizer **she-** or the complementizer **ʔasher** may be used. I will return to the properties of these two complementizers below.)

It has been generally accepted that cases such as (1a) and (2a), where an overt (so-called resumptive) pronoun appears in the extraction site, do not involve movement (cf. Givon 1973; Hayon 1973; Chomsky 1977). Given this property, it is not surprising to find that these constructions may violate constraints on movement. Violations of the Complex NP Constraint and the Coordinate Structure Constraint (in the sense of Ross 1967) are exemplified in (3)-(4):

- (3) raʔiti ʔet ha-yeled she-/asher dalya makira ʔet
saw-I ACC the-boy that Dalya knows ACC
- | | | |
|------------------|---|-------------------------------|
| ha-ʔisha | { | she- ʔohevet ʔoto |
| <i>the woman</i> | | <i>that loves him</i> |
| | { | she-xashva ʔalav |
| | | <i>that-thought about-him</i> |

I saw the boy that Dalya knows the woman who loves him.
 I saw the boy that Dalya knows the woman who thought about him.

- (4) raʔiti ʔet ha-yeled she-/ʔasher rina ʔohevet ʔoto ve- ʔet
saw-I ACC the-boy that Rina loves him and ACC
- ha-xavera shelo
the-friend of-his

I saw the boy that Rina loves him and his girlfriend.

Chomsky (1977) notes that in configurations such as (3)–(4) (as well as in left dislocation configurations in English) the application of construal rules (i.e., the binding conditions) is blocked as well. In fact, given the

system proposed in Chomsky (1977) as well as in subsequent work, the resumptive pronoun in (3)–(4) should be allowed to refer freely. In order to capture the fact that the resumptive pronoun *must* be coreferential with the head of the relative clause, Chomsky proposes that a ‘rule of predication’ requires that “the relative be taken as an open sentence satisfied by the entity referred to by the NP in which it appears; hence there must be an NP in the relative that is interpreted as having no independent reference” (p. 81). The predication rule in question clearly links some abstract relative operator (which is coindexed with the head of the relative clause) with a coindexed resumptive pronoun. The failure of the resumptive pronoun to be coindexed with the abstract relative operator would, in turn, result in VACUOUS QUANTIFICATION (in the terminology of Chomsky 1982), in a failure to assign an interpretation to the relative clause and hence in ungrammaticality. In this paper I will assume without further discussion that such a device ensures the indexing of the resumptive pronoun with the head of the relative clause in constructions which do not involve movement. The conditions under which such coindexation is well-formed are discussed in subsection 3.4 below.

The derivation of the other sentences in (1)–(2) has been disputed. The following is a brief summary of the main issues involved:

(a) In (1b–c) and (2b–c) which clearly involve fronting, what type of fronting is it? Is it clause internal fronting (e.g., into an S-initial position) or is it an instance of Wh-movement, and hence movement into COMP?

(b) How is the gap in (1d) derived? Does its derivation involve movement?

(c) If movement plays a role in the derivation of (1d), is the moved element the pronoun operator which is subsequently deleted in COMP, (in line with Chomsky and Lasnik 1977), or is it an abstract operator, as is argued in Chomsky (1981)?

The first question will be addressed in subsection 1.2. I will show that where there is apparent fronting, it patterns with Wh-fronting in other constructions such as embedded questions and topicalization. The second and third questions will be addressed in subsections 1.3 and 1.4. It will be shown there that where there is no overt pronoun, as in (1d), movement must have taken place and that furthermore, it was a phonologically realized pronoun which moved. The surface absence of that pronoun will be accounted for by assuming a rule of deletion from COMP. It will also be shown that such a deletion can take place only in the uppermost COMP.

1.2. Movement into COMP

Sentences (1b-c) and (2b-c) demonstrate clearly that a major strategy of relative clause formation in Hebrew involves movement of some sort. Furthermore, unlike the resumptive pronoun strategy, in which there is no evidence for movement and which has been shown to allow relativization into islands, relativization into the same islands in the sentences which exhibit fronting results in ungrammaticality:

- (5) *ze ha-sefer_i she-/?asher ?oto_i ra?iti ?et ha-?ish_k
this the-book that him saw-I ACC the-man
 she-/?asher [e]_k katav [e]_i
that wrote

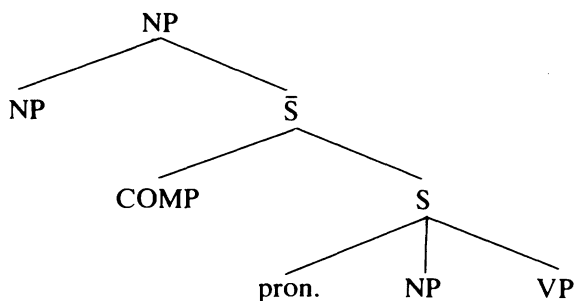
This is the book that I saw the man that wrote.

- (6) *ze ha-kelev_i she-/?asher ?oto_i rina kanta [e]_i ve-?et
this the-dog that him Rina bought and-ACC
 ha-xatul
the-cat

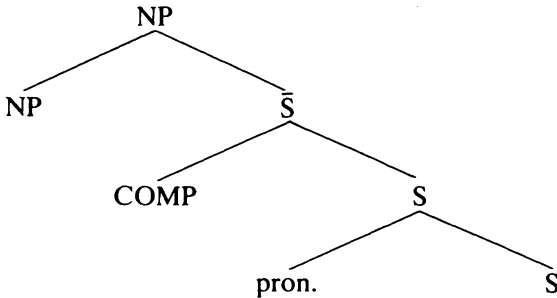
This is the dog that Rina bought and the cat.

Although it is clear that movement is involved, the 'landing site' of such a movement is not immediately clear. One possibility is that the moved pronoun lands in an S-initial position, much in the same way as fronted PPs or adverbs, forming one of the structures in (7) (for a recent proposal along the lines of (7a) see Doron 1981):

(7)a.



b.



There is, however, a serious drawback to any proposal which assumes movement into a non-COMP position. Consider the following examples:

- (8) ra?iti ?et ha-?ish_i [_{S₁} she-/?asher lo_i david ?amar
saw-I ACC the-man that to-him David said
 li [_{S₂} she-kobi xoshev [_{S₃} she-?ofra natna ?et
to-me that-kobi thinks that-Ofra gave ACC
 ha-sefer [_e_i]]
the-book

I saw the man to whom David said to me that Kobi thinks that Ofra gave the book.

- (9) * [_{S₁} ?etmol_k david ?amar li ha-yom [_{S₂} she-kobi pagash
yesterday David said to-me today that-Kobi met
 ?et rina [_e_k]]
ACC Rina
- (10) rina sha?ala [_{S₁} le-mi_i david ?amar li [_{S₂} she-?ofra
Rina asked to whom David said to-me that-Ofra
 xashva [_{S₃} she-kobi natan ?et ha-sefer [_e_i]]
thinks that-Kobi gave ACC the-book

In sentences (8)–(10) the fronted element could not have been moved from a position inside $\bar{S}_1$, since there is no gap in $\bar{S}_1$. This fact forces us to link the fronted element with a gap in a deeper subordinate clause: $\bar{S}_3$ for (8) and (10) and $\bar{S}_2$ for (9). In other words, the fronted element in (8)–(10) exhibits an apparant unbounded movement. Obviously, such movement is possible for the pronoun in the relative clause construction (8) and for the

Wh word in (10), but not for the adverb in (9). Assuming, following Chomsky (1973) that apparent unbounded movement is, in fact, successive cyclic movement from COMP to COMP, the contrast between (8) and (10) on the one hand and (9) on the other is explained if one assumes that in relative clauses the fronted pronoun is fronted into the COMP position, but that adverbs may not move into the COMP position, and hence cannot exhibit unbounded movement.

Yet another possibility is that the pronouns in (1b-c) and (2b-c) occupy the TOPIC position. Note that topicalized pronouns exhibit 'unbounded' movement characteristics:

- (11) a. ?amarti le-kobi she-?oto rina ?ohevet[e]
said-I to-Kobi that-him Rina loves

I told Kobi that it is him that Rina loves.

- b. ?amarti le-kobi she-?oto dalya xoshevet she-rina ?ohevet [e]
said-I to-Kobi that-him Dalya thinks that-Rina loves

I told Kobi that it is him that Dalya thinks that Rina loves.

The topicalization hypothesis for fronted pronouns in relative clauses might seem particularly appealing, as topicalization inside relative clauses (of NPs which are not coreferential with the head of the relative) is possible:

- (12) ?eyle ha-?anashim she-?et david shalaxti ?eleyhem
these the-people that-ACC David send-I to-them

These are the people to whom I send David.

On the other hand, it is not surprising for topicalization constructions such as (11a-b) to exhibit the set of properties associated with Wh-movement. This similarity is to be expected regardless of whether the fronted pronouns in (1b-c) and (2b-c) are in COMP or in the TOPIC position. In fact, according to Chomsky (1977), topicalization constructions also involve movement to COMP (though not of the topicalized element itself) and thus exhibit the properties which are typical of Wh-movement, notably, unboundedness. In later work (Chomsky 1981) this similarity is strengthened by pointing out the similar properties of traces in topicalization constructions and relativization constructions. Thus the similarities between relative clause constructions and topicalization constructions are to be expected precisely if relative clauses involve Wh-movement, or in the terminology of Chomsky (1981), movement into an $\bar{A}$ -position. Furthermore, these similarities make the assumption that the

operator pronoun moves into COMP very plausible. It is clear, however, that to this point no empirical evidence has been brought forth to distinguish between the “topicalization” hypothesis and the “COMP” hypothesis. At this point, I will assume without further argumentation that pronoun operators move into COMP, while topicalized elements occupy a distinct TOPIC position. Conclusive proof of this point will rest on the properties of deletion from COMP, discussed in section 2.

1.3. *The Gap: Does its Derivation Involve Movement?*

I now turn to the nature of the gap in sentence (1d) above. There are two possible explanations for that gap:

(a) The gap is generated in the ‘extraction site’, and is subject to a well formedness condition which forces it to be coreferential with the relative head (in essence, deletion over a variable, in line with the analysis proposed in Bresnan and Grimshaw, 1978).

(b) The gap is derived via Wh-movement.

If possibility (b) is correct, two further possibilities arise:

(bi) The pronoun operator moves into COMP (as described in subsection 1.2) and is then optionally deleted yielding either (1d) if deletion applied or (1b) if deletion did not apply.

(bii) The moved element is an abstract operator with no phonological matrix. The lack of surface manifestation of such an element follows.

The analysis in (a) is assumed in Hayon (1973). However, sentences such as (1b) are missing from his data. He thus does not assume any relative clause formation strategy which involves movement. Note, too, that the Complex NP Constraint and similar conditions on movement constrain ‘gap’ structures such as (1d), as is demonstrated by (13)–(14) (and compare with (3)–(4) above):

- (13) *ra?iti ?et ha-yeled_i she-/?asher david makir ?et
 saw-I ACC the-boy that David knows ACC
 ha-?isha_k she-/?asher [e]_k ?ohevet [e]_i
 the woman that loves
 I saw the boy that David knows the woman that loves [e].
- (14) *ra?iti ?et ha-yeled_i she-/?asher rina ?ohevet [e]_i
 saw-I ACC the-boy that Rina knows
 ve-?et ha-xavera shelo
 and-ACC the-friend of-his
 I saw the boy that Rina knows [[e] and his friend].

In trying to determine whether (1d) is derived by movement and optional deletion from COMP, or by generating a gap in the 'extraction site', I will consider evidence from subject-verb inversion in Hebrew. Concretely, the verb is optionally fronted into a position immediately preceding the subject whenever any element (or more than one element) other than the verb itself is moved into a position preceding the subject $\bar{S}$:²

- (15) a. ?arie taraf yeled ?etmol be-gan ha-xayot
lion devoured boy yesterday in-the-zoo

A lion devoured a boy yesterday in the zoo.

- b. ?etmol be-gan ha-xayot taraf ?arie yeled
yesterday in-the-zoo devoured lion boy

- c. ?et ha-yeled taraf ha-?arie ?etmol be-gan ha-xayot
ACC the-boy devoured the-lion yesterday in-the-zoo

- d. ??taraf ?arie yeled ?etmol be-gan ha-xayot
devoured lion boy yesterday in-the-zoo

A lion devoured a boy yesterday in the zoo.

Wh-movement either in questions or in relative clauses is no exception to the inversion rule. Thus when a Wh element or a pronoun is fronted, inversion may occur, as in (16a-c):

- (16) a. ?et mi taraf ha-?arie
ACC who devoured the-lion

Who did the lion devour?

- b. dan lo yode?a ?et mi taraf ha-?arie
Dan no knows ACC who devoured the-lion

Dan does not know who the lion devoured.

- c. ra?iti ?et ha-yeled she-/?asher ?oto taraf ha-?arie
saw-I ACC the-boy that him devoured the-lion

I saw the boy that the lion devoured.

² Subject-verb inversion is used here as a heuristic device, to test the presence or absence of fronting in various constructions. The particular nature of this rule will not be discussed in this paper.

The effects of subject-verb inversion should be distinguished from scrambling. Hebrew has a scrambling rule which may result in grammatical, although very marked, word orders, and hence the marginality (rather than complete ungrammaticality) of (15d). Word orders produced by the subject-verb inversion rule, on the other hand, are entirely unmarked.

Note that the inversion is not triggered by some property which is peculiar to relative clauses. Rather, it is triggered by fronting in general, regardless of the landing site of the fronted element. On the other hand, the complementizers **she-** and **?asher** by themselves do not trigger inversion, although they precede the subject, as is illustrated by (17)–(18):

- (17) ?? ze ha-yeled she-/?asher **taraf** ha-?arie ?oto
this the-boy that devoured the-lion him

This is the boy that the lion devoured.

- (18) ?? ?amarti le-rina she-?ohev david praxim
said-I to-Rina that-loves David flowers

I said to Rina that David loves flowers.

These facts suggest a clear method for providing an answer to the question raised in the beginning of this subsection: if in sentences such as (1d) inversion is possible, a natural conclusion is that at the stage in which inversion applied, there was a fronted trigger present. This would lead us to choose possibility (b) over possibility (a) and to conclude that the derivation of the gap involves movement. Sentence (19) shows that inversion in sentences such as (1d) is indeed possible, thus supporting possibility (b):

- (19) ra?iti ?et ha-yeled she-/?asher ?ohevet rina
saw-I ACC the-boy that loves Rina

I saw the boy that Rina loves.

1.4. *An Abstract Operator or Deletion from COMP?*

In the previous subsection I presented evidence that when no overt pronoun is present in the relative clause, as in (1d), the gap is derived by movement. Chomsky (1981), arguing against deletion from COMP (suggested in Chomsky and Lasnik, 1977) suggests that the rule of free deletion in COMP can be dispensed with, assuming instead that whenever no overt Wh element appears in COMP, an abstract operator, a PRO, has been fronted. When the complementizer itself is missing, a $\emptyset$ complementizer has been base-generated. In this subsection I will show that this proposal is not feasible for Hebrew. Concretely, I will show that inversion in Hebrew is triggered only by phonologically-realized elements. As inversion is triggered in gap constructions such as (1d), the conclusion

is that in these constructions an overt pronoun operator was moved into COMP and subsequently deleted.

The structure of the argument is as follows: I will first show that overt fronted pronouns may appear sentence initially within any $\bar{S}$ which intervenes between the extraction site and the head of the relative. I will then show that when such a pronoun appears sentence initially, inversion is possible following it, in accordance with the inversion operation described above. If, however, no overt pronoun appears clause-initially, inversion is possible only in the uppermost COMP. These facts can be explained if the following assumptions are made:

(a) only phonologically realized elements trigger inversion in Hebrew (thus traces in COMP do not trigger inversion),

(b) Hebrew has a rule which optionally deletes pronoun operators in COMP, but its application is restricted to the uppermost COMP node. If indeed only phonologically realized elements trigger inversion in Hebrew, it follows that abstract operators cannot trigger such an inversion, and that in sentences such as (1d) there must have been an overt, realized pronoun in COMP at the stage at which inversion took place.

Consider the grammatical sentences of (20) below, in which the pronoun operator may appear in every intervening $\bar{S}$ -initial position:³

- (20) a. ha-ʔish_i [_S she-/ʔasher ʔoto_i xana ʔamra [_S she-delya
 the-man that him Xana said that-Dalya
 maʔamina [_S she-kobi pagash [e]_i]]] hu rofe
 believes that-Kobi met is doctor

The man who Xana said that Dalya believes that Kobi met is a doctor.

- b. ha-ʔish_i [_S she-/ʔasher xana ʔamra [_S she-ʔoto_i dalya
 the-man that Xana said that-him Dalya
 maʔamina [_S she-kobi pagash [e]_i]]] hu rofe
 believes that-Kobi met is doctor

³ Reinhart (1979) argues that in sentences such as (20a-c) the pronoun operator in intermediate $\bar{S}$ -initial positions is in COMP. While I find that position extremely plausible, it should be borne in mind that Reinhart's argumentation presupposes the non-existence of an independent TOPIC node. As will be shown in section 3 below, there is evidence in Hebrew for an independent TOPIC node, rendering the precise location of these pronouns unclear. As I am not aware of any empirical test that will determine whether these pronouns are in

- c. ha-ʔish_i [š she-/ʔasher xana ʔamra [š she-dalya maʔamina
the-man that Xana said that-Dalya believes
 [š she-ʔoto_i kobi pagash [e]_i]]] hu rofe
that-him Kobi met is doctor

Not surprisingly, the presence of an overt pronoun in a non-uppermost COMP, as in (20b–c), may trigger inversion in the clause immediately following the pronoun. Thus (21a–b) are grammatical:

- (21) a. ha-ʔish she-/ ʔasher xana ʔamra she-ʔoto **maʔamina dalya**
 (inversion)
the-man that Xana said that-him believes Dalya
she-kobi pagash [e]
that-Kobi met
 the man that Xana said that Dalya believes that Kobi met
- b. haʔish she-/ʔasher xana ʔamra she-dalya maʔamina
the-man that Xana said that-Dalya believes
 she-ʔoto **pagash kobi** [e]
 (inversion)
that-him met Kobi

It has been argued by Kayne and Pollock (1979) that stylistic inversion in French provides evidence for movement from COMP to COMP rather than unbounded movement. In French, the presence of a Wh element in COMP may trigger subject-verb inversion. When the extraction is from a ‘deep’ subordinate clause, inversion may occur in each clause separating the gap from the landing site of the fronted Wh element. This fact can be easily explained if one assumes that the trace in the subordinate COMPs serves as a trigger for inversion. In Hebrew, inversion works somewhat differently. When no overt pronoun is present, or when the pronoun has been fronted into the uppermost COMP, inversion is possible only in the uppermost clause. Thus consider the following sentences:

COMP or in TOPIC, this issue will not be pursued here any further. As will become clear, however, these cases contrast with a pronoun operator in the uppermost Š-initial position, where there is evidence supporting the assumption that it is occupying the COMP position and not the TOPIC position.

- (22)a. raʔiti ʔet ha-ʔish she-/ʔasher (ʔoto) xana ʔamra
saw-I ACC the-man that him Xana said
 she-dalya maʔamina she-kobi pagash
that-Dalya believes that-Kobi met

I saw the man that Xana said that Dalya believes that Kobi met.

- b. ??raʔiti ʔet ha-ʔish she-/ʔasher (ʔoto) xana ʔamra
saw-I ACC the-man that him Xana said
 she-dalya maʔamina she-**pagash kobi**
 (inversion)
that-Dalya believes that-met Kobi

- c. ??raʔiti ʔet ha-ʔish she-/ʔasher (ʔoto) xana ʔamra
 she-**maʔamina dalya** she-kobi pagash
 (inversion)

- d. raʔiti ʔet ha-ʔish she-/ʔasher (ʔoto) **ʔamra xana** she-dalya
 (inversion)
 maʔamina she-kobi pagash

- e. ??raʔiti ʔet ha-ʔish she-/ʔasher (ʔoto) **ʔamra xana**
 (inversion)
 she-**maʔamina dalya** she-**pagash kobi**
 (inversion)

The only grammatical version in (22) is (22d), in which inversion occurred only in the uppermost subordinate clause. Inversion in any other subordinate clause (or in more than one of them) leads to marginality. The inappropriateness of inversion is particularly striking in the following example, where it leads to ungrammaticality, rather than marginality:

- (23) a. ha-pakid she-/ʔasher ha-sar maʔamin she-david makir
the-clerk that the-minister believes that-David knows
 hitpater
resigned

The clerk that the minister believes that David knows resigned.

- b. ha-pakid she-/ʔasher **maʔamin ha-sar** she-david makir
 (inversion)
the-clerk that believes the-minister that-David knows
 hitpater
resigned
- c. *ha-pakid she-/ʔasher **maʔamin ha-sar** she-**makir david**
 (inversion-1) (inversion-2)
the-clerk that believes the-minister that-knows David
 hitpater
resigned

The contrast between (23b) on the one hand and (23c) on the other hand enables us to distinguish between scrambling and inversion. If inversion in (22) were due to mere scrambling, one would expect it to be equally appropriate in each subordinate clause, and subsequently, one would expect (23c) to be just as grammatical as (23b). However, (23c) is ungrammatical. This ungrammaticality derives from the fact that, due to the inversion in the subordinate clause, the sentence is understood to have the structure in (24) as its D-structure (irrelevant details omitted):

- (24) [_S [_{NP₁} the clerk [_{S₂} that [_{NP₂} the minister_i [_{S₃} that David knows him_i]] believes]] resigned]

Inversion-2 in (23c) can only be understood as triggered by a relativization and subsequent deletion in the embedded NP₂ relative in (24). However, this structural interpretation, in which the clause *that David knows (him)* is interpreted as part of the relative clause headed by *the minister*, results in a violation of the subcategorization frame of the verb **le-haʔamin** 'to believe'. Note that since in Hebrew this verb takes either a sentential complement or a PP complement, one may not assume that the head of NP₁, *the clerk*, is coindexed with a gap following *believe*, thus satisfying its complementation requirements. Thus the structure in (24) is ruled out and the sentence (23c), which is interpreted as having that structure, is ungrammatical. In (23b), on the other hand, there is only one relative clause and one inversion, enabling the clause *that David knows* to be interpreted as the complement of *believe* and not as a part of an embedded relative clause. Thus the subcategorization requirement of *believe* is met and the sentence is grammatical.

The array of facts discussed above can be easily explained if it is assumed that only phonologically-realized elements trigger inversion, and that deletion from COMP may occur only in the uppermost COMP node.

Thus whenever a pronoun in a relative clause is missing, it has been deleted from the uppermost COMP. When inversion occurs without the presence of an overt pronoun, it has been triggered by a pronoun which has been subsequently deleted, and since only pronouns in uppermost COMPs can be deleted, such inversion can be attested only in the clause which follows the uppermost COMP. The obvious difference between French and Hebrew is accounted for by the assumption that inversion in Hebrew, unlike French, is triggered only by phonologically-realized elements (which may be subsequently deleted), and that it applies prior to deletion.

It is hard to see how these facts can be accounted for by the proposal advanced in Chomsky (1981), according to which the rule of deletion from COMP should be replaced by a movement of an abstract operator. As traces fail to trigger inversion, but under the abstract operator analysis, abstract operators must be allowed to trigger it, proponents of the abstract operator analysis would have to stipulate that abstract operators are somehow more 'phonologically-realized' than traces. However, even this move might not be sufficient, since abstract operators in relative clauses which utilize the resumptive pronoun strategy (i.e., (1a) and (2a)) do not trigger inversion. (Furthermore, abstract operators behave as phonologically-null elements with respect to the empty COMP filter argued for below.) In view of these obvious difficulties for the abstract operator account, I adopt here an analysis according to which an overt pronoun operator moves into COMP and is subsequently deleted. As will be shown in subsection 2.2, the rule of deletion from COMP has substantial empirical consequences in Hebrew, and it leads to the correct predictions with respect to the structure of the complementizer system.

In subsection 2.2 I also return to deletion in complex sentences such as (22), offering an explanation for the fact that deletion is only possible from the uppermost COMP node.

2. THE COMPLEMENTIZER SYSTEM: COMPs vs. TOPICS

2.1. *Free Deletion from COMP*

In subsection 1.2, I assumed that relative pronouns are moved into the COMP position (rather than being topicalized). I further argued in subsections 1.3 and 1.4 that the relative pronoun in COMP is subject to an optional deletion rule, which may apply only in the uppermost COMP. The complete understanding of these operations necessitates the understanding of the complementizer system and its structure. The discussion of

COMP systems in Hebrew will result in the detailed description of a rule of free deletion from COMP. This rule will then be utilized to make formal distinctions between TOPICs and COMPs, showing conclusively that pronoun operators are moved into COMP.

Note that Hebrew has optional deletion of the *complementizer* when a pronoun operator is fronted to COMP, as well as an optional deletion of the pronoun operator itself. The deletion of the complementizer or the pronoun can thus be attributed to a single optional deletion rule from COMP, similar to the one suggested for English by Chomsky and Lasnik (1977). Note, however, that in Hebrew, doubly-filled COMP nodes are not filtered out (see in this respect also Reinhart, 1979):

- (25) ze ha-ʔish **she-/ʔasher** ʔoto raʔiti
 this the-man that him saw-I

This is the man that I saw.

On the other hand, the grammar of Hebrew must include a device which excludes deletion of *all* the elements from any one COMP node. Thus the following is ungrammatical in Hebrew:

- (26) a. *ze ha-ʔish raʔiti ʔetmol
 this the-man saw-I yesterday
 b. *ze ha-ʔish raʔiti ʔoto ʔetmol
 this the-man saw-I him yesterday

I would like to suggest the following surface filter, blocking empty COMP nodes:

- (27) *_[COMP ∅]

This filter operates on phonological representations, and as such it will rule out a COMP node in which no phonological material is present. Concretely, abstract operators, as are suggested on p. 222 for relative clauses like (26b) (and also (1a) and (2a)) do not count as COMP fillers for the purposes of (27) and thus (26b), whose COMP contains only an abstract operator, is ruled out. I will assume here that (27) is a language specific device of some sort, putting aside questions such as the theoretical status of filters and the theoretical status of parametric variation in general.

2.2. Complementizer Indexing

As noted above, Hebrew has two complementizers which appear in restrictive relatives: **she-** and **ʔasher**. The distribution of these com-

plementizers is not identical. **She-** is the standard [-Wh] complementizer in Hebrew. It is found in complement clauses such as (28) as well as following the head of relative clauses. On the other hand, **?asher** appears only immediately following the head of relative clauses, as in (29):

- (28) david ?amar **she-/*?asher** rina ba?a ?etmol
David said that Rina came yesterday

- (29) ze ha-?ish **she-/*?asher** rina ?amra **she-/*?asher** xana ?ohevet
this the-man that Rina said that Xana loves
 This is the man that Rina said that Xana loves.

The selection of **?asher** is independent of whether the relative pronoun has been fronted or not. In fact, **?asher** appears as a complementizer in cases in which Wh-movement is blocked altogether and a resumptive pronoun strategy must be used:

- (30) ze ha-mixtav_i ?asher pagashti ?et ha-?ish_k ?asher [e]_k
this the-letter that met-I ACC the-man that
 katav ?oto;
wrote it
 This is the letter that I met the man that wrote.

A similar phenomenon is attested in Standard Arabic:

- (31) ra?aytu l-fatata **?allati** yuridu ?ax-i **an** yatawwaža-ha
saw-I the-girl that want brother-mine that marry-her
 I saw the girl that my brother wants to marry.
- (32) ra?aytu d-dubata **?alladina** qala l-i l-xakimu
saw-I the-officers that said to-me the-governor
?ina-hu sažana l-mutammaridina **alladina** satamu-hum
that-he arrested the-rebels that insulted-them
 I saw the officers that the governor told me that he arrested the rebels who offended them (the officers).

Whereas **alladi** – which is inflected to agree in number, gender and case with the head – appears only in relative clauses immediately following the head, **?ina** (or its variants **?ana** and **?an**⁴) appear as regular complementizers in complement clauses:

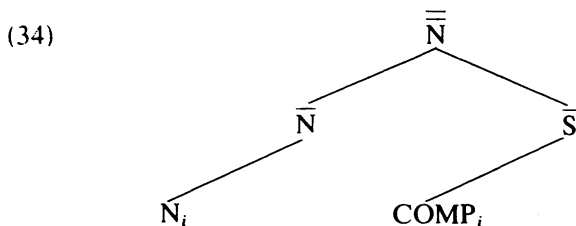
⁴ The distribution of **?ina**, **?ana** and **?an** is dependent on factors such as the location of the subject of the clause and the tense of the clause. I will not pursue here the nature of these alternations.

- (33) qalat l-fatatu ?ina-ha saafarat ?ila lubnana
said the-girl that-she traveled to Lebanon

The girl said that she traveled to Lebanon.

No movement has taken place either in (31) or (32), and the resumptive pronoun is in its original site. This situation thus leads to the conclusion that the distribution of ?**allaḏi**, like the distribution of ?**asher**, is independent of whether fronting has taken place or not.

Some proposals of Bresnan and Grimshaw (1978) and Hale (1978) may be utilized to account for the distinct distribution of **she-** vs. ?**asher** and ?**ina** vs. ?**allaḏi**. I will assume that the head constituent in relative clause constructions is supplied with an index at D-structure (in the sense of Chomsky 1980), and that a COMP node which is immediately adjacent to such a head is assigned the same index. The approximate structure in which such indexing takes place is given in (34):



The indexing of the COMP may be accomplished by percolation of the index to the $\bar{N}$ level and then down to the COMP or a similar mechanism. The crucial assumption here, however, is that heads are assigned an index at the N^0 level, at the level of lexical insertion. It follows from this that only lexically inserted terminal nodes (i.e., nouns and PROs, in the sense of Chomsky 1982) are assigned an index at D-structure, but not, say, base-generated empty N^0 nodes. Following this proposed indexing, in (35) COMP₁ but not COMP₂ is assigned an index at D-structure:

- (35) ze ha-?ish_i [_{COMP} she-]_i xana ?amra [_{COMP} she-]
this the-man that Xana said that
 hi ?ohevet (?oto)
she loves him

I now assume a rule which optionally percolates the index of the COMP node to the complementizer:

- (36) [_{COMP} complementizer]_i → [_{COMP} complementizer]_i

All one need assume now is that the phonological component spells out

indexed complementizers as **ʔasher** rather than as **she-**. For Arabic, (36) must be an obligatory rule, thus accounting for the fact that complementizers which follow relative heads are always spelled out as **ʔallabi**. On the other hand, (36) is optional in Hebrew, accounting for the availability of **she-** in post-head positions.⁵

For most of the cases of deletion from COMP discussed thus far, it is clear that deletion from COMP always occurs from indexed COMP nodes. This is due to the fact that only indexed COMPs, COMPs of relative clauses, may be doubly-filled, and a deletion from a non-doubly filled COMP would result in a violation of (27). (But notice (20b–c), where there seems to be a doubly-filled COMP, but no indexing. I return to these cases below.) In the following discussion, however, I will show that a doubly-filled COMP is a necessary but not sufficient condition for deletion. In order to allow for deletion, the COMP node must be coindexed as well. In other words, I will show that the principle in (37) holds true for Hebrew:

- (37) Elements may delete freely from COMP iff they are coindexed with it.

2.3. *The Complementizer System of Free Relatives*

In this subsection I will consider the distribution of complementizers in free relatives. This distribution will lend support to the rule of complementizer indexing proposed above and will confirm the hypothesis that deletion is possible only from indexed COMP nodes. In the beginning of this section I give a brief sketch of the structure of free relatives. I proceed to show that in free relatives in Hebrew the complementizer **ʔasher** may not be used and that deletion from COMP is impossible as well. Both these results will follow, once it is shown that the structure of free relatives does not allow for the application of the rule coindexing the head of the relative and the COMP position.

⁵ Pesetsky (1982) proposes a rule which transmits the index of a fronted subject relative to the complementizer, resulting in the phonological spelling of the complementizer **que** in French as **qui**. This rule clearly resembles my rule of complementizer indexing. The difference is that in Pesetsky's rule, it is the fronted element which supplies the index which the complementizer inherits. The alternation between **she-** and **ʔasher** in Hebrew, and **ʔina** and **allabi** in Arabic, which is entirely independent from fronting, indicates that these kinds of alternations must be sensitive to COMP indexing, regardless of whether movement has taken place. This result suggests that in French, as well, a better formulation of this rule might not involve fronting. The precise nature of the French rule will not be pursued here.

Consider the following free relatives in Hebrew:

- (38) a. kaniti ?et ma_i she-ra?it [e]_i
 bought-I ACC what that-saw-you
 I bought what you saw.
- b. kaniti ?et ma_i she-hexlatet ?alav [e]_i
 bought-I ACC what that-decided-you on-it
 I bought what you decided on.
- c. kaniti ?et ma_i she-?alav hexlatet [e]_i
 bought-I ACC what that-on-it decided-you
 I bought what you decided on.

In Borer (1981, to appear) the structure of free relatives in Hebrew is extensively discussed. Repeating here the main conclusions of that research, it is shown that free relatives are derived by movement. The apparent appearance of resumptive pronouns (as in (38b)) is explained under the assumption that while (38a) is derived from (39a), (38b–c) have the underlying structure in (39b):

- (39) a. kaniti ?et [NP e [_S e she [_S ra?it ma]]]
 bought ACC that saw-you what
- b. kaniti ?et [NP e [_S e she [_S hexlatet [PP ?al-av ma]]]]
 bought ACC that decided-you about-it what

The PP in (39b) is a ‘clitic doubling’ construction (see Jaeggli 1982, Borer to appear, Aoun 1981 for discussion). Concretely, the pronominal **-av** is attached to the preposition and does not occupy the argument position subcategorized by the preposition **?al**. Consequently, a Wh word may appear there and be fronted by Wh-movement.⁶ This is not the case for direct object pronouns, which, in Modern Hebrew, are not clitics. Rather, they occupy the subcategorized [NP, VP] position and hence they exhibit complementary distribution with Wh words. The ungrammaticality of sentences such as (40) follows:

⁶ For simplicity’s sake, I assume here that there is no additional slot in COMP itself, and that the Wh word in free relatives is first moved into the empty COMP (to the right of the complementizer) and then adjoined to it (thus appearing to its left). This proposal is not argued for directly. For discussion of the motivation of a movement analysis for free relatives in Hebrew, and against the assumption that the Wh element is based-generated in the head position, see Borer (1981).

- (40) *kaniti ?et ma_i she-ra?it ?oto_i
bought-I ACC what that-saw-you it

I bought what you saw it.

As shown in the references cited above, this analysis correctly predicts the ungrammaticality of sentences such as (41a) (and compare with (3), repeated here as (41b):

- (41) a. *ze ma_i she-pagashti ?et ha-?ish_k she-[e]_k hexlit
this what that-met-I ACC the-man that decided
 ?alav [e]_i
on-it

This is what I met the man who decided on.

- b. ra?iti ?et ha-yeled_i she-/asher dalya makira ?et
saw-I ACC the-boy that Dalya knows ACC
 ha-?isha_k she-[e]_k xashva ?alav [e]_i
the-woman that- thought about-him

I saw the boy that Dalya knows the woman who thought about him.

The ungrammaticality of (41a), in spite of the appearance of a resumptive pronoun-like element, supports a movement analysis for free relatives in Hebrew, in that it shows that constraints on movement (in the case of (41a) the Complex NP Constraint) cannot be violated. As for (38c) above, it is derived in two steps from (39b). First, the entire PP is fronted into the COMP position (to the right of the complementizer **she-**) and then further movement raises the Wh word and adjoins it to COMP. These two steps are given in (42) (and see also references cited above for a more detailed discussion):

- (42) a. bought-I [_{NP} [_S e that [_{PP} on-it which] [_S decided-you [_{PP} [e]]]]
 b. bought-I [_{NP} [_S which that [_{PP} on-it [e]] [_S decided-you [_{PP} [e]]]]

Interestingly, free relatives take only the complementizer **she-**, and its deletion is never possible. Thus (43a-f) are ungrammatical:

- (43) a. *kaniti ?et **ma** ?**asher** ra?it [e]
 b. *kaniti ?et **ma** ra?it [e]
 c. *kaniti ?et **ma** ?**asher** hexlatet ?alav [e]
 d. *kaniti ?et **ma** hexlatet ?alav [e]

- e. *kaniti ?et **ma** ?**asher** ?**alav** [e] hexlatet [e]
 f. *kaniti ?et **ma** ?**alav** [e] hexlatet [e]

Thus one finds in free relatives in Hebrew a correlation between the non-occurrence of ?**asher** and the non-availability of deletion from COMP.

Note now that the rule indexing the COMP node with the head will not index the COMP node of free relatives. Assuming the structure in (39) to be the D-structure representations of free relatives, the head node of the relative is empty. (In making this assumption I follow the analysis of free relatives offered in Groos and van Riemsdijk 1979.) Recall that the indexing rule required coindexing with a *lexical* head. Thus in free relatives, unlike regular restrictive relatives, the complementizer node is not indexed. Note, however, that the COMP position of free relatives can nevertheless be doubly (or even triply) filled (cf. (38c)). Thus if the only restriction on deletion from COMP were the non-violation of the filter (27), one would expect deletion of **she-** to be grammatical. If, on the other hand, the principle in (37) is correct, one expects the correlation attested by (43): one expects the deletion of both complementizer and Wh word to be blocked exactly in the same environment in which ?**asher** cannot occur.

Another interesting fact which suggests a correlation between the occurrence of ?**asher** and the availability of complementizer deletion is that both phenomena belong to a stylistically elevated level, whereas **she-** and the deletion of the pronoun operator are considerably more colloquial. Thus the sentences in (44c–d) are much less common and considerably more literary than (44a–b):

- (44) a. ze ha-?ish **she**-?oto ra?iti
 b. ze ha-?ish **she**-ra?iti
 c. ze ha-?ish ?**asher** (?oto) ra?iti
 d. ze ha-?ish ?**oto** ra?iti

This is the man (that) I saw.

This correlation can be readily explained by assuming that the rule (36), which transmits the index of COMP to the lexical complementizer, exists in the elevated stylistic level, giving rise to (44c–d), but is missing from the more colloquial level, giving rise to (44a–b). Note, interestingly, that even in the more colloquial level, (37) is maintained, as is the process of COMP indexing. Consequently, in that colloquial level pronoun operators can still be deleted as in (44b), following a non-indexed complementizer in an indexed COMP node.

2.4. Fronted Pronouns and The TOPIC Position

In the previous section it was established that the movement of pronoun operators has the properties of Wh-movement. However, the question of whether the fronted pronoun in relative clauses is in TOPIC position or not was not settled conclusively. It turns out, however, that the process of COMP indexing and deletion from COMP just described makes it possible to construct an argument showing that the fronted pronouns in relative clauses are in the COMP position, whereas topicalized elements, including pronouns, are not.

The rule of deletion from COMP distinguishes between topicalized elements and relative pronouns. Note first that the deletion of topicalized pronouns is not possible:

- (45) ʔamarti le-david she-*(ʔoto) rina ʔohevet
 said-I to-David that him Rina loves
 I said to David that Rina loves him.

This, however, is not surprising. The COMP node in (45) does not bear an index and following the principle in (37), one does not expect deletion from it to be possible, regardless of whether the fronted pronoun is in COMP or in TOPIC position. Further, even in (46), where the COMP node is indexed with the head, **ha-ʔisha** 'the woman', one does not expect the pronoun **ʔoto** to be deleted, since it is not coindexed with the COMP node. Hence the ungrammaticality of (47) is not surprising.

- (46) ha-ʔisha_i she-/ʔasher ʔoto_k (hi_i) ʔahava
 the-woman that him she loved
 The woman who loved him.
- (47) *ha-ʔisha_i she-/ʔasher (hi_i) ʔahava
 the-woman that him she loved
 The woman who loved him.

Note, however, that (37) would not block the deletion of **ʔasher** in (46). In (46) the COMP node is coindexed with the head of the relative and **ʔasher** is coindexed with the COMP node by rule (36). Thus one expects the deletion of **ʔasher** to be possible *if* the fronted pronoun **ʔoto** is in COMP. However, as (48) shows, the output of such deletion results in ungrammaticality:

- (48) ha-ʔisha ʔoto (hi) ʔahava
 the-woman him she loved

The ungrammaticality of (48) can be readily explained if it is assumed that the fronted pronouns in (46) and (48) are not in COMP. The deletion of *ʔasher* under such circumstances would result in the violation of the filter in (27), in spite of the fact that it would be in accordance with (37) above. I thus conclude that the TOPIC position is distinct from the COMP position, and that topicalized pronouns which are not pronoun operators are not fronted into COMP. On the other hand, pronoun operators are fronted into COMP (and not into a TOPIC position), thus accounting for the possibility of deleting them.⁷

The discussion here leaves open the question of whether the fronted pronouns in (20b–c) are in COMP or in TOPIC position. Deletion of the pronouns in these constructions is blocked by principle (37) even if they *are* in the COMP position, since the COMP position in these cases is not adjacent to the relative head and hence it does not bear an index.

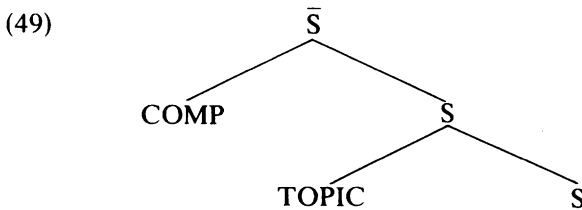
It is interesting to note that the conclusion that fronted pronouns in relative clauses are operators in COMP but topicalized pronouns are not, serves as strong evidence for an independent TOPIC position. The availability of such a position in one grammar also indicates that it is part of the universal inventory of possible positions, thus rendering plausibility to the supposition that such a position occurs in other grammars.

Although the evidence presented in this paper does not bear directly on the derivation of topicalization constructions, I will assume here that topicalized elements are moved directly to the TOPIC position, a position which is available $\bar{S}$ -initially, and which in Modern Hebrew is generated below the COMP position. Chomsky (1977) assumes that topicalization involves the base-generation of TOPICs and the movement of a coindexed Wh element to COMP position. This Wh element is subsequently deleted. Chomsky's analysis is primarily motivated by the characteristics of topicalization constructions, which greatly resemble those of Wh-movement. However, within a later model of grammar, movement into COMP is not necessary in order to account for most of these features.

Within the Government-Binding model, the similarities between topi-

⁷ A question which is not addressed here directly is the impossibility of movement into COMP for topicalized elements. Note, incidentally, that this question is independent from the argument for the existence of a distinct TOPIC position. One plausible avenue to pursue in order to account for the impossibility of topicalization into COMP would be to assume that since COMP and TOPIC position are distinct, elements which bind a variable from COMP must receive a relative (or a question) interpretation, whereas elements which bind a variable from TOPIC position receive a TOPIC interpretation. As there is no coindexation between the topicalized element and the relative head, and since topicalized elements are not question operators, if they *are* moved into COMP, these interpretations are blocked and the sentence is ruled out.

calization and Wh-movement are attributable to the nature of the antecedent-trace relations. Both in topicalization and in Wh-movement, one finds binding relations between an antecedent in a non-argument position ($\bar{A}$ -position in the terminology of Chomsky 1981) and a trace in an argument position (A-position). It is the properties of these binding relations, rather than the properties of movement rules, from which the similarities between the constructions are derived, rendering the actual movement of a Wh element in topicalization constructions unnecessary. I assume here that the following is the structure of topicalization constructions in Hebrew:⁸



The proposal in (49) crucially assumes that S and $\bar{S}$ are different projections, and that the TOPIC node is adjoined to S. I return to this assumption in section 3.4 below. For an extensive discussion of topicalization and its derivation, see Koster (1978), Stowell (1981) and references cited there.

3. SUBJECT RELATIVES

3.1. *The Distribution of Subject Gaps*

It has often been noted that subject relatives obey somewhat different constraints from object relatives. In this section I will describe the

⁸ One may raise here the question of whether the structure in (49) is base-generated or not. As will become obvious later, it is only crucial for my analysis that the TOPIC node be dominated by a maximal projection. It is worthwhile to point out, however, that although the base-generation of adjoined structures might seem problematic from the viewpoint of the $\bar{X}$ -theory, it has been suggested in various studies, most recently by Manzini (1983).

Yet one more question which might be raised with respect to (49) is the status of unbounded topicalization: does it pass through successive TOPIC nodes which are adjoined to S, in which case it violates subadjacency? In this respect, I will adopt here the assumption made in Chomsky (1977), according to which such movement is through COMP. Thus although the final landing site is in a distinct TOPIC node, the intermediate stages pass through COMP. The detailed justification of such a proposal awaits further research.

distribution of gaps and resumptive pronouns in subject relatives, accounting for their properties and for the differences between subject relatives and object relatives.

It was noted by Hayon (1973), Givon (1973) and Chomsky (1977) that there is an obligatory gap in the following subject relatives:

- (50) a. ha-ʔarie she-/ʔasher taraf ʔet ha-yeled barax
 the-lion that devoured ACC the-boy escaped

The lion that devoured the boy escaped.

- b. *ha-ʔarie_i she-/ʔasher hu_i taraf ʔet ha-yeled barax
 the-lion that he devoured ACC the-boy escaped

There are several respects in which subject relatives raise questions which are not relevant for object relatives. First, Hebrew has a rule of pro-drop.⁹ Is it possible that the gap in (50a) is yet another instance of pro-drop? (Such a position is argued by Fassi Fehri, 1978, for Arabic, where a similar phenomenon is attested.) On the other hand, if pro-drop is not responsible for the obligatory gap in (50a), is the gap a result of movement into COMP and subsequent deletion, as was argued for object relatives? Note that if the latter is correct, yet another question may be raised: if movement in subject relatives is similar in nature to movement in object relatives, why the obligatory gap (as opposed to an optional one, as is the case with object relatives)?

In this section I will supply answers to these questions, starting with a comparison of the gap in (50a) and gaps produced by the rule of pro-drop. This comparison will indicate that the gap in (50a) is not related to pro-drop. Once this has been established, I will proceed to consider subject relatives where gaps are not obligatory (e.g., embedded relatives). I will then proceed to propose that an extension of the Binding conditions of Chomsky (1981) coupled with a slightly revised definition of a Governing Category can account for the distribution of gaps and resumptive pronouns in subject relatives.

⁹ For some recent extensive discussion of the pro-drop phenomena, see Rizzi (1982); Jaeggli (1982); Chomsky (1981), (1982); Safir (1982); Borer (to appear); and references cited there. It is important to point out here that the discussion in the text does not really bear on the pro-drop phenomena. It is only pointed out that the distribution of subject gaps is distinct from that of pro-drop, and hence cannot be accounted for by appealing to that rule.

3.2. *Pro-drop or a Special Relative Clause Phenomenon?*

The rule of pro-drop in Modern Hebrew is restricted to apply only in past and future tenses, and even in these tenses its application to third person inflection results in marginality. This state of affairs is illustrated by the following paradigm:

- (51) a. ?ani ?axalti/?oxal ?et ha-tapu?ax
 I ate-I /will-eat-I ACC the-apple
- b. ?axalti/?oxal ?et ha-tapu?ax
 ate-I /will-eat-I
- c. ?ata ?axalta/toxal ?et ha-tapu?ax
 you ate-you/will-eat-you ACC the-apple
- d. ?axalta /toxal ?et ha-tapu?ax
 ate-you/will-eat-you
- e. hu ?axal /yoxal ?et ha-tapu?ax
 he ate-he/will-eat-he ACC the-apple
- f. ?? ?axal /yoxal ?et ha-tapu?ax
 ate-he/will-eat-he
- (52) a. ?ani/?ata/hu ?oxel ?et ha-tapu?ax
 I you/he eat(s) ACC the-apple
- b. * ?oxel ?et ha-tapu?ax
 eat(s)

In complement clauses, pro-drop in third person can be improved if the missing subject of the complement clause is coreferential with an argument of the matrix. In present tense, however, no improvement results:

- (53) a. david ?amar le-rina she-hicli?ax ba-bxina
 David said to-Rina that-succeeded-m in-the-test
 David told Rina that he passed the test.
- b. david ?ixel le-rina she-tacli?ax ba-bxina
 David wished to-Rina that-will-succeed-f in-the-test
 David wished Rina success in the test.

- (54) *david ʔamar le-rina she-macliʔax ba-bxinot
David said to-Rina that-succeeds in-tests
 David told Rina that he succeeds in tests (usually).

The gap in the subject position of relative clauses has markedly different characteristics. Not only is it obligatory in all the cases in which pro-drop is optional, it is also obligatory in the cases in which pro-drop results in ungrammaticality. Thus consider the contrast between the (a) examples and the (b) examples below:

- (55) a. ha-ʔish she-ʔohev ʔarayot neʔelam
the-man that-loves lions disappeared

- b. *ha-ish she-hu ʔohev ʔarayot neʔelam
that-he

- (56) a. ha-ʔish she-ʔahav ʔarayot neʔelam
the-man that-loved lions disappeared

- b. *ha-ʔish she-hu ʔahav ʔarayot neʔelam
that-he

Interestingly, in configurations which block movement, a subject resumptive pronoun may appear. Thus in (57), in which the relativization is into a Complex NP, the subject pronoun may appear:

- (57) ha-ʔisha she-raʔiti ʔet ha-namer she-hi gidla ...
the-woman that-saw-I ACC the-tiger that-she raised ...

However, a resumptive pronoun inside a Complex NP may be missing *only* in accordance with the restrictions which constrain the pro-drop phenomenon. Thus (58), in which the subject pronoun is missing and the verb is inflected in the third person, past tense, is grammatical, the subject being interpreted as coreferential with an argument of the matrix – the relative head itself (and compare with (53a-b)). But (59), in which the verb is in the present tense, which never allows pro-drop, is ungrammatical (compare with (54)):

- (58) ha-ʔisha she-raʔiti ʔet ha-namer she-gidla ...
the-woman that-saw-I ACC the-tiger that-raised-f ...

the woman that I saw the tiger that [she] raised

- (59) *ha-ʔisha she-raʔiti ʔet ha-namer she-megadelet
raises-f

These facts lead us to a clear conclusion: the *obligatory* gap in subject relative clauses illustrated by (55)–(56) is related to movement and is distinct from the subject gap attested in pro-drop constructions. On the other hand, a resumptive pronoun strategy is attested in subject relatives precisely when movement is independently blocked. In these cases, no obligatory gap is attested. Rather, the distribution of the subject pronoun is determined solely on the basis of the pro-drop rule, as is illustrated by (58)–(59).

A similar phenomenon is attested in Egyptian Arabic, as described in Eid (1976). There, too, one finds an obligatory subject gap in relative clauses, as opposed to an optional subject gap elsewhere (cf. (60a–b)). As predicted, the distribution of *resumptive* pronouns is determined by the pro-drop rule, and hence the optionality of the subject pronoun in (61):

- (60) a. il-walad illi katab il-gawaab ...
 the-boy that wrote the-letter ...
- b. *il-walad illi huwwa katab il-gawaab ...
 the-boy that he wrote the-letter ...
- (61) il-bint illi suft il-walad illi hiyya/Ø darab-it-u
 the-girl that saw-I the-boy that she/Ø hit-f-him

3.3. Subject Relatives Without Gaps

The construction in (50) requires an obligatory gap. On the other hand, where movement is blocked (as in the constructions in (57)–(58)) a resumptive pronoun is obligatory and its optional absence is not a relative clause phenomenon: it is regulated by the rule of pro-drop. There are, however, two kinds of cases in which a resumptive pronoun may optionally appear in the subject position: when the relativization is of an embedded subject (as in (62a)) and as observed by Doron (1981), when the relativization is in a topicalization construction, as is demonstrated by (62b) (and see also (46) above):

- (62) a. ha-ʔish she-xana ʔamra she-(hu) ʔohev ʔarayot ...
 the-man that-Xana said that-(he) loves lions ...
- b. ha-ʔish she-rak ʔal kesef (hu) xoshev ...
 the-man that-only about money (he) thinks

If one assumes that the gap in subject relatives is formed by movement,

one must assume that in (62a-b) the movement is optional, rather than obligatory, as it is in (50) above. It is not possible to assume that movement in (62a-b) is blocked altogether. If that were the case, one would expect the distribution of subject gaps to follow solely from the pro-drop rule, as is the case for configurations in which movement is clearly blocked, demonstrated in (57)–(59). However, it is clear that in (62a-b) the gap may occur in environments which do not license pro-drop, e.g., when the verb is in the present tense. The situation in (62a-b) is thus the true parallel of the situation in object relatives: a movement option and a resumptive pronoun option are attested side by side.

Digressing briefly, it is evident from the grammaticality of (62a) under the expansion in which the resumptive pronoun is missing, that Hebrew does not exhibit complementizer-[e] effects. I will assume here without detailed discussion that the essence of the analysis proposed for Italian by Rizzi (1982) holds for Hebrew. Concretely, I assume following Pesetsky (1982), as modified by Rizzi (1982), that complementizer-[e] sequences in English are ruled out by the Empty Category Principle of Chomsky (1981).¹⁰ Specifically, INFL is not a proper governor, and when extraction has occurred from the [NP,S] position INFL cannot serve as a proper governor for the empty category. In English sentences such as (63a), extraction from the [NP,S] position is grammatical due to proper government of the empty category in the [NP,S] position by its coindexed antecedent in COMP. In the absence of proper government from COMP, extraction from the [NP,S] position is blocked. The ungrammaticality of (63b) can thus be explained, if one assumes that since the COMP structure in (63b) is branching, the antecedent can no longer govern the empty category in the [NP,S] position, and hence the sentence is ruled out as a violation of the Empty Category Principle. The elimination of the trace in COMP (utilizing, say, a deletion rule) would result in a similar violation. On the other hand, the deletion of the complementizer would result in the elimination of the branching structure, hence enabling the trace in COMP to properly govern the empty category in the [NP,S] position.

¹⁰ For simplicity's sake, I assume here the definition of the EMPTY CATEGORY PRINCIPLE and PROPER GOVERNMENT given in Chomsky (1981):

- (i) An empty category must be properly governed.
- (ii) α properly governs β iff α governs β and:
 - a. α is [$\pm$ N; $\pm$ V]; or
 - b. α is coindexed with β .

(63) a. The man [_S [_{COMP} who_i] [_S [_e]_i invited John]]

b. *the man who Bill thinks [_S [_{COMP} e_i **that**] [_S [_e]_i invited John]]

In languages such as Italian and Hebrew, which do not allow for complementizer deletion, and hence block proper government from COMP in the equivalent of (63b) (e.g., (62a)), extraction of the subject is nevertheless possible. This is due to the fact that the subject may be postposed and adjoined to the VP. Such constructions in Hebrew are exemplified by the grammatical (64):¹¹

(64) kafcu min ha-matos shlosa ?anashim
jumped from the-plane three people
 Three people jumped from the plane.

The extraction of the subject from the post-verbal construction is well-formed in Rizzi's system as the post-verbal empty category is properly governed by the verb.

It should be noted at this point that the COMP node itself always governs the [NP,S] position, and hence proper government from COMP is possible even when COMP is doubly-filled, providing the COMP node bears an index (supplied by the COMP-indexing device argued for in section 2). Naturally, this state of affairs will arise only in relative clauses, and then only in the COMP immediately adjacent to the head.

Let me now return to (62a-b). Considering these sentences now to be the true parallels of the object relatives discussed at length in sections 1-2, a few questions remain with respect to the cases in which the parallelism between object and subject relatives fail. First, why is the resumptive pronoun strategy blocked in sentences such as (50b) above, or in other words, why isn't (50b) grammatical on a par with (1a) repeated here as (65)? Second, why does deletion from COMP seem obligatory for some subject relatives, or in other words, why is (66a), in which the subject pronoun was moved successive cyclically to the upper COMP, ungrammatical regardless of the position of the subject trace, when compared

¹¹ I abstract away here from the status of the [NP,S] position in (64). Safir (1982) assumes that violations of the Empty Category Principle in the [NP,S] position of such constructions are avoided if one assumes that expletive empty categories are not subject to the ECP. In Borer (1984) I assume that the [NP,S] position in these constructions simply does not exist, and the postverbal subject is base-generated. I refer the reader to these references for discussion of the issues involved.

with (20a) (repeated here as (66b)), in which the same operation moved an object pronoun, resulting in grammaticality?

- (65) ra?iti ?et ha-yeled she-/?asher rina ?ohevet ?oto
saw-I ACC the-boy that Rina loves him
 I saw the boy that Rina loves.

- (66) a. *ha-?ish she-/?asher hu xana ?amra she ([e])?ohev ?arayot ([e])
the-man that he Xana said that loves lions
 The man that Xana said loves lions.

- b. ha-?ish she-/?asher ?oto xana ?amra she-dalya ma?amina
the-man that him Xana said that-Dalya believes
she-kobi pagash [e]...
that-Kobi met...
 the man who Xana said that Dalya believes that Kobi met...

Tackling the second issue first, I will assume that subject relatives such as (50a) do not involve any deletion from COMP. The obligatory absence of a pronoun operator, which is illustrated by the ungrammaticality of (66a), is not due to a deletion in COMP. Rather, I will suppose that unlike non-subject pronouns in Hebrew, subject pronouns are not homophonous with relative operators. Rather, the subject relative operator in Hebrew is abstract, it lacks a phonetic matrix. From this it follows that the absence of an overt fronted pronoun in (50a) is not due to deletion, but rather due to the abstract nature of the subject relative pronoun. Similarly, the ungrammaticality of (66a) is not due to a failure to delete the pronoun operator, but due to the fronting of a non-operator. Thus the ungrammaticality of (66a) is on par with the ungrammaticality of its literal English translation, in which a true pronoun (which cannot function as an operator) has been fronted to COMP.¹²

Interesting confirmation for the abstract nature of the subject operator is its failure to trigger inversion. Thus compare (67a), in which an object pronoun was fronted and subsequently deleted, and inversion is fully

¹² Note that the sentence in (66a) should be grammatical if the fronted pronoun is in the TOPIC position. And indeed, if the pronoun is given strong emphasis, the sentence is considerably better. It is, however, still marginal. While the marginality of the topicalized version is not explained, it does not seem to be related to relative clause constructions. Thus the marginal topicalization reading of (66a) is on par with the marginality of (i), which does not contain a relative clause:

grammatical, with (67b), in which inversion results in marginality:

- (67) a. ha-ʔish_i she-/ʔasher amra rina le-david she-dalya
the-man that said Rina to-David that-Dalya
 makira [e]_i ba
knows came

The man that Rina said to David that Dalaya knows came.

- b. ʔʔha-ʔish_i she-/ʔasher ʔamra rina le-david she makir ʔet
the-man that said Rina to-David that knows ACC
 dalya ba
Dalya came

The man that Rina said to David knows Dalya came.

In order to tackle the ungrammaticality of (50b) I will digress briefly and examine the interaction of resumptive pronouns and the binding conditions of Chomsky (1981).

3.4. Resumptive Pronouns and the Binding Conditions

Chomsky (1981) suggests that the following conditions constrain the occurrence of different NP types:

- (68) A. Anaphors must be bound in their governing category.
 B. Pronouns must be free in their governing category.
 C. Names must be free.

Chomsky defines the notion of GOVERNING CATEGORY roughly as in (69):¹³

-
- (i) ʔ ʔata roʔe ʔet ha-ʔish she-ʔomed shamʔ xana ʔamra she-hu
you see ACC the-man that-stands there? Xana said that-he
 hi xashva she-ʔohev ʔarayot
she thought that-loves lions

Do you see the man standing there? Xana said that it's him that she thought loved lions.

¹³ The following is the definition of GOVERNMENT assumed here:

- (i) α governs β iff:
 a. α c-commands β
 b. all head projections which dominate β dominate α
 A Head Projection: Given a maximal sequence $\alpha \dots \alpha_n$ such that α_n is a maximal projection and for any α_i , α is the head of α_i , α_n is a head projection.

(69) *Governing Category (definition):*

α is a governing category for β iff α is the minimal maximal projection containing β , a governor for β and a SUBJECT which c-commands β .

It is worthwhile to mention at this point that the definition of governing category as well as the binding conditions are based on the assumption, advanced in Chomsky (1981), but abandoned in later work, that the head of $\bar{S}$ and S in INFL, making the former $\overline{\text{INFL}}$ and the latter INFL .

The binding conditions in (68) are defined in Chomsky (1981) for A-binding relations, that is, the relations which hold between NPs which occupy A-positions. I will assume, however, as is suggested in Aoun (1981), that they constrain not only A-binding, but also $\bar{A}$ -binding, i.e., the relationship between an antecedent in a non-argument position (such as a Wh element, an indexed COMP or a TOPIC) and the element in an argument position which it binds. Concretely, I will assume the following revised formulation of binding condition B:

- (70) B. Pronouns must be X-free in their governing category
($X = A, \bar{A}$)

I would like to consider now the way in which the revised binding condition B can be utilized to account for the distribution of resumptive pronouns in the subject position.¹⁴ Before doing so, however, I would like to consider briefly the proper notion of governing category.

Stowell (1981) proposes that while INFL is the head of S, it is the COMP

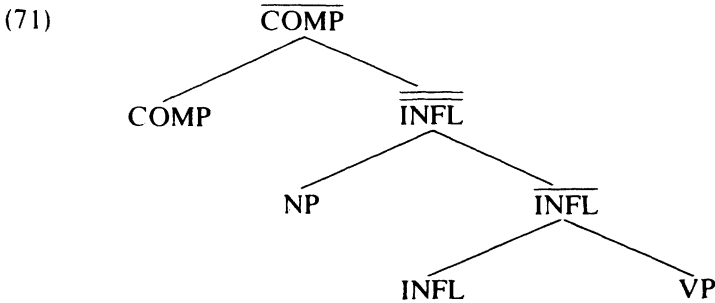
See fn. 15 below for a definition of c-command.

The notion of SUBJECT is adopted here from Chomsky (1981). SUBJECT is the most prominent nominal element in a given projection. For S and for $\bar{S}$ it is the AGR (= agreement) element in INFL, if INFL includes an AGR, and the [NP,S] position if INFL does not include AGR, as in the case of infinitives.

Chomsky (1981) assumes that the relevant concept of SUBJECT in the definition of a governing category is the notion of *accessible* SUBJECT. The concept of accessibility, having to do with a potential coindexation between an NP (the α of definition (69)) and the SUBJECT does not play a role in this paper, and hence it is not used. No theoretical statement is intended.

¹⁴ This direction of research, which utilizes the binding conditions to account for the distribution of resumptive pronouns in relative clauses was first suggested by Huybregts (1980). Huybregts assumed that A-binding rules out resumptive pronouns in the subject position as they are bound by the relative head. The current direction of research, entailing that $\bar{A}$ -binding is the relevant notion, was first suggested to me by N. Chomsky. For a similar line of investigation applied to Irish Relative clauses, which exhibit a very similar range of phenomena, see McCloskey (1983).

node which is the head of $\bar{S}$. Stowell further suggests that COMP governs the [NP,S] position across an S boundary, and I will assume this to be achieved by exceptional government. Effectively, then, the tree structure of a simple sentence is as in (71):



Considering now the definition of governing category in (69), note that for all elements in the VP, the governing category is $S (=INFL)$. It is within the S node that an argument in the VP finds a governor (the verb) and a SUBJECT (the AGR node in INFL). On the other hand, the [NP,S] position in structures such as (71) is governed twice: first by the head of its own clause, i.e. INFL, and then by the head of $\bar{S}$, the COMP node, which governs it exceptionally. It is only natural to assume that the governing category for the [NP, S] position must include both these governors. Hence I propose the following slight change in the definition of governing category, intended to capture these differences:

(72) *Governing Category (revised definition):*

α is a governing category for β iff α is the maximal projection containing β , all governors of β and a SUBJECT which c-commands β .

(72) differs from (69) in one respect: it requires that all governors of β be included in its governing category, thus forcing the governing category for the [NP,S] position to include both its governors: INFL and COMP.

Returning now to the interaction of resumptive pronouns with the binding conditions, recall that I assume that the interpretation of relative clauses with resumptive pronouns involves the binding of a coindexed pronoun by an abstract operator (see subsection 1.1.). The relationship between this abstract operator and the resumptive pronoun is a relationship of $\bar{A}$ -binding. Given the assumption that the binding conditions

constrain $\bar{A}$ -binding relations as well as A-binding relations, this relationship must conform to the revised binding condition in (70).¹⁵

Consider first the sentences in (50). In (50a), an abstract relative operator has been fronted to the COMP position, leaving behind a trace which is not pronominal. Thus the application of binding condition B is irrelevant to that construction. Now consider (50b): in this sentence, the abstract operator binds the subject pronoun which is in the [NP,S] position. The governing category for this pronominal is $\bar{S}$ (COMP). Note that this governing category includes the pronoun itself, a SUBJECT (the agreement in INFL. See fn. 13) and both governors of the [NP,S] position: INFL and COMP. However, in this governing category the pronoun is not free: it is $\bar{A}$ -bound by the abstract relative operator. Thus (50b) is ruled out as a violation of the binding conditions.

Now consider the cases in which a pronominal subject is grammatical. Observe first (62a), in which a resumptive pronoun is found in an embedded clause. Note that the governing category for the resumptive pronoun in (62a) is the embedded $\bar{S}$ (COMP), since this maximal projection includes both governors of the pronoun and the SUBJECT of INFL (again, the embedded agreement in INFL). Thus the revised binding condition B requires that the pronoun be free in that governing category, and it is free in it, as its antecedent is in the higher $\bar{S}$ adjacent to the relative head. The grammaticality of the sentence follows.

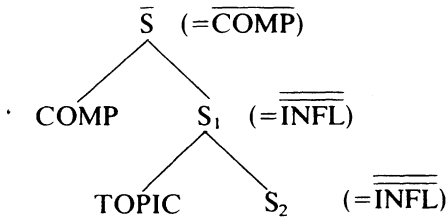
Now consider (62b), a case in which a resumptive pronoun is attested in the subject position in a topicalization construction. Recall that the TOPIC position in Hebrew appears to the right of the COMP node, and that I assumed topicalization to have the structure in (49), repeated here as (73):

¹⁵ I assume the following definitions of the notion BOUND and of the structural relation C-COMMAND:

- (i) α is *bound* by β iff α and β are coindexed and β c-commands α .
- (ii) α c-commands β iff all head projections which dominate α dominate β .

The governing category proposed in (72) has an important consequence for some aspects of the theory of generalized binding proposed in Aoun (1981). Aoun assumes that Wh traces are anaphors, and as such, they fall under binding conditions A and must be ($\bar{A}$ -) bound in their governing category. It is clear that if the definition in (72) is correct, it is no longer possible to maintain that Wh traces are anaphors. If that were the case, all extraction from VP-internal positions would result in an unbound anaphor in the structure, and hence in a violation of binding condition A.

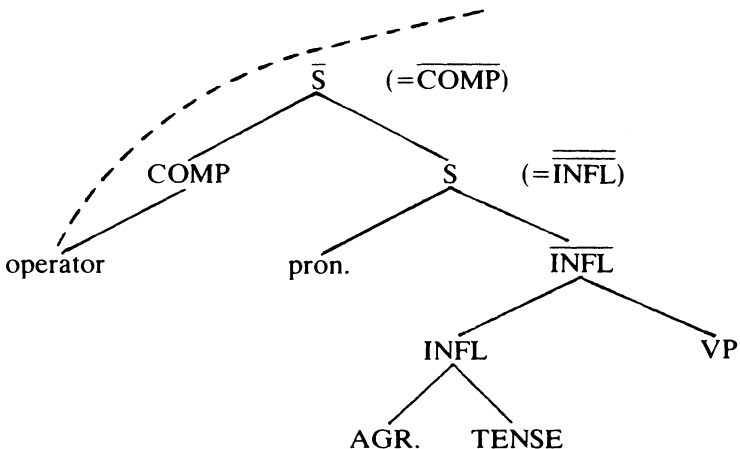
(73)



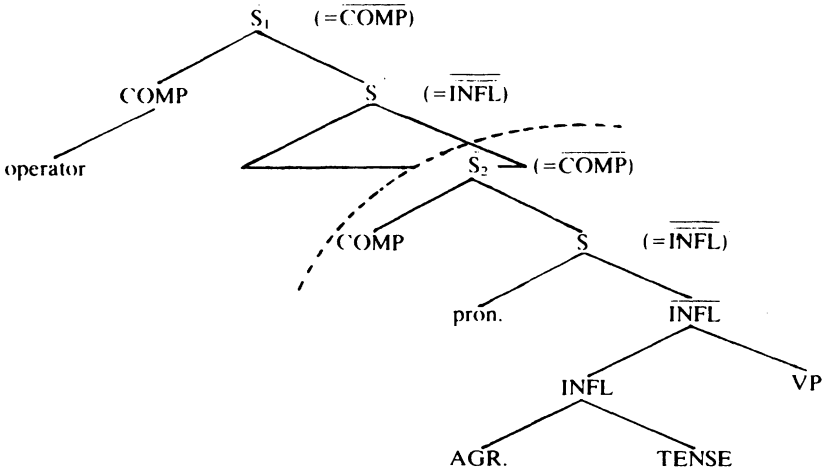
Now consider again the governing category for the pronoun: it is easy to see that it will not contain the COMP node. Rather, it will be restricted to S_2 . I assumed that COMP is an exceptional governor, and as a result of this, COMP could govern across one maximal projection: in this case the S_1 node. However, government of the [NP,S] position from COMP is impossible in structures such as (73), as it would require the COMP to govern across both S_1 and S_2 . Applying now the definition of governing category in (72), note that as the [NP,S] position has only one governor, i.e. the INFL node in (73), its governing category will be the maximal projection which contains its sole governor and the SUBJECT, once again, the agreement in INFL. This maximal projection is in the case of (73) the S_2 node. In this projection, the pronoun does not have an $\bar{A}$ -antecedent and it is thus $\bar{A}$ -free as required. The grammaticality of (62b) follows.

The governing categories of (50b), (62a) and (62b) respectively are illustrated by the diagrams in (74):

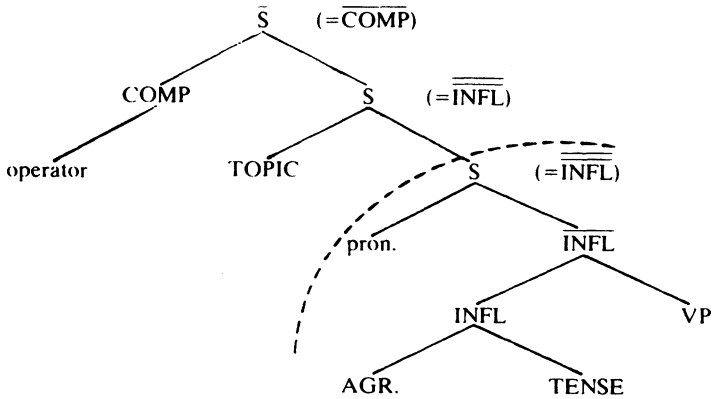
(74) a. (=50b)



b. (=62A)



c. (=62b)

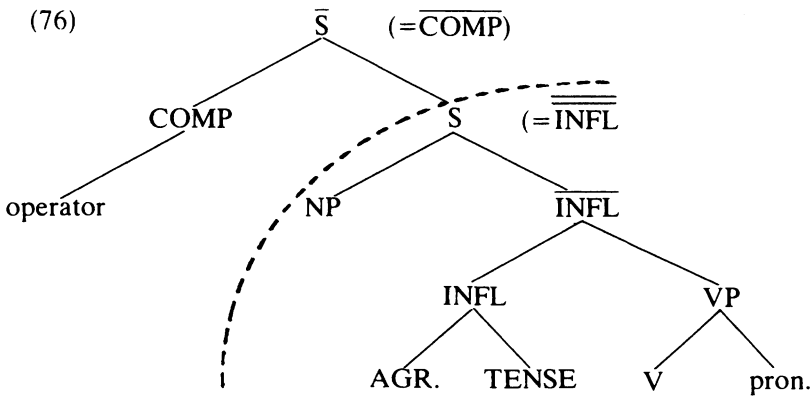


Note that the system proposed here accounts for the intuition that the sentences in (62a–b) are the true parallel of object relatives. Thus consider the grammatical sentences in (1a) and (2a), repeated here as (75a–b):

- (75) a. *raʔiti ʔet ha-yeled she-/ʔasher rina ʔohevet ʔoto*
saw-I ACC the-boy that Rina loves him
 I saw the boy that Rina loves.

- b. raʔiti ʔet ha-yeled she-ʔasher rina xashva ʔalav
saw-I ACC the-boy that Rina thought about-him
 I saw the boy that Rina thought about.

Given the definition of governing category in (72), the grammaticality of (75a–b) is easy to account for. Both resumptive pronouns are governed in the VP. As VPs do not have SUBJECTs, it is clear that the governing category of an element in the VP must seek a projection of INFL. Given the definition in (72), the governing category for the pronouns in (75a–b) will thus be $\overline{\text{INFL}}$ (=S). In this governing category, the pronouns are $\bar{A}$ -free. The governing category of the resumptive pronouns in (75a–b) is illustrated in (76):



From (76) it is obvious that the pronoun in the VP is free in its governing category, since this governing category does not include the COMP position. In this respect, the sentences in (75a–b) parallel the sentences in (62a–b): in all four cases, the resumptive pronoun is allowed since it does not have an $\bar{A}$ -antecedent in its clause.

The conclusion that in structures such as (62b) the [NP,S] position is not governed from COMP (and hence not properly governed either) necessitates a brief comment on the grammaticality of sentences such as (76) (the gap version of (62b)):

- (76) ha-ʔish she-rak ʔal kesef xoshev
the-man that-only about money thinks
 the man that only thinks about money

Note that if one assumed the structure of (76) to be as in (77), one would expect it to be ungrammatical, since the [e] in the [NP,S] position is not properly governed:

- (77) *ha-ʔish_i she-rak ʔal kesef [e]_i xoshev
 the-man that-only about money thinks

However, there is one more possible derivation for (76), in which the empty category is properly governed. I proposed above that violations of the complementizer-[e] restriction in Hebrew are possible as a result of the availability of a subject postposing rule (see (64) and related discussion). Given the availability of such postposing, I will assume that the structure of (76) is as in (78):

- (78) ha-ʔish_i she-rak ʔal kesef xoshev [e]_i
 the-man that-only about money thinks

In accordance with the analysis proposed in Rizzi (and see also Borer, to appear, 1984), the post-verbal empty category is properly governed by the verb, hence licensing extraction in the post-verbal position.¹⁶

Let me summarize this section: in subsection 3.1 I presented evidence which distinguishes subject relatives from object relatives. In the former, an obligatory gap shows up in a significant subset of the cases, whereas in the latter the gap is always optional. In subsection 3.2 I examined and discarded the possibility that this gap is to be attributed to the pro-drop phenomena. This was done by indicating that the distribution of pro-drop in Hebrew is very different from the distribution of obligatory gaps in subject relatives. In section 3.3 I discussed subject relatives in which the

¹⁶ The availability of subject postposing in Hebrew makes yet one more prediction with respect to subject relative clauses: it is predicted that in post-verbal position subject resumptive pronouns should be licensed. Unfortunately, however, the postposing of a pronominal subject is stylistically odd, and thus the oddity of post-verbal subject resumptive pronouns follows. It should be noted, however, that while sentences such as (50b) are distinctly ungrammatical, the oddity of (i), in which a subject resumptive pronoun appears in a post-verbal position is rather different from that of (50b), and is exactly on a par with that of (ii), in which a pronoun has been postposed in a non-relative construction:

- (i) ??kafac min ha-matos hu
 jumped from the-plane he
 He jumped from the plane.
- (ii) ??ha-ʔish she-kafac min ha-matos hu
 the-man that-jumped from the-plane he

gap is not obligatory and which truly parallel object relatives. In subsection 3.4 I utilized the binding conditions of Chomsky (1981) to explain the full distribution of subject resumptive pronouns. Concretely, I assumed that the binding conditions constrain $\bar{A}$ -binding as well as A-binding, and that further, the definition of governing category must be altered so as to reflect the fact that the [NP,S] position is governed both by the INFL node and by the COMP node. The revised definition derived without further stipulation the distribution of resumptive pronouns in all relative clause constructions in Hebrew.

REFERENCES

- Anderson, R. S. and P. Kiparsky (eds.): 1973, *A Festschrift for Morris Halle*, Holt, Rinehart and Winston, New York.
- Aoun, J.: 1981, *On The Formal Nature of Anaphoric Relations*, unpublished Ph.D. dissertation, MIT, Cambridge.
- Belletti, A., L. Brandi, and L. Rizzi (eds.): 1981, *Theory of Markedness in Generative Grammar. Proceedings of the 1979 GLOW Conference*, Scuola Normale Superiore, Pisa.
- Borer, H.: 1981, 'On the Definition of Variables,' *Journal of Linguistic Research* 1.3, 17–40.
- : 1984, 'I-subjects,' unpublished ms., UC Irvine.
- : (to appear), *Parametric Syntax*, Foris Publications, Dordrecht.
- Bresnan, J. and J. Grimshaw: 1978, 'The Syntax of Free Relatives in English,' *Linguistic Inquiry* 9, 331–391.
- Chomsky, N.: 1973, 'Conditions on Transformations,' in S. R. Anderson and P. Kiparsky (eds.).
- : 1977, 'On Wh-movement,' in P. Culicover, A. Akmajian and T. Wasow (eds.).
- : 1980, 'On Binding,' *Linguistic Inquiry* 11, 1–46.
- : 1981, *Lectures on Government and Binding*, Foris Publications, Dordrecht.
- : 1982, *Concepts and Consequences of the Theory of Government and Binding*, MIT Press, Cambridge.
- and H. Lasnik: 1977, 'Filters and Control,' *Linguistic Inquiry* 8, 425–504.
- Culicover, P., A. Akmajian and T. Wasow (eds.): 1977, *Formal Syntax*, Academic Press, New York.
- Doron, E.: 1981, 'The Syntax and Semantics of Resumptive Pronouns,' *Texas Linguistics Forum*, no. 19.
- : 1983, *The Syntax and Semantics of Hebrew Copula Constructions*, unpublished Ph.D. dissertation, University of Texas, Austin.
- Eid, M.: 1976, 'Arabic Relativization: Shadow Deletion or Pronoun Drop?' paper read at the 1976 annual meeting of the Linguistic Society of America, Philadelphia.
- Fassi Fehri, A.: 1978, 'Relatives restrictives en Arabe,' unpublished ms., Rabat University, Rabat.
- Givon, T.: 1973, 'Complex NPs, Word Order and Resumptive Pronouns in Hebrew,' in *I'll Take the High Node and You Take the Low Node*, papers from the Comparative Syntax Festival, Chicago Linguistic Society, Chicago.
- Groos, A. and H. van Riemsdijk: 1979, 'Matching Effects in Free Relatives,' in Belletti et al., (eds.).
- Hale, K.: 1978, 'Obviation in Modern Irish,' unpublished ms., MIT, Cambridge, Massachusetts.

- Hayon, Y.: 1973, *Relativization in Hebrew*, Mouton, The Hague.
- Huybregts, M.A.C.: 1980, paper read at the GLOW conference, Nijmegen.
- Jaeggli, O.: 1982, *Topics in Romance Syntax*, Foris Publications, Dordrecht.
- Kayne, R. and J.-Y. Pollock: 1979, 'Stylistic Inversion, Successive Cyclicity, and Move NP in French,' *Linguistic Inquiry* 9, 595-621.
- Keyser, S. J. 1979 *Recent Transformational Studies in European Linguistics*, Linguistic Inquiry Monograph no. 3, MIT Press, Cambridge Massachusetts.
- Koster, J.: 1978 'Why Subject Sentences Don't Exist,' in S. J. Keyser (ed.).
- Manzini, M.-R.: 1983, *Restructuring and Reanalysis*, unpublished Ph.D. dissertation, MIT, Cambridge.
- McCloskey, J.: 1983, 'On the Binding of Resumptive Pronouns in Modern Irish', paper presented at the GLOW conference, York.
- Pesetsky, D.: 1982, 'Complementizer-trace Phenomena and the Nominative Island Constraint,' *The Linguistic Review* 1, 297-343.
- Reinhart, T.: 1979, 'Two COMPs,' in Belletti et. al. (eds.).
- Rizzi, L.: 1982, *Issues in Italian Syntax*, Foris Publications, Dordrecht.
- Ross, J. R.: 1967, *Conditions on Variables in Syntax*, Ph.D. dissertation, MIT, Cambridge, Massachusetts.
- Safir, K.: 1982 *Syntactic Chains and the Definiteness Effect*, unpublished Ph.D. dissertation, MIT, Cambridge.
- Stowell, T.: 1981, *Origins of Phrase Structure*, Ph.D. dissertation, MIT. To be published by MIT Press, Cambridge.

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