RESUMPTIVE CHAINS IN RESTRICTIVE RELATIVES,

APPOSITIVES AND DISLOCATION STRUCTURES

by

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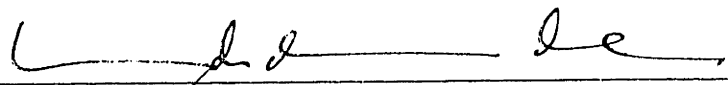
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ABSTRACT

This thesis proposes that *wh*-operators in (headed) restrictive and non-restrictive relatives are resumptive chains. A resumptive chain can have +*wh*-features or -*wh*-features. If it has -*wh*-features, it can be either a null pronoun or an overt pronoun. It can have either of the two interpretations that pronouns have. Thus, in restrictive relatives, it has a bound variable interpretation. In appositive relatives, it is a referring pronoun (or what Evans (1982) calls an E-type pronoun). This resumptive chain can be created at S-structure or at LF. In particular, it is argued that what has been called (misleadingly) in the literature a 'resumptive pronoun' in languages like Hebrew or Irish (i.e. a pronoun that freely alternates with gaps in certain positions) is an instance of in-situ relativisation: an overt -*wh*-pronoun in-situ at S-structure creates an operator-variable chain at LF. It does not have the same range of interpretations as a trace created at S-structure because it is not a variable at S-structure. In contrast, the *wh*-operator in appositive relatives never has a bound variable interpretation. An analysis of appositives is proposed based on Emonds' (1979) *Main Clause Hypothesis*. It is argued that appositive clauses are lifted at LF out of the matrix clause containing their antecedent. The relation between the appositive pronoun and its antecedent is treated on a par with anaphora across discourse, except in one respect: anaphora is obligatory precisely because of the *wh*-features of the pronoun. Finally, it is argued that, under the above proposal, the (Clitic)Left-Dislocation construction discussed by Cinque (1991) must be a wh-movement construction. The clitic-pronoun is a -*wh*-operator in-situ at S-structure, on a par with the pronoun that appears in Hebrew relatives. However, it has the syntactic properties and the interpretation of the +*wh*-operator in appositive relatives.

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Organisation of the Thesis

In Chapter I, I propose that resumptive pronouns in languages where their distribution is not restricted to Islands are an instance of in-situ relativisation. These pronouns have been analysed in the literature as S-structure operator-bound pronouns. In contrast, I propose that a resumptive pronoun in these languages is an operator-variable chain created by *wh*-movement at LF. A chain headed by an overt pronoun differs from a chain headed by a null operator or by a +*wh*-operator in one respect: it is derived at LF.

In Chapter II, I show that this proposal derives the *apparent* immunity of these pronouns to Weak Crossover; 2) their co-occurrence with gaps in coordinate structures 3) their ability to licence Parasitic Gaps; and 4) why they can serve as the loci of Reconstruction. The assumption that these pronouns ares not variables at S-structure explains why they do not have the same range of interpretations as a gap in the same position Further, I propose a Theory of Weak Crossover based on Stowell (1991) and Safir (1986) that derives the distribution of gaps and pronouns in Across The Board constructions.

In Chapter III, I argue that all *wh*-operators in (headed) relatives are resumptive chains. Resumptive chains are pronouns with *wh*-features. These pronouns can have +*wh*-features or -*wh*-features. If they have -*wh*-features, they can be either phonologically null or overt. Just like any pronoun, they can be bound pronouns, as in restrictive relatives, or referring pronouns, as in appositive relatives.

I then develop an analysis of appositive relatives based on Emonds' (1979) *Main Clause Hypothesis* (MCH). I argue that appositives are interpreted at LF as independent clauses. The anaphoric relation between the appositive pronoun and its antecedent is treated on a par with the anaphoric relation established

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across discourse between a pronoun and its antecedent in a separate clause, except in one respect: the pronoun must resume a constituent in the matrix clause from which the appositive was lifted in the mapping between S-structure and LF. This is precisely the function of the *wh* -features of the pronoun.

The idea that the appositive clause is lifted out of the clause containing its antecedent at LF together with the assumption that the relative pronoun is a resumptive chain explains why quantifiers cannot be modified by an appositive relative; why a quantifier in the clause containing the antecedent of the appositive cannot bind a pronoun in the appositive clause; why indefinites under the scope of a quantifier cannot be modified by an appositive; why any predicate under the scope of negation cannot be the antecedent of an appositive; and the well known 'opacity' of appositives. Finally, I argue that whenever the antecedent of an appositive is non-referential, the appositive pronoun does not have the interpretation of a bound variable, but that of an E-type pronoun.

In Chapter 4, I extend the proposal that resumptive pronouns are *wh*-chains to the resumptive clitic-pronouns that appear in the clitic-left-dislocation construction (CLDL) discussed by Cinque (1990) and analyse CLDL as a *wh*-movement construction. I argue that CLDL is derived by LF-movement of an overt -*wh*-operator and that this operator has the syntactic properties and the interpretation of the +*wh*-operator in appositive relatives. In fact, under the proposal developed in this thesis that resumptive pronouns are pronouns that have *wh*-features, CLDL must be a *wh*-movement construction. Finally, I propose an analysis of the Island effects in CLDL.

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Chapter I

Resumptive Pronouns

1. Introduction: An Asymmetry Between Relativisation and Question Formation.

Levels of representation are related by iterated applications of Affect-α. There is parametric variation across languages with respect to the level of representation at which a given instance of Affect-α is required to apply. Thus, a given instance of Move-α, be it NP-movement or *wh*-movement, will be required (by some principle of UG) to apply at the level of S-structure in certain languages, but after S-structure, at the level of Logical Form (LF), in other languages. Thus, for instance, NP-movement of the VP-internal subject to Spec IP is required by Case Theory. It applies at S-structure in English, yielding SVO word order, but applies at LF in Arabic, yielding VSO order[1]. Likewise, English questions are derived by wh-movement applying at S-structure whereas Chinese questions are derived by wh-movement applying at LF. However, this holds only for one subcase of wh-movement, namely question-formation. Thus, although relativisation is assumed to be another instance of wh-movement (see, for instance, Chomsky 1977), there is no discussion in the literature as to whether there is parametric variation across languages with respect to the level of representation at which *wh*-movement

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[1] See Koopman & Sportiche (1988) amongst others for an analysis of VSO vs SVO languages in terms of whether or not NP-movement applies at S-structure. LF NP-movement was proposed in Chomsky (1989).

derives a relative clause.[2] Movement of a *wh*-operator in a relative clause (whether it is a *wh*-word or an empty operator) always takes place at S-structure. Thus, there is no counterpart to wh-in-situ in relativisation.

I want to examine whether this alleged asymmetry between question-formation and relativisation is true. To this effect, I make the following assumption: if relativisation is derived by move-α, then the in-situ option should also be available, and languages should vary parametrically with respect to the level of representation at which relative clauses are formed. In particular, I will argue that resumptive pronoun strategies in relative clauses are instances of in-situ relativisation[3]. This chapter and chapter II will be devoted to the syntax of resumptive pronouns in restrictive relatives. I will claim that what has been called in the literature *The Resumptive Pronoun Strategy* in languages where resumptive pronouns occur 'freely' (that is, not exclusively within islands) are relative pronouns in-situ at S-structure.

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[2] More precisely, the literature is silent on the question of whether or not languages vary parametrically with respect to the level of representation at which *wh*-movement of a +/-*wh*-pronoun takes place in relative clauses. Head-internal relatives (that is, relatives where the lexical NP denoting the semantic class of the restricted noun appears internal to the relative clause; i.e in the D-structure position of a relative pronoun in head-external relatives) have been analysed as involving LF-movement of the head noun, see Culy (1990) and Williamson (1987). Thus, the question which has not been addressed (to my knowledge) is whether there is an in-situ option for *wh*-operators in relatives.

[3] Setting aside head-internal relatives which have been analysed as instances of in-situ relativisation (see the above footnote).

2. What are Resumptive Pronouns ?

2.1. Chao & Sells (1983) and Sells' (1984) analysis.

Resumptive pronouns[4] in relative clauses are pronouns that occupy the position that a gap created by S-structure movement of a *wh*-pronoun would. Chao and Sells (1983) and Sells (1984) distinguish between two types of languages using resumptive pronoun strategies: 1) languages in which the interpretation of a gap and of a pronoun occupying the position of that gap is the same and, 2) languages in which the pronoun does not receive the interpretation that a gap occupying the same position would. Hebrew is an example of the former type of language whereas English is an example of the latter type.

Resumptive pronouns in Hebrew have the following properties: a) they are not restricted to islands, as shown in (1); b) they alternate freely with gaps in certain positions, as (1) and (2) show, and c) they have the interpretation that a gap in the same position would receive; namely, that of a bound variable. This is shown in (3) by the fact that resumptive pronouns in Hebrew relatives can be bound by an operator whose antecedent is a quantifier expression [5].

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[4] For the present, I restrict my discussion to resumptive pronouns in restrictives relative clauses. I will discuss resumptive pronouns in questions, non-restrictive relatives and left-dislocation further on.

[5] In the following examples, $\check{s}e$ is the equivalent of the complementizer *that*. It introduces both complement clauses and relative clauses. I will discuss relative complementizers in Hebrew in Section 3 of this chapter.

(1) ze   ha-ʔiš$_i$ [Ø$_i$ [še ʔoto$_i$ raʔiti ʔetmol]]
     this the-man   that him   saw-I   yesterday
     'This is the man that I saw (*him) yesterday.'

(2) ze   ha-ʔiš$_i$ [Ø$_i$ [še raʔiti e$_i$ ʔetmol]]
     this the-man   that saw-I   yesterday
     'This is the man that I saw yesterday.'

(3)[6] kol   gever$_i$ [Ø$_i$ [še   dina xoševet
        every man   that   Dina thinks

        še   hu$_i$ ʔohev   et rina]]
        that he   loves   Rina

     'Every man that Dina thinks loves Rina.'

In English, resumptive pronouns are marginally possible in relative clauses, as in the following example taken from Ross (1967).

(4) ? I just saw a girl$_i$ [who$_i$ long John's claim that she$_i$ was a Venusian] made all the headlines.

In contrast to Hebrew, resumptive pronouns in English have three properties: a) they are restricted to islands (a complex NP in (4)); b) they cannot alternate with a gap (when a gap is substituted for the pronoun in (4), the sentence becomes ungrammatical) and, c) as argued by Chao & Sells (1983) and Sells (1984), they do not receive the interpretation that a gap occurring in the same position would.

Chao & Sells argue as follows. A'-traces are not referential, they are construed as variables bound by an operator. Resumptive pronouns, on their

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[6] This example is taken from Sells (1984), page 16, and (1) and (2) are taken from Chomsky (1977), page 80.

with gaps, are pronouns bound by an operator in an A'-position and, thus, also have the construal of a bound variable. This is, in fact, Sells' definition of a resumptive pronoun ("A resumptive pronoun is **"a pronoun that is operator-bound"**, from Sells (1984), page 16). Chao & Sells then argue that the pronouns that appear in English relative clauses are never bound pronouns but E-type pronouns (following Evans 1980)[7], on the basis of the following contrasts[8]:

(5) a. ? I'd like to meet [the linguist$_i$ [Ø$_i$ [that Mary couldn't remember if she had seen **him**$_i$ before]].

     b. * I'd like to meet [every linguist$_i$ [Ø$_i$ ┌that Mary couldn't remember if she had seen **him**$_i$ before]].

(6) a. ? [That guy$_i$ [Ø$_i$ [that I really hate **his**$_i$ sister]]

     b. * [Every guy$_i$ [Ø$_i$ [that I really hate **his**$_i$ sister]]

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[7]. Evans (1980) distinguishes between bound pronouns and E-type pronouns. Both have quantified NPs as antecedents. However, they are semantically quite different in that the former but not the latter are bound by those quantifiers. In particular, whereas pronouns bound by quantifiers do not refer to anything, E-type pronouns "...refer to the object(s), if any, which verify the antecedent quantifier-containing clause. If this is the role of these E-type pronouns, we explain why the truth of the clause containing them requires that all the relevant objects satisfy the predicate, and we explain why these pronouns cannot have a *No* quantifier as antecedent." (Evans 1980, page 340). Thus, for Evans, replacing the antecedent of a pronoun with the Quantified NP *No*-NP is a test for determining whether the pronoun is bound or not.

[8]. In fact, Sells presents three arguments that resumptive pronouns in English are not bound pronouns. I will only summarize the first argument because the other arguments involve questions.

(7)   a. ? [That book$_i$ [Ø$_i$ [that when I 'd read it$_i$
                I was even more confused]]

        b. * [No book$_i$ [Ø$_i$ [that when I'd read it$_i$
                I was even more confused]]

The above contrasts show that resumptive pronouns are marginally possible in English relative clauses where the head NP is referential but impossible in relative clauses with a non-referring head. Sells (1984) argues that the ungrammaticality of the b-sentences shows that these pronouns are not true resumptive pronouns since they cannot be bound (via an operator) by quantificational noun phrases like *Every linguist* or *No linguist*. That is, 'true' resumptive pronouns are pronouns that can have the interpretation of an A'-trace (i.e a bound variable interpretation). He then argues that pronouns in English can be 'anaphorically-bound' (following Sells' terminology) by a quantificational NP, as illustrated in (8) below; but not 'operator-bound' by a quantificational NP, as was illustrated in (5b), (6b) and (7b). An 'anaphorically-bound' pronoun is a pronoun A-bound at S-structure. An 'operator-bound' pronoun is a pronoun A'-bound at S-structure.

(8)   Every linguist$_i$ thinks that Mary hates him$_i$.

For Sells, a resumptive pronoun is a pronoun that is operator-bound. English, thus, lacks resumptive pronouns since it does not allow operator-bound pronouns. According to Sells, the pronouns that appear in the site of relativisation in English are 'intrusive' pronouns (or E-type pronouns, following Evans 1980). Hebrew, on the other hand, is a language which has resumptive pronouns since these pronouns can be operator-bound.

2.2. The proposal.

I will assume the distinction between resumptive pronouns and intrusive pronouns, made in Sells (1984). Thus, there are languages like English without resumptive pronouns, where the so-called resumptive pronouns are in fact E-type pronouns. And there are languages like Hebrew with resumptive pronouns.

However, Sells makes a further distinction between two types of bound pronouns. For Sells, the pronoun in the English sentence in (8) is 'anaphorically-bound' (i.e. has an antecedent in an A-position at S-structure) by the QP *Every linguist*; whereas in the Hebrew sentence in (3), the pronoun is 'operator-bound' (i.e. is A'-bound at S-structure via an empty operator base-generated in the specifier of the relative clause) by the QP *kol gever* ('every man'). These are the two ways in which a pronoun can be construed as a bound variable. Further, Sells claims that all languages allow anaphorically-bound pronouns but vary parametrically as to whether they allow operator-bound pronouns. In contrast, I will assume that there is only one way in which a pronoun can be construed as a bound variable; namely, when it is A'-bound by a quantifier expression at LF . This interpretation is available for pronouns in all languages. Further, I will argue against the existence of operator-bound pronouns. The assumption that pronouns can be operator-bound is problematic in many respects. In particular, all analyses of resumptive pronouns as operator-bound pronouns must assume that the pronoun is A'-bound at **S-structure** (This is in fact Sell's definition of a resumptive pronoun.). Thus, Chao & Sells (1983), Georgopoulos (1983, 1984a, 1984b,1989), Engdahl (1980, 1983), Engdahl, Maling and Zaenen (1981), McCloskey (1979, 1983, 1990) and Sells (1984) assume that resumptive pronouns are bound at the same level as gaps (S-structure) in order to explain why they

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license parasitic gaps, appear in Across-The-Board constructions, and can serve as the loci of Reconstruction[9]. The assumption that resumptive pronouns are bound at S-structure entails the free indexing of A'-positions at S-structure (since the null operator base-generated in Spec CP must have an index at S-structure). This in turn allows the base-generation of island violations. Island violations will then need to be constrained by conditions on binding and for Engdahl (1980) and Maling & Zaenen (1982), by processing strategies. On the other hand, the assumption that resumptive pronouns are operator-bound after S-structure (at LF) fails to derive the fact that they license parasitic gaps, occur with gaps in Across-The-Board constructions, and serve as the loci of reconstruction.

For Sells, it is precisely because a resumptive pronoun in Hebrew, on a par with an A'-trace in English, is 'operator-bound' by S-structure that it has the interpretation and the behavior of an A'-trace. Now, if resumptive pronouns are not operator-bound pronouns, then why do they behave like A'-traces? I propose that a resumptive pronoun behaves like a gap because *there is an A'-trace in the S-structure position of the pronoun at the level of LF*. In particular, I propose that, at this level, there is a trace in the site of relativisation and, that this trace is created by movement of the pronoun to an operator position. This LF-movement of the resumptive pronoun, in Hebrew relatives for instance, is exactly on a par with syntactic movement of wh-words or empty operators, in English relatives for instance. Thus, the English S-structures shown in (9) are on a par with the

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[9] This holds only of languages like Hebrew where resumptive pronouns have certain properties: they occur freely and obligatorily in certain positions where gaps are disallowed (i.e. within an NP and in any oblique position). In other words, this holds of languages with resumptive pronouns and not of languages with intrusive pronouns.

Hebrew LF-representation in (10), (the bold **e** stands an empty Comp, and Ø for a null operator).

(9)   a. The girl who lives here.

        S-structure: [NP [$_{CP}$ wh$_i$ [$_{C^o}$ **e**] [$_{IP}$ t$_i$]]]
        LF   [NP [$_{CP}$ wh$_i$ [$_{C^o}$ **e**] [$_{IP}$ t$_i$]]]

    b. The girl that lives here.

        S-structure: [NP [$_{CP}$ Ø$_i$ [$_{C^o}$ that] [$_{IP}$ t$_i$]]]
        LF   [NP [$_{CP}$ Ø$_i$ [$_{C^o}$ that] [$_{IP}$ t$_i$]]]

(10)   ha-ʔiš$_i$ še   pagašti   **ʔoto$_i$**
           the-man   that   met-I   him

           'The man that I met'.

           S-structure: [NP [$_{CP}$ [$_{C^o}$ še] [$_{IP}$ ʔoto]]]
           LF: [NP [$_{CP}$ ʔoto$_i$ [$_{C^o}$ še] [$_{IP}$ t$_i$]]]

For Sells, the difference between languages with true resumptive pronouns and languages with intrusive pronouns is stated in terms of a parameter: whether or not a given language allows pronouns to be operator-bound. It is a fact that there are languages where resumptive pronouns 'freely' alternate with gaps and behave like gaps, and languages where the pronoun in the relativised position is used only as some kind of saving device (to overcome an island violation, for instance), and this difference should be statable in terms of a parameter. However, it seems to me that the above parameter is suspicious. If languages can vary according to whether or not they allow the bound variable construal of pronouns to arise via operator-binding, they could just as well vary according to whether or not they allow pronouns to be anaphorically-bound by quantifiers. And as Sells points out, this option is available in all languages. In contrast, I have proposed that the parameter which derives the difference

between languages with and without resumptive pronouns is a well-known parameter. Namely, whether or not *wh*-movement is required to apply at S-structure.

2.3. *S-structure wh-movement of resumptive pronouns.*

I have proposed that resumptive pronoun strategies are instances of in-situ relativisation. That is, a resumptive pronoun is a relative pronoun in-situ at S-structure. It then moves to an operator position at LF leaving an A'-bound trace in the site of relativisation. Now, in Hebrew, the covert LF-movement of the pronoun that I am postulating can actually also take place overtly at S-structure. This is shown in the following examples, where we see S-structure movement of a resumptive pronoun originating in an embedded clause.[10] [11]

(11) a. ha-$?$iš$_i$ še $?$ani xošev še $?$amarta še
          the-man that I   think   that said-you that

          sara   katva $?$alav$_i$ šir
          Sarah   wrote   about-him   poem

          'The man that I think that you said that Sarah wrote a poem about.'

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[10]. These examples are taken from Sells (1984), pages 92-3.

[11] In (11) and in previous or following examples, co-indexing between the head noun and the resumptive pronoun has no theoretical status other than signaling referential dependency. Note that it is not clear what the A/A'-status of the position of the head noun is. Assuming it is an A'-position, it has no index at S-structure. The anaphoric connection will be established at LF via the rule of Predication which gives an interpretation to relative clauses.

b. ha-ʔiš̆ᵢ   š̆e ʔani xóš̆ev š̆e   ʔamarta   š̆e
   the-man that I   think   that said-you that

   ʔalavᵢ   katva sara   š̆ir
   about-him wrote Sarah poem

c. ha-ʔiš̆ᵢ   š̆e ʔani xóš̆ev š̆e   ʔamarta   š̆e
   the-man that I   think   that said-you that

   ʔalavᵢ   ʔamarta   š̆e   sara katva š̆ir
   about-him you-said   that sara wrote poem

d. ha-ʔiš̆ᵢ   š̆e   ʔalavᵢ   ʔani xóš̆ev š̆e
   the-man that about-him I   think   that

   ʔamarta   š̆e   sara   katva š̆ir
   you-said   that Sarah wrote poem

e. ha-ʔiš̆ᵢ   ʔalavᵢ   ʔani xóš̆ev š̆e
   the-man about-him   I   think   that

   ʔamarta   š̆e   sara   katva š̆ir
   you-said   that Sarah wrote poem

As we see in (11a)-(11d), the pronoun moves by successive cyclic adjunction to IP all the way up to matrix clause. In (11e), we see that it appears in the position of the complementizer š̆ e.

S-structure movement of resumptive pronouns is also found in Swiss German, Standard Arabic and Irish restrictive relative clauses (see Riemsdijk 1988, Fassi Fehri 1983 and McCloskey 1990, respectively). In these languages, restrictive relative clauses have many of the properties of Hebrew relatives. Namely, 1) the distribution of resumptive pronouns is not restricted to islands; in fact, resumptive pronouns are required in certain positions (within an NP and in

any oblique position); 2) there is no S-structure wh-movement (i.e. no fronting of a wh-word to Spec CP); and, 3) relative clauses are introduced by invariant particles (i.e. complementizers). In (12), we give an example of a Swiss German relative clause in which the site of relativisation is obligatorily occupied by a resumptive pronoun. In (13), we see that resumptive pronouns in Swiss German can optionally cliticise to a 'post-complementizer' position[12]. Note that the fronting in (13) is strictly clause bound. Finally, in (14)-(15), we give a similar paradigm in Standard Arabic: in (15), the pronoun is fronted at S-structure.

(12)   de   vrund   wo   ich   immer   mit   **em**   gang go   suufle
       the friend that I   always with them   go (to)   drink
       'The friend that I always go drink with.'

(13)   s   auto   wo   du   gsäit   häsch   das   es   sich
       the car   that you said   have   that   it   himself

       de   Peter   nod   chönti   läischtev
       the Peter   not   could   afford

       'The car that you said that Peter could not afford.'

(14)   raja^Ca   rrajulu   llaðii   zurtu-hu
       returned   the-man   that   visited-I-him
       'The man that I visited has returned.'

(15)   raja^Ca   rrajulu   llaðii   ?iyyahu   zurtu
       returned   the-man   that   ACC-him   visited-I
       'The man that I visited has returned.'

[12.] The examples in (12)-(13) and (14)-(15) are taken from Riemsdijk (1988) and Fassi Fehri (1982) (respectively) and those in (16) are taken from McCloskey (1990).

In Irish, S-structure movement of resumptive pronouns is restricted to PPs and occurs only in questions. McCloskey (1979) and (1990) has argued that constituent questions, relatives and clefts in Irish all have the same structure and the same properties. In particular, questions are not derived by wh-movement of an *interrogative phrase* to the specifier of CP. For McCloskey, constituent questions have exactly the structure of a relative clause in Irish[13]. That is, a wh-phrase is base-generated in the position of the head-noun of a relative clause (i.e in a pre-CP position), an *empty operator* is sitting in Spec CP, and Comp is occupied by the same complementizer as in relatives (and clefts). The null operator is either base-generated in Spec CP, in which case it binds a resumptive pronoun; or has been fronted to Spec CP via wh-movement, leaving a trace in its original position. In (16), we give examples of Irish questions with PPs containing an obligatory resumptive pronoun. In (16a), we give an example of PP fronting[14].

[13.] Except that they are not dominated by an NP node but by a Q node, which stands for interrogative clause.

[14]. In questions, relatives and clefts, there are basically two possible complementizers. The choice of the complementizer is determined by the occurrence of a gap vs a resumptive pronoun in the clause. The complementizer *aN* appears when the clause contains a resumptive pronoun whereas the complementizer *aL* appears when the clause contains a trace. A very interesting fact is that when a PP containing a resumptive pronoun is fronted, there is dialectal variation in the choice of the complementizer. Thus, the northern Irish dialects select the complementizer *aN* whereas the southern Irish dialects select the complementizer *aL* (which is associated with the occurrence of a trace in the clause).

(16) a. cé   **leis**   a   raibh   tú   ag caint ?
          who   with-him   Comp were   you   talk-PROG
          'Who were you talking to?'

      b. cé   a   bhfuil   fáth   **aige** ?
          who   Comp   is   reason   at-him
          'Who has a reason?'

Thus, we see that the claim that resumptive pronouns undergo covert *wh*-movement at LF is supported by the fact that these pronouns can undergo overt *wh*-movement at S-structure in Hebrew, Standard Arabic, Swiss German and (albeit, marginally) in Irish. Overt pronoun fronting in these languages has diferent properties. First, it is it restricted to PPs in constituent questions in Irish. An interesting hypothesis is that S-structure pronoun fronting is always restricted to PPs. This is the case in Irish. *ʔoto* in Hebrew, and *ʔiyya-hu* in Standard Arabic could be analysed as PPs. Indeed, *ʔiyya* in Arabic is merely an empty morpheme that provides a base for an orphan (accusative) clitic. Both *ʔiyya-hu* and *ʔoto* could be analysed as pronouns adjoined to accusative case markers (i.e. prepositions)[15]. Second, S-structure pronoun fronting is not clause bound in Hebrew but strictly clause bound in Swiss German. This will be discussed in the next section.

3. The Landing Site of the Resumptive Pronoun.

In this section, I want to address the question of where the pronoun lands when it moves at LF. I will argue that the ultimate landing site of the pronoun is not Spec of CP, as is the case with S-structure relative operators (i.e. null operators

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[15] Note, also, Dutch has *r*-movement (pronominal PP fronting), see (Riemsdijk, 1978).

and *wh*-phrases) but Comp by which I mean C$^{o)}$. There are two arguments in favor of movement of the resumptive pronoun into Comp. Both arguments are based on the distribution of the relative complementizers in Hebrew. There are two complementizers that appear in Hebrew restrictive relatives: *š̌e* and *ʔašer*. The former is the -*wh*-complementizer which introduces both sentential complements and (restrictive or free) relatives. The latter occurs only in restrictive relatives. Deletion of *š̌e* is impossible in free relatives and sentential complements. Deletion of either *ʔaš̌er* or*š̌e* is possible only under certain narrow conditions in restrictive relatives, as we are about to see[16].

First of all, recall that resumptive pronouns can be fronted at S-structure, as in the examples given in (11) and repeated below. In all these examples, the relative complementizer *š̌e* is always obligatory except when the pronoun is fronted all the way up to a position immediately following the head noun of the relative clause. Thus, only in (17d), can *š̌e* be missing.

(17)   a. ha-$ʔiš̌_i$ *(š̌e) ʔani xoš̌ev š̌e ʔamarta š̌e
        the-man   that   I   think   that   said-you that

          sara   katva $ʔalav_i$ š̌ir
          Sarah   wrote about-him poem

        'The man that I think that you said that Sarah wrote a poem about.'

    b. ha-$ʔiš̌_i$ *(š̌e) ʔani xoš̌ev she ʔamarta š̌e
        the-man   that   I   think   that   said-you that

          $ʔalav_i$ katva sara   š̌ir
          about-him wrote Sarah poem

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16. In what follows, whatever I say about relative *š̌e* also holds for *ʔašer* .

c. haʔiš̌ᵢ   *(še)   ʔani   xošev   še   ʔamarta   še
   the-man   that   I   think   that   said-you   that

   ʔalavᵢ   ʔamarta   še   sara   katva   šir
   about-him   said-you   that   sara   wrote   poem

d. ha-ʔiš̌ᵢ   ʔalavᵢ   ʔani   xošev   še
   the-man   about-him   I   think   that

   ʔamarta   še   sara   katva   šir
   said-you   that   Sarah   wrote   poem

In fact, there is only one environment which licenses deletion of relative *še*, as the following paradigm (taken from Borer (1984), page 234) clearly shows.

(18)   a.   *ze   ha-ʔiš   raʔiti   ʔetmol
           this   the-man   saw-I   yesterday

      b.   *ze   ha-ʔiš   raʔiti   **ʔoto**   ʔetmol
           this   the-man   saw-I   him   yesterday

      c.   ze   ha-ʔiš   **ʔoto**   raʔiti   ʔetmol
           this   the-man   him   saw-I   yesterday

        'This is the man that I saw yesterday.'

To capture the distribution of relative *še* Borer assumes a) the surface filter in (19) which requires Comp to contain phonological material and b) that the fronted pronouns in (17b), (17c), (17d) and (18c) are in Comp. Further, she analyses S-structure pronoun fronting as successive cyclic Comp to Comp movement.

(19)   *[$_{COMP}$ Ø]

I assume the basic insight of Borer's analysis to be correct: relative *še* can be missing only when a resumptive pronoun is sitting in C^0. However, I will not assume that the absence of *še*, in (18c) for instance, is the result of free deletion from Comp at S-structure; but rather that (18c) is derived from a D-structure in which *še* was absent. When Comp is base-generated empty, something along the lines of (19) will force movement of the resumptive pronoun into Comp at S-structure (17d) and (18c). If there is no resumptive pronoun (as in (18a)), or if the pronoun remains in-situ at S-structure (as in (17a) and (18b)), or if it is not fronted all the way up to the relative Comp (as in (17b) and (17c)), the relative clause is ill-formed and filtered out by (19).

What requires that Comp have phonological content? I suggest that (19) could be made to follow from the predication relation holding between the head of a relative and its CP. The reflex of a subject-predicate relation is Spec-Head agreement. This Agreement relation is *overt* in some languages[17]. In particular, in Standard Arabic, the relative complementizer *ʔallaδi* is distinct from the complementizer that introduces declaratives (*ʔinna*). It agrees in gender, number and **case** with the head noun. That this complementizer agrees with the head noun (and not with the null operator in Spec CP) can be seen clearly when the head noun and the null operator do not bear the same morphological case (e.g. the former is accusative and the latter is nominative). This overt agreement between the relative NP and the Comp of the relative CP can be explained if agreement is the reflex of the relation holding between the head NP and the CP that is predicated of it. Then, perhaps, this Spec-Head relation requires the head of CP to have lexical features. Comp in Hebrew will have lexical features when it

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17 This is true of all agreement relations. Thus, subject verb agreement is overt in say Basque but invisible in Chinese.

is filled by a complementizer or by an overt pronoun. On the other hand, the Comp of a restrictive relative where the relative pronoun is a *null*-operator will have to contain a lexical complementizer. As for free relatives, they are formed by movement of a +*wh*-phrase to Spec CP.[18]. These *wh*-words cannot move into Comp to satisfy (19) because, as I am about to show, movement into Comp is restricted to X^os. Hence, if the Comp of a free relative is empty at D-structure, it will remain so at S-structure and the free relative will be ill-formed.

Borer argues that the S-structure landing site of a resumptive pronoun is always Comp. In particular, the fronted pronouns in (17b) and (17c) are also in Comp. Contrary to Borer, I will not assume that Comp can be doubly filled in Hebrew. In particular, the fronted pronouns in (17b) and (17c) are not in Comp but adjoined to IP; that is, they are in a topic position. To see why, consider the following paradigm.

(20) a. kol   gever (še) ʔoto   rina ʔohevet
         every man   that him   Rina loves
         'Every man that Rina loves.'

      b. kol   gever (še) ʔit-o   rina   rakda
         every man   that with-him Rina   danced
         'Every man that Rina danced with.'

      c. kol   gever *(še) ʔet   ʔax-iv   rina   ʔohevet
         every man   that   ACC brother-his Rina   loves
         *'Every man that Rina loves his brother.'

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18. Free relatives do not allow resumptive pronouns in the relativised position. Free relatives in Hebrew will be discussed in Section 4. We will see why wh-relative pronouns are incompatible with the resumptive pronoun strategy.

27

d. kol   gever *(še)   ʔoto ve ʔet ʔax-iv   rina ʔohevet
   every   man   that   him   and ACC brother-his Rina loves
   *'Every man that Rina loves him and his brother.'

As we see in the above examples, there is a further restriction on the distribution of *š e*: it can be absent from Comp only when pronouns like *ʔoto* 'him' or pronominal PPs like *ʔit-o* 'with-him' occupy Comp. If we assume that pronouns and prepositions are X^0s[19], then only X^0s and not maximal projections like *ʔax-iv* 'his brother' in (20c), or *ʔoto ve ʔet ʔax-iv* 'him and his brother' in (20d), can move into C^0. Thus, I conclude that movement into C^0 is structure preserving: it is restricted to pronominal heads[20]. Finally, the assumption that the fronted constituents in (17b), (17c), (20c) and (20d) are not in Comp (i.e. cliticised to Comp) but topicalised is independently supported by the fact that topicalisation is possible within a relative clause in Hebrew, as shown in (21) (from Borer 1984).

(21)   ʔeyle   ha-ʔanšim   še   ʔet david šalaxti ʔeleyhem
         these   the-people that ACC David sent-I   to-them
         *'These are the people that David, I sent to them.'

In fact, I will analyse S-structure pronoun fronting as taking place in two steps. The first step is XP-movement: the resumptive pronoun (or the category dominating it) is adjoined to IP (topicalised), yielding (17b), (17c), (17d), (18c),

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[19]. That pronouns are X^0s was first proposed by Postal (1966).

[20]. Tanya Reinhart pointed out to me that there are PPs in Hebrew with the structure $[P^0+P^0+D^0]$. These complex heads can move into Comp at S-structure, as shown below.

(i) ha-ʔiš   (še) me-ʔaxor-av   yašavti
     the-man   that from-rear-him sat-I
     'The man that I sat behind.'

and (20). The operator adjoined to IP A'-binds a variable in an argument position. The last step is X^0-movement (i.e. cliticisation): the pronoun adjoined to the matrix IP subsequently moves into Comp iff a) it is an X^0 (in order to satisfy Structure Preservation), and b) Comp is empty (since Comp cannot be doubly-filled); thus, yielding (17d), (18c), (20a) and (20b). In this view, resumptive pronouns are like clitics: they originate in XP positions and end up in X^0 positions. This two step derivation explains why pronoun fronting is not clause bounded in Hebrew: the first step is topicalisation which is not clause bound and permissible within relative clauses in Hebrew. In Swiss German[21], on the other hand, topicalisation within relative clauses is not possible. Hence, pronoun fronting is movement of an X^0 into Comp (cliticisation of this X^0 onto Comp) and, consequently, is strictly clause bound.

Note that there is a derivation that this analysis does not rule out. Namely, what prevents an embedded (i.e. declarative) Comp, in (17), from being empty at D-structure and filled at S-structure by movement of the resumptive pronoun (via adjunction to IP). The ill-formed S-structure is schematized in (22) (where P stands for the resumptive pronoun).

(22)   * $[_{NP} [_{CP} [_{Comp}$ še ... $[_{CP} [_{Comp}$ $P_i [_{IP} ...$ t_i

This structure is ill-formed because *še* can never be omitted from a declarative Comp. This is also a problem for Borer's analysis. She merely stipulates that free deletion from Comp is restricted to the uppermost Comp of a restrictive relative. I conjecture that the ill-formedness of (22) is exactly on a par with that of (23) in which a wh-phrase originating in an embedded clause is not

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21. For Riemsdijk (1988) also, pronoun fronting in Swiss German is cliticisation (X^0-movement).

fronted all the way up to the specifier of the matrix [+wh] Comp, but lands in a [-wh] embedded Comp at S-structure.

(23)   *You think what John bought?

(24)   *Comp,   unless its specifier contains a [+wh] element.
         [+wh]

Lasnik & Saito (1991) rule out the above example as a violation of the S-structure constraint in (24)[22]. The problem with ruling out the hypothetical Hebrew example in (22) is that there is no way of distinguishing declarative from relative Comps since they are both [-wh]. Rizzi (1990) proposes the following feature system and typology of complementizers precisely in order to differentiate relative Comps on the one hand, from declarative and interrogative Comps on the other[23]:

(25)   a. [+wh -pred] (I wonder) what   [$_{C^o}$ [you saw t]
         b. [+wh +pred] The thing   which [$_{C^o}$ [you saw t]
         c. [-wh +pred] The thing   Ø   [$_{C^o}$ that [you saw t]
         d. [-wh -pred] (I know)   [$_{C^o}$ that [you saw]

Once we adopt (25), we can derive the ill-formedness of (22) in terms of an S-structure constraint which requires all -wh-operators (i.e. null operators and

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22 (24) is a reformulation of the filter proposed by Lasnik and Saito. In particular, they do not assume that Comp has a Specifier (i.e. they do not assume the extention of X'-theory to non lexical categories like S proposed in Chomsky (1986). Hence, their filter does not refer to Spec CP but merely to Comp.

23. "A [+pred] C must head a CP which is predicated of a "subject of predication"; a [-pred] C heads a clause which cannot be predicated. ... the [+pred] specification is the distinctive property of relatives.", from Rizzi (1990), page 67.

pronouns) to be in the specifier of [+pred] Comp[24]. It seems to me that we also need this constraint in English (or rather, we need a version of (25)) which requires +/-wh relative operators to be in a Spec-Head relation with a [+pred] Comp), to rule out the following structure, where Ø stands for a null operator.

(26) a. *[NP [CP [Comp that]... [CPØ$_i$ [Comp [IP ... t$_i$
      b. *[NP [CP [Comp   ]... [CPwh$_i$ [Comp [IP ... t$_i$

In (26), the null operator and the wh-relative pronoun have landed in the specifier of an embedded declarative Comp at S-structure. (26a) is just as ill-formed as (23), except that we cant hear it.[25]

There remains one question to be answered. Where does the resumptive pronoun in-situ at S-structure land when it moves at LF? The null hypothesis is that it has the same landing site at S-structure and at LF. Namely, Comp. I have argued that the S-structure in (27) is possible because relative še can be missing at D-structure. How do we derive the parallel LF representation in (28b) below?

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[24]. Note that (25) gives us the following typology of complementizers in Hebrew, where e stands for an empty Comp.

(i) a. [+wh -pred] [Comp e]   (questions)
    b. [+wh +pred] [Comp še]   (free relatives)
    c. [-wh +pred] [Comp ʔašer/še] (restrictive relatives)
    d. [-wh -pred] [Comp še]   (declaratives)

[25]. Other options for ruling out (22), (23) and (26) would be to impose a strict locality condition on either i) the binding relation between the head noun and the relative gap (which Safir (1986) calls 'R-binding), or ii) the predication relation holding between the CP and the head noun, since both these relations are *mediated* through the relative operator.

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The LF in (28b) will be derived derived from the S-structure in (28a) because $\check{s}e$
deletes at LF. That is, $\check{s}e$ has no semantic content. Hence, the principle of Full
Interpretation[26] allows it to be absent at LF. Deletion of $\check{s}e$ at LF will then
trigger LF-movement of the resumptive pronoun into Comp.

(27)   *S-structure.*

ze	ha-ʔiš	[$_{C^0}$ ʔoto$_i$	[raʔiti	t$_i$	ʔetmol]]
this	the-man	him	saw-I		yesterday

'This is the man that I saw yesterday.'

(28)   a. *S-structure.*

ze	ha-ʔiš	[$_{C^0}$ še	[raʔiti	ʔoto	ʔetmol]]
this	the-man	that	saw-I	him	yesterday

'This is the man that I saw yesterday.'

b. *LF.*

ze	ha-ʔiš	[$_{C^0}$ ʔoto$_i$	[raʔiti	t$_i$	ʔetmol]]
this	the-man	him	saw-I		yesterday

'This is the man that I saw yesterday.'

Thus, the LF representation in (28b) is identical to the S-structure in (6)[27].

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26 The principle of Full Interpretation (proposed in Chomsky 1986) requires that
every element of an LF representation receive an interpretation.

27. We can ask what forces LF-movement of the resumptive pronoun altogether. .
First, under my proposal, a resumptive pronoun relative does not contain a null-
operator base generated in Spec CP; then, unless the pronoun moves to an A'-
position where it has scope over IP (either at S-structure or at LF), there will be
no operator-variable relation, and the relative will fail to receive an
interpretation, (there is no open sentence to be predicated of the head). Second,
since the resumptive is an operator, it must move to an A'-position in order to
bind a variable like any other operator, assuming a ban on vacuous
quantification. Thus, it must adjoin to IP. From this position, it moves into C^0
since it is an X^0.

4. The Question Marker in Egyptian Arabic.

Finally, support for the claims that a) pronouns can move to a pre-IP position (Comp) and, b) that they can function as operators binding a variable comes from the syntax of questions in Egyptian Arabic. Egyptian Arabic allows wh-in-situ in question formation. In constituent questions and yes/no questions, pronouns appear in a pre-IP position and have the function of an overt Q-morpheme, (see Wahba (1984), for a detailed discussion). These pronouns are the independent (i.e. non-clitic) subject pronouns: *hiyya* 'she', *huwwa* 'he' and *humma* 'they'[28]. They have the following distribution. They appear obligatorily in the Comp of a yes/no question, as shown in (29). They appear optionally in the Comp of a

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28. Note that these pronouns agree in gender and number with the following subject NP, as shown in (29b) and (29d). Presumably, then, these (subject) pronouns originate in Infl (specifically, Agr°S) and then, raise to Comp. There is a lot of evidence that subject pronouns in Egyptian can be base-generated in Agr°S (i.e. can 'spell-out' subject-agreement features). For instance, these pronouns are required in equational sentences and, when these sentences are negated, the discontinuous negation morpheme *ma..š* affixes onto them, as shown in (i).

    (i)   Laïla   ma-hiyya-š   il-duktuura
            Laïla   NEG-she-NEG   the-doctor
            'Laïla is not the doctor'.

    (ii)   Hiyya   ma-hiyya-š   il-duktuura
            She   NEG-she-NEG   the-doctor
            'She is not the doctor'.

Finally, note that there is another yes/no question marker in Egyptian which is also an inflectional element. Namely, a contracted form of the discontinuous negation morpheme: *š* .

direct question, as shown in (30). They are obligatory in a matrix Comp when a wh-word in-situ in an embedded clause has matrix scope. Thus, (31a) without a question marker in the matrix Comp can only have the reading of an indirect question; whereas (31b) is a direct question. Thus, these pronouns have a dual function. They serve as a question marker in (29) and further, they define the scope of a wh-in-situ in (30) and (31). The following examples were taken from Wahba (1984, pages 117-120).

(29)   a. Mona   ʔablit il-talamiiz
            Mona   met   the-students
            'Mona met the students.'

      b. hiyya Mona   ʔablit il-talamiiz ?
            She   Mona   met   the-students
            'Did Mona meet the students?'

      c. il-talamiiz   ʔablu Mona
            the-students   met   Mona
            'The students met Mona.'

      d. humma il-talamiiz ʔablu Mona ?
            they   the-students   met Mona
            'Did the students meet Mona?'

(30)   (hiyya) Mona raahit   feen ?
             she   Mona went   where
            'Where did Mona go?'

(31)   a. Mona ʔrfit   Ali   raah feen ?
            Mona   knew   Ali   went where
            'Where did Mona know that Ali went?'

b. hiyya Mona ʔrfit Ali raah feen ?
   she Mona knew Ali went where
   'Where did Mona think that Ali went?'

Thus, we have seen two situations in which pronouns appear overtly in Comp to fulfil the role of operators: a) in Hebrew, Swiss German and Irish relative clauses, a resumptive pronoun is sitting in Comp at LF (or optionally before LF, at S-structure) and binds a variable in the site of relativisation; and b) in Egyptian questions, a pronoun sitting in the matrix Comp at S-structure, and acts like a Q-morpheme unselectively binding a wh-phrase in-situ at LF; thus, defining its scope.

I will now recapitulate and then discuss the properties of languages with (and without) resumptive pronouns.

5. Class 1 and Class 2 languages.

We have now identified two classes of languages. Class 1 languages do not have wh-in-situ relativisation. Relative pronouns are always fronted at S-structure. This is the case in English. Class 2 languages have wh-in-situ relativisation. Relative pronouns are in-situ at S-structure and are subsequently wh-moved at LF. This is the case, for example, in Hebrew, Arabic, Irish, Welsh, Breton, Swiss German, Belauan, Igbo and Swahili. Thus, on a par with languages that allow the in-situ option in question formation (Chinese, for instance) and languages that do not (Italian and Berber for instance, see Calabrese (1984, 1987, 1990) and Rizzi (1982)), there are languages that allow the in-situ option in relativisation and languages that do not. The basic tenet of this proposal are that the pronouns in class 2 languages are the overt equivalent (or spell-out) of the null operator in English *that* restrictive relatives.

Support for this analysis comes from Icelandic and Dutch. According to Smits (1988, page 161), the pronoun that appears in left-dislocation structures in Icelandic is a pronoun that "**has itself been moved to Comp**", as in the following examples:

(32) a. þessi   hringur,   ólafur hefur   lofað   Maríu   **honum**
          this   ring-DAT   O.   has   promised to M.   it-DAT
          'This ring, O. has promised it to M.'

      b. þessi   hringur,   **honum**$_i$ hefur ólafur lofað   Maríu   t$_i$
          this   ring-DAT   it-DAT   has   O.   promised to M.
          'This ring, O. has promised it to M.'

In (32a), the pronoun is in-situ at S-structure whereas in (32b), it has been fronted to Comp at S-structure. Finally, the pronoun in left-dislocation structures can be a special pronoun, what Smits calls a '**d-pronoun**' (for demonstrative pronoun). He gives the following two examples from Dutch. Again, the d-pronoun is either in-situ or in Comp at S-structure.

(33) a. dat   boek,   ik   denk   niet   dat   hij   **dat**   gelezen heeft
          that   book   I   think not   that   he   that   read   has
          'That book, I don't think that he has read that.'

      b. dat   boek,   **dat**$_i$ denk   ik   niet   dat   hij   t$_i$ gelezen heeft
          that   book   that   think I   not   that   he   read   has
          'That book, I don't think that he has read that.'

Thus, the covert LF-movement of resumptive pronouns that I have postulated in relativisation can also take place overtly at S-structure in left-dislocation. The paradigms in (32) and (33) are exactly parallel to S-structure and LF pronoun fronting in Hebrew relatives. If this analysis is on the right track, then there is always two options for A'-movement: a) S-structure vs LF wh-

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movement and b) S-structure vs LF operator-movement (i.e. movement of a pronoun or of an empty operator).

5.1. How are relatives formed in class 2 languages.

The proposal makes the following prediction. In class 2 languages, we will never find a relative clause with a +*wh*-phrase is in Spec CP and a resumptive pronoun is in the site of relativisation, as shown in (34).[29]

(34)   *[NP [CP wh-NP [Comp [IP   ... RP

Under my analysis, the above relative clause is impossible in class 2 languages because it contains two operators. The wh-phrase base-generated in Spec CP and the resumptive pronoun inside the clause are both operators with a [+/-wh] feature specification. If the resumptive pronoun in-situ does not move at LF, (34) will be ruled out because of the ban on vacuous quantification. Suppose it raises at LF, then (34) will ruled out either because the trace left behind is bound by two different operators or because the wh-phrase in Spec CP does not bind a variable.

The prediction that (34) is impossible in class 2 languages holds (to my knowledge) for (headed) restrictive relatives. No class 2 languages have +wh-operators (i.e. relative operators identical with interrogative operators) in restrictive relatives and have resumptive pronouns in the relativised position. .Free relatives (relatives without a head) by contrast, fall into three categories. In

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29 I have specified that a resumptive pronoun will never co-occur with a +wh-operator in Spec CP (i.e. a wh-phrase with overt wh-features) for the obvious reason that we cannot test this prediction with a -wh-operator since -wh-operators (i.e. Ø) have no phonological content.

some languages, they have +wh-operators and disallow resumptive pronouns in the relativised position. In other languages, they lack +wh-operators and have resumptive pronouns in the relativised position. Finally, in Egyptian , we find +wh-operatorsand resumptive pronouns in free relatives but they never co-occur. To establish that (34) holds for class 2 languages, I will briefly discuss the relevant properties of relative clauses in some of these languages. I will first discuss Hebrew.

In Hebrew, restrictive relatives and free relatives are formed differently. There are two types of restrictive relatives: those where the site of relativisation is occupied by a gap and those where the site of relativisation is occupied by a resumptive pronoun. In both cases, however, no interrogative word appears in Spec CP. In (35a), I give an example of a gap-relative, and in (35b), I give an example of a resumptive pronoun relative. These examples are from Chomsky (1977).[30]

(35) a. ha-$?iš_i$ še / $?a$šer pagašti t_i

    the-man that   met-I
    'The man that I met'

  b. ha-$?iš_i$ še / $?a$šer pagašti $?oto_i$

    the-man that   met-I him
    'The man that I met.'

I will analyse (35a) as involving S-structure movement of a null pronoun (i.e. Ø) and (35b) as LF-movement of an overt pronoun. S-structure movement is sensitive to islands, LF movement is not.

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30. The complementizer in restrictive relatives is either *ašer* or the declarative complementizer *še*.

Free relatives, on the other hand, have interrogative relative pronouns, take only the complementizer *še*, do not allow resumptive pronouns in the site of relativisation, and obey Island Constraints. In (36), taken from Borer (1984), I give an example of a free relative.

(36) kaniti ?et ma$_i$ še / *ašer ra?it *?oto$_i$ / t$_i$
      bought-I ACC what that   saw-you him
      'I bought what you saw.'

Thus, Hebrew relatives fall into three classes: a) restrictive relatives formed by S-structure movement of a null -wh-operator , as in (35a); b) restrictive relatives formed by LF movement of an overt -wh-operator , as in (35b); and c) free relatives formed by S-structure movement of a +wh-operator movement, as in (36). S-structure movement obeys Island Constraints, LF-movement does not.

In Swiss German restrictive relatives, there are no +wh-relative pronouns, the complementizer is an invariant marker *wo*, and the relativised position is in most cases occupied by a resumptive pronoun. Free relatives, in contrast, have relative pronouns derived from the interrogative paradigm, and lack resumptive pronouns.

In Irish, Welsh and Breton, there are no +*wh* -relative pronouns. The well-known property of these relatives is that the the choice of complementizer is determined by whether there is a gap or a resumptive in the relativised position. Thus, in Irish, the complementizer *aL* is required whenever there is a gap, and the complementizer *aN* whenever there is a resumptive pronoun. (I have no data on free relatives in these languages).

In Standard Arabic, Egyptian and Palestinian restrictive relatives, there are no +wh-relative pronouns, resumptive pronouns appear in the relativised

position, and the complementizer is invariably *illi* in Egyptian or Palestinian, and *alla ǧi* in Standard Arabic.

Let us recapitulate what we have established up to know. All the above class languages have restrictive relatives with resumptive pronouns and without +wh-relative pronouns, and free relatives with +wh-relative pronouns and without resumptive pronouns. I will now briefly discuss free relatives in Egyptian [31].. As we shall now see, two strategies are available for forming free-relatives in Egyptian

In Egyptian. the categorial status of the relativised position determines the structure of the relative. When an NP is relativised, there is no +wh-operator, the complementizer *illi* is obligatory and there is a resumptive pronoun inside the clause, as shown in (37). When a PP or an adverbial is relativised, the relative pronoun is a +wh-operator, the complementizer *illi* is obligatorily absent and no resumptive pronoun is allowed, as shown in (38).

(37) a. Ɂarfah illi Laïla Ɂayzah tiŝtiri-ih
         know-I that Laïla wants to-buy-it
         'I know what Laïla wants to buy.'

      b. *Ɂarfah illi Laïla Ɂayzah tishtiri
         know-I that Laïla wants to buy

      c. *Ɂarfah Laïla Ɂayzah tiŝtiri-ih
         know-I Laïla wants to-buy-it

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[31] I have no data on free relatives in Palestinian but I think they pattern like Egyptian relatives. The data on Egyptian free relatives and interrogatives (in section 4.2) comes from Wahba (1980), pages 18-19 and pages 21-22, respectively.

(38)   a. haruuh   matrah-ma$_i$ Ali   yruuh   t$_i$
            will-go-I wherever   Ali   goes
            'I will go wherever Ali goes.'

      b. *haruuh   matrah-ma$_i$ Ali   yruuh   hinak$_i$
            will-go-I wherever   Ali   goes   there

      c. *haruuh   matrah-ma$_i$ illi   Ali   yruuh   t$_i$
            will-go-I wherever   that Ali   goes

Thus, there are two types of free relatives in Egyptian: a) those where the relative pronoun is a +wh-operator in Spec CP at S-structure, as in (38); b) those where the relative pronoun is a -wh-operator in-situ at S-structure, as in (37).[32] I will analyse these two types of free relatives as in (39), respectively.

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[32] Note that both types of free relatives can have either of the two interpretations that free relative have. Thus, in both (38) and (i), the free relative can have a universal interpretation paraphrasable as 'whatever'. Likewise, (37) and (ii) below have a definite interpretation paraphrasable as 'the place ' in (ii) below.

(i)   ʔištiri   illi   Laïla   ʔayzah-ki   tištiri-ih
      buy   that Laïla   wants-you   to-buy-it
      'Buy whatever Laïla wants you to buy.'

(ii)   matrah-ma$_i$ Laïla   ʔayzah truuh   heyya il-qahirah
      where   Laïla   wants   to go   she   Cairo
      'The place that Laïla wants to go is Cairo.'

Note also that (ii) is an equational sentence, hence the occurrence of the subject pronoun *heyya* in the position of the copula in English; see Section 4 and, in particular, footnote 28, for a discussion of subject pronouns in Egyptian.

I thank A.R. Demirdache for the data in (i) and (ii).

(39) a. <u>S-structure of (37a)</u>:

$[_{NP}$ pro$_{arb}$ $[_{CP}$ $\quad$ $[_{C^0}$ illi] $[_{IP}$ ...-wh ...]]]]

b. <u>LF of (37a)</u>:

$[_{NP}$ pro$_{arb}$ $[_{CP}$ -wh$_i$ $[_{C^0}$ illi] $[_{IP}$ $\quad$ ...t$_i$...]]]]

c. <u>S-structure and LF of (38a)</u>[33]:

$[_{XP}$ e $\quad$ $[_{CP}$ +wh$_i$ $[_{C^0}$] $[_{IP}$ ...t$_i$...]]]]

(39a) is not a free-relative but a semi-relative: it is headed by an empty pronoun with arbitrary reference[34]. It is formed by wh-movemen t at LF. The operator will then be co-indexed with th head noun by the rule of predication. (39b), in contrast, is formed by S-structure wh-movement. The bold e stands for the empty head. Thus, in Egyptian, we find both +wh-operators and resumptive pronouns in free relatives but they never co-occur.

5.2. Resumptive pronouns in interrogatives.

Finally, what about interrogatives? Is the following S-structure possible in class 2 languages?

(40) $\quad$ $[_{CP}$ +wh $[_{Comp}$] $[_{IP}$ ...RP...]]

There are class 2 languages where resumptive pronouns are impossible in questions. However, there are also languages where resumptive pronouns appear in questions. Since I claim that resumptive pronouns are not S-structure

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[33] XP in (39c), can be either a PP or an adverbial.

[34] Is this pronominal pro or PRO? There are two arguments against analysing this pronominal as PRO. First, the existence of PRO in Arabic is controversial because there are no infinitivals. Second, the relativised NPs in (37) occur in governed positions (i.e in object position for instance).

operator-bound pronouns, I will argue that whenever we find +wh-opertors co-occurring with resumptives in questions, then either 1) the pronoun is not a resumptive pronoun but the spell-out of a trace created by S-structure movement (in which case the pronoun cannot occur in an Island), or 2) the +wh-operator is not in Spec CP. In particular, I will show that interrogatives with +wh-operators and resumptive pronouns are either clefted-questions or left-dislocation of a +wh-phrase. These interrogatives will, thus, have the following LF-representations (respectively)[35] .

(41) a. $[_{CP}$ +wh-NP $[_{CP}$ $[_{Comp}$ RP_i $[_{IP}$ ... t_i

     b. $[_{CP}$ +wh-NP $[_{Comp}$ RP_i $[_{IP}$ ... t_i

In what follows, I will merely present data from some class 2 languages in support of either a clefting or a left-dislocation analysis of interrogatives where +wh-operators co-occurr with resumptive pronouns.

In Standard Arabic, there is a lot of evidence that whenever there is a clitic-pronoun coreferent with a +wh-phrase, either the +wh-phrase is left-dislocated, or the clitic is not a resumptive pronoun but the spell-out of a trace. Consider the following paradigm take from Ayoub (1981).

(42) a. man_i $ra^?ayta$ t_i?
        who saw-you
        'Who did you see?'

     b. man_i $ra^?ayta$-hu_i?
        who saw-you-him
        'Who did you see?'

---

[35] (41a) is merely an adjunction structure and not a true cleft structure. This structure is proposed by McCloskey (1979) for 'reduced clefts' in Irish.

c. *man_i ra?ayta l-fataata llatii ðarabat-hu_i?
   who   saw-you the-girl that hit-him
   *'Who did you see the girl that hit him?'

In (42), we see that when the object of a verb is questioned, there is either a gap or a pronoun inside the clause. However, this pronoun is not a resumptive pronoun since it is sensitive to islands, as (42c) shows. As Ayoub points out, the pronoun in (42c) behaves like an A'-trace created at S-structure and unlike the clitic-pronouns that appear in relatives when the relativised position is embedded within an island. Thus, the pronoun in (43) is insensitive to the Complex Noun Phrase Constraint, unlike the pronoun in (42).[36]

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[36] This is also the case in Egyptian (see Wahba (1980), for an extensive discussion of wh-constructions in Egyptian). That is, there are two options for forming questions. First, the interrogative word can appear in situ at S-structure. Second, it can be fronted at S-structure. Further, when an PP or an adverbial is questioned, resumptive pronouns are impossible. In contrast, when an NP is questioned, a clitic pronoun is required in the position of the argument. Wahba argues that this pronoun is not a resumptive pronoun but the spell-out of a trace because it does not licence island violations. Thus, in both Standard Arabic and Egyptian, the pronoun that appears in questions is the spell-out of an A'-trace created by S-structure movement of a +wh-operator, whereas the pronoun that appears in relatives is a -wh-operators that moves at LF.

(43)

qara?tu	l-maqaalata$_i$	llatii	saafara	š-šaabu
read-I	the-article	that	travelled	the-young-man

llaðii	kataba-ha$_i$
that	wrote-it

There are, however, two types of interrogatives that allow true resumptive pronouns (i.e clitic-pronouns that are insensitive to islands). Namely, clefted questions, as in (44), and *which*-NP questions, as in (45).[37]. First compare (44) with (42).

(44) a. man$_i$ *(llaðii)   ?aqna^{c}ta-*(hu$_i$)   bi-haaðaa ?
         who   that   convinced-you-him   with-this
         'Who did you convince with this?'

      b. man$_i$ *(llaðii)   ra?ayta   l-fataata   llatii   ðarabat-*(hu$_i$)?
         who   that   saw-you   the-girl   that   hit-him
         *'Who did you see the girl that hit him?'

The pronoun in (44) is a resumptive pronoun (and not the spell-out of trace) since it licenses island violations. Further, we see that in (44), the complementizer *llaðii* which appears in relative clauses is obligatory. In contrast, it cannot occur in (42). Thus, resumptive pronouns appear in questions that have the internal structure of a relative clause. We capture this by analysing questions such as (44) as having the internal structure of a relative clause (except for the identity of the node dominating the wh-clause). Thus, (44) is clefted questions: the +wh-operator is base-generated adjoined to CP. The resumptive

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[37] The following examples are taken from Fassi Fehri (1982) and Mouchaweh (1986), respectively.

45

pronoun is a -wh-operator in-situ at S-structure. Now, consider the following paradigm.

(45) a. ʔayyu   rajulin$_i$ raʔayta-hu$_i$?
       which-NOM   man-GEN   saw-you-him
       'Which man did you see?'

       b. ʔayyu   rajulin$_i$ raʔayta   t$_i$?
       which-ACC man-GEN saw-you

       c. *ʔayyu   rajulin$_i$ raʔayta-hu$_i$?
       which-ACC man-GEN   saw-you-him
       'Which man did you see?'

       d. *ʔayyu   rajulin$_i$ raʔayta   t$_i$?
       which-NOM   man-GEN   saw-you

(46)   ʔayyu   rajulin$_i$ raʔayta l-fataata llatii ðarabat-*(hu$_i$)?
       which-NOM man-GEN saw-you the-girl   that   hit-him
       *'Which man did you see the girl that hit him?'

In (45), we see that if the head of the *which*-phrase (ʔ*ayyu*) is nominative, then a resumptive pronoun is required (as in (45a)) and a gap is impossible (as in (45d)). On the other hand, if the head of the *which*-phrase (ʔ*ayyu*) is accusative, a resumptive is impossible (as in (45d)) and a gap is required (as in (45c)). There are four arguments that support the claim that (45) is left-dislocation of a *which*-phrase. First, nominative case is the case of left-dislocated NPs. Second, left-dislocated NPs must be associated with a clitic-pronoun inside the clause. Third, left-dislocation is insensitive to islands (cf. (46). Finally, the option of left-dislocation is restricted to *which*-phrases; this follows from the fact that only specific NPs can be left-dislocated. We conclude that (46a) is a left-dislocated question; hence, the obligatoriness of the pronoun inside the clause, and of

nominative case on the head of the which-phrase. In contrast, (46b) is derived via wh-movement. This explains why the head of the wh-phrase bears its original accusative case, and why, in this case, only a gap is possible in the object position. The above paradigms show that questions in Standard Arabic are either 1) clefted or left-dislocated, in which case a resumptive pronoun is required inside the clause; or, 2) formed by wh-movement at S-structure, in which case only a gap is possible inside the clause.

Borer (1984) has argued that resumptive pronouns are impossible in questions in Hebrew, as shown in (47).

(47) a. *mi_i ra?iti $?oto_i$?
          who   saw-I   him

      b. $?et.mi_i$ ra?iti t_i?
          who   saw-I
          'Who did I see'

      c. *mi_i rakadti $?it\text{-}o_i$?
          who   danced-I with-him

      d. $?im\ mi_i$ rakadti t_i?
          with-whom   danced-I
          'With whom did I dance?'

      e. *mi_i $?axot\text{-}o_i$?imca   kelev.?
          who   sister-his   adopted a-dog

      f. $?axot\ mi_i$ t_i ?imca   kelev ?
          sister-who   adopted   a-dog
          'Whose sister adopted a-dog?'

According to Shlonsky (1990), however, resumptive pronouns are required in certain positions; namely, when (and only when) the site of extraction

is the preverbal subject position under a complementizer like ?*im* 'whether'. In particular, he argues that resumptive pronouns must appear in positions that are not properly governed (for Shlonsky, ?*im* is a complementizer that induces *that*-trace effects in Hebrew) but that they cannot appear in positions that violate subjacency. Further, he notes that interrogatives with resumptive pronouns must be headed by a *which*-phrase. This fact is consistent with a left-dislocation analysis. of these interrogatives. However, I have no idea why the distribution of resumptive pronouns in left-dislocated interrogatives is restricted to one position.

Lets now turn to Irish, McCloskey (1979, 1990) has argued that wh-questions, relatives and clefts all have the same structure (except for the identity of the category dominating them). In particular wh-questions have the structure shown in (41a): the +wh-operator is base-generated adjoined to CP. McCloskey's analysis carries over to Welsh (see also Harlow 1981). Finally, in Swiss German, wh-questions lack resumptive pronouns altogether.

In the above discussion, I have tried to establish first, that resumptive pronouns and +wh-pronouns do not co-occur in relatives; and second, that interrogatives with resumptive pronouns are clefted or left-dislocated structures.

6. A Resumptive Pronoun is an operator-variable chain created by wh-movement.

In the literature, resumptive pronouns in Class 2 languages have been analysed as pronouns bound at S-structure by an empty-operator base-generated in the specifier of the relative clause. The motivation behind the 'operator-bound' analysis of resumptive pronouns was the following: a resumptive pronoun has the interpretation and the syntactic properties of an A'-trace created at

S-structure. Below, I summarise in what respects resumptive pronouns in restrictive relatives do or do not behave like A'-traces.

(48)   *Resumptive pronouns don't behave like A'-traces:*

They are not sensitive to Weak Crossover effects

(49)   *Resumptive pronouns behave like A'-traces:*
   a. They license parasitic gaps.
   b. They co-occur with gaps in Across-the-Board constructions.
   c. They can serve as the loci of Reconstruction.

In contrast, I have proposed that a resumptive pronoun behaves like an A'-trace because *there is an A'-trace in the S-structure position of the pronoun at the level of LF.* Under this proposal, a resumptive pronoun in a restrictive relative, just like any *wh*-pronoun in a restrictive relative, is *an operator-variable chain created by wh-movement.* This is why restrictives relatives with a gap in the relativised position have the syntactic properties (listed in (49)) of restrictive relatives with a gap in the relativised position. A chain headed by an overt pronoun differs from a chain headed by a null operator or by a +*wh*-operator in one respect: it is created at LF.

In the following chapter, I will discuss the properties listed in (48) through (49) in terms of the proposal that what has been called in the literature a resumptive pronoun is an operator-variable chain created at LF. I will start with (49). I will claim that resumptive pronouns in restrictive relatives do, in fact, trigger weak crossover effects, as do empty operators and +*wh*-operators in restrictive relatives. The LF-movement analysis will explain the apparent lack of weak crossover effects.

Chapter II

Weak Crossover, Parasitic Gaps and Across The Board Constructions.

1. Introduction.

In this Chapter, I will show that the proposal that resumptive pronouns in Class 2 languages are -*wh*-chains created at LF explains their syntactic properties. Namely, 1) the *apparent* lack of Weak Crossover in restrictive relatives (or in Irish questions) with resumptive pronouns; 2) their co-occurrence with gaps in coordination structures, in violation of Ross' (1967) *Constraint on Coordinate Structure*; 3) their ability to licence Parasitic Gaps; and 4) why they can serve as the loci of Reconstruction.   Under this proposal, a resumptive pronoun is a pronoun at S-structure and an operator-variable chain at LF.   The assumption that a resumptive pronoun is a pronoun at S-structure will explain why resumptive pronouns under the scope of a quantifier embedded in the relative clause does not have the same range of interpretations as a gap in the same position (as was first discussed by Doron 1982).   Further, this assumption will also play an important role in deriving the restrictions in the distribution of gaps and pronouns in *Across The Board* constructions

Following Stowell (forthcoming), I will argue that if the principle that determines Weak Crossover is not stated in terms of a strict-c-command requirement between A'-traces and pronouns bound by the same operator, then

we can extend the explanation of Weak Crossover to a much wider array of data. In particular, we can derive the directional restrictions on the distribution of gaps and resumptive pronouns in *Across The Board* constructions and the conditions under which these restrictions are suspended. I will then propose a Theory of Weak Crossover based on Stowell (forthcoming) and Safir (1986). In particular, I derive Weak Crossover from the difference between the two types of variables involved: pronouns, on the one hand, and traces (be it S-structure or LF A'-traces), on the other. I propose that these two types of variables are subject to different locality conditions: whereas traces must be locally A'-bound, pronominal variables need not be. Under this proposal, Weak Crossover will arise whenever a trace is *indirectly-bound* (in the sense of Haik (1984)), in violation of *The Conditions on Variable Binding*, proposed in Section 4.3.

2. Resumptive Pronouns and Weak Crossover Effects.

2.1. The lack of Weak Crossover with resumptive pronouns.

Consider the following contrasts taken from Sells (1984, pages 76-77) and McCloskey (1990, page 236) respectively.

(1)   a. *Hebrew.*

        *ha-$?i\check{s}_i$ $\check{s}e$ $?im-o_i$ $?ohevet$ t_i
        the-man   that   mother-his   loves
        'The man who his mother loves.'

    b. *Irish.*

        *$fear_i$ a   d'fhág a_i bhean t_i
        man   Comp   left   his   wife
        'A man that his wife left.'

(2)   a. *Hebrew.*

ha-$?$iš$_i$ še $?$im-o$_i$ $?$ohevet $?$oto$_i$
the-man   that   mother-his   loves   him
'The man who his mother loves.'

   b. *Irish.*

fear$_i$ ar   fhág   a$_i$ bhean   é$_i$?
man   Comp   left   his   wife   him
'A man that his wife left.'

The relative clauses in (1) are derived by syntactic wh-movement of a null operator. Movement of the empty operator crosses a pronoun bearing the same referential index. This yields a standard Weak Crossover violation (henceforth, WCO). For concreteness, I will assume, for the moment, that the examples in (1) violate the *Leftness Condition* proposed in Chomsky (1976), and stated below. In Section 3, I will address the question of what principles derive this descriptive generalisation.

(3)   *Leftness Condition.*

   A variable cannot be an antecedent for a pronoun to its left.

Consider now the paradigm in (2). We see that when the site of relativisation is occupied by a resumptive pronoun, there is no Weak Crossover violation. Note that this lack of Weak Crossover is not restricted to relatives, as illustrated by the following Irish questions[1] (quoted from May 1985, due to McCloskey).

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[1] Recall that Irish questions allow resumptive pronouns, contrary to Hebrew.

(4) a. Cén   fear   a   sábháil   a   mháithair   é ?
        Which man   that   saved   his   mother   him
        'Which man did his mother save?'

     b. *Cén   fear   a   shábháil a   mháithair   t?
         Which man   that   saved   his   mother
         'Which man did his mother save?'

2.2. Why are resumptive pronouns immune to Weak Crossover?

In the literature, gap/resumptive pronoun asymmetries have been explained on the basis of the nature of the binding relation involved in these operator-variable constructions. Whereas the binding relation between a gap and its operator is established via movement, the binding relation between a resumptive pronoun and its operator is assumed not to be established by movement, but by co-indexation of the pronoun with a null-operator base-generated in the specifier of CP[2].

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[2] Chomsky (1982) proposes that operator/trace and operator/resumptive pronoun relations are established at different levels of representations. In particular, he proposes that A-positions are indexed at S-structure whereas A'-positions are indexed at LF. This assumption allows him to derive the fact that resumptive pronouns do not license parasitic gaps. The binder of a resumptive pronoun is a null-operator base generated in Spec CP. Hence, it lacks an index at S-structure, and the binding relation between a resumptive pronoun and a null-operator cannot be established before LF. This, in turn, entails that resumptive pronouns will not licence parasitic gaps, since parasitic gaps must be licensed by S-structure. This analysis is problematic because in Class 2 languages, resumptive pronouns do license parasitic gaps, as we shall see shortly. This is one of the reasons for rejecting the hypothesis that gap/resumptive pronoun asymmetries in Class 2 languages derive from the nature of the binding relation involved (i.e. movement versus binding). Chomsky' s analysis, however, can be maintained for Class 1 languages since resumptive pronouns in these languages do not licence parasitic gaps.

Safir's (1984) *Parallelism constraint on Operator Binding* (PCOB) captures the idea that this gap/resumptive pronoun asymmetry is due to the nature of the binding relation. The PCOB (informally) requires that local operator binding be uniform: an operator either uniformly binds gaps or uniformly binds pronouns. Thus, the relatives in (1) will be violations of the PCOB since they involve mixed binding whereas those in (2) will satisfy the PCOB since the binding is uniform. There is, however, independent evidence that the PCOB is not the constraint which explains this gap/resumptive pronoun asymmetry in Class 2 languages. In particular, since the PCOB rules out mixed binding, it predicts that resumptive pronouns can never occur in *Across The Board* (henceforth, ATB) constructions and can never license parasitic gaps. As we shall see in Section 3.3., resumptive pronouns occur in ATB constructions and license parasitic gaps in Class 2 languages.

2.3. Resumptive pronouns are not immune to Weak Crossover.

I have proposed that relatives with resumptive pronouns are derived by LF-movement, on a par with gap relatives. Thus, I cannot appeal to a difference in the nature of the binding relation. Indeed, my claim is precisely that the binding relation is the same; gap relatives and resumptive pronoun relatives differ merely in the level at which this relation is established. Why, then are resumptive pronouns insensitive to Weak Crossover? I will argue that resumptive pronouns are, in fact, sensitive to Weak Crossover, and that the above contrasts can be accounted for straightforwardly if we assume that resumptive pronouns in Class 2 languages are operator-variable chains created at LF. The basic idea that I will pursue is the following. We cannot *see* the Weak Crossover effects in relatives with resumptive pronouns because there are two pronouns. Either of the

pronouns in (2) can be taken to be the resumptive or the coreferential pronoun. Thus, there are two possible targets for LF movement. Then, for each of the S-structures in (2), there will be two possible corresponding LF derivations, one of which will not involve crossing of a pronoun by an operator. These are shown below.

(5)   *S-structure:*

$[_{NP}$ ha-ʔišᵢ $[_{CP}$ $[_{C^o}$ še] $[_{IP}$ ʔim-oᵢ   ʔohevet ʔotoᵢ
         the-man   that   mother-his loves   him

LFs:

a. * $[_{NP}$ ha-ʔišᵢ $[_{CP}$ $[_{C^o}$ ʔotoᵢ] $[_{IP}$ ʔim-oᵢ   ʔohevet   tᵢ

b.[3] $[_{NP}$ ha-ʔišᵢ $[_{CP}$ $[_{C^o}$ oᵢ] $[_{IP}$ ʔim-tᵢ ʔohevet   ʔotoᵢ

The LF representation in (5a) violates the *Leftness Condition* (as stated in (3)), since the variable created by LF-movement of the pronoun is the antecedent for a pronoun to its left. The LF in (5b), on the other hand, does not violate the Leftness Condition since, in this case, the variable created by LF-movement of the pronoun is the antecedent for a pronoun to its right. Under this analysis, relatives or questions with resumptive pronouns exhibit Weak Crossover, on a par with gap relatives. The apparent lack of crossover is due to two factors: a) the ambiguity as to which pronoun is the operator and, b) the level at which the operator variable relation is established: S-structure in gap relatives, and LF in relatives with resumptives. Since movement takes place at LF and since there are two targets for movement, we will never *see* a Weak Crossover violation.

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[3] The LF in (5b) could be ruled out as an ECP violation (i.e. it violates the Head Movement Constraint) and, in fact, I will argue that it does. But this issue is not relevant at this point.

Suppose, however, that we remove these two factors (by establishing the operator variable relation at S-structure or by resolving the ambiguity). Then, we predict that weak crossover effects should become visible. Such is the case, as I will now show.

2.4. Pronoun Fronting in Hebrew.

Recall that pronouns can be overtly fronted at S-structure, in Hebrew. In this case, there is no doubt as to which pronoun is the coreferential pronoun and which pronoun is the LF-operator. The LF-operator is clearly the pronoun which has been fronted at S-structure. Once we identify the resumptive pronoun by fronting it, as in (6)[4], the Crossover effects appear overtly.

(6) a. *ha-ʔiš še ʔoto$_i$ xana ʔamra še ʔim-o$_i$ ʔohevet t$_i$
the-man that him Xana said that mother-his loves
*'The man that Xana said that his mother loves him.'

b. *ha-ʔiš ʔoto$_i$ xana ʔamra še ʔim-o$_i$ ʔohevet t$_i$
the-man him Xana said that mother-his loves
*'The man that Xana said that his mother loves him.'

(6) shows that whether the pronoun adjoins to IP, as in (6a), or moves into Comp, as in (6b), S-structure A'-movement of the pronoun yields a Weak Crossover violation. The variables in (6) each serve as the antecedent for a pronoun to their left.

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[4] I thank Tanya Reinhart for the data in (6).

2.5. Anaphoric Epithets.

We can also identify the target of LF-movement by replacing the first occurrence of the pronoun by an epithet coreferential with the head noun of the relative clause.[5] Thus, in (7a) taken from (Shlonsky 1991) and (7b) taken from (McCloskey 1990), the resumptive pronoun is co-referential with a c-commanding epithet. The resulting sentences are ungrammatical in both Hebrew and Irish (respectively). They are Strong Crossover violations.

(7)   a. *Ze   ha-baxur$_i$ še   yida9ti   ?et   ha-?idiot$_i$
          This the-guy   that informed-I ACC the-idiot

              še   ha-more   yaxSil   ?oto$_i$
              that the-teacher will flunk him

              'This is the guy that I informed the idiot that the teacher
              will flunk.'

     b. *Sin   an   fear$_i$ ar   dhúirt an   **bastard**$_i$
          that   the   man   Comp said --the   bastard

              go   maródh   sé$_i$ muid
              Comp would-kill he   us

              '*That is the man that the bastard$_i$ said that he$_i$ would kill us.'

Note, first of all, that the ungrammaticality of the above sentences clearly establishes that resumptive pronouns behave like variables in that they are subject to condition C of the Binding Theory. Lets now use anaphoric epithets in order to test for WCO effects with resumptive pronouns[6].

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[5] This test is proposed in McCloskey (1990) as a diagnostic for Strong Crossover in Irish.

[6] This diagnostic for Weak Crossover is proposed by McCloskey (1990).

Consider the following Hebrew paradigm taken from Shlonsky (1991). In (8a), we have a relative with two co-indexed pronouns , one of which must be an operator. Movement of the first pronoun yields a well-formed LF representation (i.e. the trace left by movement of the pronoun is coreferential with a pronoun to its right). In (8b), we see that when we replace the first occurrence of the pronoun in (8a) with an epithet, the result is bad. As predicted, LF-movement of the pronoun yields a violation of the *Leftness Condition* .

(8) a. Ze   ha-baxur$_i$ še   yida9ti   ?et   ha-horim   Sel-o$_i$
         This   the-guy   that   inf rmed-I ACC   the-parents of-him

         she   ha-more   yaxSil   ?oto$_i$
         that   the-teacher will flunk him

         'This is the guy that I informed his parents that the teacher will
         flunk him.'

     b. *Ze   ha-baxur$_i$ še   yida9ti   ?et   ha-horim
         This   the-guy   that   informed-I ACC   the-parents

         sel   **ha-idiot$_i$** še   ha-more   yaxSil   ?oto$_i$
         of   the-idiot   that   the-teacher will flunk him

         'This is the guy that I informed the idiot's parents that the teacher
         will flunk him.'

In Irish, however, the results of this test are conflicting. In particular, we have the following puzzling asymmetry: compare the well-formed (9a), where the epithet is embedded within an NP itself embedded within a PP with the ill-formed (9b) where the epithet is embedded within a PP.

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(9) a. Sin an fear$_i$ ar dhúirt mé le
       that the man Comp said I with

       tuismitheoirí   an   bhastaird$_i$ gur
       parents   the bastard   Comp+COP

       cheart é$_i$ a chaitheamh   isteach i   bpríosún
       right him   throw-INF   into   in   prison

'That is the man that I said to the bastard's parents that he
should be thrown in prison.'

b. *Sin an   fear$_i$ ar   dhúirt mé   leis an   bhastaird$_i$
    that the   man   Comp said   I   with the   bastard

    gur   cheart é$_i$ a chaitheamh isteach i   bpríosún
    Comp+COP   right   him   throw-INF   into   in   prison

'That is the man that I said to the bastard that he
should be thrown.in prison.'

We have seen that when we identify the resumptive pronoun by fronting
it at S-structure, WCO becomes visible. Further, we have seen that when we
identify the LF-operator by replacing one of the pronouns with an anaphoric
epithet, WCO effects appear in Hebrew. The data in Irish, however, is
conflicting. In (9b), the resumptive pronoun is sensitive to WCO, in (9a) it is not.

In Section 4.5, I will show that an adequate theory of WCO can derive this
puzzling set of data in Irish. For the moment, I will discuss the *Leftness Condition.*

3. The Leftness Condition.

I have argued that resumptive pronouns are sensitive to Crossover. The apparent lack of Crossover is due to the fact that Crossover constructions in languages with resumptive pronouns involve two pronouns. Hence, we cannot see whether or not the coreferential pronoun is to the left or the right of the resumptive pronoun until the level of LF, where movement of the resumptive pronoun creates a variable. Further, I attributed WCO effects to the Leftness Condition (3). The latter, however, is merely a statement of the problem. In particular, what is the structural condition that captures (3) and, what principles derive it? In what follows, I will argue, based on evidence from Across The Board (ATB) and parasitic gap constructions, that the Leftness Condition cannot be captured in terms of a 'strict c-command relation between the variable and the pronoun', as in most theories of WCO. I will first show that I cannot derive the lack of WCO with resumptive pronouns because this strict c-command requirement is in fact too strong. I will then argue that if we relax the strict-c-command requirement, we can extend the explanation of WCO to a much wider array of data. In particular, I will show how a version of the theory of WCO proposed by Stowell (forthcoming), derives the lack of WCO in questions and relatives with resumptive pronouns, the conditions under which resumptive pronouns are licensed in parasitic gap constructions and ATB constructions, and finally the puzzle in Irish discussed at the end of Section 2.

3.1. Theories of Weak Crossover

As Stowell (forthcoming) and Lasnik and Stowell (1990) point out, most theories of WCO assume that the structural condition that captures the Leftness

Condition is the strict c-command relation holding between the variable and the pronoun, as stated in (10). I will call this requirement the *Strict c-command Condition*.

(10)   *The Strict c-command Condition.*

"In a configuration where a pronoun P and a trace T are both bound by a quantifier Q, T must c-command P."

(from Lasnik & Stowell 1990, page 6.)

When this structural condition is not satisfied, WCO obtains. As Lasnik & Stowell further point out, the account of WCO proposed by Koopman & Sportiche (1983) seeks to derives the generalisation in (10) from a general principle governing LF-representations; namely, the *Bijection Principle*, stated in (11).

(11)   *The Bijection Principle.*

There is a bijective correspondence between variables and A'-positions:
a) A variable is locally bound by one and only one A'-position.
b) An A'-position locally binds one and only one variable.

Consider the well-known paradigm given in (12). (12b) is well-formed because the operator locally binds its trace but does not *locally* bind the pronoun, since there is a c-commanding trace in an A-position intervening between the operator and the pronoun. In contrast, the operator locally binds two variables[7] in (12a), in violation of the *Bijection Principle*. Note that the operator locally binds

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[7] The *Bijection Principle* does not differentiate between pronouns and traces: they both count as variables. Note that since the *Bijection Principle* treats both pronouns and gaps as variables, it incorrectly predicts that resumptive pronouns will induce WCO in examples such as (1).

its trace in (12a), precisely because the latter is not c-commanded by the intervening pronoun.

(12) a. *Who$_i$ does [$_{IP}$ [$_{NP}$ his$_i$ mother]$_j$ hate   t$_i$]

b. Who$_i$ [$_{IP}$ t$_i$ hates   [$_{NP}$ his$_i$ mother]$_j$]

3.2. The Strict c-command Condition and the Lack of WCO with resumptive pronouns.

Let's assume that either of the structural conditions in (10) or (11) captures the Leftness Condition, and re-examine the lack of WCO in questions or relatives with resumptive pronouns. Consider the S-structure in (13a). There are two potential operators at S-structure; hence, two possible LF derivations for (13a). Suppose we front the second pronoun, as in (13b). Since there is no c-command relation between the possessive pronoun and the trace, the resulting structure will correctly be ruled out by either (10) or the Bijection Principle .

(13) a. *S-structure:*

[$_{NP}$ ha-ʔiš$_i$ [$_{CP}$ [$_{C^o}$ še]   [$_{IP}$ [ʔim-o$_i$]$_j$ ʔohevet   ʔoto$_i$
      the-man   that   mother-his   loves   him

b. *LF:*

[$_{NP}$ ha-ʔiš$_i$ [$_{CP}$ [$_{C^o}$ ʔoto$_i$]   [$_{IP}$ [ʔim-o$_i$]$_j$ ʔohevet   t$_i$

So far so good. However, we must also derive a well-formed LF-representation from (13a). This time, the operator will be the first occurrence of the pronoun. There are two options for fronting this operator: a) we front the possessive pronoun, thereby stranding the head noun, as in (14a); or b) the head noun is piedpiped along with the pronoun to Comp, as in (14b).

(14)   *LFs:*

a. $[_{NP}$ ha-$?i\check{s}_i$ $[_{CP}$ $[_{C^0}$ $o_i]$ $[_{IP}$ $[?imo\text{-}t_i]_j$ $?ohevet$ $?oto_i$

b. $[_{NP}$ ha-$?i\check{s}_i$ $[_{CP}$ $[_{C^0}$ $[?im\text{-}o_i]_j]$ $[_{IP}$ t_j $?ohevet$ $?oto_i$

Again, (14a) will be ruled out by both the *Strict c-command Condition* and the *Bijection Principle*, since there is no c-command relation between the trace and the coreferential pronoun.[8]

Now what about (14b), where the first pronoun has been fronted to Comp carrying along with it the whole NP? In this case, the trace is co-indexed with the NP in Comp whereas the object pronoun is co-indexed with the pronoun embedded within this NP. Hence, there is no variable corresponding to the fronted pronoun, and neither the *Strict c-command Condition* nor the *Bijection*

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[8] There is another reason to reject the representation in (14a). Namely, the option of stranding the head noun (i.e. of stranding any X^0) must not be allowed in order to explain the complementary distribution of resumptives and gaps in NP and PP-internal positions: S-structure extraction from these positions is not possible, as the contrast in (i) illustrates.

(i) mi_i rakadti $?im\text{-}o$ / * $?im\text{-}t_i$?
     who   danced-I   with-him / with
     'With whom did I dance?'

(ii) $?im\ mi_i$ rakadti t_i ?
     with who   danced-I
     'With whom did I dance?'

Thus, at S-structure the option of stranding a head noun or a preposition is not allowed. I will assume that stranding of the preposition in (i) yields a violation of Chomsky's (1986) *Minimality Condition* which ensures that government of any XP internal position from outside this XP is blocked by the X^0-head. The null hypothesis, then, is that LF-stranding of a head noun is not allowed. Resumptive pronouns, on the other hand, are allowed in NP or PP-internal position because pied-piping is an option at LF just like it is at S-structure, as shown in (ii). In other words, pied-piping is the only option for both S-structure and LF wh-movement.

Principle ruled out this LF-representation. However, the bound pronoun construal in (14b) is nonetheless ruled out precisely because there is no variable corresponding to the fronted pronoun in (14b). That is, the possessive NP in (14b) c-commands the object pronoun but does not bind it since they bear distinct indices; and the fronted pronoun in (14b) cannot bind the pronoun in object position because it does not c-command it (it is embedded with..a the possessive NP). Thus, we cannot derive a bound pronoun interpretation in (14) because the operator is embedded within an NP.

This problem, however, is a familiar problem. Consider the following examples.[9]

(15)   a. [Everyone's$_i$ mother]$_j$ thinks he$_i$ is smart.
        b. [[Whose$_i$ mother]$_j$ thinks he$_i$ is smart?

The operators in in (15) must be able to escape the NP that they are (respectively) embedded in, in order to bind the pronoun to their right. I will argue that to derive the bound pronoun construal in (15), we must allow the pronouns in (15) to be 'indirectly' bound by the operators embedded within the possessive NPs.

In particular, I will argue that (a version of) the theory of *Indirect Binding* (proposed by Haik (1984)) will not only allow us to capture the lack of WCO with resumptive pronouns (by ruling in (14b), but will also allow us to build a theory of WCO that covers a wide array of data. I will show that if we have an adequate theory of WCO, we can extend the explanation of WCO to cover the left/right

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[9]. Note that (14b) is exactly on a par with the well-know example in (i). The possibility of binding in (i) is controversial in the literature. For Higginbotham (1983) and Safir (1985), it is fine, whereas for Lasnik (1976) it is marginal.
    (i)   [Whose$_i$ mother]$_j$ [t$_i$ shot him$_i$] ?

asymmetries in the distribution of resumptive pronouns and gaps, in ATB and parasitic gap constructions; and finally, offer an explanation for the Irish puzzle noted at the end of Section 5. I now turn to distribution of gaps and resumptive pronouns in ATB and parasitic gap constructions.

3.3. *ATB and Parasitic Gap constructions.*

Ross (1967) proposes the *Constraint on Coordinate Structure* (CCS). This constraint states that if extraction has applied in one conjunct of a coordinate, it must also apply to the other. This constraint was then derived from a general property of wh-movement; namely, that wh-movement applies *Across the Board* (i.e. to each conjunct in parallel fashion; see Williams 1978). In Class 2 languages, resumptive pronouns cooccur with gaps in coordinate structures, as shown below.

(16)   *Coordinate structures.*

a. ha?iš   še   rina   [$_{VP}$ roca   e]   ve   [$_{VP}$?ohevet
    the-man who   Rina   wants   and   loves

    ?oto   yoter mikulam]
    him   more than anyone

    *'The man that Rina wants and loves him more than anyone.'

b. kol.profesor   še   dani   [$_{VP}$ roce   lehazmin   e]   ?aval
    every professor   that   Dani   wants   to-invite   but

    [$_{VP}$ lo   maarix   ?oto   maspik]
          not   esteems   him   enough

    *'Every professor that Dani wants to invite but doesn't esteem him
    enough.'

In the literature, the fact that resumptive pronouns in class 2 languages appear in Across the Board constructions has been taken as evidence for the "syntactic binding" of resumptive pronouns (see Engdahl, Maling & Zaenen 1891). Further, resumptive pronouns license parasitic gaps. This ability to license parasitic gaps has also been taken ᴀs evidence for the claim that resumptive pronouns must be A'-bound by a null operator by S-structure (in class 2 languages[10]), since parasitic gaps must be licensed at S-structure by operator-bound traces (Chomsky 1982)[11].

(17)   *Parasitic Gaps.*

a. ha-ʔiša   še   [IP [NP ha-ʔanašim   še   šixnati
    the-woman   who   the people   that   convinced-I

    levaker   e][VP teʔaru   ʔota]]
    to-visit   described   her

    *'The woman that the people that I convinced to visit described her.'

b. ha-seret   še   [IP [NP   kol-ʔexad   še   raʔa   e]
    the movie   that   every one   that   saw

    [VP ʔahav   ʔoto]]
        loved   it

    *'The movie that everyone that saw loved it.'

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[10] The co-occurrence of resumptive pronouns with gaps in ATB constructions and their ability to license parasitic gaps in Swedish and Belauan is discussed (respectively) by Engdahl (1983), Engdahl, Maling and Zaenen (1981), and Georgopoulos (1983, 1984 and 1989).
11. Irish and Palestinian (according to McCloskey (1990) and Shlonsky (1991), respectively) do not allow parasitic gaps altogether (i.e. neither traces, nor resumptive pronouns licence parasitic gaps).

Sells (1984) examines the distribution of resumptive pronouns in coordinate structures and parasitic gaps constructions in Hebrew[12]. He shows that the distribution of resumptive pronouns in these constructions is far from being free. In fact, Sells makes a very interesting observation. Namely, that the left/right relative order of the gap/pronoun is relevant to determining the conditions under which resumptive pronouns can co-occur with gaps in ATB constructions. In particular, he argues that some kind of Leftness Condition is at work. Lets first examine the data. In (18), I give examples of extraction from coordinate structures, and in (19), examples of parasitic gap constructions. (The bold e in these examples stands for a gap).

(18)   *Coordinate structures.*

    a. ha?iš   še   rina [$_{VP}$ roca e] ve   [$_{VP}$?ohevet
       the-man who Rina   wants   and   loves

       (?oto)   yoter mikulam]
       him   more than anyone

'The man that Rina wants and loves more than anyone.'

    b. *ha?iš   še   rina [$_{VP}$ roca ?oto] ve   [$_{VP}$?ohevet
       the-man that Rina   wants   him   and   loves

       e   yoter mikulam]
            more than anyone

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[12] All the Hebrew data comes from Sells unless otherwise noted.

c. kol.profesor   še   dani   [VP roce   lehazmin   e]   ʔaval
    every professor   that Dani   wants   to-invite   but

    [VP lo   maarix   (ʔoto)   maspik]
        not   esteems   him   enough

    'Every professor that Dani wants to invite but doesn't esteem
    enough.'

d   *kol.profesors   še   dani   [VP roce   lehazmin   ʔoto]   ʔaval
    every professor   that Dani   wants   to-invite   him   but

    [VP lo   maarix   e   maspik]
        not   esteems   enough

As (18) clearly shows, resumptive pronouns cooccur with gaps in
conjoined structures. However, there is directional restriction on the distribution
of these pronouns: a resumptive pronoun can appear to the right of a gap but not
to its left. Thus, Sells concludes that these coordinations structures are subject to

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the *Leftness Condition* [13]. We find exactly the same restriction in parasitic gap constructions involving an adjunct clause, as shown below.[14]

(19)

a. ha?iš   še   [rina   hikta   e]   [kedey   lifgoa   bo$_i$]
   the-man   that   Rina   hit   so-as   to-hurt at-him

'The man that Rina hit in order to hurt him.'

b. *ha?iš   še   [rina   hikta   ?oto$_i$]   [kedey   lifgoa   t$_i$]
   the-man   that   Rina   hit   him   so-as   to-hurt

'The man that Rina hit in order to hurt him.'

[13.] Sells accounts for the existence of resumptive pronouns by proposing the following feature assignment and conditions on binding:

(i)   wh-traces are [+a(naphoric)], pronominals are [-a],
      wh-operators are [+a], -wh-operators may be either [+a] or [-a]

(ii) operator binding must be homogeneous [+a] or [-a]

(iii) languages with resumptive pronoun can change the status of their operators (to allow [-a] operator-binding), or change the status of their pronouns (from [-a] to [+a]), or change the status of both.

He then derives the leftness restriction in Hebrew from the following statement, (Sells 1984, page 98; this is his (105)).

(iv) Hebrew
      In the configuration   ...e...[$_{NP}$ [-a]]...
      change to   ...e...[$_{NP}$ [+a]]...

[14.] The examples in (19c) and (19d) are due to Shlonsky (pc).

c. *ha-mʔamar še   karati ʔoto lifuei še   tiyakti e
   the-article that read-I it   before that filed-I

   'The article that I read before I filed.'

d. ha-mʔamar še   karati e lifuei še   tiyakti ʔoto
   the-article that rəad-I   before that filed-I it

   'The article that I read before I filed'

If we do not assume an ATB formalism for coordination, but instead analyse conjoined structures as asymmetrical adjunction structures where the second ('optional') conjunct is the 'adjunct', then the above contrasts in both (18) and (19) will derive from the island status of adjuncts. The impossibility of a gap in the second conjunct in (18), like the impossibility of a gap in the adjunct clauses in (19), would be a direct consequence of the sensitivity of gaps to islands (i.e. S-structure movement obeys Subjacency). Resumptive pronouns, on the other hand, are free to occur in the second conjunct (i.e. in any adjunct clause) because they are typically insensitive to islands. Finally, conjoined structures involving two gaps could be analysed as parasitic gap constructions with the gap in the second conjunct parasitic on the operator-variable relation created by S-structure movement in the first conjunct. This parasitic gap would not be licensed by a resumptive pronoun in the first conjunct because a resumptive pronoun is not a variable at S-structure (i.e under my proposal, it is not A'-bound at S-structure). This analysis fails for two reasons. First, because of the data in (17) where a resumptive pronoun in the VP licenses a parasitic gap within the subject NP, which is an Island for S-structure movement[15]. Second because the leftness restriction is suspended under certain conditions; namely, when the

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[15] Actually, this is not really a problem if, following Williams (1988), we treat the cases where a parasitic gap occurs within a relative clause as also involving coordination of the relative clause with the matrix S.

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pronoun is further embedded. Thus compare the ill-formed example in (20b) with the well-formed examples in (20a) and (20c).

(20)

a. ha?iš   še   ?ani   [$_{X''}$ [$_{V''}$ yoca?at   [$_{I''}$ še   rina
   the-man   that I   know   that Rina

   lo   makira   ?oto$_i$]]
   not   know   him

   [$_{X'}$?aval [$_{V''}$ me?od   roca   levaker   e$_i$]]]
           but   very much want   to-visit

   *'The man that I know that Rina doesn't know him
   but very much wants to visit.'

b. *ha?iš   še   ?ani   [$_{X''}$ [$_{V''}$ makira   ?oto$_i$ tov me?od]
   the-man   that I   know   him   very well

   [$_{X'}$?aval [$_{V''}$ lo   roca   levaker   e$_i$]]]
           but   not   want   to-visit

   *'The man that I know him very well but do not want to visit.'

c. ha?iš   še   ?ani   [$_{X''}$ [$_{VP}$ zoxeret   [$_{CP}$ eyfo   hu$_i$ gar]]
   the-man   that I   remember   where   he   lives

   ?aval [$_{VP}$ lo   roca   levaker   e$_i$]
   but   not   want   to-visit

   *'The man that I remember where he lives but don't want to visit'

In the above paradigms, we see a contrast depending on the level of embedding of the pronoun. In particular, in all the examples where the resumptive pronoun is further embedded in another CP, the Leftness Condition

is void. When the pronoun is further embedded, the leftness restriction is suspended. The fact that the above contrasts are determined by the level of embedding of the pronoun recalls the WCO data with anaphoric epithets discussed at the end of Section 2, (cf the paradigm in (9)). We saw that an epithet embedded within a PP induced WCO whereas an epithet embedded within an NP itself embedded within a PP was immune to WCO.

Sells does not provide an account for the above minimal pairs. He conjectures that the *Leftness Condition* in Hebrew is "some (perhaps very surfacy) restriction" (Sells 1984b, page 259), "deriving from some sort of processing strategy" (Sells 1984a, page 91).

Following Sells, I will argue that the left/right asymmetries shown in (18) and (19) are a violation of the *Leftness Condition*, and as such fall under the theory of WCO. In particular, I will argue that (18b), (18d), (19b) and (19c) are ungrammatical because a pronoun cannot be coreferential with a variable to its right. Contrary to Sells, however, I will further argue that the fact that these leftness effects are suspended when the coreferential pronoun (or the anaphoric epithet in the Irish examples in (9), Section 2.5.) is further embedded is derivable from an adequate theory of Weak Crossover.

4. A Theory of Weak Crossover.

Before, presenting this theory, let's recapitulate what such a theory should derive. We must capture the insight that the lack of crossover with resumptive pronouns is merely due to the fact that these constructions involve two pronouns; at S-structure, there is no clue as to which pronoun is the coreferential pronoun and which pronoun is the operator, unless we replace the coreferential pronoun with

an anaphoric epithet (as shown in (8) and (9), Section 2.5.); or unless we front the operator (as shown in (6), Section 2.4).

The *Leftness Condition* derives the idea that I want to capture (namely, that the lack of WCO in these constructions is simply due to the occurrence of two pronouns) because it is not a structural but a linear condition. Further, we have seen that this idea could not be expressed within standard theories of WCO. These theories require the lack of crossover to directly follow from the strict c-command relation holding between the trace and the coreferential pronoun. Thus, although the fronted pronoun o_i 'his' in the LF-representation in (14b) (repeated below) does not 'cross' the coreferential pronoun $?oto_i$ 'him', it cannot bind it since it is embedded within an NP.

(14)   b. $[_{NP}$ ha-$?i\check{s}_i$ $[_{CP}$ $[_{C^o}$ $[?im\text{-}o_i]_j]$ $[_{IP}$ t_j $?ohevet$ $?oto_i$
            the-man   mother-his   loves   him

What we need is a theory of WCO that allows the trace in the above LF to act as binder for the coreferential pronoun.

Second, we want to capture Sell's insight that the directional restrictions on the distribution of resumptive pronouns in conjoined structures is a leftness effect: a gap cannot serve as the antecedent of a pronoun to its left. However, any theory that derives the leftness condition from the the *Strict c-command Condition* will fail to capture this idea because the resumptive pronoun and the gap are each embedded within a conjunct and, thus, neither c-command the other. Further, standard theories of WCO assume that the <u>bound variable construal</u> of a pronoun is determined by the the *Strict c-command Condition*. Hence, whether the pronoun is to the left or the right of the gap, it will never be construed as a bound variable because it is never c-commanded by the gap. Thus, in order to derive 1) the bound-variable construal of the pronoun, and 2) the directional asymmetries

in the distribution of resumptive pronouns and gaps, we need a theory of WCO that relaxes the strict c-command requirement so as to allow the variable (be it a pronoun or a gap) embedded within the first conjunct to bind the variable (be it a pronoun or a gap) within the second conjunct.

Finally, we want to explain why the leftness effects are suspended when the coreferential pronoun (or the anaphoric epithet in the Irish example in (9b)) is more deeply embedded, as in (20) (or in (9a). We need a theory that can capture the following generalisation: when the pronoun is more deeply embedded, the leftness effects are suspended because the pronoun can no longer act as a binder for the gap. In the following sections, I will develop a theory of WCO based on Stowell (forthcoming). This theory will allow a) the trace in (14b) to bind the pronoun to its right (yielding the required bound variable construal); and b) the pronoun (or the anaphoric epithet in (9)) to 'indirectly' bind a gap in precisely the contexts where we want it to act as a binder, for instance in (9a) but not in (9b) and, likewise, in (20a) and (20c) but not in (20b).

4.1. Stowell's theory of WCO.

Stowell argues that the *Strict c-command Condition* (as stated in (10)) is incorrect. In particular, there is a set of constructions in which neither the pronoun nor the trace c-commands the other and which nonetheless are immure to WCO. He gives the following examples where the pronouns are in adjunct clauses outside the VP[16] and, hence, neither c-command nor are c-commanded by the trace within the VP.

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[16]. He shows that these adjuncts must be VP-external. For instance, the extraposed adjunct clauses in (21a) and (21g) cannot be inside the VP; nor will LF Reconstruction into a VP-internal position work because of cases where the

(21) Stowell's examples (pages 2-3).

    a. Which man$_i$ did Mary dislike t$_i$ [even before she had met him$_i$]?

    b. Which man$_i$, [even before talking to him$_i$], did you decide
       that you dislike t$_i$?

    c. What$_i$ did the teacher try to buy t$_i$ [without testing it$_i$ first]?

    d. Who$_i$ did Sally meet t$_i$ [before he$_i$ had been introduced to her]?

    e. Paul Mason sells no wine$_i$ [before its$_i$ time]

    f. John greeted every doctor$_i$ [after she$_i$ arrived at the airport]

    g. Who$_i$, [despite his$_i$ having helped you], did you gossip about t$_i$?

Despite the lack of c-command between the pronoun and the trace in (21), there is no WCO; the pronouns can be construed as bound variables. For Stowell, this is an argument/adjunct asymmetry: the *Strict c-command Condition* in (10) fails when the pronoun occurs inside an adjunct.

To deal with the above data, Stowell proposes a theory of WCO based on Haik's (1984) notion of *Indirect Binding* and Safir's (1985) exploitation of Haik's convention of slash-indexing. Haik (1984) proposes that a variable bound by a QP can transmit its index to the NP containing it. The index that the NP inherits from the variable that it contains is represented as a slash-index. Safir uses this slash-indexing convention to derive certain cases of WCO, from his *Parallelism Constraint on Operator Binding* (PCOB). Stowell proposes to generalise Safir's account to all cases of WCO. In particular, he proposes that *any variable* (be it a pronoun or a trace) transmits its index to the category dominating it[17]. Thus, consider the following standard WCO configuration.

---

adjunct is construed with the matrix clause and the trace is embedded within a subordinate clause.

17. For Safir, only A'-**traces** percolate up their index to the NP dominating them. Stowell then generalises this slash-indexing convention to all variables.

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(22)   a. *Who$_i$ does [his$_i$ mother]$_{j/i}$ love t$_i$

       b. Who$_i$ t$_i$ loves [his$_i$ mother]$_{j/i}$

In (22a), the pronominal variable *his* transmits its index to the NP dominating it. This index will then A-bind the trace in object position yielding a condition C violation. Thus, for Stowell, WCO is ruled out as a condition C violation, on a par with Strong Crossover. In (22b), on the other hand, A-binding of the pronoun by the trace in subject position does not induce a Condition C violation because pronouns are not subject to Condition C[18]. Further, Stowell attributes the difference between Strong and Weak Crossover grammaticality judgements to the status of the index that induces the Condition C violation: if this index is an inherited index (a slash index), the violation will be weaker then if this index is intrinsic.

Lets now turn to the cases listed in (21) where the pronoun occurs in an adjunct, is not c-commanded by the trace in violation of the *Strict c-command Condition*, but is nevertheless construed as a bound variable. Stowell assumes that these configurations are immune to WCO because adjuncts do not count as A-positions. Thus, although the adjunct clause c-commands the trace in say (21a), and further can (presumably) inherit the index of the pronominal variable it contains, it cannot serve as an A-binder for the trace, and thereby induce a Condition C violation.

---

18. Actually, it is not clear why the NP *his mother* does not violate Condition C: it has acquired the slash index *i* via the variable it contains, and, further, is c-commanded by the trace in subject position t_i . Presumably, slash indexes can serve as indirect binders of an NP but do not allow an NP to be indirectly bound; that is, only the intrinsic index of the NP is relevant for determining whether an NP is bound. In section 4.3, I will propose a simplification of Stowell's theory which does not run into this type of problem. (See also footnote 20 below.)

4.2. Back to Hebrew ATB and Parasitic Gap constructions.

Recall that we want to capture Sell's insight that the directional restrictions on the distribution of resumptive pronouns in ATB and parasitic gap constructions in Hebrew are a leftness effect and, as such, derive these restrictions from whatever principles determine WCO.

Lets now see if Stowell's theory of WCO can derive these left/right asymmetries. As I noted in the previous section, we could analyse coordination in terms of an asymmetrical adjunction structure where the second conjunct is an adjunct. For the sake of concreteness, suppose the structure is something like (23a), where XP is the first conjunct and YP is the second (adjunct) conjunct.

(23)

     a.   **XP**
             **/ **
       XP   YP

     b.   *...P...   ...e...
     c.   ...e...   ...P...

For clarity, I have stated in (23b)-(23c) the left/right asymmetry in the distribution of resumptive pronouns in ATB and parasitic gap constructions (cf. the paradigms in (18) and (19), Section 3.3.), that we want to capture.

Assuming Stowell's theory, the variable (be it a pronoun or a gap) that occurs in the second conjunct (YP in (23a)) will never *indirectly* A-bind the variable embedded within the first conjunct precisely because the second conjunct is an adjunct. The first conjunct, however, is not an adjunct. Thus, once it inherits the index of the variable embedded within it, it can act as an A-

binder[19]. Indirect A-binding by the variable within the first conjunct will correctly rule out (23b) as a condition C violation, but not apply to (23c) (since pronominal variables can be indirectly A-bound[20]). Thus, Stowell's theory derives the asymmetry in (23b)/(23c), although neither the pronoun nor the trace c-command each other. Stowell's theory of WCO can capture this leftness restriction because it allows the pronoun in (23b) to act as an indirect binder for the trace that it does not c-command.

There is, however, an important reason for rejecting this analysis of the distribution of resumptive pronouns and gaps in coordination and parasitic gap constructions. In particular, it relies on an adjunct/argument asymmetry. If the leftness restriction in ATB constructions derives from an argument/adjunct distinction, then we wouldn't expect this restriction to be suspended when the offending pronoun is *more deeply embedded*. That is, how could we explain the minimal pair in say (20) (repeated below), for instance.

---

[19] Note that the categorial identity of the conjunct is irrelevant. Stowell specifies that his theory relies on the assumption that categories other then NPs may acquire slash-indices.

[20] Safir (1985, page 634) addresses the question of why pronominal variables do not violate Condition B when they are bound by a slash index. He says that although a "variable with the slash index i counts as an A-binder for the definition of variable, it is not an antecedent for the pronoun"; further, he modifies Condition B so that it prohibits pronouns from having an *antecedent* in their governing category.

(20)

a.
ha?iš	še	?ani	[$_{X''}$ [$_{V''}$yoda?at	[$_{I''}$še	rina
the-man	that	I	know	that	Rina

lo	makira	?oto$_i$]]
not	know	him

[$_{X'}$?aval	[$_{V''}$ me?od	roca	levaker	e$_i$]]]
but	very much	want	to-visit	

'The man that I know that Rina doesn't know him
but very much wants to visit.'

b.
*ha?iš	še	?ani	[$_{X''}$ [$_{V''}$ makira	?oto$_i$	tov me?od]
the-man	that	I	know	him	very well

[$_{X'}$?aval	[$_{V''}$ lo	roca	levaker	e$_i$]]]
but	not	want	to-visit	

'The man that I know him very well but do not want to visit.'

Further, Stowell theory relies on the assumption that adjuncts (since they can never serve as an A-binder for a trace) never induce a Condition C violation. David Pesetsky (p.c.) has pointed out to me the following paradigm which shows that adjuncts can trigger Condition C violations.

(24)   a.   * When$_i$ did[[that day's] lecture$_i$] frighten Sue t$_i$?
       b.   When$_i$ did[[the lecture [that day$_i$]] frighten Sue t$_i$?

Note further that the contrast in grammaticality in (24) is determined by the level of embedding of the coreferential NP *that day*. When the offending NP in (24a) is further embedded, the sentence is acceptable.

4.3. A Theory of Weak Crossover.

Following Stowell (forthcoming) and Lasnik & Stowell (1990), I have argued that the Leftness Condition cannot be attributed to the c-command relation holding between the trace and the pronoun, as stated in (10) (repeated below for convenience).

(10)   *The Strict c-command Condition.*

"In a configuration where a pronoun P and a trace T are both bound by a quantifier Q, T must c-command P."

(from Lasnik & Stowell 1990, page 6.)

The problem with theories of WCO based on (10) is that they rule out every configuration in which T does not c-command P. In particular, any configuration in which neither T nor P c-command the other is ruled out. In contrast, I propose to rule out WCO by ruling out only the configuration in which P c-commands T.

I propose to derive the generalisation captured by the *Strict c-command Condition* from the difference between the two types of variables involved: pronouns, on the one hand, and traces (be it S-structure or LF A'-traces), on the other. In particular, I propose that these two types of variables are subject to different licensing/locality requirements. Whereas traces have to be *locally* bound, pronouns need not. This is stated in (25). The descriptive generalisation in (10) will then derive from the *Conditions on Variable Binding*, as stated in (25). Since traces must be locally bound and pronouns need not be, it follows that in any configuration where an operator binds both a pronoun and a trace, the pronoun cannot c-command the trace

(25)   *Conditions on Variable Binding.*

      (i)   A trace must be locally A'-bound.

      (ii) A pronoun must be A'-bound.

I assume the LGB definition of local binding stated in (26) (which I have in fact quoted from Lasnik & Stowell 1990). This will ensure that whenever a pronoun intervenes between a trace and its operator, the trace is no longer locally bound.

(26)   *Local Binding* (Chomsky 1982).

α is locally bound by β iff α is X-bound by β, and
if φ Y-binds α, then either φ Y-bind β or $\varphi = \beta$.

Further, I will assume the extension of Haik's slash indexing theory proposed by Stowell (forthcoming). Thus, any XP[21] containing a variable (be it a pronoun or a trace) will have two indices: an intrinsic index and the slash-index inherited from the variable it dominates. This will allow a variable to escape the category it is embedded in in order to act as binder. However, I will make the further assumption that the slash index of a variable only percolates to the maximal projection *immediately* dominating it, as stated in (27). As we shall see later, restricting the upward percolation of the index of a variable to the maximal projection immediately dominating it, will explain why the level of embedding of a resumptive pronoun in Hebrew (or of an anaphoric epithet in Irish) determines whether or not there is WCO.

(27)   If an XP immediately dominates a variable, it inherits this
          variable's index.

---

[21] See footnote 19 above.

Finally, given the *Conditions on Variable Binding*, I do not need the assumption that WCO is a Condition C violation (This will become clear when I run through the standard WCO .paradigm in (29) below) Thus, in contrast to Stowell (and Safir), WCO is *not a condition C* violation. WCO derives from a failure of *local* binding of the trace. When a pronoun indirectly binds a trace, the trace is no longer locally bound, in violation of the *Conditions on Variable Binding*.

The assumption that WCO is a condition C violation is problematic for the following reasons:

(28)

    a. We loose the distinction between Strong and Weak Crossover. Stowell attributes this difference in grammaticality to the status of the index that induces the Condition C violation: if this index is an inherited index (a slash index), the violation will be weaker then if this index is intrinsic.

    b. It raises problems with respect to condition B: why do pronominal variables not violate Condition B when they are bound by a slash index? Safir (1985, page 634) says that although a"variable with the slash index *i* counts as an A-binder for the definition of variable, it is not an antecedent for the pronoun"; further, he modifies Condition B so that it prohibits pronouns from having an *antecedent* in their governing category.

    c. It raises problems with respect to condition C: why does the NP *his mother* in (29b) (below) not violate Condition C? It has acquired the slash index *i* via the variable it contains and, further, is c-commanded by the trace in subject position t_i . Presumably, foi Stowell and Safir, a slash index can serve as an indirect binder of an NP but does not allow an NP to be indirectly bound; that is, only the intrinsic index of the NP is relevant for determining whether an NP is bound.

In contrast to Safir and Stowell, I assume that an inherited index (a slash index) does not count for Binding Theory; only intrinsic indices are relevant for

Binding Theory. WCO is, thus, not a Condition C violation but a failure of local binding of the trace: WCO arises whenever a trace is indirectly-bound (via a slash index, in Violation of *The Conditions on Variable Binding*.

To see how *The Conditions on Variable Binding* together with the slash-indexing convention work, consider the following standard WCO paradigm.

(29)   a. *Who does [his_i mother $]_{j/i}$ love t_i ?

          b. Who t_i loves   [his_i mother $]_{j/i}$?

In (29a), the trace is indirectly bound by the possessive NP *his mother*; (via the slash index this NP has inherited from the variable it contains) and, thus, fails to conform to the first clause of the *Conditions on Variable Binding*: the trace is not locally A'-bound since it is indirectly bound by *his*. In contrast, (29b) satisfies the *Conditions on Variable Binding*: the trace is locally A'-bound by its operator in Comp and the pronoun is A'-bound. Under this analysis, a WCO violation arises whenever a trace is indirectly bound.

4.4. Back to the lack of Weak Crossover with resumptive pronouns.

Lets now go back to the LF-representations of a relative clause (or a question) with resumptive pronouns.

(29)   'The man that his mother loves him.'

a. *LF: $[_{NP}$ ha-ʔiš $[_{CP} [_{C^0}$ ʔotoᵢ $]$ $[_{IP}$ ʔim-oᵢ$]_{j/i}$ ʔohevet t_i
          the-man   him   mother-his   loves

b. LF: $[_{NP}$ ha-ʔiš $[_{CP} [_{C^0}$ [ʔim-oᵢ$]_{j/i}]$ $[_{IP}$ $t_{j/i}$ ʔohevet ʔotoᵢ
          the-man   mother-his   loves   him

The *Conditions on Variable Binding* together with the slash indexing convention, will filter out the LF representation in (29a): the variable is indirectly bound by the pronoun to its left. The LF in (29b), however, does not violate the the *Conditions on Variable Binding*: the variable is locally A'-bound by its antecedent in Comp. Finally, note that the pronoun ʔoto 'him' in (29b) need not be *locally* A'-bound.

I have shown how the Conditions on Variable Binding together with Stowell's extension of the slash-indexing convention proposed by Haik (1984) and Safir (1985), derive WCO effects with gaps and the 'apparent' lack of WCO effects with resumptive pronouns.

4.5. Back to anaphoric epithets in Irish.

In Section 2, I had pointed out the following puzzle (due to McCloskey 1990). When an anaphoric epithet is embedded within an PP, it induces a Crossover effect. However, when it is more deeply embedded, the Crossover effect is suspended. The examples are repeated below.[22]

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[22] In the following examples, I have omitted the slash-indices transmitted by the resumptive pronouns to the category dominating them, merely for the sake of convenience. They are irrelevant to my analysis.

(30)   *S-structures.*

a. *Sin   an   fear$_i$ ar   dhúirt   mé
     that   the   man   Comp   said   I

     [$_{P''}$ leis   [$_{N''}$ an   bhastard$_i$]]$_j$
      with   the   bastard

     gur   cheart   é$_i$ a chaitheamh   isteach   i   bpríosún
     Comp+COP right   him   throw-INF   into   in   prison

     'That is the man that I said to the bastard that he
     should be thrown in prison.'

b. Sin   an   fear$_i$ ar   dhúirt   mé
     that   the   man   Comp   said   I

     [$_{P''}$ le   [$_{N''}$ tuismitheoirí   [$_{N''}$ an   bhastaird$_i$]]$_j$]$_k$
      with   parents   the   bastard

     gur   cheart   é$_i$ a chaitheamh   isteach   i   bpríosún
     Comp+COP right   him   throw-INF   into   in   prison

     'That is the man that I said to the bastard's parents that he
     should be thrown in prison.'

I will assume that since anaphoric epithets are construed as bound
variables (see Hornstein & Weinberg (1987)), they also transmit their index to the
phrase dominating them as shown in (31) below.[23] Further, recall that under
our analysis of resumptive pronouns as in-situ relative pronouns, relatives with
resumptive pronouns are formed at LF by movement of the pronoun into Comp
(after LF-deletion of the semantically empty complementizer). The above S-
structures will thus be converted into the following LF-representations.

---

[23] As we shall see, nothing here hinges on whether slash-indexing takes place at
S-structure or at LF because there is no A'-chain before LF.

(31)   *LF-representations.*

a. *Sin   an   fear$_i$ é$_i$ dhúirt   mé
   that   the   man   him   said   I

   [$_{P''}$ leis   [$_{N''}$ an   bhastard$_i$]]$_{j/i}$
      with   the   bastard

   gur   cheart   t$_i$ a chaitheamh   isteach   i   bpríosún
   Comp+COP   right   throw-INF   into   in   prison

   'That is the man that I said to the bastard that he
   should be thrown in prison.'

b. Sin   an   fear$_i$ é$_i$ ar   dhúirt   mé
   that   the   man   him   Comp   said   I

   [$_{P''}$ le   [$_{N''}$ tuismitheoirí   [$_{N''}$ an   bhastaird$_i$]]$_j$]$_k$
      with   parents   the   bastard

   gur   cheart   t$_i$ a chaitheamh   isteach   i   bpríosún
   Comp+COP   right   throw-INF   into   in   prison

   'That is the man that I said to the bastard's parents that he
   should be thrown in prison.'

In (31a), the trace created by LF-movement of the pronoun is indirectly-bound by the PP containing the anaphoric epithet. Thus, the trace is not locally A'-bound, and this LF fails to satisfy the *Conditions on Variable Binding.* In contrast, the trace in (31b) is locally A'-bound by its antecedent. Recall that I made the assumption that the index of a variable percolates up to the maximal projection immediately dominating it, but not further up. Thus, the PP in (31b)

will never acquire the index of the epithet, and serve as an indirect binder. Further, the NP immediately dominating the epithet cannot be an indirect binder either since it does not c-command the trace. Consequently, (31b) satisfies the *Conditions on Variable Binding*. The epithet is A'-bound and the trace is locally A'-bound by the operator in Comp (i.e there is no intervening binder). Thus, we derive the above Irish puzzle from the following assumptions: 1) epithets are variables[24], 2) there is a trace in the relativised position at LF, and 3) the *Conditions on Variable Binding* together with the extension of the slash-indexing convention proposed by Stowell.

4.6. PRO gates.

Before closing this section, I would like to point out that the proposal that only the maximal projection immediately dominating a variable can serve as an indirect-binder suggests an explanation for the following paradigm, introduced by Higginbotham (1980).

(32) a. * Who$_i$ did [his$_i$ washing his$_i$ car]$_{j/i}$ annoy t$_i$?
      b. Who$_i$ did [PRO$_i$ washing his$_i$ car]$_{j/i}$ annoy t$_i$?

As Stowell points out, an account of (32) is problematic because both PRO in (32b) and (the first occurrence of) *his* in (32a) are defined as variables since they are both locally A'-bound by the c-commanding wh-phrase. The problem, then, is explaining why PRO eliminates the WCO effec.; that is, why the gerund cannot inherit the index of PRO but must inherit the index of the overt pronoun.

---

[24] I will treat epithets as pronominal variables. They do not require local A'-binding, but merely A'-binding.

Stowell proposes an explanation in terms of circular dependent reference that I will not discuss.

To explain why the gerund does not inherit the index of PRO, we can invoke the following difference between PRO and overt ponouns. In both cases of (32), the subject is a gerund. That is, an DP containing a VP whose subject is a pronoun base-generated in the specifier of VP. Suppose the difference between (32a) and (32b) is that PRO does not raise out of this VP for case. For concreteness, I assume that the the structure of the gerunds in (32) is something along the lines of (33) (following Fukui and Speas (1986)), respectively.

(33)   a.   b.

```
        DP                                   DP
       /  \                                 /  \
    his_i  D'                             /     D'
          /  \                                 /  \
         /    NP                              /    NP
            /  \                                  /  \
          ing   VP                             ing   VP
               /  \                                 /  \
             t_i   V'                           PRO_i   V'
                   /\                                   /\
                  /  \                                 /  \
              wash his car                         wash his car
```
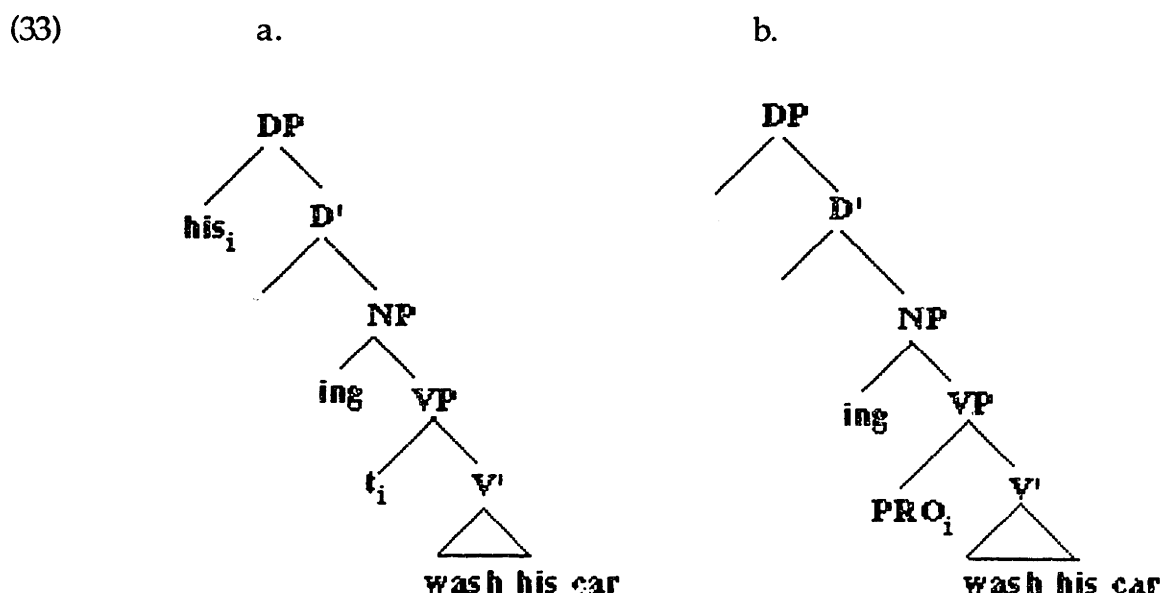
In (33b), PRO does not raise out of the VP to get Case. Since slash-indexing is restricted to the category immediately dominating a variable, the DP in (33b) will not inherit the index of PRO. Thus, it can not indirectly bind the trace in object position in (32b). In contrast, an overt pronoun must raise out of the VP to the specifier of DP to get case via Spec-head agreement from D^0. The maximal projection immediately dominating the overt pronoun is DP in (33a). Hence, this DP will serve as an indirect binder of the trace in object position,

yielding WCO: the object trace is not locally A'-bound by the wh-phrase, in (32a). We can thus explain the above paradigm by assuming: 1) that only the maximal projection immediately dominating a variable can serve as an indirect binder and, 2) PRO is confined to the VP embedded within the gerund whereas an overt pronoun must raise out of this VP. [25]

5. Back to coordinate structures and parasitic gap constructions in Hebrew.

5.1. Coordinate Structures.

Lets now turn to the distribution of gaps and resumptive pronouns in coordinate structures, discussed in Section 3.2.

I will assume the following constituent structure for coordination, where X" and Y" are conjuncts. The asymmetrical c-command relation holding between both conjuncts in (34a) will allow me to derive the leftness restriction on the distribution of resumptive pronouns and gaps in conjoined structures. The patterns of distribution are listed in (34b) through (34e) for clarity; the cases in (34b) and (34c) are illustrated in (35).[26]

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[25] Alternatively, we can restrict slash-indexing to non-anaphors. PRO will never count as a variable for slash-indexing because it is an anaphor.

[26] In the following examples (and through out this section), I have most often omitted the relative complementizer *še* because its presence is irrelevant (but space consuming).

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(34)   a.

```
              Conj"
             /    \
           X"      Conj'
                  /    \
               Conj⁰    Y"
```
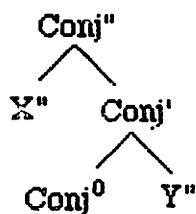
b.   *...P...   ...e...
c.   ...e...   ...P...
d.   ...P...   ...P...
e.   ...e...   ...e...

(34)   a. ha?iš   Ø$_i$ rina [$_{Conj"}$ [$_{V"}$ roca t$_i$]   [$_{Conj"}$ ve [$_{V"}$?ohevet
            the-man Rina   wants   and   loves

?oto$_i$ yoter mikulam]]]
him   more than anyone

'The man that Rina wants and loves more than anyone.'

b. *ha?iš   Ø$_i$ rina [$_{Conj"}$ [$_{V"}$ roca ?oto$_i$]   [$_{Conj'}$ ve [$_{V"}$?ohevet
    the-man   Rina   wants   him   and   loves

t$_i$ yoter mikulam]]]
          more than anyone

In (35), we have a gap in one of the conjuncts created by null-operator movement at S-structure and a coreferential pronoun in the other conjunct. Thus, each of the conjoined VPs in (35) contains a variable (i.e a pronoun or trace in an A-position bound by an operator in an A'-position). The index of each variable is inherited by the VP containing it. As a result, the trace in the second conjunct in (35b) will be indirectly bound by the pronoun in the first conjunct, violating the *Conditions on Variable Binding*, as shown in (36b). In (35a), on the other hand, the

trace is locally A'-bound, satisfying the *Conditions on Variable Binding*, as shown in (36a). The pronouns in either of these conjuncts are properly bound by the S-structure operator in the Comp of the relative.

36)   a.   *b.

Lets now turn to the case in (34d), where each conjunct contains a pronoun. One of these pronoun is the resumptive pronoun (i.e. the LF-operator which forms the relative clause) while the other is the coreferential pronoun. Since we have two pronouns, we have two possible LFs for (34d). That is, either of the S-structures shown in (36) can be the corresponding LF for (34d). If the LF-operator is the highest pronoun, as in (36a), then its trace will satisfy the *Conditions on Variable Binding*: it will be locally A'-bound. On the other hand, if the LF-operator is the pronoun in the second conjunct, as in (as in (36b), then its trace will not be locally A'-bound. Thus, the S-structure in (34d) is well-formed because it can have the LF in (36a).

Finally, lets turn to the case in (34e), where each conjunct contains a gap. At first sight, it might seem that our analysis predicts this case to be ill-formed since the gap in the second conjunct will be indirectly bound by the trace in the first conjunct, violating the *Conditions on Variable Binding*. The answer to this problems lies in the status of the gaps. In all the above cases, we have been dealing with a trace created at S-structure or at LF and a coreferential pronoun.

In this case, we have a trace created by S-structure movement and another gap. What is the status of this gap? It clearly is not the trace of S-structure movement, so it must be an empty pronoun. This pro is a *parasitic* gap licensed by S-structure wh-movement in the other conjunct[27]. Again, we have two possible representations for (34e), given below. If (34e) has the S-structure in (37a), it will be well-formed.

37) a. *b.

---

[27] Note that under my analysis, coordination structures always involve a trace (of either S-structure or LF movement) and a coreferential pronoun (overt or non overt). I can not assume the ATB formalism of coordination because it is a *non linear* representation of coordination and, the restriction on the distribution of gaps/resumptive pronouns is a structural condition. Namely, that a trace not be indirectly c-commanded by a pronoun. Further, I will not assume that a parasitic gap is the trace of an empty operator. If such is the case, then it will always be A'-locally bound; and we lose the explanation for the ill-formedness of (34b). Thus, I assume that a parasitic gap is *pro* (following Cinque 1990).

5.2. The embedded/non-embedded contrast.

Recall that a pronoun can occur to the left of a trace if it is sufficiently embedded, as the following examples show.

(38)

a. ha?iš   še   ?ani   [$_{X''}$ [$_{V''}$yoda?at   [$_{I'}$še   rina
   the-man   that   I   know   that   Rina

   lo   makira   ?oto$_i$]]
   not   know   him

   [$_{X'}$?aval   [$_{V''}$ me?od   roca   evaker   e$_i$]]]
   but   very much   want   to-visit

'The man that I know that Rina doesn't know him
but very much wants to visit.'

b. *ha?iš   še   ?ani   [$_{X''}$ [$_{V''}$ makira   ?oto$_i$ tov me?od]
   the-man   that   I   know   him   very well

   [$_{X'}$?aval   [$_{V''}$ lo   roca   levaker   e$_i$]]]
   but   not   want   to-visit

'The man that I know him very well but do not want to visit.'

c. ha?iš   še   ?ani   [$_{X''}$[$_{VP}$.zoxeret   [$_{CP}$ eyfo   hu$_i$ gar]]
   the-man   that   I   remember   where   he   lives

   ?aval   [$_{VP}$ lo   roca   levaker   e$_i$]
   but   not   want   to-visit

'The man that I remember where he lives but don't want to visit'

A pronoun can occur to the left of a trace in (38a) and (38c) because once it is sufficiently embedded, it can not act as an indirect binder, as show in (39). If we compare (39) with the structure in (36b) above, we see that it is the level of coordination that determines whether or not a pronoun can indirectly bind a trace.

(39)
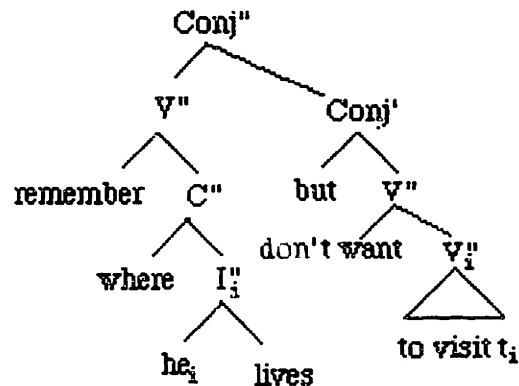
5.3. Parasitic Gaps.

Lets now turn to the parasitic gap paradigm. There are two cases to consider. Namely, the adjunct case and the relative clause case. I will analyse the former type of parasitic gap constructions as coordinate structures[28]. Thus, the minimal pair in (40) will be analysed as in (41), deriving the familiar left/right asymmetry.

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[28] Nothing in my analysis hinges on this assumption. In particular, a trace in an adjunct clause adjoined to VP is c-commanded by this VP. Hence, whenever a pronoun occurs within VP, it will indirectly bind the trace in the adjunct clause. I have chosen to analyse these construction as coordinate structures merely to capture the parallelism in the distribution of gaps/resumptive pronouns in coordinate structures and VP adjuncts.

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(40) a. ha?iš [Ø$_i$ [rina [$_{Conj''}$ [$_{V''}$ hikta t$_i$] [$_{Conj'}$ kedey [$_{V'}$ lifgoa bo$_i$]]]
     the-man   Rina   hit   so-as to-hurt at-him

'The man that Rina hit in order to hurt him.'

b. *ha?iš [Ø$_i$ [rina [$_{Conj''}$ [$_{V''}$ hikta ?oto$_i$]
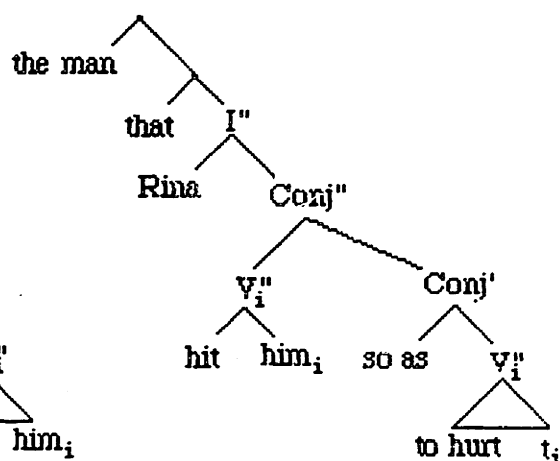   the-man   Rina   hit   him

[$_{Conj'}$ kedey [$_{V'}$ lifgoa t$_i$]]]
      so-as   to-hurt

'The man that Rina hit in order to hurt him.'
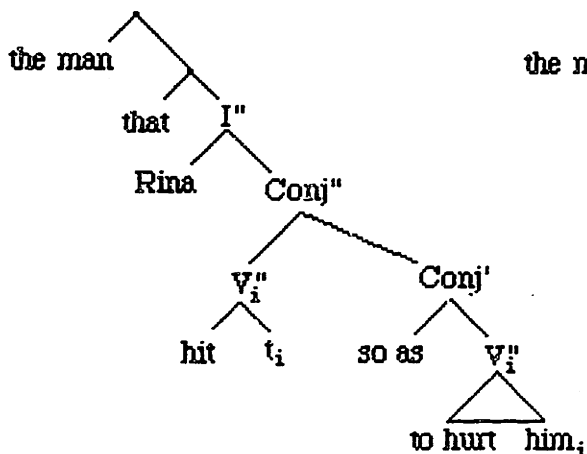
(41) a.   b.
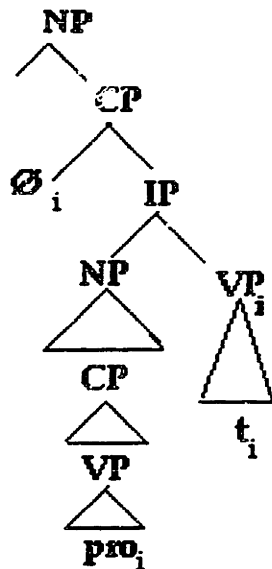

Lets turn to the relative clause case illustrated below.

(42) a. ha?iša   Ø$_i$ [$_{IP}$ [$_{NP}$ ha-?anašim [$_{CP}$ še   šixnati
      the-woman   the people   that   convinced-I

levaker e$_i$]]   [$_{VP}$ te?aru?ota$_i$]]
to-visit   described

'The woman that the people that I convinced to visit
  described her.'

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Notice that the gap in (42) cannot be a trace since it occurs within an subject island. Hence, the relative operator must be the resumptive pronoun. It moves at LF leaving a trace that is locally A'-bound. The parasitic gap embedded within the relative clause in subject position need not be locally bound since it is pronominal. (42) has the following LF representation.

(43)

```
              NP
             /  \
                 CP
                /  \
             Ø      IP
              i    /  \
                 NP     VP
                /_\    /_\ i
               CP        \
              /_\        t
             VP           i
            /_\
           pro
              i
```

6. Reconstruction Effects.

According to Shlonsky (1991), resumptive pronouns can serve as the loci of reconstruction, as shown by the following example (see also Zaenen, Engdahl and Maling (1981)).

(44)

Zo-hi	ha-tmuna	ha-yexida	Šel	'acmo$_i$		še	Dani	lo
this-is	the-picture	the-only	of	himself		that	Dani	not

zaxar	'im	hi$_i$	mudbeket	heitev	ba-'albom
remembered	whether	she	glued	well	in-the-album

'This is the picture of himself that Dani did not remember if it is glued well in the album?'

These reconstruction effects can be captured by reconstructing the head NP in the IP-internal position of the resumptive pronoun (once it has been vacated at LF). Reconstruction of the head NP in the Hebrew restrictive relative in (44) would, thus, be on a par with reconstruction of the head NP in the English restrictive relatives in (45). In (45), the head NP is reconstructed in the position of the -wh-trace created by S-structure movement of a null-operator; likewise, in (44), the head NP is reconstructed in the position of the -wh-trace created by LF-movement of an overt-operator.

(45) a. [The picture of himself$_i$]$_j$ [∅$_j$ [that John$_i$ likes best t$_j$ is on the shelf.
  b. *[The picture of John$_i$]$_j$ [∅$_j$ [that he$_i$ likes best t$_j$ is on the shelf

7. An asymmetry in the interpretation of gaps and resumptive pronouns.

Consider the following paradigm, taken from Sells (1984) (These facts are due Doron (1982)).

(46)

a.　[[ha ʔiša$_i$　　[še　kol　gever$_j$　baxar　t$_i$]]
　　　the-woman　that　every　man　chose

　　　tišlax　　lo$_j$　　tmuna
　　　will-send　to-him　a-picture

　　'The woman that every man chose will send him a picture.'

b.　*[[ha ʔiša$_i$　　[še　kol　gever$_j$　baxar　ota$_i$]]
　　　the-woman　that　every　man　chose　her

　　　tišlax　　lo$_j$　　tmuna
　　　will-send　to-him　a-picture

　　'The woman that every man chose her will send him a picture.'

The relative in (46a) is ambiguous. It can have two readings which can be paraphrased as in (47). In contrast, the relative in (46b) is not ambiguous; it can only have the reading in (47a).

(47)　　a.　There is one woman that every man chose and she will.send him a picture.

　　　　b.　For each man, there is a woman that he loves. and she sent him a picture.

Capturing the reading in (47b) where the head noun *a woman* is within the scope of the quantifier embedded within the relative clause is problematic under the assumption that the scope of quantifier is clause bound (i.e. the quantifier in (47b) can not be raised out of the relative clause at LF to take scope over the head NP). Further, the quantifier in (46a) must not only escape the relative clause to take scope over the head noun, but it must also escape out of the relative NP (i.e. raise all the way up to matrix IP node), in order to bind the pronoun in the VP.

Shlonsky' (1987) proposes to explain the paradigm in (46) on the basis of Haik's (1984) notion of *Indirect Binding*. In particular, in Haik's system, the trace of the relative operator in (46a) is in the scope of the quantifier *every* . Hence, it can inherit the index of this quantifier. Since it is itself coindexed with an operator in Spec CP, it can transmit its index to this operator, which in turn transmits it to the whole relative NP. Thus, the relative NP in (46a) inherits the index of the quantifier and, as such can be interpreted as if it were in its scope. Further, once the relative NP inherits the index of the quantifier, it can then bind a pronoun inside the VP.

The contrast in (46) will then follow from the two following assumptions made by Haik. First, indirect binding represents scope relations *at S-structure* (by indexing NPs and not by moving them, as is the case at LF). Second, the transmission of the index of the quantifier to the relative NP requires the presence of an A'-trace in the scope of a quantifier. This assumption allows Haik to explain the following contrast.

(48)   a. The rumor that three students like him.
        b. Two men$_i$ [who$_i$ [t$_i$ saw a woman

Whereas (48b) can be ambiguous. (48a) cannot (it can only mean that there is one rumor about three students). Haik attributes the difference between the relative clause case and the noun complement case in (48) to the presence of a trace (at S-structure). The occurrence of a trace in (48b) allows *a woman* to escape the relative clause and take scope over the relative NP. This is not possible in (48a) because there is no trace *at S-structure* in (48a) (and further QR at LF is clause bound).

Thus, the unavailability of the reading where the quantifier has scope over the head NP in (46b) will be due to: 1) the absence of a trace in the relative clause

at S-structure that can transmit its index to the relative NP, and 2) the assumption that scope indexing is a way of representing scope at S-structure exclusively; the only option available at LF for representing scope is QR and QR is clause bound.

Shlonsky's analysis of (46) rests on the assumption that resumptive pronouns are not A'-bound at S-structure.[29] If a resumptive pronoun is treated like a variable bound by a null operator at S-structure, then, on a par with a trace, created at S-structure, it should transmit its index to the relative NP via the null-operator with which it is coindexed. On the other hand, if we assume that there is no variable at S-structure in (46b), then we can explain the interpretation of the pronoun in (46b). At LF, a trace will be created in (46b). However, there is not way for the quantifier to escape the relative clause at LF: Scope indexing is restricted to S-structure and QR is clause bound.

I have tried to show that resumptive pronouns must be treated as pronouns at S-structure in order to explain the contrast in (46), where a gap and a resumptive pronoun do not have the same interpretation. However, resumptive pronouns also have the properties of A'-chains created at S-structure: 1) they licence parasitic gaps, 2) they occur in ATB constructions and, 3) they can serve as the loci of reconstruction. To resolve this paradox, I have proposed that a resumptive pronoun in restrictive relatives (or in questions in Irish) is a pronoun at S-structure and an operator-variable chain created by movement, at LF.

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[29] Shlonsky (1987, page 575) assumes that "there is no operator with which the pronoun is associated (at least at the level of S-structure and LF) and hence, no A'-chain. ... when the resumptive pronoun strategy is employed, an operator is not projected, at least not in the syntactic component of the grammar." This assumption is very problematic because it leaves no explanation for why resumptive pronouns have the syntactic properties of A'-chains. Note that this view is not endorsed by Shlonsky (1991) who assumes that resumptive pronouns are operator-bound pronouns.

Chapter III

Appositive Relatives

1. Introduction.

In Chapter I and II of this thesis, I argued that languages fall into two classes with respect to relativisation. In Class 1 languages, relativisation always takes place at S-structure. In Class 2 languages (where resumptive pronouns occur freely and violate island constraints), the relative pronoun is in-situ at S-structure and moves at LF. Thus, I proposed that resumptive pronouns in Class 2 languages are an instance of in-situ relativisation: the pronoun in the relative clause is the wh-operator. In this Chapter, I will argue that all wh-operators in (headed) relatives are resumptive pronouns. Relative pronouns in restrictive and non-restrictive relatives are pronouns that *must* have as antecedent the head NP. I will claim that wh-chains can have two functions. They can have a quantificational function: the wh-operator assigns a range to its trace. This is the case in questions and headless (free) relatives. They can have a resumptive function: the wh-operator does not assign a range to its trace; its reference is fixed by that of its antecedent. This is the case in appositive relatives The head of an appositive relative independently refers. Hence, the resumptive pronoun in the appositive clause will have a referential interpretation. Finally, a wh-chain can have both a resumptive and a quantificational function. This is the case in restrictive relatives. The head of a restrictive relative does not independently

refer. Hence the resumptive pronoun in the restrictive clause will have a bound variable interpretation. To explain the bound variable interpretation of the pronoun occupying the site of relativisation in restrictive relatives (in class 2 languages) , I argued in Chapter I and II, that there was a trace in that position at LF. Conversely, to explain the referential interpretation of an appositive relative pronoun, I will argue in this Chapter that in appositive relatives, there is a pronoun in the relativised position at LF.

Thus, the goal of this Chapter is twofold. First and foremost, I will develop an analysis of appositives based on Emonds' (1979) *Main Clause Hypothesis*. I will argue that appositives are interpreted at LF as independent clauses. The relation between the relative pronoun and its antecedent will be treated on a par with the anaphoric relation established across discourse between a pronoun and its antecedent; except in one respect: the pronoun in the appositive clause is a resumptive pronoun. It must have an antecedent. Second, I will argue that all wh-operators in headed relatives have the function of a resumptive pronoun,. This resumptive pronoun can have +*wh*-features or -*wh*-features. When it has -*wh*-features, it can be overt or non-overt (i.e. a null-operator). Further, the resumptive pronoun in a relative can have either of the two interpretations that pronouns can have. It can have a bound variable interpretation; this is the case in restrictive relatives. Or it can have a referential interpretation (i.e. what Evans (1982) calls an E-type interpretation). This is case in appositive relatives.

Before developing my analysis of appositive relatives, I will first present Emonds' (1979) *Main Clause Hypothesis*.

2. Emonds' (1979) " Main Clause Hypothesis".

The analysis of appositives I will propose is based on Emonds (1979) *Main Clause Hypothesis*, see also Thompson (1971) and Sells (1985a, 1985b). This hypothesis is a formalisation of Ross' (1967) idea that appositives are main clauses, although they have the appearance of wh-relative clauses. In particular, they are derived from underlying conjoined clauses. One of Ross' main arguments is that any parenthetical coordinate clause beginning with *and* can be paraphrased as an appositive relative, as shown below (from Ross 1967).

(1) a. Enrico, and he is the smartest of us all, got the answer in seven seconds.

   b. Enrico, who is the smartest of us all, got the answer in seven seconds.

Emonds defends Ross' idea that appositives are independent clauses against a competing analysis (*The Subordinate Clause hypothesis*, as he calls it) proposed by Smith (64), Klima (69) and Jackendoff (77). These authors argue that appositives form a single constituent with their antecedent, at every level of representation. In contrast, Emonds proposes that an appositive does not form a single constituent with its antecedent, at any level of representation. In particular, an appositive is derived from a clause conjoined (as a right sister) with the clause containing its antecedent. As shown in (3), Emonds derives the appositive in (2) from the underlying representation in (3a).
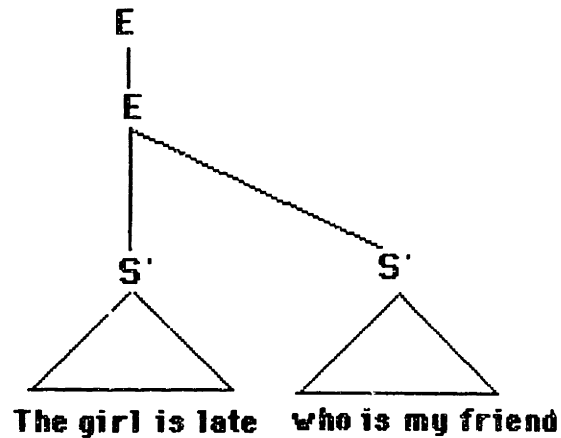
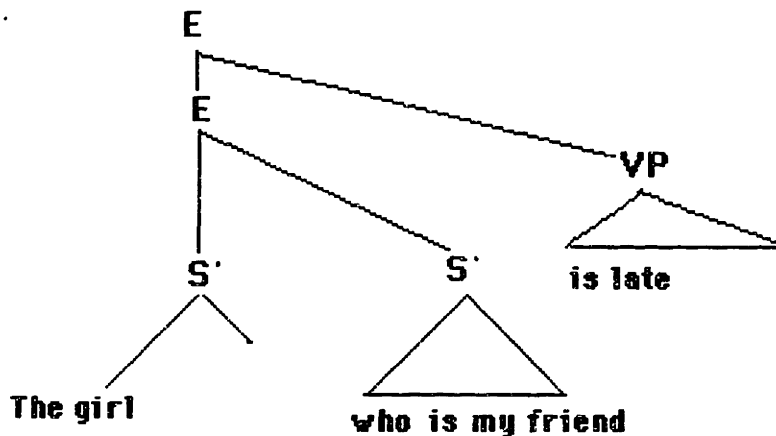(2)   The girl, who is is my friend, is late.

(3)

a.
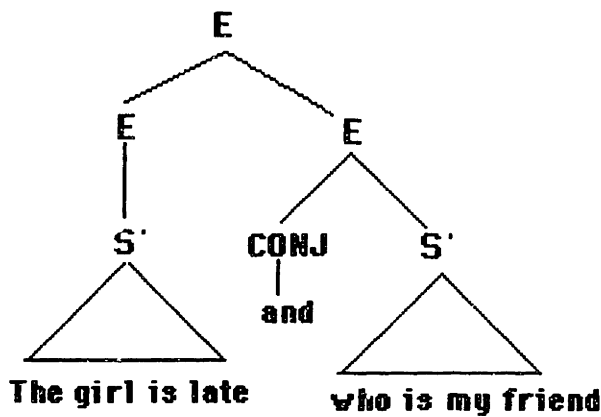
b.

c.

In (3), the symbol E(xpression) stands for the highest category in a sentence. It expands into an (optional) presentential constituent and S'. It was proposed by Banfield (1977) to represent the fact that every separate declarative or interrogative sentence is a separate assertion or question (the category E cannot be subordinated)[1]. Thus, (2) has the D-structure shown in (3a): it is a coordination of two separate clauses. A first transforr.ation called S'-attachement

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[1]. In the presentential position dominated by E, Banfield generates exclamations and parentheticals (sentences that are not separate assertions).

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applies to this D-structure; it deletes the coordinate marker *and* and attaches the right sister of the coordinate structure to its left-sister. (For Emonds, *S'-attachement* is required because it explains why the appositive clause is not a separate assertion). (3b) is then mapped into (3c) by a transformation that moves any constituent from the leftmost main clause and adjoins it to the right of the rightmost main clause. Finally, Emonds proposes that the node CONJ in (3a) can dominate a null coordinate marker **Δ** which will also be deleted by *S'-attachement*, in order to derive the following paradigm due to Jackendoff (1977).

(4)   a. *Go to Cincinnati, and it is on the Ohio river.
       b.   Go to Cincinnati, [$_{CONJ}$ **Δ**] it is on the Ohio river.
       c.   Go to Cincinnati, which is on the Ohio river.

Note that in (3), the appositive does not form a <u>single</u> constituent with its antecedent throughout the derivation. This is the source of the contention between the advocates of the *Main Clause Hypothesis* (MCH) and the advocates of the *Subordinate Clause Hypothesis* (SCH): are restrictive and nonrestrictive relatives derived from different underlying structures? For Ross and Emonds, they are. In particular, appositives are main clauses at D-structure whereas restrictive relatives are embedded clauses at D-structure. For Jackendoff, they are not. Appositives and restrictives are both subordinate clauses that form a single constituent with their antecedent throughout the derivation. He proposes that the difference between appositive and restrictive CPs is the level at which they attach. Thus, a restrictive relative is derived by the X'-rule in (5a), whereas an appositive is derived by the X'-rule in (5b).

(5)   a. N" ----> . . .N' . . .S' . . .
       b. N''' ----> . . .N' . . .S' . . .

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I will now propose an analysis of appositive relatives, based on Emonds' *Main Clause Hypothesis*.

2. An Analysis of Appositive Relatives.

The analysis of appositives I will propose incorporates ideas from both the MCH and the SCH. Following the advocates of the SCH, I will assume that restrictive and nonrestrictive relatives are *syntactically* subordinate clauses. That is, I propose that at *D-structure* and at *S-structure*, they are subordinate clauses, they are clauses embedded in a matrix clause. However, I will not assume that this is the case throughout the derivation. In particular, following the advocates of the MCH, I will assume that appositives are *interpreted* as main clauses. That is, that at the level of grammatical representation subject to semantic interpretation (LF), appositives are lifted out of the matrix clause in which they were generated and adjoined to the latter.

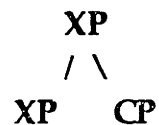*2.1. Appositives Relatives are base-generated as Embedded Clauses.*

Consider the appositives in (6). We see that the antecedent of an appositive can be any maximal projection (NP, AP, VP, PP, IP, CP). The antecedent of a restrictive relative, on the other hand, can only be an NP.

(6)   a.   I saw Mary, who was late
        b.   Mary was intelligent, which John never was
        c.   We leave the key under a stone , which is a
             silly place to keep something so valuable.
             (from Sells (1988), page 14)
        d.   I told Max to leave, which he never did.
        e.   Fairley is not here, which bothers Green
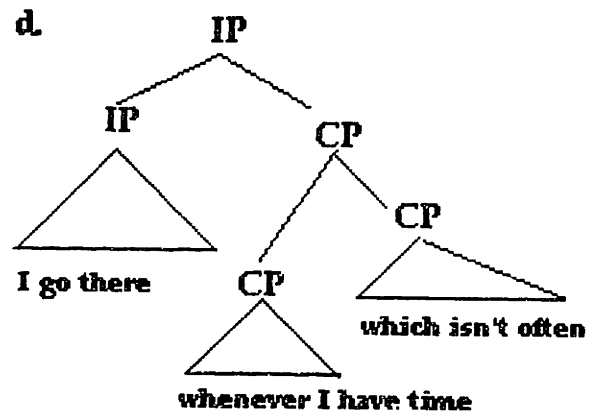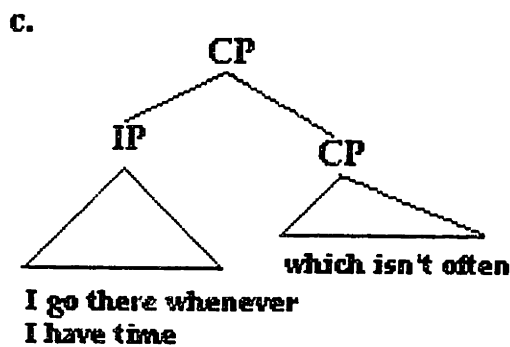   (from Sells (1988), page 13)

f.   I go there whenever I have time, which isn't often.
(from Sells (1988), page 13, quoted from Jesperson 1965, Vol.III, 124-125)

These sentences clearly show that appositive relatives, unlike restrictive relatives, do not only have the distribution of NPs. Thus, the appositives in (14b) through (14d) have the distribution of whatever phrase is their antecedent: AP, PP, VP, IP and CP (respectively). I propose that appositive relatives are CPs base-generated adjoined to their antecedent. This antecedent can be any maximal projection: NP, DP, VP, AP, IP or CP. The D-structure and S-structure of an appositive is given in (7) and is illustrated in (8).

(7)   *Appositive relative.*

```
      XP
     /  \
   XP    CP
```

(8)

a. DP

DP — CP

Lisa

who is my friend

b. CP

IP — CP

Fairley is not here

which bothers Green

c. CP

IP — CP

I go there whenever
I have time

which isn't often

d. IP

IP — CP

I go there

CP — CP

whenever I have time

which isn't often
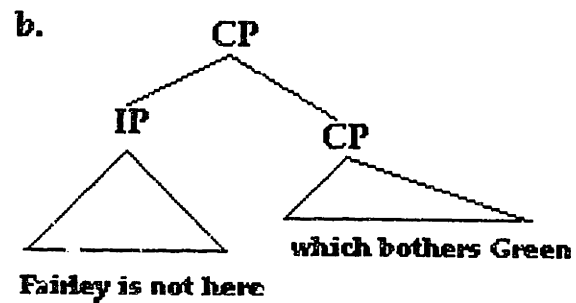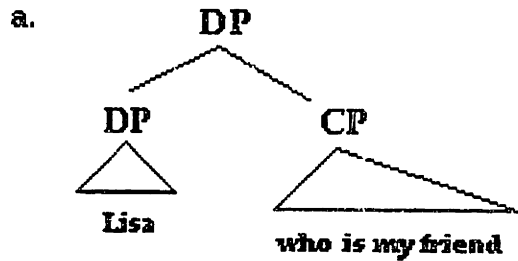
Note that I have given two possible analyses of (6f) because, as Sells (1988) points out, it is not clear what the antecedent for the appositive is (whether it is the matrix IP or the embedded CP).

I have proposed that appositives are base-generated adjoined to the head that they modify. Under [the NP S'] analysis for restrictive relatives, the restrictive clause is also base-generated adjoined to its head. What then is the difference between restrictive and non-restrictive noun modification ? I propose that restrictives and non-restrictive relatives have the following syntactic structure, respectively.

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(9)

a. Restrictive Relative.   Non-Restrictive Relative.

```
        DP                              DP
       /  \                            /  \
      /    D'                         DP    CP
      |   /  \                       /  \
      D  /    NP                    D    NP
         |    /  \
         NP  /    \
            NP    CP
```
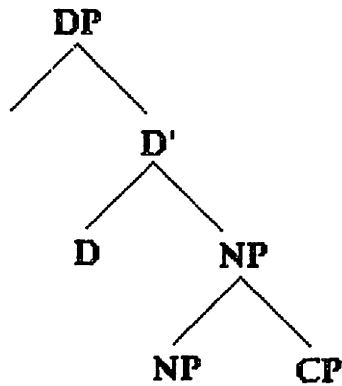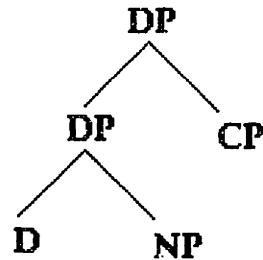
The above structures capture the difference between restrictive and non-restrictive noun-modification. The primary difference between these two types of modification is that non-restrictives can modify referential expressions like proper names, whereas restrictives cannot. The structure in (9a) explains why the head noun in a restrictive relative can never be referential: under the DP hypothesis (Abney 1987), DPs are referential categories, NPs are not (they are predicates). Since a non-restrictive relative can be adjoined to any XP, its head can be a referential category (DP) or any predicate including NP (i.e. it can modify an indefinite). In contrast, a restrictive relative always attaches to NP. Thus, its head will never be referential. In (9a), the restrictive clause is adjoined to NP and the determiner has scope over both the head noun and the relative clause. This structure corresponds to the semantics of restrictive noun modification. The modified noun in a restrictive relative denotes the set of individuals who fall in the intersection of the set denoted by NP and the set denoted by the relative clause. The determiner is defined on that set. In (9b), on

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the other hand, the non-restrictive clause functions like an adjunct clause. There is no set intersection involved in the interpretation of an appositive.

Finally, notice that the structure in (9a) captures the fact that appositives clause allows follow the complements and the modifiers of a noun. In (10a), for instance, the appositive relative must follow the restrictive relative.

(10)   a. [[The [girl that I saw $_{NP}$] $_{DP}$] [who John dislikes $_{CP}$] $_{DP}$]
        b. *The girl, who I saw, that John dislike
        c. [[The stories about Mary $_{NP}$] $_{DP}$] [which John hates $_{CP}$] $_{DP}$]
        d. *The stories, which John hates, about Mary.

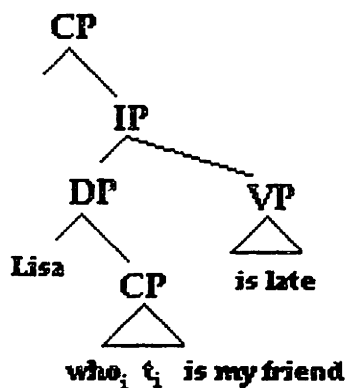*2.2. Appositive Relatives are interpreted as Main Clauses at LF.*

Thus, following the advocates of the *SCH*, I have assumed that nonrestrictive relatives do not differ *syntactically* from restrictive relatives: in the syntax (i.e at both D-structure and a S-structure), they are embedded clauses and they form a single constituent with their head. However, I will not follow them in assuming that this is the case at every level of representation. In particular, following Ross, Emonds and generative semanticists, I will assume that appositives are interpreted as independent clauses. For the proponents of the MCH, restrictive and nonrestrictive relatives are derived from different D-structures because D-structure is the level of representation that determines the interpretation of a sentence.[1] Within the Extended Standard Theory (EST) framework (Chomsky 1971), the level of representation that plays a role in determining the interpretation of a sentence is Logical Form (LF). Hence, I will assume that appositives are interpreted as following independent clauses because they are

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[1]. This is not true for Emonds (1979): although he assumes that appositives are main clauses at D-structure, his analysis is a reformulation of some of the ideas in the generative semanticist tradition, in terms of the EST framework.
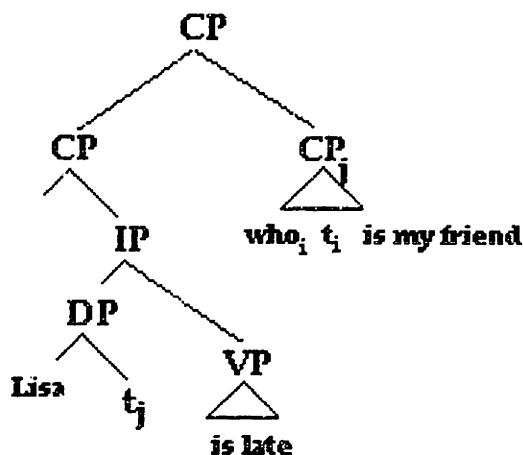
represented as such at LF. In particular, I propose that appositives are lifted out of the clause in which they were base-generated and adjoined to the unembedded clause containing their antecedent, at LF. Thus , the S-structure in (11a) will be converted into the LF-representation in (11b).

(11)

a. S-structure

```
        CP
       /  \
          IP
         / \
       DP    VP
      / \    /\
   Lisa   \  is late
         CP
        / \
    who_i  t_i  is my friend
```

b. LF.

```
            CP
          /    \
        CP       CP_j
       /  \      /\
          IP   who_i  t_i  is my friend
         / \
       DP    \
      / \     VP
   Lisa  t_j  /\
            is late
```

In (11), the appositive clause is embedded in a matrix clause at S-structure. At LF, it is lifted out of the clause dominating it at S-structure, and adjoined to the highest node in the tree. I leave aside the question of what exactly the identity of this node is. Whether it is merely CP(or IP or, following Emonds, the category E which stands for the (non-recursive) initial symbol of the base rules ("the node that cannot be subordinated" (page 215)). Whatever the identity of this node is, the idea that I want to capture by adjoining the appositive CP to the unembedded clause (from which it was lifted) is that appositives are what Jackendoff calls "auxiliary assertions" and what Sells (following Roberts (1984) calls "assertions-to-follow "). For Emonds, clauses that do not contain a separate assertion (appositives and parentheticals) must be adjoined in the course of the derivation (by his rule of S'-attachement, see the derivation in (3)) to the

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category E. Thus, this analysis agrees with the thrust of Emonds' proposal: appositives, like parentheticals, are interpreted as independent clauses. This is captured not by base-generating the appositive as a main clause at D-structure but by raising the appositive at LF out of the main clause dominating it at S-structure. Further, appositives are not separate assertions but "assertions-to-follow ". This is captured by right-adjoining the appositive clause to the clause containing its antecedent. Finally, I will not treat appositives as second clausal conjuncts but as following independent clauses. This is basically Ross' (1967) analysis of appositives. Ross, first suggests that appositives are derived at D-structure from conjuncts but later concludes that they must be derived from sequences of sentences because of the following paradigms (see also (4) above).

(12)   From Ross (1967)
a. * Is even Clarence a swinger, and he is wearing mauve socks?
b.   Is even Clarence , who is wearing mauve socks, a swinger?
c.   Is even Clarence a swinger? He is wearing mauve socks.

From Thompson (1971)
d. * Tell your farther that supper is ready, and he is outside.
e.   Tell your farther, who is outside, that supper is ready.
f.   Tell your farther that supper is ready. He is outside.

As these examples show, questions and imperatives cannot be coordinated with declaratives and, thus, there is no conjunction counterpart to the appositives in (12b) and (12e). Instead of assuming that the connector in these cases is either deleted or missing, I will assume that appositives have the interpretation of 'following' independent clauses.

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2.3 Main Clause properties of appositives.

The following are some of the properties of appositives that support the claim that they are following independent clauses. Like parentheticals (and as opposed to restrictive relatives), appositives are phonologically typed: they are set off from the rest of the sentence by intonational breaks ('comma intonation'). The complementizer that introduces embedded (tensed) clauses (*that*) is disallowed in appositives.[3] There are no infinitival appositives, just like there are no infinitival main clauses. Further, the tenses that are found in appositives are those found in matrix clauses. For instance, appositives in Spanish cannot be in the subjunctive because the latter is an embedded tense[4]. Emonds (1979) also points out that certain sentence adverbs that in general can only appear in main clauses (like *frankly*) also appear in appositives. Finally, the fact that the relative pronoun in an appositive relative must be a wh-word whereas in a restrictive relative it can be a null-operator also supports the MCH. Null operators are never found in matrix clauses.[5] Note that is true in English but not in French for instance. In French, both appositives and non-restrictive relatives can be introduced by the complementizer *que* as shown (12a) and (12b). However, *que* is not exclusively a subordinating complementizer. It can appear in other types of independent clauses; in particular it introduces exclamatives (as in (12b)) and matrix questions (as in (12c)).

(12)   a.   Lisa, que j'ai vu hier, me surprendra toujours
             'Lisa, who I saw yesterday, will always surprise me.'

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[3].

[4]. I am grateful to Esther Torrego for bringing this fact to my attention.
[5]..Assuming topicalisation invc'ves adjunction to IP (as in Lasnik and Saito 1990) and not null-operator movement (as in Chomsky 1977).

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b.　Tousles enfants que j'ai photographiés sont charmants.
　　'All the children that I photographed are charming."

c.　Que la vie est belle!
　　'How life stinks!'

d.　Que veut-il?
　　'What does he want?"

2.4. The Relative Pronoun in Appositives is a Resumptive Pronoun.

Under this analysis, the anaphoric relation between the relative pronoun in the appositive and its antecedent in the matrix clause is treated at LF on a par with the anaphoric relation established across discourse between an XP in a clause and a pronoun in a following clause, except in one respect: an appositive is a following independent clause that must be anaphorically connected (co-indexed) with a constituent in a preceding independent clause. In other words, the relative pronoun in the appositive is a resumptive pronoun. It is a pronoun that must have an antecedent.

2.5. Predication or Anaphora?

Consider the following appositive relatives.

(13)　a.　I saw Mary, who is late.

From Sells (1985):
b.　We leave the key under a stone , which is a
　　silly place to keep something so valuable.

From Thompson (196):
c.　Joe debated in high school, which Chuck did too.
d.　We read *Tom Sawyer*, which we had never done as children.
e.　I realized that Art had visited the Dean, which I should do too.
f.　Nick is tall, which I shall never be.
g.　Irma was easy to please, which I should be too.

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From Smits (1988)
h.   My shirts are blue, which is a beautiful color.
From Sells (1985):
i.   Salene is a midwife, which Ella is not.
j.   Fairley is not here, which bothers Green.
k.   I go there whenever I have time, which isn't often.

What is the nature of the relation between the resumptive pronoun and the head of the appositive in (13). I will argue that this relation cannot be established via predication: the relation between the head of the appositive and appositive clause is not a subject/predicate relation.

My basic argument against establishing the relation between the head of the appositive and the resumptive pronoun via predication is the fact that any maximal projection can serve as the head of an appositive. If the relation between the head and the CP in an appositive relative is an argument/predicate relation, then we would expect that only arguments (noun phrases and clauses) could head appositives. This is not the case: predicates can also serve as the head of an appositive. As we see in (13c)- (13h), VPs, APs and predicational NPs can be the head of an appositive.

Further, if appositives are interpreted at LF as following independent clauses, then the relation between the relative pronoun and the XP with which it is co-indexed is one of anaphora: the XP in the first clause is the antecedent of the pronoun in the following clause. The relative pronoun in (13), is interpreted as an anaphoric pronoun. When its antecedent is either a event-denoting expression (as in (13c)-(13e)) or a property-denoting expression (as in (13f)-(13g)), this pronoun is interpreted as an anaphoric *it* or *that* (in its non-demonstrative use). Thus, the appositives in (13) will be interpreted at LF as in (14).

(14) a. I saw [NP Mary]$_i$. She$_{i/*j}$ was lat.e

b. We leave the key [PP under a stone]$_i$. It$_{i/*j}$ is a
silly place to keep something so valuable.

c. Joe [VP debated in high school]$_i$. Chuck did it$_{i/*j}$ too.

d. We [VP read *Tom Sawyer*]$_i$. We had never done it$_{i/*j}$ as children.

e. I realized that Art had [VP visited the Dean]$_i$.
I should do it$_{i/*j}$ too.

f. Irma was [AP easy to please]$_i$. I should be that$_{i/*j}$ too.

g. Salene [NP is a midwife]$_i$. Ella is not that$_{i/*j}$.

h. [IP Fairley is not here]$_i$. It$_{i/*j}$ bothers Green

i. I go there [CP whenever I have time]$_i$. It$_{i/*j}$ isn't often.

j. [IP I go there whenever I have time]$_i$. It$_{i/*j}$ isn't often.

Further support for the claim that the relation between the head of the appositive and the resumptive pronoun is merely anaphora comes from the fact that the antecedent of an appositive can be a discontinuous noun phrase, as in (15a) (from Thompson (1971), page 94; quoted from Perlmutter and Ross (1970)[6]. This is a property of anaphora across discourse.

(15) a. [IP [IP A man$_i$ entered the room and a woman$_j$ went out],
[CP who $_{ij}$ t $_{ij}$ were quite similar]]

b. A man$_i$ entered the room and a woman$_j$ went out. They$_{ij}$
were quite similar.

Finally, consider the following paradigm.

(16) a. At the party, Mary danced with three boys, who wore glasses.
b. At the party, Mary danced with three boys who wore glasses.

---

[6] Further, Smitts (1988) points out that for some speakers of Italian, the split antecedents of an appositive clause need not have the same grammatical function.

(16a) and (16b) have different truth conditions. For instance, (16b) does not mean that Mary danced with exactly three boys. (16b) is true if Mary danced with five boys as long as only three of them wore glasses. On the other hand, (16a) means that Mary only danced with three boys at the party, *all* of whom wore glasses. Thus, (16a) has the same interpretation as (17).

(17)   a. At the party, Mary danced with three boys$_i$, and they$_i$ wore glasses.
       b. At the party, Mary danced with three boys$_i$. They$_i$ wore glasses.

If the relation between the resumptive pronoun and the head of the appositive is one of anaphora on a par with the anaphoric relation between an XP in a sentence and a coreferential pronoun in a following sentence, then we can explain why (16a) has the same truth conditions as (17).

As the paradigms in (16) and (17) show, a restrictive relative pronoun and an appositive relative pronoun do not have the same interpretation. The role of the pronoun in (16a) is to refer to the group that satisfies the predicate of the clause containing its antecedent. So in (16a), the group of boys who wear glasses is the group of boys that Mary danced with at the party. This type of interpretation is what Evans (1982) calls an E-type interpretation[7]. In (16b), on the other hand, the pronoun does not refer. It has the interpretation of a bound variable. The bound variable reading in (16b) can be paraphrased as "three boys are such that they wore glasses and Mary danced with them". A relative pronoun in a restrictive relative always has a bound variable interpretation. This is the case because the head of a restrictive never independently refers. In contrast, in a non-restrictive relative, the reference of the head noun is identified independently of the relative clause. Thus, a relative can modify a proper name

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[7]. The E-type interpretation will be discussed in Section 4.4.

(See the discussion of restrictive versus non-restrictive noun modification in Section 2.1). A relative pronoun in an appositive has a referential (or E-type) interpretation. As we shall in Section 3, a non-restrictive relative pronoun can never occur in a position where a bound variable interpretation is required.

2.6. Why is Anaphora Obligatory?

Although an appositive is interpreted as as an independent clause, it does not contain a separate assertion. I suggest that this is why it must be anaphorically connected to another clause. This is not the case with anaphora across two independent clauses (in discourse). Each clause contains a separate assertion. In (16a), the pronoun in the second clause can but need not be anaphorically connected to an NP in the first clause,.

(18) a. $John_i$ saw a man_j. $He_{i/j/k}$ is tall.
      b. $John_i$ saw a man_j, $who^*_{i/j/^*k}$ is tall.

2.7. Construing the Resumptive Pronouns with the Head of the Appositive.

(18a) and (18b) differ in one respect: the pronoun in (18b) is a resumptive pronoun. As such, it must be coindexed with an antecedent. What requires that it be co-indexed with the XP to which the appositive clause is adjoined at D-structure (i.e.. *a man* in (18b))? In particular, why can it not be co-indexed with *John* in (18b)? I will assume that a resumptive pronoun like an empty category must be *identified* , in the sense of Jaeggli (1982). Jaeggli proposes that empty categories are subject to an *Identification Condition*: they must be antecedent governed. I propose that resumptive pronouns (i.e the chain $(who_j ... t_j)$ in (18b)) must also satisfy this Identification Condition; they must be antecedent

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governed. Antecedent government is defined as local binding by the *closest potential antecedent governor* (in the sense of Rizzi 1990).

Since an appositive is base-generated adjoined to an XP. This XP will always be the closest potential antecedent governor of the resumptive at S-structure. Thus, to ensure that the pronoun in (18b) is co-indexed with the head of the appositive, I have assumed that resumptives are pronouns that must be identified by an antecedent. Note that this identification requirement will have to be satisfied at S-structure before the appositive clause is raised out of the clause containing its antecedent.

2.8 The Resumptive function and the Quantificational Function of Wh-chains.

The fact that the relative pronoun in an appositive must have an antecedent can explain why wh-movement is obligatory in English. To see why, we must consider what is the nature of the relation between a wh-operator and its trace. There are two types of relations. The relation between the wh-operator and its trace can be *quantificational*. That is, the wh-operator assigns a range to its trace; this is the case in questions and free relatives when they have a universal reading. Thus, the wh-operator in the free relative in (19) can have a universal reading, paraphrasable as *whatever*.

(19)   Don't do what$_i$ he tells you t$_i$ to do.

The relation between a wh-operator and its trace can be a *resumptive* relation. That is, the wh-operator does not assign a range to its trace: its reference is fixed by an antecedent. This is the case in non-restrictive relatives. In particular, in a non-restrictive relative, the head NP independently refers; the wh-operator is a vacuous operator: its sole function is resumptive . It behaves

like a pronoun anaphorically dependent on the XP that the appositive clause modifies.

What about wh-chains in restrictive relatives? A restrictive relative always has an antecedent. In this sense, the wh-chain has a resumptive function. However, this head does not independently refer. Thus, "the head of a restrictive relative does not itself refer; rather the reference of the entire NP is determined conjointly by the head noun and the relative clause. ....In this sense, the restrictive wh-operator may be a true QP ranging independently over a possibly non-singleton set distinct from that of the head, even though the full NP will have a unique referent if the head NP is definite and singular." (From Lasnik &Stowell (1990), page 37). In this sense, the wh-chain in a restrictive relative has a quantificational function. I would like to point some facts in support of Lasnik & Stowell's claim that restrictive relative operators are "true QPs". Consider the following restrictive relatives.

(20)   a. The woman [$\emptyset_i$ [that [everyman loves t_i
        b. The woman [$\emptyset_i$ [that [t_i loves everyman

(20a) is ambiguous, (20b) is not. If restrictive relative operators are "true QPs", then we can derive the scopal ambiguity in (20a) and the lack of ambiguity in (20b) as a subject/object asymmetry, on a par with the well-known wh-phrase/quantifier interaction illustrated below:

(21)   a. Who$_i$ did [everyone see t_i ?
        b. Who$_i$ [t_i saw everyone ?

On the other hand, if restrictive relative operators do not have any quantificational status, then to explain the scopal ambiguity in (19a), we must

raise the quantifier out of the relative clause so that it has scope over the head noun; in which case, we must abandon the assumption that QR is clause bound.

I have identified two functions that *wh*-chains can fulfil: a quantificational function and a resumptive function. Further, we have the following hierarchy: In questions or free relatives, the *wh*-chain has a quantificational function. For instance, in a free relative, the *wh*-operator has a definite/universal quantificational force. In restrictive relatives, the *wh*-chain has a both a quantificational and a resumptive function. Finally, in non-restrictive relatives, the *wh*-chain has a resumptive function. Thus, *wh*-movement in appositives is obligatory because 1) appositives are interpreted as independent clauses with a resumptive pronoun and 2) *resumptive pronouns are wh-chains*. (I will make this claim explicit in Section 2.10).

2.9. The Syntactic Form of Wh-words in English Questions and Relatives.

In this section, I will argue that the distinction between quantificational *wh*-chains and resumptive *wh*-chains is reflected (to a certain extent) in the syntactic form of wh-words used in questions and relatives. In order to justify this claim, I must first (briefly) summarise Kuroda's (1969) analysis of the syntactic form of wh-words in questions and relatives. Kuroda proposes to distinguish between 'indefinite' and 'definite' wh-words. Definite *wh*-words like *which* are derived form the underlying representation *wh+THAT*, where THAT is " much like *it* , as a pronoun, and *the*, as a determiner. One can assume that *it* and certain occurrences of the so-called demonstrative pronoun *that* (i.e. non-demonstrative uses of *that*) are different phonetic realisations of one syntactic entity, which can be assumed to be THAT PRO" (page 250-1). Indefinite wh-words like *what* are derived from the underlying representation *wh+SOME* ; SOME in turn can be

realised as either *some* or *any*. In particular, in the free relative in (19) above, the universal interpretation of *what* (paraphrasable as *whatever/everything*) is derived from the underlying representation *wh+ANY*; whereas it's definite reading (paraphrasable as the NP *the thing*) is derived from the underlying representation *wh+SOME* (by a rule of Definitivisation). Further, Kuroda assumes that a *wh*-word like *who* is ambiguous: it can either be definite, in which case it is derived from *wh+THAT+PRO [+human]*, or it can be indefinite, in which case it is derived from *wh+SOME+PRO* . Note that this distinction recalls Pesetsky (1979) distinction between D-linked (discourse-linked) wh-words (such as *who* and *what*) and non-D-linked wh-words (*which*-NP). The former presuppose a set of entities previously established in the discourse. They correspond to Kuroda's definite wh-words. The latter do not presuppose a previously established set of entities in the discourse, and, as such, are true quantifiers . They correspond to Kuroda's indefinite wh-words.

Now, the *wh*-words that introduce appositives correspond to Kuroda's class of definite wh-words: Appositives in English are introduced by *who* when the antecedent is a [+human] and, *which* elsewhere (when the antecedent is [-human] or when it is a non-NP). In contrast, the indefinite *what* which is used in English questions and headless (free) relatives, can never appear in headed relatives (relatives with an antecedent), as shown below.

(22)   a. What$_i$ did the baby-sitter tell you t$_i$ to do ?
        b. Do what$_i$ the baby-sitter tells you t$_i$ to do
        c. *I saw the book what John bought.

Thus, *What* appears in questions (as in (22a)) or in headless (free) relatives (as in (22b). In neither case, does it have a referential antecedent. Hence, it never has a resumptive function. Note, further, that in all the Romance languages

(excepting Romanian), appositives (but not restrictives) can be introduced by a complex relative pronoun which consist of the definite determiner and an interrogative pronoun (*lequel/laquelle* in French, *il quale / la quale* in Italian *el/la/lo qual*, il/la/lo que in Spanish)[8].

I have tried to show that the distinction between the quantificational and the resumptive function of wh-chains is reflected in the syntactic form of the wh-words used in English relatives and questions. In particular, I have argued that the *wh*-words that appear in appositives correspond to Kuroda's definite *wh*-words. I will now reinterpret Kuroda's analysis of wh-words and assume that definite *wh*-words are not derived from the underlying representation *wh*-THAT but are interpreted at LF as *wh*-THAT, with THAT realised as a personnal pronoun *he ; she* (if its antecedent is [+human]) and elsewhere as the pronoun *it* or *that* (in its non-demonstrative use). This is in fact, precisely, how I argued that the appositive relative pronoun is interpreted at LF. Recall that the appositives clauses in (13) (Section 2.4) were interpreted as in (14) (repeated below) at LF.

(14) a. I saw [$_{NP}$ Mary]$_i$. She$_i$ was lat.e
      b. We leave the key [$_{PP}$ under a stone]$_i$. It$_i$ is a
          silly place to keep something so valuable.
      c. Joe [$_{VP}$ debated in high school]$_i$. Chuck did that$_i$/ it$_i$ too.
      d. We [$_{VP}$ read *Tom Sawyer*]$_i$. We had never done that$_i$/ it$_i$
          as children.

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[8]. These pronouns can be used in restrictives but not in isolation: they must be the object of a preposition.

    i.   Chaque table sur laquelle j' écris.
        'Each table on which I write'.
    ii. * Chaque enfant lequel j'ai photographié.
        'Each child that I have photographed'.
    iii. Jean, lequel j'ai photographié hier.
        'John, who I photographed yesterday'.

e. I realized that Art had [$_{VP}$ visited the Dean]$_i$.
I should do that$_i$/it$_i$ too.

f. Irma was [$_{AP}$ easy to please]$_i$. I should be that$_i$ too.

g. Salene [$_{NP}$ is a midwife]$_i$. Ella is not that$_i$.

h. [$_{IP}$ Fairley is not here]$_i$. That$_i$/It$_i$ bothers Green

i. I go there [$_{CP}$ whenever I have time]$_i$. That$_i$/It$_j$ isn't often.

j. [$_{IP}$ I go there whenever I have time]$_i$. That$_i$/ It$_i$ isn't often.

I have argued that the wh-words that appear in appositives have (exclusively) a resumptive function: the wh-word is a vacuous operator (it does not assign a range to its trace). Further, I have shown that they correspond to Kuroda's definite wh-words. Instead of deriving definite wh-words from underlying pronouns (as Kuroda does), I have assume that these wh-words are interpreted at LF as pronouns.

2.9. Resumptive Chains.

I have argued that wh-chains have two functions. They can have a quantificational function. This is the case in questions and free relatives where the wh-word is an operator. They can have a resumptive function. This is the case in appositives where the wh-word is a pronoun whose reference is fixed by that of its antecedent. Finally, in restrictive relatives, the wh-word has a quantificational (in the sense of Lasnik and Saito 1990) and a resumptive function. Thus, wh-chains in both restrictive and non restrictive relatives are resumptive pronouns. This resumptive pronoun can have +*Wh*-features or -*Wh*-features. Further, -*Wh*-resumptive pronouns fall into two classes. A -*Wh* -resumptive pronoun can be phonologically null; in which case, it is called a null operator. Or a -*Wh*-resumptive pronoun can be overt; this class of pronouns. was the topic of the first two chapters of this thesis. Finally, they can

have either of the two interpretations that any pronoun can have. In particular, in a restrictive relative , they have bound variable interpretation because the head of the relative clause does not independently refer.; whereas in a non restrictive relative , they have a referential (or an E-type) interpretation.

3. Evidence for LF raising.

I have argued that the the relation between the relative pronoun in the appositive and the XP to which it was adjoined at D-structure (its antecedent) should be treated on a par with the anaphoric relation established across discourse between an XP in a clause and a pronoun in a following clause. In this Section, I will show that if 1) we lift the appositive clause at LF out of the clause containing its antecedent and then adjoin it to the matrix clause and, 2) we treat the relative pronoun as a resumptive pronoun (i.e. a pronoun that must have an antecedent), we can explain the behavior of appositives with respect to quantifier scope, negation, long-distance anaphor binding, parasitic gaps and weak crossover.

3.1. Why quantifiers cannot be the antecedent of an appositive.

Appositives differ from restrictive relatives in that they cannot have a quantifier as their antecedent, as the following examples taken from Ross (1967) show.

(23) a. *No one, who wears socks, is a swinger.
      b. *Every/Each/Any student, who wears socks, is a swinger.
      c. Every/Each/Any student that wears socks is a swinger.

This fact is one of Ross main arguments for analysing appositives as independent clauses at D-structure His idea is that (23a) and (23b) are bad

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precisely because a quantifier cannot bind a pronoun in a following clause, as shown below.

(24)   a. *No one is a swinger, and he wears socks.
          b. *No one is a swinger. He wears socks.

It is generally assumed that the scope of a quantifier is clause bound. In particular, Heims (1982) proposes the *Scope Constraint* which restricts Quantifier Raising (QR) to the immediate clause dominating a quantifier. The *Scope Constraint* explains the ill-formedness of (24). Likewise it will explain the ill-formedness of (23a) and (23b). Consider the derivation of (23a) given below.

(25)

a. Structure.

```
          C"
         /\
          I"
         /\
      N"    V"
      /\    △
     /  \   is a swinger
   N"    C"
   △     △
 no one  who_j t_j wears socks
```

b. LF.

```
              C"
             / \
           C"    C"_j
          /\     △
           I"    who_j t_j wears socks
          /  \
    no one_k   I"
              /\
            N"  V"
            /\  △
           /  \ is a swinger
         N"    t_j
         △
         t_k
```
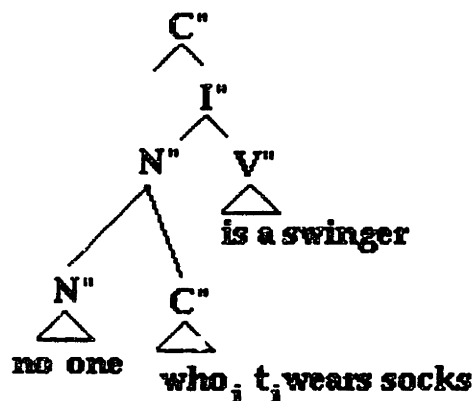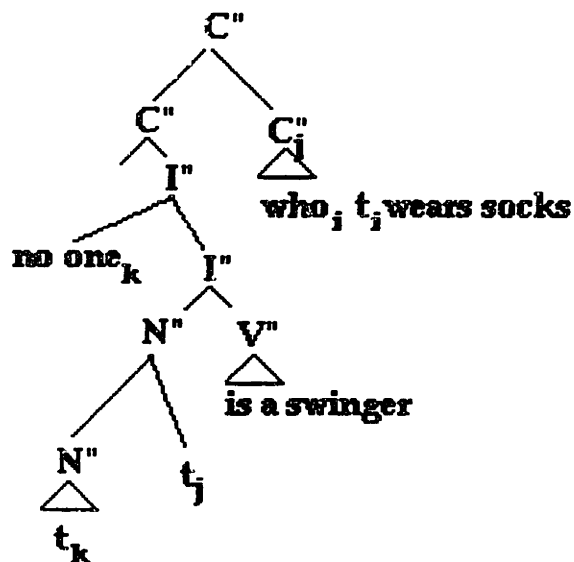
In (25b), we see that the appositive clause has been lifted out of the main clause and then adjoined to the latter, at LF. Further, the quantifier *no one* has undergone Quantifier Raising: it has been adjoined to the IP node dominating it. Under this analysis of appositives as independent clauses, the relation between the pronoun in the appositive and its antecedent is treated on a par with the anaphoric relation established across discourse between an XP and a pronoun in two separate clauses, except in one respect. Namely, the relative pronoun (i.e.

the chain ($who_i...t_i$)) is a resumptive pronoun. That is, it must have an antecedent. Since quantifiers do not refer, the only anaphoric relation that can be established between a quantifier and a pronoun is a bound variable relation. For the resumptive pronoun in (25b) to be interpreted as a bound variable, it must be under the scope of the quantifier; which in turn requires that the resumptive pronoun be c-commanded by the quantifier. However, in (25b), the quantifier does not c-command the appositive clause; hence, it cannot bind the resumptive pronoun and the the latter will not receive the required bound variable interpretation. Thus, (25b) is ungrammatical for precisely the same reasons that (24b) is ungrammatical. (24b) has the LF representation in (26), where the T node stands for Heims (1982) *Text* node. In Heims (1982), complete logical forms correspond to texts,which are sequences of sentences attached to a T-node. This allows her to analyse anaphoric relations between indefinites and pronouns across sentences on a par with anaphoric relations within sentences. In (26), the pronoun cannot be bound by the quantifier because the scope of the quantifier is clause bound. It cannot extend into the following sentence because the quantifier does not c-command the following sentence.

(26)

LF.
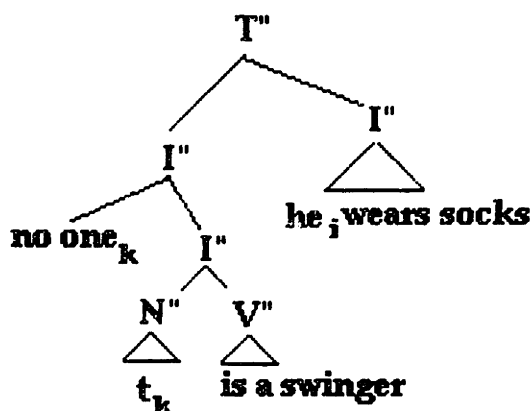
(26) will be well-formed if the pronoun has an index distinct from that of the quantifier. On the other hand, (25) will never be well-formed because the resumptive pronoun in an appositive must be construed (co-indexed) with the XP to which it adjoined at S-structure. When this XP is quantifier, the quantifier must have scope over the pronoun at LF. That is, the quantifier must c-command the pronoun at LF. Thus, the resumptive pronoun in an appositive can not occur in a position where a bound variable interpretation is required.

Appositives, however can modify indefinites as shown below.

(27)   (From Emonds 1977)
    a.   Some /One student at this conference, who I talked to on the phone, is happy.
    b.   Some /One student at this conference is happy, and I talked to him on the phone.

(28)   a.   A man walked in, and he was tall.
    b.   A man walked in. He was tall.
    c.   A man, who was tall, walked in.

Under Heims (1982) theory of indefinites, the above paradigms are explained. She proposes that indefinites have no quantificational force of their own. Instead, the indefinite is a predicate that introduces a free variable. The quantificational force of the indefinite is determined either by other expressions with inherent quantificational force within the sentence (overt binders such as adverbs of quantification or invisible necessity operators) or by an interpretive rule (the rule of *Existential Closure*). Thus, (28b) and (28c) will have the following LF representations, respectively.

(29)

a.

```
              T
            /   \
           ∃     T
               /   \
              I"     I"
            /  \      △
          N"ᵢ   \    heᵢwas late
          /\     I"
       a man    /  \
               tⱼ   V"
                    △
                 walked in
```

b.

```
              C"
            /   \
           ∃     C"
               /    \
              C"      C"ⱼ
            /  \       △
          I"    \    whoⱼ  tⱼ was late
         /  \    \
       N"ⱼ   \    \
       /\     tⱼ   \
     a man          I"
                   /  \
                 tⱼ    V"
                       △
                    walked in
```
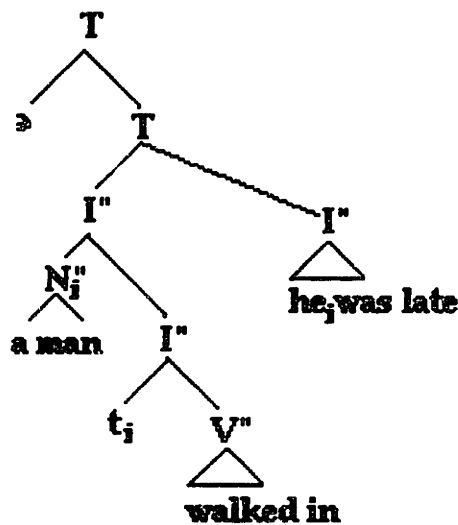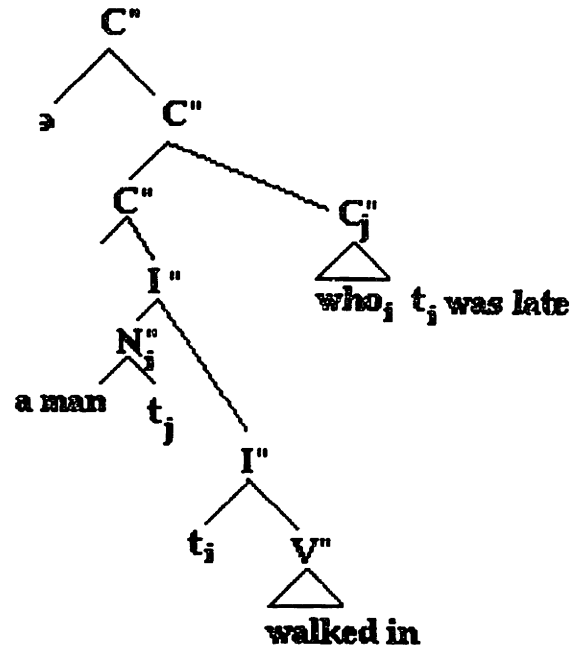
In (29a), the rule of Existential Closure applies at the Text (discourse) level. It introduces an existential operator which is adjoined to the T-node and unselectively binds all the free variables in its scope. (Note also that under Heims' analysis, the indefinite a *man* in (29) is adjoined to the IP node dominating it by a rule that adjoins every non pronominal NP to IP). In (29b), the appositive clause is lifted out of the main clause and adjoined to the unembedded clause. The relative pronoun ($who_i...t_i$) is a resumptive pronoun: it must have an antecedent . Finally, the rule of Existential Closure introduces an existential operator which has scope over the free variable introduced by the indefinite NP and the pronominal variable in the appositive clause (the resumptive pronoun). This analysis carries over to the paradigm in (27) above. Indefinite NPs such as

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someone are also treated as quantifier-free , consisting of a predicate and a free variable that undergoes Existential Closure.

3.2. *Quantifier scope and appositives.*

The proposal that appositives are independent clauses adjoined to an unembedded clause not only explains why a quantifier cannot serve as the antecedent of an appositive but further explains why a quantifier in the matrix clause cannot have scope over pronoun in the appositive clause. Consider the following contrast taken from Safir (1986, page 672) (due to Luigi Rizzi).

(30) a. *Every Christian$_i$ forgives John, who warns him$_i$.
      b. Every Christian$_i$ forgives a man who warns him$_i$.

The above paradigm shows that the bound reading of the pronoun is possible when the pronoun occurs in a restrictive relative clause but impossible when it occurs in an appositive clause. Once, the appositive is lifted out of the main clause and adjoined to it at LF, the pronoun will no longer be in the scope of the quantifier in the main clause. The bound reading of the pronoun will be ruled out because the quantifier does not c-command the appositive clause at LF.

This proposal also explains why an indefinite modified by an appositive cannot be under the scope of a quantifier, as the following paradigm shows.

(31) a. This man owns a donkey, which eats too much.
      b. * Every man owns a donkey, which eats too much.

As Sells points out , the above paradigm can be explained under Heims' (1982) theory of indefinites[9]. In particular, the above paradigm is explained by the level at which Heims' rule of Existential Closure applies. In (31a), the rule of Existential Closure applies at the highest level in the phrase marker: it adjoins an existential operator to the node dominating both the appositive clause and the clause containing its antecedent, as was shown in (29b) above. The existential operator binds both the variable introduced by the indefinite in the main clause and the resumptive pronoun in the appositive. In contrast, in (31b), the rule of Existential Closure will apply within the scope of the quantifier *every*. In particular, Heims assumes that a quantified sentence has a tripartite logical form. Thus, (32a) has the logical form shown in (32b).

(32) a. Everyman owns a donkey.
      b. Every (x)   (x is a man)   (donkey(y) and x owns y)
          Quantifier   Restrictive Clause   Nuclear Scope

Further in a quantified sentence, Existential Closure must apply to the nuclear scope of the quantifier yielding the following representation.

(33) Every (x)   (x is a man)   (∃ y)(donkey(y) and x owns y)

Thus, the rule of Existential Closure applies at the text level, unless there is an operator in the sentence, in which case it applies within the scope of that operator. As we shall see, the level at which Existential Closure applies, explains the paradigm in (31). The appositive in (31b) will have the following LF representation.

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[9] Sells proposes an analysis of appositives (based on Emonds' MCH) in terms of *The Discourse Representation Theory* (Kamp (1981)).

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(34)

```
                    C"
                  /      \
               C"          C"_j
             /    \        /\
           I"              /__\
         /   \         y eats too much
    every(x)  \
          man(x)  \
                    I"
                   /  \
                 ∃y    I"
                      /  \
                     x    V"
                         /  \
                      owns   N"
                            /  \
                      donkey(y)  t_j
```
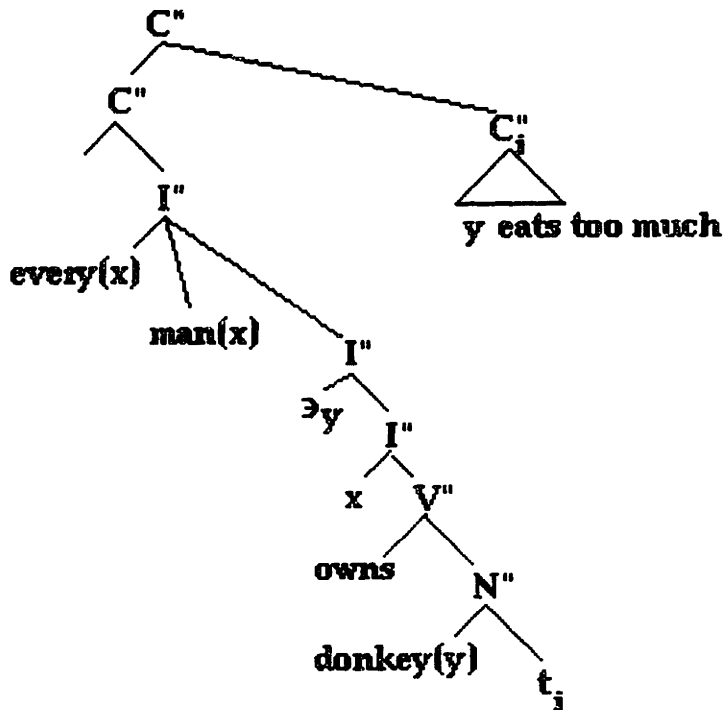
In (34), Existential Closure applies within the scope of the universal operator. Hence, the existential cannot bind the resumptive pronoun in the appositive clause since it does not c-command the appositive clause at LF. In other words, once the appositive in (34) has been lifted out of the IP that contains it, the sentence cannot have a reading in which *a donkey* is under the scope of *every*. The resumptive pronoun in the appositive clause cannot be bound by the existential operator because the scope of the existential operator is defined by the quantifier in the clause in which the appositive was base-generated. Thus, this sentence will be out for precisely the same reasons that (35) below is out, in Heims' system.

(35)   a. *Every man own a donkey$_i$. It$_i$ eats too much.
        b. *Every man own a donkey$_i$, and it$_i$ eats too much.

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(31a), on the other hand, is fine because the scope of the indefinite is not defined by an operator contained within the main clause, as was shown in (29b) above. Existential Closure is free to apply at the highest level in the phrase marker.

3.3. The Scope of Negation.

It has often been noted in the literature that appositives (unlike restrictives) are affected by the presence of negation in the main clause[10]. Consider first the following paradigm.

(36)   a.   I didn't see a donkey that eats too much.
       b.   * I didn't see a donkey, who eats to much.

As Sells (1988) points out (36b) is out on the reading where the indefinite is understood under the scope of negation but fine on the reading where the indefinite is understood as specific (although the specific reading is not easy to get). Why is (36b) ill-formed under the reading where the indefinite is under the scope of negation? (36b) will be ungrammatical for precisely the same reasons that the sentences in (37) are ungrammatical.

(37)   a.   *I didn't see a donkey, and it eats too much.
       b.   *I didn't see a donkey. It eats too much.

Consider the derivation of (36b) given in (38). We see that the appositive clause adjoined to the NP *a donkey* at S-structure has been lifted out of the main clause and then adjoined to it at LF.

---

[10]. See Sells (1988) for a discussion and an account of these facts in terms of the Discourse Representation Theory of Kamp (1981).

(38) a. S-structure

$$C''$$

$$I''$$

I
did

Neg''

not

V''

see

N''

N''$_i$

a donkey

C''

who$_j$ t$_j$ eats too much

b. LF

$$C''$$

C''$_j$

who$_j$ t$_j$ eats too much

C''

I''

I

I
did

Neg''

not

V''

see

N''

N''$_i$

a donkey

t$_j$
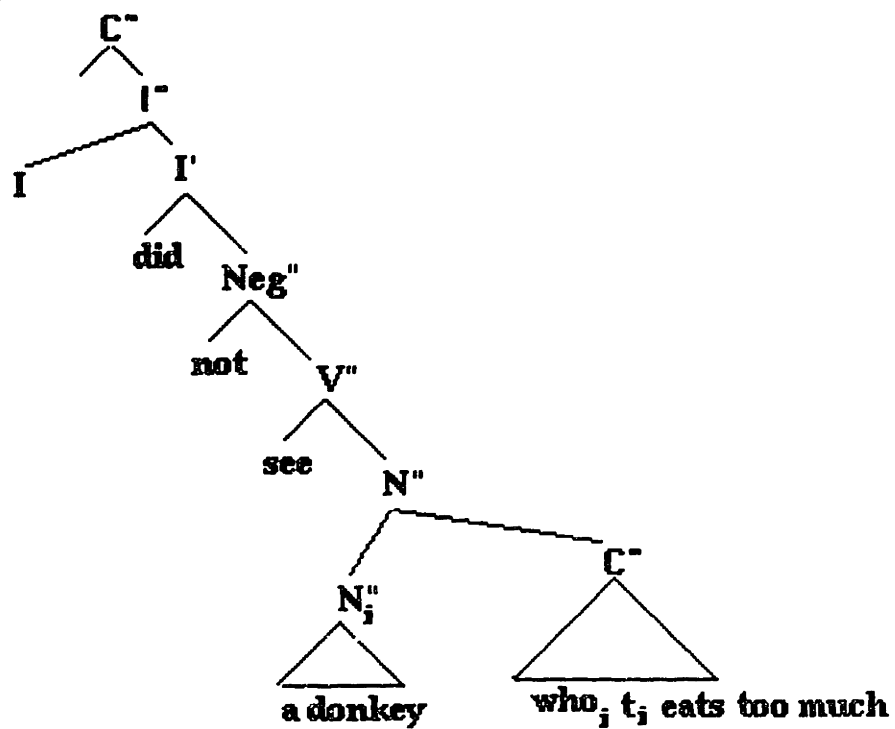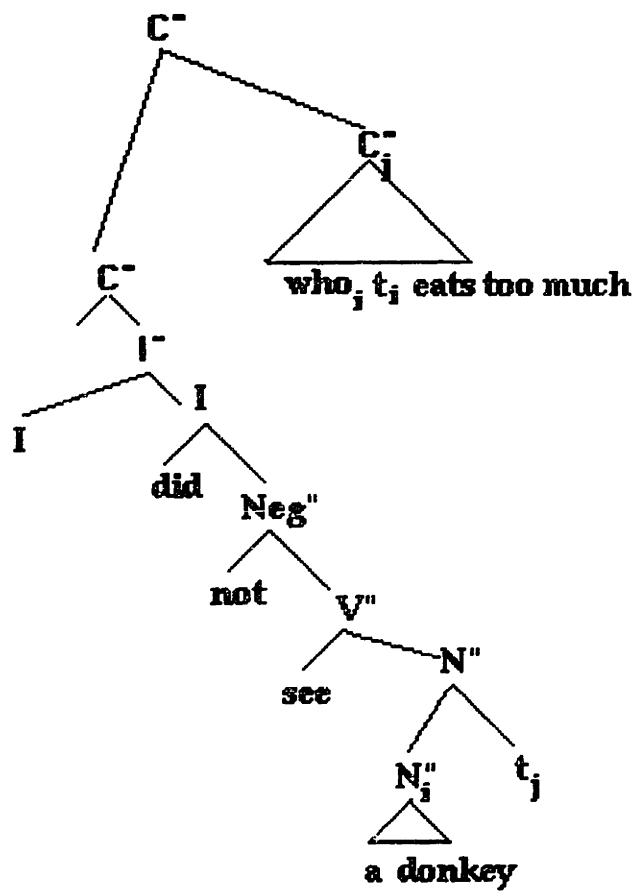
How do we explain the ill-formedness of the LF-representation in (38)? The scope of an operator is defined in-terms of its c-command domain. The scope of negation in (38) is VP and all the nodes that this VP c-commands (or IP and all the nodes that IP dominates, if we assume that the negative operator is subject to QR at LF). At S-structure, the indefinite is under the scope of negation because negation c-commands the NP node that dominates the indefinite and all the nodes that this NP dominates. At LF, however, negation no longer has scope over this NP node. That is, it does not c-command all the nodes that this NP node dominates. In particular, it does not c-commands the CP that was lifted out of the NP; it c-commands only its trace. For negation to have scope over the NP node, it must c-command the NP node and the whole chain $(CP_i...t_i)$. Thus, once the the appositive clause has been lifted out of the main clause at LF, negation in the main clause no longer has scope over the appositive .

On the other hand, (37b) is fine under the reading where there is some specific donkey, for the same reasons that the examples in (39) are fine.

(39)   a. I didn't see Bill, who Mary hates.
        b. I didn't see the man, who Mary hates.

The examples in (39) are well-formed because the scope of specific indefinites, definite NPs and proper names is not defined by the negative operator: they always have widest scope.

Now, consider the following paradigm where the antecedent of the appositive is respectively a VP, a PP and a predicate NP. As Sells points out, whether the antecedent of an appositive is a predicate or an indefinite NP, we find the same behavior under negation. This is expected under Heims' theory of indefinites: indefinites are treated as predicates introducing a variable into the logical representation.

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(40)   See Sells (1985a):

a.   Bonzo ate a whole banana in one go, which is a real feat.
b.   * Bonzo did not eat a whole banana in one go, which is a real feat.
c.   We leave the key under a stone, which is a silly place to keep something so valuable.
d.   * We don't leave the key under a stone, which is a silly place to keep something so valuable.
e.   Salene is a midwife, which Ella is not.
f.   * Salene is not a midwife, which Ella is.

Note that (40b) is bad under the reading where the antecedent of the appositive pronoun is the VP *eat a whole banana*, but fine under the reading where the antecedent of the pronoun is *(did) not a whole banana in one go*. How do we explain the above contrasts? Negation is an operator that must take scope over the entire predicate of the clause in which it is generated. For it to have scope over a predicate, it must c-command the predicate node and all the nodes that this predicate dominates. Once the appositive clause has been lifted out of the predicate in the main clause at LF, negation no longer has scope over the predicate of the main clause since it no longer c-commands all the the nodes that this predicate dominated at S-structure. This is shown in (41).

(41)

a. S-structure.

```
            C"
           /\
             I"
            /\
      Bonzo    I'
              /\
           did    Neg"
                  /\
               not   V"
                    /    \
                 V"        C"
                 /\        /\
              eat a whole banana    which_j is a real feat t_j
              in one go
```

b. LF.

```
              C"
             /  \
          C"      C"_j
         /\       /\
           I"     which_j is a real feat t_j
          /\
    Bonzo   I'
           /\
        did   Neg"
              /\
           not   V"
                /    \
             V"        t_j
             /\
          eat a whole banana
          in one go
```

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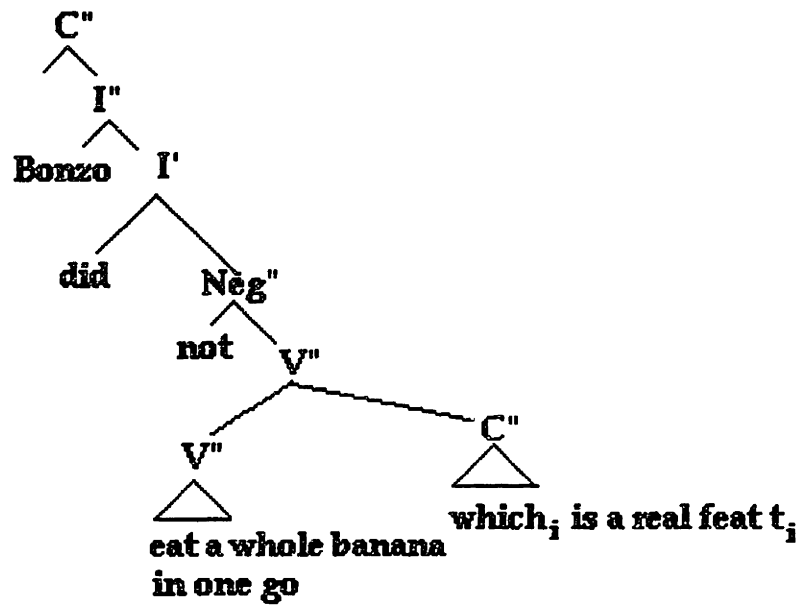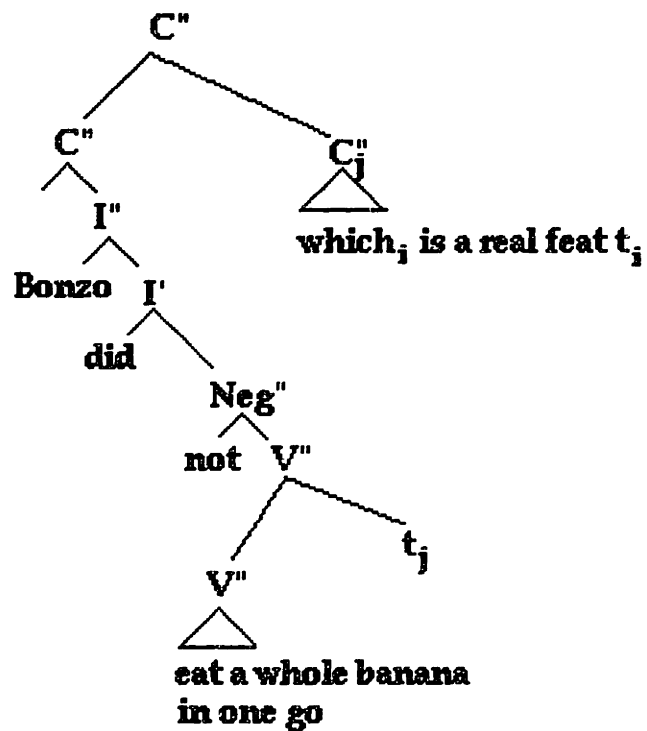
(40b) will be fine under the reading where *not to eat a whole banana in one go is a real feat* because in this case, lifting the appositive clause at LF does not modify the scope (the c-command domain) of negation.

Finally, consider the case of an appositive anaphoric with an entire clause, as in (42). The appositives in (42) are not affected by the presence of negation in the main clause because no constituent within the c-command domain of negation has been lifted out of the main clause at LF. This is the case because the antecedent of the appositive is the main clause i' elf . When an appositive is anaphoric with a matrix clause (CP or IP), the appositive is base-generated adjoined to this matrix clause. Thus, when the antecedent of the appositive is a clause, no movement is required at LF. That is, the S-structure and the LF representations are identical. The structures of (42a) and (42b) are given respectively in (43) below.

(42)   From Sells (1985a).

   a. Fairley is not here, which bothers Green.
   b. Bonzo cannot eat a whole banana in one go, which is surprising to
      the zoo keeper.

(43)

a.

CP

IP   CP

which bothers Green

Fairley is not here

b.

CP

IP   CP

which isn't often

I go there whenever
I have time
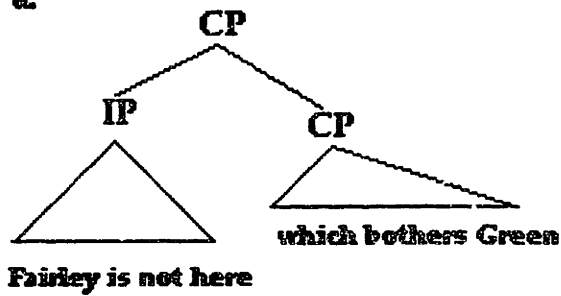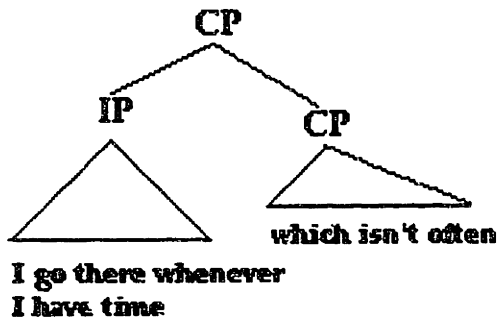
Now, lets turn to the case where the antecedent of the appositive is an embedded clause. Compare (44a) with (44b). In (44a), the appositive can have as an antecedent either the matrix or the embedded clause. In contrast, (44b) is out on the reading where the appositive is anaphoric with the embedded declarative, but is fine on the reading where the appositive is anaphoric with the entire clause.

(44)   From Sells (1985a).
   a.   Lisa said that the new circuit does not work, which appears
        to pose a large problem.
   b.   * Lisa did not say that the new circuit does not work,
        which appears to pose a large problem.

The assumption that the appositive clause is lifted out of the embedded clause and adjoined to the matrix clause at LF explains the above paradigm. After LF raising, (44a) will have the following representation.

(45)

a. S-structure.

C"
- I"
  - Lisa
  - V"
    - said
    - C"
      - C"
        - that
        - I"
          - the new circuit
          - I'
            - does
            - Neg"
              - not
              - V"
                - work
      - C"
        - which$_j$ appears to pose a large problem t$_j$

b. LF.

C"
- C"
  - I"
    - Lisa
    - V"
      - said
      - C"
        - C"
          - that
          - I"
            - the new circuit
            - I'
              - does
              - Neg"
                - not
                - V"
                  - work
        - t$_j$
- C$_j$"
  - which$_j$ appears to pose large problem t$_j$
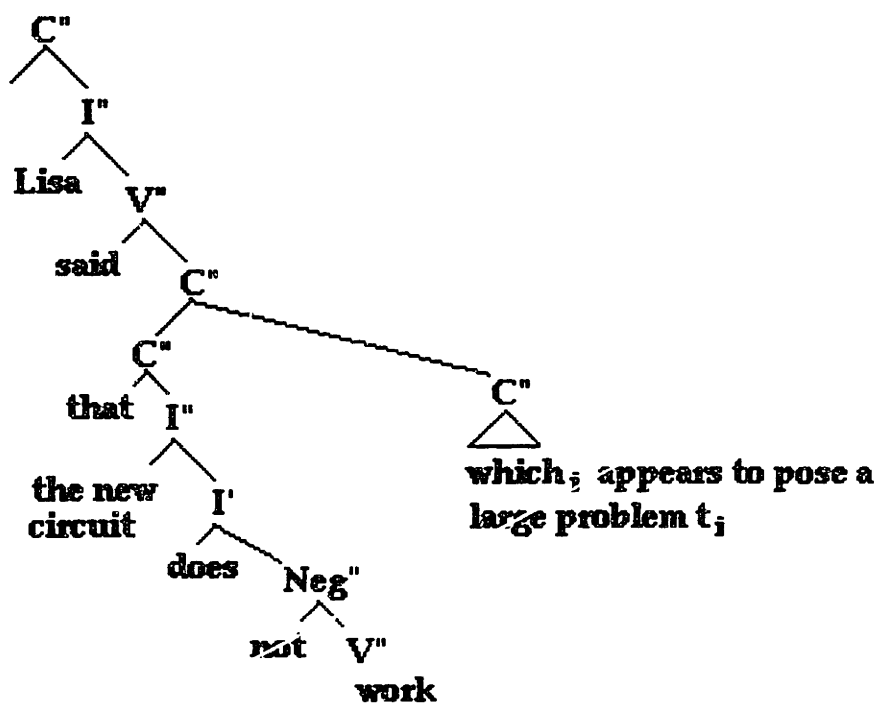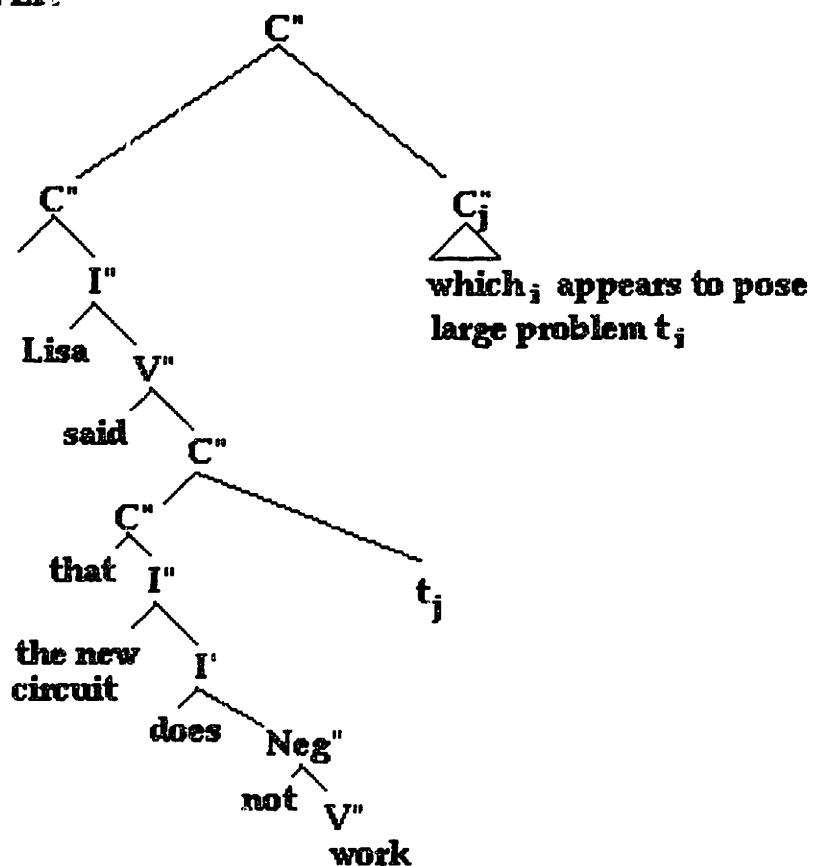
In (45a), the embedded CP contains a negative operator. No constituent within the c-command domain of this negative operator has been lifted out of the CP that contains it. The appositive adjoined at S-structure to the embedded CP has been raised and adjoined to the matrix clause at LF. Hence, raising does not affect the c-command domain of the negative operator, since the appositive was never c-commanded by the negative operator at S-structure. Thus, the sentence is well-formed. Lets now turn to the derivation of (44b)

(46) a. S-structure.

```
                C"
               /  \
                   I"
                  /  \
              Lisa    I'
                     /  \
                  did     Neg"
                         /  \
                      not    V"
                            /  \
                         say    C"
                               /    \
                            C"        C"
                           /△\       /△\
                    that the new    which_i appears to pose a
                    circuit does not large problem t_i
                    work
```

b. LF.

```
                        C"
                      /    \
                    /        \
                 C"           C"_j
                /  \          /△\
                    I"     which_i appears to pose
                   /  \    large problem t_i
               Lisa    I'
                      /  \
                  did    Neg"
                        /  \
                     not    V"
                           /  \
                        say    C"
                              /    \
                           C"        t_j
                          /△\
                    that the new
                    circuit does not
                    work
```
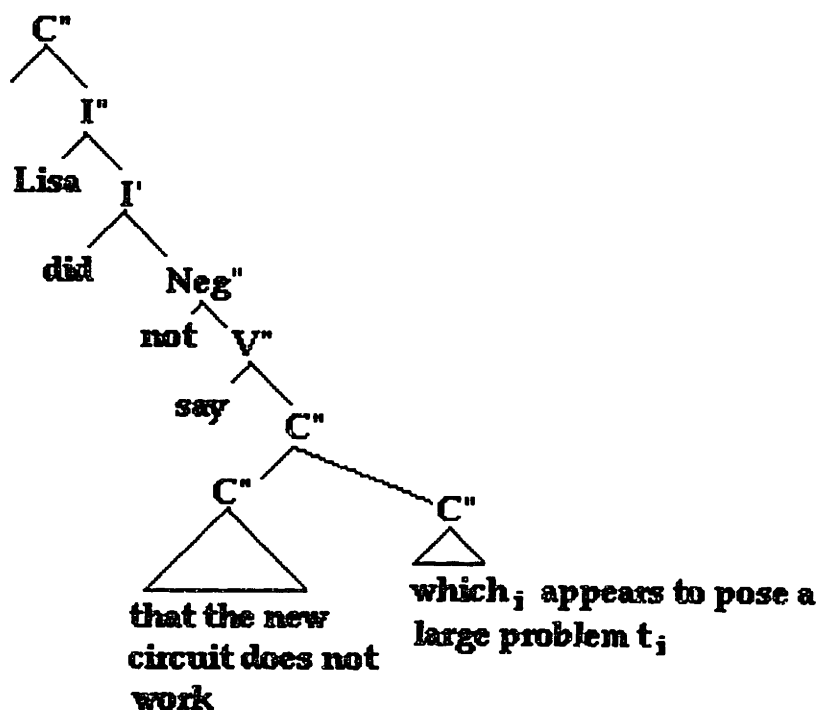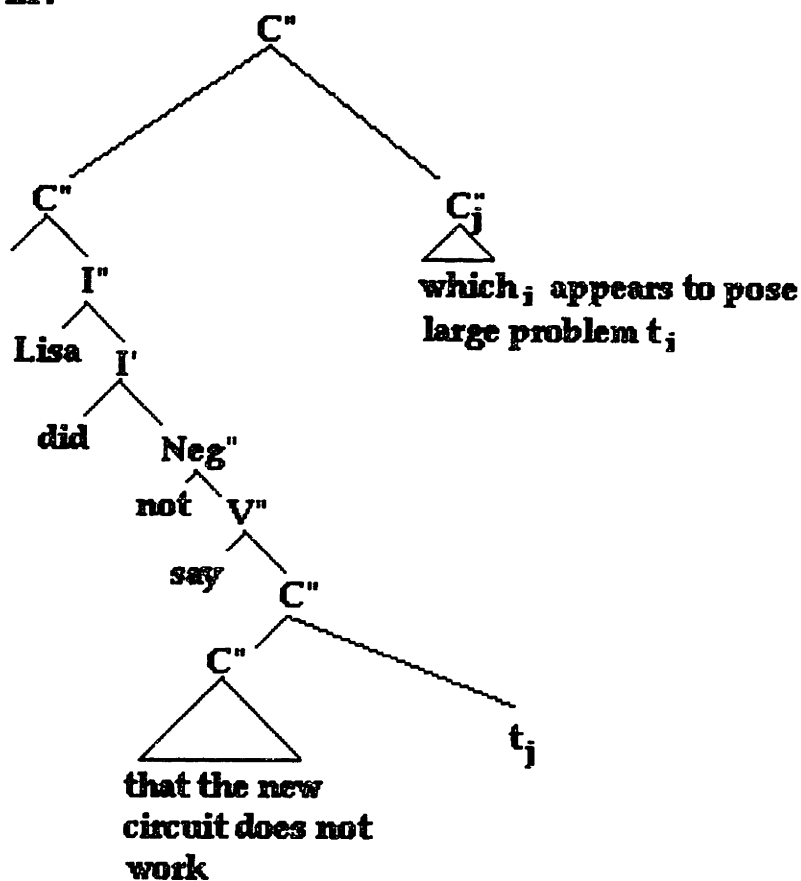
In (43b), on the other hand, the matrix clause also a negative operator . Its scope is the matrix VP (i.e. VP and the set of nodes dominated by VP). Once the appositive modifying the embedded clause is raised and adjoined to the main clause, negation no longer has scope over the entire matrix VP. In particular, it does not c-command the raised CP: it c-commands its trace but not the chain $(CP_i...t_i)$.

I have tried to show that we can explain when and why negation in the clause containing the antecedent of the appositive (i.e. the clause containing the main assertion) is incompatible with an appositive by making the following three assumptions: 1) appositives are independent clauses lifted out and adjoined to the main clause at LF a constituent from within the main clause , and 2) the scope of negation in the main clause is the entire set of nodes that it c-commands. No constituent c-commanded by the negative operator can be lifted out of the clause that contains this operator at LF. Thus, an appositive can be anaphoric with a clause that contains a negative operator but it cannot be anaphoric with a clause embedded under a negative operator. That is, raising a CP not c-commanded by negation will not affect the scope of this operator but raising a CP c-commanded by negation will affect its scope. Further, specific indefinites and definite descriptions modified by an appositive will not be affected by negation because they have wider scope than negation.

3.4. The Opacity of Appositives

Srivastav (1990) points out that in the following example, the appositive is not interpreted in the scope of the verb *think* because (48) does not imply that John thinks that Bill is a genius; John can think that Bill is an idiot, see aslo McCawley (1982).

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(47)   John thinks that Mary loves Bill, who is a genius.

This further supports the claim that appositives are lifted out of the *matrix* clause dominating their antecedent and then adjoined to the latter. Once the appositive has been raised out of the matrix clause in (47), the matrix verb *think* will no longer have scope over the appositive clause.

3.5. Counterexamples.

There are well-known counterexamples in the literature to the argument that a quantifier does not have scope over an appositive relative. Thus, consider the following paradigms, which are all taken from Sells (1985a-b).

(48)   a   Every farmer$_i$ owns a gun, which he$_i$ keeps hidden.
        b.   Every man has two hands $_j$,which serve him$_j$ well.
        c.   Every chess set comes with a spare pawn, which is tapped to the top of the box.
        d.   Each farmer owns some sheep, which the state buys in the Spring.
        e.   Each car comes with two doors, which open from the outside.

(49)   a.   * Each boy might catch a fish, which struggles to get away.
        b.   * Each boy might catch a fish, which always struggles to get away.
        c.   Each boy might catch a fish, which will struggle to get away.

In (48) and (49), we see that the antecedent of the appositive pronoun is not referential since it is under the scope of a universal quantifier. Further, the appositive clause must itself be under the scope of the universal quantifier since the quantifier can bind a pronoun in the appositive clause, as shown in (48a) and (48b). For the moment, I set aside the question of why and when a quantifier can have scope over an appositive relative. The issue that I will now address is that of the interpretation of the appositive (resumptive) pronoun when its

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antecedent is under the scope of a higher quantifier? I have argued that the interpretation of the resumptive pronoun in an appositive is always referential: this resumptive pronoun never occurs in a position where a a bound variable interpretation is required. I will show that the fact that (under certain conditions) the antecedent of a relative pronoun is not referential does not invalidate the claim that the relative pronoun in an appositive can never receive a bound variable interpretation. In particular, I will argue that although the antecedent of the resumptive pronoun is under the scope of a quantifier, the interpretation of the resumptive pronoun is not that of a bound variable, but what Evans (1980) calls the E-type interpretation. Evans distinguishes between the bound variable interpretation and the E-type interpretation of a pronoun. For Evans, there are two types of pronouns which have a quantifier as an antecedent: bound pronouns and E-type pronouns. A pronoun bound by a quantifier does not refer whereas an E-type pronoun refers "to those object(s) that satisfy the predicate in the antecedent clause and thereby make that clause true." (Evans 1982, page 340). There are two tests for determining whether a pronoun has an E-type interpretation. First, an E-type pronoun cannot take an antecedent which is under the scope of a No-NP. This is the case because an E-type pronoun must refer to something. In contrast, a bound pronoun can have an antecedent which is under the scope of a No-NP because it does not refer to anything. According to this test, the relative pronoun in the restrictive relative in (50b) is a bound pronoun whereas the relative pronoun in the non-restrictive relative in (50a) is E-type pronoun.

(50) a. * No car comes with two doors, which open from the outside.
      b. No car comes with two doors that open from the outside.

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Second, the truth conditions of the clause containing the E-type pronoun require that "*all* of the relevant objects satisfy the predicate of that clause" (Evans 1982, page 340). Thus, consider the sentences in (51). (47) entails that Harry vaccinates *all* of the sheep that Johns owns. If the pronoun *them* in (51) were a bound pronoun, then (51) could be paraphrased as in (52). (52) is true if Harry does not vaccinate *all* of the sheep that John owns.

From Evans (1980, page 339)

(52)   a. John owns some sheep$_i$ and Harry vaccinates them$_i$ in the Spring.

        a. John owns some sheep$_i$. Harry vaccinates them$_i$ in the Spring.

(52)   Some sheep are such that John owns them and Harry vaccinates them in the Spring.

As Sells points out, this "maximality" requirement is enforced in appositives whose antecedents are under the scope of a quantifier. Thus, (48f) entails that the State buys in the Spring all the sheep that each farmer owns. The resumptive pronoun in (48f) has the same interpretation as the pronoun *them* in (53). In contrast, the relative pronoun in the restrictive relative in (54) is a bound pronoun. (54) will be true if the State does not buy all the sheep that each farmer owns.

(53)   Each farmer owns some sheep$_i$. The state buys them$_i$ in the Spring.

(54)   Each farmer owns some sheep that the State buys in the Spring.

Likewise, (48e) means that each car has two and only two doors. The resumptive pronoun in appositive clause picks out as its antecedent the group that satisfies the clause containing the universal quantifier. Thus, in (48e), the set of doors that open from the outside is exactly the two and only two doors that each car has. If the resumptive pronoun were a bound pronoun (as would be

the case if (48e) were a restrictive relative), then (48e) would be true if a car had more then two doors.

Thus, the examples in (48) and (49c) do not invalidate our analysis of appositives. On the contrary, they support it. In particular, Evans argues that an E-type pronoun is a pronoun that is not *governed* by a quantifier. Thus, for Evans, the pronouns in (51) are E-type pronouns because the scope of the quantified NP *some sheep* does not extend into the second conjunct in (51a) , nor into the following clause in (51b). Likewise ,the pronouns in (48) and (49c) are E-type pronouns precisely because the scope of the quantifier does not extend into the appositive clause at LF, once the appositive has been raised out of the clause containing the quantifier.

Thus, the paradigms in (48) and (49c) support, in fact, the main clause analysis of appositives. The resumptive pronouns in (48) and (49c) have the interpretation of E-type pronouns and not that of bound pronouns. Further, a pronoun has an E-type interpretation precisely when it is co-indexed but not c-commanded by a quantifier or by an antecedent in the scope of a higher quantifier.

Finally, the examples in (48) and (48c) support the MCH for another reason. These paradigms show that under certain conditions (yet to be determined), the antecedent of the appositive pronoun is not referential since it is under the scope of a higher quantifier. Under precisely the same conditions, anaphora across discourse is allowed between a pronoun and an NP itself under the scope of higher quantifier. Thus, the appositives in (48)-(49) can all be paraphrased as following independent clauses, as shown below. The coreferential pronouns in (55) and (56) have the same interpretation as the relative pronouns in (48)-(49)

(55) a. Every farmer owns a gun$_i$. He$_i$ keeps it hidden.
b. Every man has two hands $_i$. They$_i$ serve him well.
c. Every chess set comes with a spare pawn$_{i'}$. It$_i$ is tapped to the top of the box.
d. Each farmer owns some sheep$_i$. The state buys them$_i$ in the Spring.
e. Each car comes with two doors$_i$. They$_i$ open from the outside.

(56) a. *.Each boy might catch a fish$_i$. It$_i$ struggles to get away.
b. *.Each boy might catch a fish$_i$. It$_i$ always struggles to get away.
c. Each boy might catch a fish$_i$. It$_i$ will struggle to get away.

That the anaphoric relation between an appositive pronoun and its antecedent should be treated on a par with anaphora across discourse is further confirmed by the behaviour of indefinites under the scope of negation. Thus, consider the following examples of anaphora across discourse between an indefinite under the scope of negation and a pronoun.

(57) a. *.This man doesn't own a donkey$_i$. It$_i$ is grazing.
b. Paul doesn't know that this man own a donkey$_i$. It$_i$ is grazing.

A pronoun can be anaphoric to an indefinite under the scope of negation if the verb in the clause containing the negative operator is factive. Thus, as Heims (1982) points out, the only relevant difference between (57a) and (58b) is that the verb in (58b) is factive. This is also the case with appositives, as shown below.

(58) a. *.This man doesn't own a donkey, which is grazing.
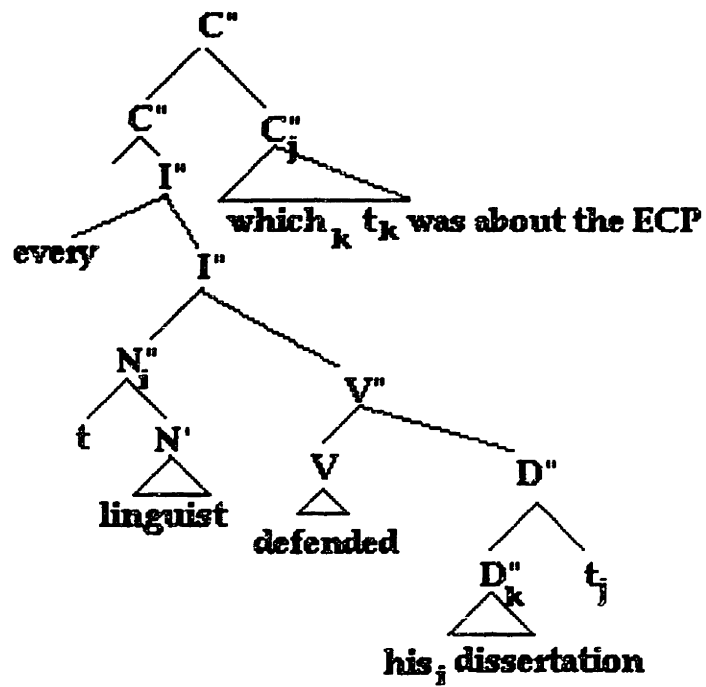b. Paul doesn't know that this man own a donkey, which is grazing.

I will now very briefly address the question of why and when an appositive relative pronoun can have an antecedent under the scope of a higher operator. I will not present an analysis of (48)-(49), but merely informally try to

capture the idea behind Sell's analysis of these data. (Recall that Sell's analysis is based on the Discourse Representation theory of Kamp (1984); in particular, he argues that the relation between an appositive clause and its antecedent should be captured at a level of representation higher then the sentence, the level of discourse structure proposed by Kamp). The appositives in (48) all have a universal or generic interpretation, which Sells argues to be paraphrasable as "in every case/always". Thus, Sells paraphrases (48b) as "every man owns a gun and in every case (/always) he keeps it hidden". This suggest that the appositives in (48) can have an antecedent in the scope of a universal quantifier because they are themselves in the scope of an implicit universal quantifier (such as the invisible necessity operator proposed in Heims (1982)). Thus , compare the the two following LF representations.[11]

---

[11] These two examples are due to David Pesetsky (pc).

(59)

*LF:

```
                    C"
                  /    \
               C"        C"j
              /  \      /  |  \
            /    I"    which_k  t_k was about the ECP
        every   /  \
               /    I"
              /    /  \
           N"i       V"
          /  \      /  \
         t    N'   V      D"
             / \   / \    /  \
          linguist defended  D"k   t_j
                            /  \
                         his_j dissertation
```

(60)

LF:

```
                          C"
                       /        \
                    C"            C"j
                   /  \          /    \
                 /    I"      which_k    I"
             every   /  \              /   \
                    /    I"           ∀     I"
                   /    /  \               /    \
                N"j       V"           t_k  had to 100 pages to be
               /  \      /  \               acceptable to the committee
              t    N'   V      D"
                  / \   / \    /  \
               linguist defended  D"k   t_j
                                /  \
                             his_j dissertation
```

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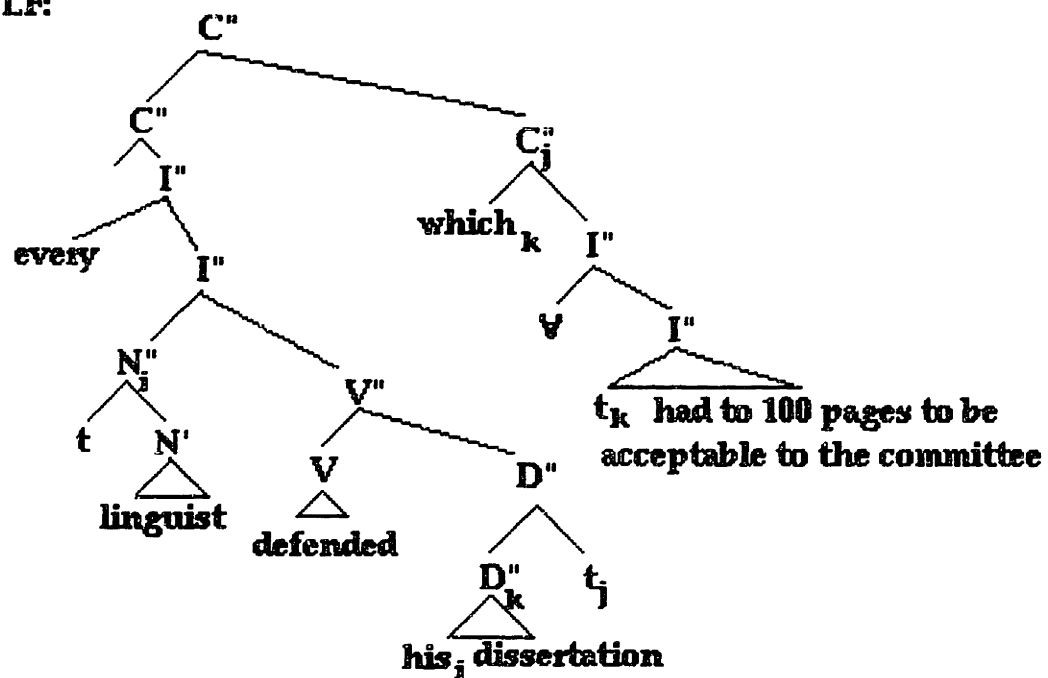
(59) is an ill-formed LF because the scope of the quantifier is clause bound. As was discussed in Sections 3.1 and 3.2, once the appositive is raised at LF out of the c-command domain of the universal quantifier, this quantifier will not have scope at LF over the relativised NP (i.e. it does not c-command all the the nodes that $N"_k$ dominates in (59)). On the other hand, (60) is a well-formed LF-representation: although the universal quantifier (in the clause containing the head of the appositive) does not have scope over the appositive clause, the appositive clause itself is within the scope an implicit universal quantifier. Further, this implicit quantifier will unselectively bind the pronouns *he* and *him* in (48a) and (48b, respectively.

As for the paradigm in (49), it illustrates what Sells (following Roberts) (1984) calls modal subordination. For Sells, it is the presence of a modal in both the appositive clause and the clause containing its antecedent that allows the latter to be interpreted in the scope of the universal . Thus, whenever we have two operators (be it two modal or two universal operators) and further the second operator is *anaphoric* to the first operator an appositive can have a non-referential antecedent.

3.5. The invisibility of appositives.

Safir (1986) argues that non-restrictive relatives are invisible at LF: "the non-restrictive structure is invisible at LF. In effect, it is as if it is in a separate sentence...." (pages 672). He argues that appositives are invisible at LF for the following reasons.

3.5.1. Anaphor binding.

First (as pointed out by Giorgi (1984)), the long-distance anaphor *propria* 'self' in Italian cannot have an antecedent outside an appositive , as shown below.

(61)   Gianni$_i$ pensa che Mario$_j$ che t$_j$ ama la propria$_{j/*i}$ moglie sia intelligente.
'Gianni thinks that Mario who loves self's wife is intelligent.'

To explain why the long distance anaphor in *propria* can not take *Gianni* as an antecedent, Safir proposes that the appositive clause is invisible at LF, where binding theory must be satisfied. I have proposed that the appositive clause is lifted out of the clause containing its antecedent and then adjoined to the latter at LF. Given this analysis, the appositive in (61) is not c-commanded by the subject in the main clause at LF, and the anaphor *propria* is consequently not bound, in violation of Condition A of the Binding theory. Thus, long distance reflexive binding in (61) is ruled out for the same reasons that binding between a reflexive and an NP occuring in separate sentences (i.e. across discourse) is ruled out: the antecedent does not c-command (and hence, bind) the reflexive. This is shown below.
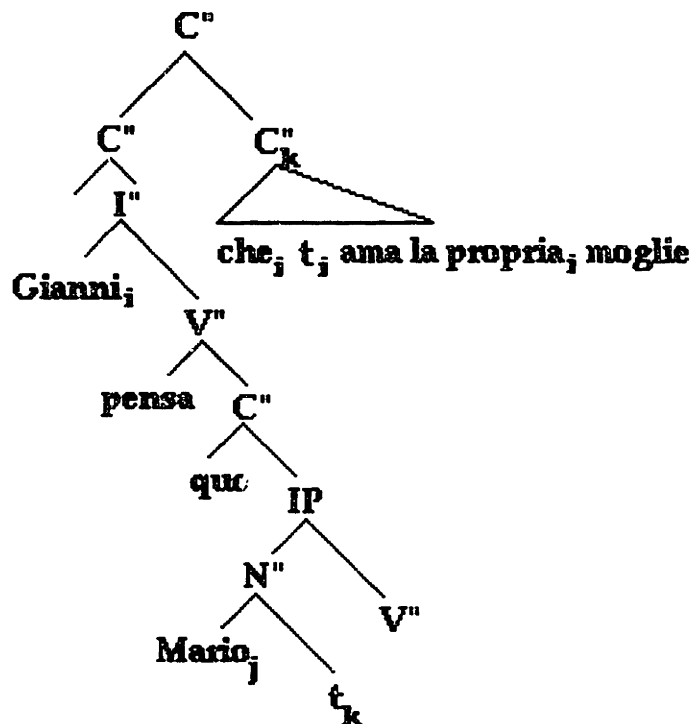
(62)

a. *LF
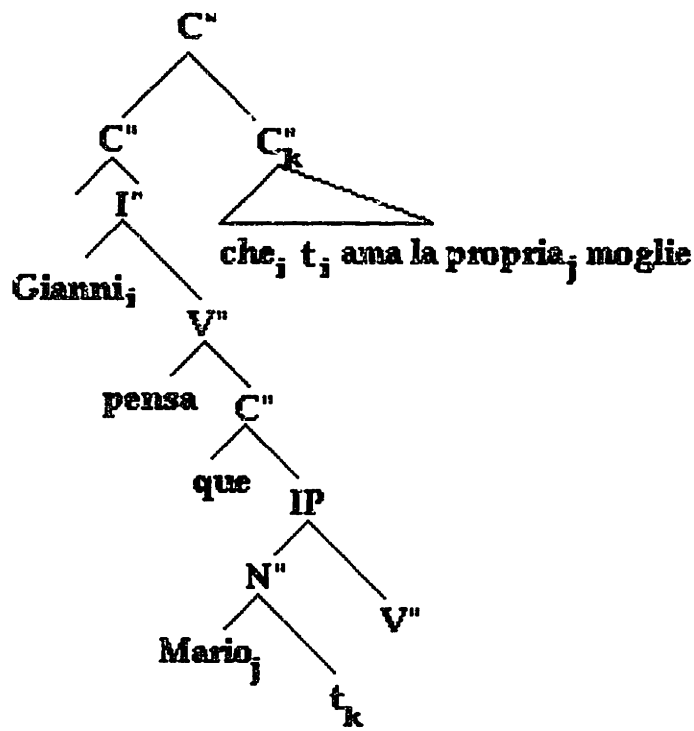
However, as we see in (61), the anaphor can be bound by the antecedent of the appositive. (i.e *Mario*). The binding of the anaphora by the antecedent of the appositive is legitimate because it is mediated by the trace of the wh-operator *che* 'who'. Thus, in (62b) below, the long distance anaphor is bound at LF and as such satisfies binding theory.

(62)

b. LF

$$
\begin{array}{c}
\text{C}^{\shortparallel} \\
\text{C}^{\shortparallel} \quad \text{C}^{\shortparallel}_k \\
\text{I}^{\shortparallel} \\
\text{Gianni}_i \\
\text{pensa} \quad \text{C}^{\shortparallel} \\
\text{que} \quad \text{IP} \\
\text{N}^{\shortparallel} \quad \text{V}^{\shortparallel} \\
\text{Mario}_j \quad t_k
\end{array}
$$

che$_j$ t$_j$ ama la propria$_j$ moglie

3.5.2. Parasitic gaps.

Safir points out that nonrestrictive relatives (as opposed to restrictive relatives) do not license parasitic gaps, as shown below (From Safir, 1986, page 673).
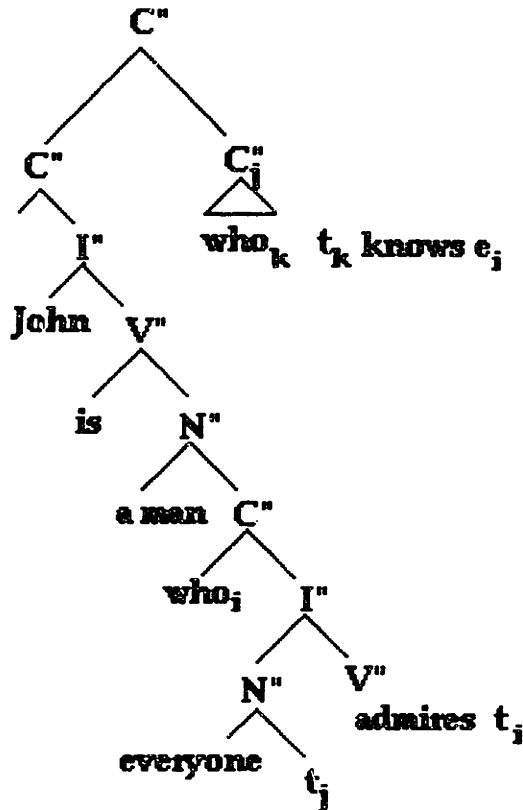
(63) a. John is a man [who$_i$ [everyone who knows e$_i$] admires t$_i$]
      b. * John is a man [who$_i$ [Bill, who knows e$_i$,] admires t$_i$]
      c. John is a man [who$_i$ [Bill, who knows Mary,] admires t$_i$]

For Safir, the parasitic gap is not licensed in the appositive in (63b), because the (restrictive) relative operator *who$_i$* can not bind the parasitic gap: the appositive clause is missing at LF. Under my proposal, (63b) is also ungrammatical because the restrictive relative operator *who$_i$* cannot license the

parasitic gap. That is, it cannot not A'-bind the parasitic gap in the appositive because it does not c-command the appositive clause , as shown below.

(64)

LF.

```
                    C"
                   /  \
                 C"     C"_j
                /  \    /\
               I"    who_k  t_k knows e_j
              /  \
           John   V"
                 /  \
               is    N"
                     /  \
                 a man   C"
                        /  \
                     who_j   I"
                            /  \
                          N"    V"
                         /  \   admires t_j
                    everyone  t'_j
```

Thus, the parasitic gap (64) is not licensed for the same reasons that a parasitic gap is not licensed by a *wh*-operator occuring in a preceding sentence (across discourse): it is not c-commanded by the *wh*-operator. Note that an appositive *wh*-pronoun can itself license a parasitic gap , as shown in (65). In this case, the parasitic gap is legitimate because it is A'-bound at LF by the *wh*-operator that licenses it.

(65)   John's articles, [which$_i$ Mary filed e$_i$ before reading e$_i$],
           are on the table.

3.5.3. The lack of Weak Crossover Effects.

Finally, Safir argues that appositives are invisible at LF because they are insensitive to Weak Crossover, as opposed to restrictive relatives. He gives the following paradigm.

(66)   a. ?*A man$_i$ who$_i$ his$_i$ wife loves t$_i$ arrived early.

          b.   John$_i$, who$_i$ his$_i$ wife loves t$_i$, arrived early.

To derive the above contrast, Safir reformulates a proposal by Chomsky (1982). Namely, he argues that predication of the head of an appositive with the relative operator applies after LF, at the level of LF' whereas predication of the head of a restrictive relative with the relative operator applies at LF. At LF', the constraint that rules out weak crossover (For Safir, this constraint is the PCOB) is not applicable. Predication in non-restrictive relatives applies after LF (at LF') because the appositive is invisible at LF but visible at LF'. He gives the following derivations (page 669).

(67)   a. *Restrictive relative.*

        SS: A man$_j$ who$_i$ his$_j$ wife loves t$_i$ arrived early.

        LF: * A man$_i$ who$_i$ his$_i$ wife loves t$_i$ arrived early.

        b. *Nonrestrictive relative.*

        SS: John$_j$ who$_i$ his$_j$ wife loves t$_i$ arrived early.

        LF: John$_j$ who$_i$ his$_j$ wife loves t$_i$ arrived early.

        LF':   John$_j$ who$_j$ his$_j$ wife loves t$_j$ arrived early.

Since I have argued that the relation between the appositive relative pronoun and its antecedent is not established via predication (see Section 2.3), I cannot keep Safir's analysis of the lack of weak crossover in appositives (i.e. the

idea that predication for appositives applies at LF', whereas predication for restrictives applies at LF) In fact, I argued that this anaphoric relation was established by S-structure, prior to LF raising of the appositive. What then explains the lack of Weak Crossover?

I have claimed that an appositive clause is interpreted at LF as an independent clause containing a resumptive pronoun. Thus, the appositive in (66b) will have the following interpretation at LF.

(68)   John$_i$ arrived early. His$_i$ wife loves him$_i$.

To derive this interpretation at LF, I will assume that the resumptive pronoun is reconstructed in its D-structure position. In particular, recall that I argued following Kuroda (1969) (see Section 2.9) that the appositive pronoun is analysed as *wh+THAT+(PRO)* at LF, where *THAT+(PRO)* is realised as either a [+/-human] personal pronoun or as the pronoun *that* (in its non-demonstrative use). I will further assume that this pronoun reconstructs at LF into its D-structure position , yielding the interpretation in (66) for the appositive. Hence, it will be immune to weak crossover just like any pronoun is. Thus, there is no weak crossover in appositives because the latter are interpreted at LF as independent clauses containing a definite pronoun anaphoric to a constituent in a separate clause.

5. Conclusion.

In this Chapter, I have presented an analysis of appositive clauses which incorporates insights from both the MCH and the SCH. Following the advocates of the SCH, I assume that an appositive is a subordinate clause at D-structure: it is base-generated adjoined to its antecedent. However, following the advocates

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of the MCH, I have assumed that an appositive is interpreted as a following independent clause. Hence, at LF, it is lifted out of the matrix clause in which it which it was embedded at S-structure, and then adjoined to the latter. The anaphoric relation between the appositive pronoun and its antecedent is treated on a par with the anaphoric relation established across discourse between a pronoun and its antecedent in a separate clause, except in one respect: this pronoun is a resumptive pronoun. It must have an antecedent. In particular, it must be co-indexed with the XP that the appositive clause is adjoined to at S-structure. This is the case because resumptive pronouns must be identified, in the sense of Jaeggly (1980). At LF, the appositive pronoun is interpreted as *wh+THAT* and reconstructed in its D-structure position. This explains the immunity of appositives to Weak Crossover.

The idea that the appositive is lifted out of the clause containing its antecedent at LF together with the assumption that the relative pronoun is a resumptive pronoun explains why quantifiers cannot be the antecedent of the relative pronoun: they do not c-command this pronoun at LF; hence, the pronoun cannot receive the required bound variable interpretation. Raising the appositive clause at LF also explains why a quantifier in the clause containing the antecedent of the appositive cannot bind a pronoun in the appositive clause. Further, this analysis explains why indefinites under the scope of a quantifier cannot be modified by an appositive and why any predicate under the scope of negation cannot be the antecedent of an appositive. Finally, I argued that whenever the antecedent of an appositive is non-referential, the appositive pronoun does not have the interpretation of a bound variable, but that of an E-type pronoun. This is the case, precisely because the antecedent of the relative pronoun does not c-command the latter at LF.

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thesis available. The following page(s) - *1 6 C*
were not included in the copy of the
thesis deposited in the Institute Archives
by the author:

Chapter IV

(Clitic) Left-Dislocation

1. Introduction.

In this Chapter, I will extend the analysis of resumptive pronouns developped in this thesis to the resumptive clitics that appear in the clitic left-dislocation construction discussed by Cinque (1990) (henceforth, CLDL) (see also Iatridou 1990). In particular, I will argue that CLDL is a *wh*-movement construction (contra Cinque 1990). In Chapter I and II, I proposed that the resumptive pronouns that appear in restrictive relatives in Hebrew are -*wh*-operators in situ at S-structure. Likewise the pronoun that appears in CLDL is a -*wh*-operator in situ at S-structure. In Chapter III, I argued that the +*wh*-operator that appears in non-restrictive relatives is a vacuous operator. Likewise the -*wh*-pronoun that appears in CLDL is a vacuous operator. It's sole function is resumptive: it's reference is fixed by that of its antecedent.

I have proposed that resumptive pronouns are pronouns with *wh*-features. They can have +*wh*-features or -*wh*-features. If they have -*wh*-features, they can be either phonologically null or overt. Just like any pronoun, they can be bound pronouns or referring pronouns. They differ from pronouns in one respect: they must have an antecedent in the sentence. It is precisely the presence of +/-*wh* features that make a pronoun resumptive.

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2. Clitic Left-dislocation.

2.1. Introduction.

In this Section, I will discuss Cinque's (1990) analysis of the clitic left-dislocation construction in Italian and, in particular, his arguments against a *wh*-movement analysis of this construction. Some of these arguments are summarised in (1).

(1)

a. The clitic that appears in the IP-internal position does not appear in "normal" wh-constructions (i.e. in *wh*-questions and topicalisation).

b. The clitic in CLDL does not behave like a variable: it does not license parasitic gaps, occur in Across The Board contexts and, is immune to weak crossover.

c. CLDL is sensitive to the the referential/non-referential status of the dislocated NP.

In this section, I argue that the correlation that Cinque establishes between the referential/non-referential status of the dislocated NP (1c) and the lack of *wh*-movement is not valid. In Section 3, I will first briefly discuss the syntactic and semantic properties that CLDL shares with appositive relatives on the one hand, and with left-dislocation on the other. I will then show that the restriction in (1c) is not exclusively a property of (clitic)left-dislocation: it is also a property of appositive relatives. As we saw in Chapter III, Section 3, appositives are also sensitive to the referential status of their antecedent. In particular, they cannot modify a non-referential noun phrase (be it a quantifier or a noun-phrase under

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the scope of a higher quantifier).[1] Since appositive relatives clearly involve *wh*-movement, the property in (1c) cannot be attributed to the lack of *wh*-movement in CLDL. I will then propose an explanation for (1c). In particular, I will derive the property in (1c) from the the assumption that *Qua.. "fier Raising* (QR) is clause bound. In Section 4, I will propose an analysis of CLDL. I will argue that CLDL is derived by LF-movement of the resumptive clitic and that this resumptive clitic has the syntactic properties and the interpretation of the *wh*-pronoun in appositive relatives. In fact, under the proposal developed in this thesis that resumptive pronouns are pronouns that have *wh*-features, CLDL must be a *wh*-movement construction. Finally, I will propose an explanation for (1a). In Section 5, I will address the following question: why are the resumptive pronouns discussed in Chapter 1 and 2 of this thesis insensitive to island constraints whereas the resumptive clitics in CLDL are selectively sensitive to island constraints (that is, they are sensitive to strong islands but insensitive to weak islands, according to Cinque). Finally, in Section 6, I will propose an analysis of these Island effects .

2.2. Cinque 's (1990) analysis of Clitic Left-Dislocation.

Cinque (1990) argues that the Romance construction of clitic left-dislocation (illustrated in (2)) is not a *wh*-movement construction.

(2)   Gianni_i   lo_i   ho   visto
         Gianni   him   I-have   seen
         'Gianni, I have seen.'

---

[1]. The counterexamples to this generalisation were discussed in Chapter III, Section 3.5.

Cinque reasons as follows: if CLDL involves *wh*-movement, then the object clitic that appears in (2) must either be the spellout of a *wh*-trace or an instance of clitic-doubling. He rejects the first option by showing that the clitic does not have the properties of a variable: it does not licence parasitic gaps, nor does it behave like a gap in Across-The-Board contexts. He rejects the second option because Italian does not allow clitic doubling.

Further, Cinque argues that CLDL does not involve *wh*-movement because the clitic that occurs in CLDL "cannot occur in ordinary *wh*-constructions" (page 62). Thus, a basic difference between CLDL and other *wh*-movement constructions (*wh*-questions and topicalisation) in Italian is that it requires a clitic pronoun in the object position[2] that matches in (pronominal) features the dislocated phrase. In contrast, *wh*-questions and topicalisation require a gap in the object position. This is illustrated by the following paradigm taken from Cinque (page 14)[3].

(3)   a. *Wh-question.*
        [$_{CP}$ Chi$_i$ [$_{IP}$ (*lo$_i$)   hai   visto   t$_i$]]
                  whom   him   you-have seen
        'Whom have you seen?'

        b. *Topicalisation.*
        [$_{TOP}$ GIANNI$_i$ [$_{CP}$ Ø$_i$ [$_{IP}$ (*lo$_i$)   ho   visto]]
                  Gianni (focus)   him   I-have   seen
        'Gianni, I saw.'

---

2. Cinque's argument only holds for clitics in object position because resumptive clitics in CLDL are all optional except for object clitics.

3. The structures in (3) are those proposed by Cinque.

c. *CLDL.*

[TOP   Gianni_i   [CP   [IP   *(lo_i)   ho   visto]]
         Gianni   him   I-have   seen
'Gianni, I saw him.'

As we see in (3a) and (3b), an object clitic is in fact disallowed in *wh*-questions and topicalisation. Cinque takes the property of leaving a gap as a diagnostic property of wh-movement. Since a gap is impossible in (3c) but required in (3a) and (3b), he concludes that CLDL is not derived via *wh*-movement whereas topicalisation and question formation are derived via *wh*-movement.

Having argued that the CLDL construction in Italian is not a *wh*-movement construction, Cinque then shows that this construction is nonetheless sensitive to islands. In particular, it is has the properties of long movement: it is sensitive to strong islands. If 1) island constraints are constraints on movement and, 2) CLDL does not involve *wh*-movement, then why is CLDL sensitive to (strong) islands? This paradox leads Cinque to conclude that "the conditions on long movement are not conditions on long movement per se, but are well-formedness conditions on A'-chains, whether these are created by movement (as in ordinary *wh*-constructions) or base-generated (as in clitic left-dislocation)." (from Cinque 1990), page XV).

2.3. Referentiality.

One of Cinque's most important arguments against a *wh*-movement analysis of clitic left-dislocation is the correlation he establishes between the referential/non-referential status of the dislocated NP and the presence/absence of a clitic. In particular, he argues that the occurrence of a clitic in CLDL is determined by the

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referential/non-referential status of the dislocated phrase. As we saw in (3a) above, a *wh*-operator is incompatible with a clitic. Cinque ascribes this incompatibility to the quantificational nature of *wh*-phrases. This assumption is supported by an asymmetry between quantified NPs and (bare) quantifiers with respect to CLDL in Italian. When a quantified NPs is dislocated, a clitic is required , as shown in (4a) and (4b). In contrast, when a (bare) quantifier is dislocated, the presence vs absence of a clitic is determined by the interpretation of the quantifier. In particular, in (4c), the quantifier *qualcune* 'someone' is interpreted as specific (it is used referentially), whereas in (4d) it has a non-specific interpretation.

(4) a. Qualche errore$_i$ Carlo *(lo$_i$) ha fatto
         some   error   Carlo   it   has made
         'Some error, Carlo has made it.'

     b. Alcuni libri$_i$ *(li$_i$) ho   comperati
         some   books   them   I-have   bought
         'Some books, I have bought them.'

     c   Qualcuno   *(lo$_i$) troveremo
         someone$_i$ him$_i$ will-find
         'Someone (specific), I will find him.'

     d   Qualcuno$_i$ troveremo   (*lo$_i$)
         someone   will-find
         'Someone (or other), I will find.'

Cinque then shows that the relation between the dislocated quantified NP in (4a)- (4c) has the properties of long movement: it is insensitive to weak islands (in particular, to *wh*-islands) but sensitive to strong islands. In contrast, the relation between the dislocated phrase and the empty category that it binds in (4c) has the properties of successive cyclic movement: it is sensitive to both weak

and strong islands. Cinque concludes that "...the construction appears to acquire *wh*-movement properties when some non-referential operator is left-dislocated, which in turns suggests that it is the quantificational nature of the element in A'-position rather than its derivation 'via *wh*-movement' that is responsible for its '*wh*-movement' properties" (page xv). Cinque concludes that the properties of CLDL support Rizzi 's (1990) proposal that there are two types of relations that can obtain between an XP in an operator position and the variable it binds. That relation can be established either through binding or through chain formation. Binding is a relation between identical referential indices (for Rizzi, referential indices are restricted to elements bearing "referential" theta-roles). Thus, the relation between a referential phrase and the variable with which it is co-indexed can be established via binding, whereas the relation between a non referential phrase (like a bare quantifier) can only be established via chain formation. A'-chains established via binding have the properties of long-movement; A'-chains established via chain-formation have the properties of successive cyclic movement.

The properties of CLDL in Italian raise the following two questions:

(5)

    a. Why is the relation between the dislocated phrase and the clitic freer than the relation between a dislocated phrase and a gap?

    b. Why is it impossible to clitic left-dislocate quantifiers, *wh*-phrases, and focused NPs?

Cinque correlates these two questions. Quantifiers cannot be clitic-left-dislocated because the relation between a dislocated phrase and a clitic is established via binding and binding relations are restricted to non-

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quantificational NPs. Further, base-generated A'-chains are subject to weaker locality conditions then A'-chains established via movement.

I think that the correlation that Cinque establishes between the non-referential / non-referential status of the dislocated phrase and whether or not it can enter into a binding relation with a clitic-pronoun is not valid for the following reasons.

First, measure phrases and idiom chunks which are non referential can be connected to a clitic, as shown in (6) -(7) below. Under Cinque's analysis of CLDL, (6b)-(7b) are not derived via *wh*-movement but via binding. Why, then, can measure phrases and idiom chunks enter into binding relations, if (as argued by Rizzi (1990)), they do not bear referential theta-roles?

(6)   a. Io peso 70 chili.
            'I weigh 70 kilos.'

        b. 70 chili, non li pesa.
            '70 kilos, he doe not weigh them.'

(7)   a. Fara giustizia
            He will do justice

        b. Giustizia,non la fara mai.
            Justice, he will never do it.

Second, any XP can be clitic-left-dislocated; thus, NPs, PPs, APs, VPs, and CPs can be left-dislocated. In (8), a VP is clitic left-dislocated. Why would a predicate be able to enter into a referential binding relations with a clitic?

(8)   [VP Messo da parte], non lo e mai stato
        got out of the way, not-it-(he) ever was.

Moreover, there is an incompatibility between Rizzi's and Cinque's use of the notion of referentiality. Rizzi uses this notion to explain adjunct/argument asymmetries with respect to *wh*-movement. In particular, *wh*-arguments can be connected to their traces via binding, *wh*-adjuncts cannot, because the former are referential whereas the latter are not. Thus, arguments can undergo long *wh*-movement whereas adjuncts cannot. If, however, a *wh*-argument can be connected to its trace via binding, why can it not be connected to a clitic via binding, as the impossibility of (3a) above illustrated ? The problem is that Cinque uses the notion of referentiality to distinguish *wh*-phrases and quantifiers from 'referential' NPs; Rizzi, on the other hand, uses this notion to distinguish *wh*-phrases that are arguments from *wh*-phrases that are either adjuncts or measure phrases.

Further, consider topicalisation, as in (3b). Topicalisation in Italian is in fact "focus movement", according to Cinque (1990), (page 180). Now, focussed definite NPs, are referential and, as such, should be able to enter into binding relations. The crucial assumption that Cinque makes in order to explain the impossibility of a clitic in (3b) is that Topicalisation involves movement of a null-operator (i.e. it is not derived via adjunction of the focussed NP to IP). It is the non-referential status of the empty operator in Spec CP at S-structure that explains the impossibility of a clitic. It is true that the empty operator in topicalisation does not have independent reference but it clearly does not have a quantificational status. Likewise, the clitic-pronoun in CLDL does not independently refer. If a binding relation can only be established between items that are referential, why can a clitic-pronoun enter a binding relation whereas a

null operator (i.e. a null pronoun) cannot?[4] In other words, both an empty operator chain (i.e the chain ($\emptyset$....t_i)) and the clitic in CLDL have a resumptive and not a quantificational function: their reference is fixed by their antecedent. Why then can a clitic but not a null-operator enter into a referential binding relation with an XP ?

Finally, the notion of binding is problematic in another respect. It is well-know that quantifiers, focused definite NPs and wh-phrases can bind pronouns as long as they c-command them at s-structure, as shown in (9). Why then can they not bind the clitic-pronouns that they c-command in CLDL?

9)   a. MAX$_i$ loves his$_i$ mother..
      b. Everyone$_i$ loves his $_i$ mother.
      c. [No one]$_i$ said he$_i$ is happy?
      d. Who$_i$ loves his$_i$ mother?

Neither the quantifier, nor the pronoun it binds in say (9b) have independent reference. As Frampton (1990) points out, "binding does not require that the co-referential XPs be referential items".

Thus, I think that the correlation that Cinque establishes between the two questions in (5) is not well-founded. These two questions are separate issues. I will argue that the fact that CLDL is subject to weak locality constraints has nothing to do with the referential status of the dislocated phrase. In particular, I will argue that the fact that CLDL is subject to weaker locality than question-

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formation or topicalisation (although, it is not an unbounded relation like left-dislocation) is due to the fact that the former involves a **clitic pronoun** whereas the latter involve a **gap** (This will be the topic of Section 4). In the next Section, I will address the question in (5b) and argue that the sensitivity of (CL)LD to the referential status of the dislocate is not an argument against a *wh*-movement analysis of CLDL.

3. Why Quantifiers Cannot Be (Clitic-) Left-Dislocated.

Why is it that quantifiers cannot be (clitic-) left-dislocated? I have argued that this restriction has nothing to do with whether non-referring expressions can enter into binding relations. As we saw, in (9) above, they clearly can. I will show that this restriction is also found in another construction; namely, in appositive relatives. Since appositive relatives clearly involve movement of a *wh*-pronoun and further respect island constraints, this restriction cannot be explained in terms of the distinction between binding and movement.

3.1. *Clitic-Left-dislocation, Left-dislocation and Appositive relatives.*

Clitic-left-dislocation, left-dislocation and appositive relatives share certain semantic and syntactic properties. (Clitic-)left dislocation has the structure shown in (9) below: it is formed by adjunction of an XP to a CP.

(9)

```
        CP
       / \
     XP    CP
```
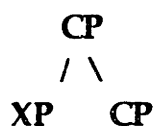
That the XP is adjoined to CP (and is neither adjoined to IP nor in Spec CP) is supported by the fact that (clitic-)left-dislocated NPs always precede topics and

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wh-phrases. In Chapter III, I proposed that appositive clauses were interpreted as following independent clauses at LF. In particular, I proposed that appositives were lifted out of the matrix clause containing their antecedent at LF, and then adjoined to the latter. Thus, at LF, a clause containing an appositive relative is also a CP adjunction structure, on a par with (9), as shown below. Note also that in all three constructions the rightmost CP is set off by an intonation break.

(10)

```
      CP
     / \
   CP   CP
```
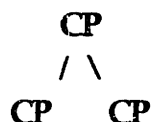
Further, in both (9) and (10), there is a resumptive pronoun in the rightmost CP. Thus, both (clitic-)Left-dislocation and appositives involve an anaphoric relation between an XP and a resumptive pronoun (i.e. a pronoun that must be construed with this XP). Further, this pronoun can never have a bound variable interpretation: its antecedent cannot be a quantifier, as shown in (11). In contrast, its antecedent can be a referential term like a proper name, as shown in (12).

(11)   a.   *Left-dislocation.*

            *Everyone, I saw him.

       b.   *Clitic-Left-dislocation.*

            *Tutto$_i$, non dovra vender lo$_i$
            'Everything, he will not have to sell.'
            (from Cinque (1986), page 19)

       c.   *Appositive versus restrictive relatives.*

            *Any/*no/*Every student, who wears socks, is a swinger.
            (from Ross (1986), page 262)
            Any/no/Every student who wears socks is a swinger.

(12)   a.   *Left-dislocation.*

John, I saw him.

b.   *Clitic-Left-dislocation.*

Gianni$_i$, lo$_i$ ho visto
'Gianni, I have seen him.'

c.   *Appositive versus restrictive relatives.*

John, who wears socks, is a swinger.
* John who wears socks is a swinger.

All three constructions are immune to Weak Crossover, as shown in (13).

(13)   a.   *Left-dislocation.*

John, his$_i$ mother loves him$_i$.

b.   *Clitic-Left-dislocation in Greek (From Iatridou, 1990).*

ton	Kosta	i-mitera-tu$_i$		ton$_i$	agapa
DET/ACC	Kosta	the/NOM-mother-cl/GEN		cl-ACC	loves

'Kosta, his mother loves him'.

c.   *Appositive versus restrictive relatives.*

John, who$_i$ his mother loves t$_i$, is a swinger.
* ?Everyman$_i$ who$_i$ his mother loves t$_i$ is a swinger.

3.2. Is Clitic-Left-Dislocation a Wh-movement Construction?

The immunity of CLDL to weak crossover does not entail that this construction does not involve *wh*-movement. In particular, appositives do not exhibit weak crossover effects, as shown in (13c) (see the discussion in Chapter III, section 3.5.3). They are nonetheless derived by overt *wh*-movement in the syntax. Thus, the absence of weak crossover and the fact that the antecedent of a resumptive

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clitic in CLDL cannot be a quantifier is not a diagnostic property of the absence of *wh*-movement but rather a diagnostic of the interpretation of the resumptive pronoun: it is not a logical variable. It can can nonetheless be a syntactic variables As we shall see in Section, Lasnik and Stowell (1990) show that Tough (and Too/Enough) movement, non-restrictive relatives, Parasitic Gap and Topicalisation constructions are all immune to WCO. They correlate the lack of WCO with the logical status of the operator: WCO obtains only when the trace of A'-movement is a logical variable (i.e it is bound by a quantificational operator). Thus, the fact that the resumptive pronoun in CLDL, just like the relative pronoun in non-restrictive relatives, does not exhibit weak crossover effects and cannot take a quantifier as an antecedent does not mean that these constructions do not involve *wh*-movement.

Recall that I argued in Chapter III, that *wh*-chains can have two functions: a quantificational function and a resumptive function. When a *wh*-chain has exclusively a resumptive function, the *wh*-operator is a vacuous operator. Its reference is fixed by that of its antecedent. This is the case in non-restrictive relatives. In fact, I claimed that resumptive pronouns are pronouns with *wh*-features. They can have +*wh*-features or -*wh*-features. If they have -*wh*-features, they can be either phonologically null or overt. They can have a bound variable interpretation or a referential interpretation. Under this view, CLDL must involve *wh*-movement. The clitic in CLDL is an overt -*wh*-pronoun (in-situ at S-structure). It is because of its -*wh*-features, that the clitic in CLDL has a resumptive function (i.e. it behaves like an anaphor in that it must have an antecedent in the sentence).

3.3. Clitic-Left-Dislocation and Left-Dislocation.

Recall that the antecedent of an appositive can be any maximal projection (NP, DP, PP, VP, AP, IP, CP), as shown in (14). Clitic-left-dislocation structures also allow any constituent to be left-dislocated, as shown in (15).

(14)   *Appositive relatives.*

    a.   I saw Mary, who was late

    b.   Mary was intelligent, which John never was

    c.   We leave the key under a stone , which is a
        silly place to keep something so valuable.
        (from Sells (1988), page 14)

    d.   I told Max to leave, which he never did.

    e.   Fairley is not here, which bothers Green
        (from Sells (1988), page 13)

    f.   I go there whenever I have time, which isn't often.
        (from Sells (1988), page 13, quoted from Jesperson 1965, Vol.III, 124-125)

(15)   *Clitic-Left-dislocation.*

    a.   [$_{NP}$ Gianni] lo$_i$ ho visto
        'Gianni i have seen him.'

    b.   [$_{AP}$ Bella], non lo è mai stata   (from Cinque (1990), page 58)
        beautiful no-it-she-ever-was

    c.   [$_{PP}$ Al mare], ci siamo già stati
        to the seaside there we have already been

    d.   [$_{VP}$ Messo da parte], non lo e mai stato
        got out of the way, not-it-(he) ever was.

    e.   [$_{CP}$ Che bevi] lo dicono tutti
        that (you) drink it says everybody.

This is not the case in left-dislocation, which only allows NPs to be dislocated. This correlates with a basic difference between clitic-left-dislocation

and appositives on the one hand, and left-dislocation on the other. Namely, in left-dislocation, the element in the IP internal position to which the dislocated NP is connected need not be a pronoun. In particular, it can be any full NP that can function quasi-pronominaly : it can be an epithet, a demonstrative or a definite NP. Finally, it can be a demonstrative NP that refers to the type of the object denoted by the dislocated constituent (and not to the object itself), as shown below.

(16) a. John, I hate the bastard.
   b. John, I really hate that man/the man.
   c. The shirt that John is wearing, I really hate that kind of shirt.
   d. John, I really can't stand that type of guy.

In contrast, in CLDL, the element in the IP-internal position can only be a clitic pronoun (it can never be a full pronoun; see Cinque (1990)). Finally, Left-dislocation in Italian differs from CLDL in two other important respects: there are no reconstruction effects between the left-dislocated NP and the IP-internal position to which it is connected. In contrast, in CLDL, there are reconstruction effects with respect to binding theory, as shown in (17) (from Cinque 1990, page 59).

(17) a. A lei/*se stessa, Maria dice che non ci pensiamo mai
     of her/herself Maria says that not there think ever

   a. A *?lei/se stessa, Maria non ci pensa
     of her/herself Maria not there thinks

Finally, the relation between the dislocated phrase and the IP-internal position is unbounded in left-dislocation (i.e. it is immune to all island constraints) but sensitive to (strong) islands in CLDL.

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If following Cinque, we assume that CLDL involves a binding relation, then we cannot capture the difference between CLDL on the one hand and left-dislocation, on the other. The relation between the left-dislocated NP *John* and the full NPs that can function quasi-pronominaly in (16) is a binding relation. Binding is an unbounded relation between NPs and does not require strict semantic identity between the two coreferential NPs involved, as was shown in (16); it can also be a very loose relation, a vague 'aboutness' relation. In contrast, CLDL is a *wh*-movement construction that any XP can enter into; assuming it is derived via movement, it will be sensitive to islands and to Connectivity.

3.4. Quantifier Raising.

In Chapter III, I derived the fact that an appositive relative cannot modify a non-referential noun-phrase (i.e. a quantifier or an indefinite under the scope of a higher quantifier) from the assumption that the scope of a quantifier is clause bound (i.e from the *Scope Constraint*). In particular, I proposed that the appositive clause is lifted out of the matrix clause containing its antecedent and adjoined to the latter at LF. When the antecedent of the appositive is a quantifier, the resumptive pronoun in the appositive clause requires a bound variable interpretation. This in turn requires that the pronoun be c-commanded by the quantifier. However, once the appositive clause has been lifted out of the clause containing the quantifier, the scope of the quantifier cannot extend into the adjunct clause. Likewise, I will argue that the fact that a (clitic) left-dislocated NP must be referential also derives from the assumption that the scope of a quantifier is clause bound.

Recall that (clitic) left-dislocation has the structure shown in (17): it is formed by adjunction of a CP to an XP.

(18)

```
      CP
     / \
   XP   CP
```
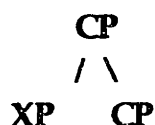
What then prohibits the XP in (18) from being a QP? To answer this question, we must compare the above (clitic-) left-dislocation structure with the structure of a restrictive relative, given below. Recall that the head of a restrictive relative can be a quantified NP.

(19)

```
      NP
     / \
   NP   CP
```
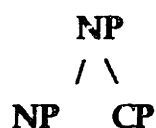
Both (18) and (19) are adjunction structures: they both involve adjunction of a CP to an XP. The only difference between (18) and (19) is the identity of the node dominating these adjunction structures. A relative clause is an NP whereas a (clitic-) left-dislocation construction is a CP. As we shall see shortly, I will derive the contrast between (11a) and (11b) on the one hand and (11c) on the other, from this simple difference: restrictive relatives are NPs embedded in a clause whereas dislocation constructions are CPs.

Lets suppose a quantified NP is adjoined to CP in either (18) or (19). It will be in a position where it c-commands (and, hence, has scope over) the pronoun inside CP. Why then can quantifiers not be left-dislocated? Following Epstein (1983), I will argue that we can derive this prohibition from a strict interpretation of QR. QR as defined in (20) requires that a quantifier be raised at LF. Further, QR is subject to the Scope Constraint, as stated in (21).

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(20)

> *Quantifier Raising (QR)*
> At LF, adjoin Q to IP

(21)

> *The Scope Constraint.* (From Heims 1982[5])
> Do not adjoin a QP any higher than the
> lowest IP in which it originates.

Epstein proposes that QR is obligatory, even when a quantifier is base-generated in a position where it can assign scope. To enforce QR, he proposes to reformulate May's *Condition of Quantifier Binding* which is intended to prohibit vacuous quantification, as in (22).

(22)

> *Condition on Quantifier Binding.*
> At LF, a QP_i must properly bind the trace of movement of QP_i.

Epstein then argues that since QR is clause bound, a quantifier that is left-dislocated must be lowered into the IP it c-commands in order to satisfy (20) and (21). Lowering a quantifier will yield an improperly bound trace, in violation of (22) (i.e. a trace c-commanding its antecedent).

The problem with Epstein's analysis is that it correctly derives the ill-formedness of (11a) and (11b) but also incorrectly rules out (11c). To explain why quantifiers cannot be left-dislocated but can head restrictive relatives, I will make an alternative proposal that is based on Epstein (1983). I will assume that Quantifier Raising is obligatory and, in particular, that is enforced by Epstein's *Condition on Quantifier Binding*. However, I will assume that QR is a *raising* rule:

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[5].. In Heims (1982), any NP in a clause is subject to QR. Thus, (21), is not exactly her (informal) formulation of the *Scope Constraint* (i.e her statement of the *Scope Constraint* refers to NPs and not to QPs).

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it can only adjoin Q to an IP (or a VP) node that dominates Q. Thus, a quantifier cannot be left-dislocated because there is no landing site for QR that satisfies the *Scope Constraint*. I redefine QR and the *Scope Constraint* as in (20') and (21'), respectively. Note that the *Scope Constraint* is stated as a constraint on LF representations (and not on LF movement, as in (21) above). It filters out the output of QR.

(20')

> *Quantifier Raising (QR).*
> At LF, raise Q

(21')

> *The Scope Constraint.*
> *QP if it is adjoined any higher than the
> lowest IP in which it originates.

Lets suppose then that NP in (18) is a QP. This quantifier must raise at LF. Since it is base-generated adjoined to CP, it can only further adjoin to CP; adjunction to CP is filtered out by the *Scope Constraint*. If, on the other hand, the quantifier does not undergo QR, then (18) will be ruled out by (22). Now, lets turn to the relative clause in (19) and suppose that its head is a QP. As such, it must undergo QR (piedpiping the relative CP with it). A relative clause is an NP embedded in a clause. Thus, there will be possible adjunction sites for the QP. For instance, if the relativised QP is the subject of the clause, it can adjoin to the IP node dominating it. If the relativised QP is the object of a verb, it has two possible landing sites: it can adjoin to either the VP or the IP nodes dominating it. A QP can head a restrictive relative because a restrictive relative is an NP. As such, it is embedded within a clause and there are landing sites for the quantifier that satisfy the *Scope Constraint*. In contrast, a QP cannot be dislocated because dislocation structures are CPs; hence, there is no landing site for QR that satisfies

the *Scope Constraint*. Thus, we derive the fact that QPs cannot be dislocated from three assumptions: 1) QR is a raising rule, 2) the scope of Q is clause bound, and 3) QR is obligatory. Finally, the Scope Constraint filters out ill-formed LF representations. The fact that a quantifier base generated in a position where it has scope over IP cannot assign scope has been taken as an argument against LF (see Williams). Following Epstein, I have proposed that it is because of QR that a quantifier cannot be dislocated.

3.5. D-Linking.

Recall that Cinque makes a distinction between bare quantifiers on the one hand and quantified NPs and "bare quantifiers used referentially" (Cinque 1990, page 15) on the other. In particular, the former are inherent quantifiers: they bind an empty category that has the properties of a variable. The relation between the quantifier and the variable that it binds is established via *wh*-movement and, hence, is sensitive to weak islands. Cinque argues that "quantified NPs and bare quantifiers used referentially cannot identify an empty category as a variable, so that a resumptive clitic is required" (Cinque 1990, page 15). The relation between the clitic and its antecedent is established via binding and hence, is not sensitive to weak islands. To illustrate this, he gives the paradigm in (4) (repeated below for convenience). In (23a), we see that when a quantified NP is dislocated, a clitic is required. In (23b), the bare quantifier *qualcuno* 'someone' is used referentially (i.e. it has a specific interpretation), the clitic is obligatory. In contrast, in (23c), it has a non-specific interpretation and the resumptive clitic is impossible

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(23) a. Qualche errore$_i$ Carlo   *(lo$_i$)   ha   fatto
         some   error   Carlo   it   has   made
         'Some error, Carlo has made it.'

     b Qualcuno   *(lo$_i$)   troveremo
        someone$_i$ him$_i$ will-find
        'Someone (specific), I will find him.'

     c Qualcu..o$_i$ troveremo   (*lo$_i$)
        someone   will-find
        'Someone (or other), I will find.'

As Cinque himself points out, the distinction he makes between quantifiers used referentially and quantifiers used non-referentially recalls Pesetsky's (1990) distinction between *wh*-phrases-in-situ that are D-linked (Discourse-linked) and *wh*-phrases-in-situ that are non-D-linked. The former presuppose a set of entities previously established in the discourse, the latter do not. Further, Pesetsky proposes that non-D-linked *wh*-phrases are true quantifiers: they are subject to QR (they must raise at LF). In contrast, D-linked *wh*-phrases are not quantifiers and do not move at LF.[6] Thus, only non-D-linked *wh*-phrases are subject to QR. Following Pesetsky, I will assume that only non-D-linked quantified NPs and bare quantifiers are subject to QR. This assumption will derive the paradigm in (23). In particular, the quantified NP in (23a) and the bare quantifier *qualcuno* 'someone' in (23b) can be clitic-left-dislocated because they have a D-linked interpretation. As such, they are not subject to QR. In contrast, in (23c), the bare quantifier has a non-D-linked interpretation. Hence, it

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6. For Pesetsky, D-linked wh-phrases (i.e *which*-NPs) are interpreted in-situ. In particular, they are assigned scope by unselective binding; that is, they are co-indexed with a Q-morpheme sitting in the Comp of the interrogative clause.

it must undergo QR. When it is left-dislocated, it can only further adjoin to CP. Adjunction to CP is filtered out by the *Scope Constraint*.

4. An Analysis of Clitic-Left-dislocation.

I have shown that clitic-left-dislocation structures pattern in many respects with appositive relatives. Further, I have argued that the fact that clitic-left-dislocated XPs cannot be quantifiers is not an argument against a *wh*-movement of CLDL. Appositives also cannot take quantifiers as antecedents. This cannot be explained by assuming that the relation between the antecedent of an appositive and the clause internal empty category with which it is connected is established via binding. Appositives clearly involve movement of a *wh*-phrase to the specifier of CP and, further, obey Island Constraints.

As I said earlier on, Cinque takes the property of leaving a gap to be a diagnostic property of *S-structure* A'-movement. Since CLDL requires a clitic, it cannot involve *wh*-movement. I will take the presence of a clitic pronoun and to be diagnostic property of *LF* A'-movement. In particular, I will extend my analysis of resumptive pronouns in this thesis to the resumptive clitics that appear in CLDL and argue that CLDL is a *wh*-movement construction. In Chapter 1 and 2, I proposed that the resumptive pronouns that appear in restrictive relatives in Hebrew are -*wh*-operators in situ at S-structure. Likewise the pronoun that appears in CLDL is a -*wh*-operator in situ. In Chapter III, I argued that the +*wh*-operator that appears in non-restrictive relatives is a vacuous operator . Likewise the -*wh*-pronoun that appears in CLDL is a vacuous operator. It's sole function is resumptive: it's reference is fixed by that of its antecedent.

Thus, the resumptive pronouns that appear in restrictive relatives in Hebrew and in questions (and restrictive relatives) in Irish differ from the resumptive clitics that appear in CLDL in precisely the same way that a restrictive *wh*-operator differs from a non restrictive *wh*-operator. A non-restrictive *wh*-operator can have any maximal projection as its antecedent, a restrictive *wh*-operator cannot. A restrictive *wh*-operator can take a quantifier as an antecedent, a non-restrictive *wh*-operator cannot. A restrictive *wh*-operator is sensitive to weak crossover, a non-restrictive *wh*-operator is not. A restrictive wh-operator is quantificational in some sense a non-restrictive *wh*-operator is a vacuous operator; it is merely a pronoun anaphoric with an antecedent.

Finally, the difference between the operator in CLDL, on the one hand, and the operator in appositive relatives, on the other, is the level of representation at which A'-movement takes place. Whereas appositives involve *S-structure wh*-movement of a +*wh*-pronoun, CLDL involves *LF*-movement of a -*wh*-operator.

I will now briefly discuss two further arguments against a wh-movement analysis of CLDL. Namely, that CLDL is not a wh-construction because the clitic that appears in CLDL does not appear in other wh-movement constructions (Topicalisation and Question-formation) and Cinque's claim that CLDL does not license parasitic gaps. I will argue that CLDL (just like appositive relatives) do license parasitic gaps. I will then discuss the absence of WCO in CLDL. Finally, I will turn to the question of why CLDL is selectively sensitive to islands.

4.2. Parasitic gaps.

According to Cinque (1990), the relation between the clitic-left-dislocated NP and the clitic does not license parasitic gaps. This is shown below.

(24)   a. *Greek.*

*Afto	to	arthro$_i$	i-Maria	to$_i$	arxiothetise
this	the	article	the-Mary	it	filed

[xoris	na	dhiavasi	e$_i$]
without	SUB	reading	

'This article, Mary filed it without reading'.

b. *Italian.*

*Gianni$_i$,	l$_i$-ho	certato	per	mesi
Gianni,	him-have	looked for	for	months

[senza	trovare	e$_i$]
without	finding	

'Gianni, I have looked for for months without finding'.

Note that the above configurations where the clitic pronoun occurs to the left of the parasitic gap were also ill-formed in Hebrew. To explain why a resumptive pronoun can never occur to the left of a parasitic gap, I assumed the following *Conditions on Variable Binding* and, an extension of Haiks slash-index convention which allowed the index of any variable (pronoun or trace) to percolate to the maximal projection immediately dominating it.

(25)   *Conditions on Variable Binding.*
    a. A trace must be locally A'-bound.
    b. A pronoun must be A'-bound.

The idea was the following: a pronoun need not be locally A'-bound; a trace, however, must be locally A'-bound bound. Hence, the parasitic gap constructions in (24) are ill-formed because the trace is indirectly bound by the pronoun. This analysis predicts that when the pronoun occurs to the right of the parasitic gap, the parasitic gap is licensed. Such is the case in Greek, as the

following minimal pair taken from Iatridou (1990) illustrates. (?) indicates the status of parasitic gaps in general in Greek: they are never very good.

(26)

a. (?)ton Yanis$_i$ i-Maria ipe [xoris na agapa e$_i$]
   the John the-Mary said without SUB loves

   oti pro tha ton$_i$ pandrefti
   that (she) FUT him marry

   'John, Mary said that she will marry him without love'.

b. *ton Yanis$_i$ i-Maria ipe oti pro tha ton$_i$
   the John the-Mary said that (she) FUT him

   pandrefti [xoris na agapa e$_i$]
   marry without SUB loves

   'John, Mary said that she will marry him without love'.

(26a) is well-formed because the trace is locally A'-bound. The pronoun in (26a) is indirectly bound by the trace (via its slash index), but this does not violate the *Conditions on Variable Binding* (see Chapter II, Section 6.4) since pronouns need not be locally A'-bound. Further, the assumption that the slash-index of a variable can only percolate to the maximal projection immediately dominating it, predicts that when the pronoun is further embedded as in (27) below, parasitic gaps are licensed to the left of the pronoun.

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(27)

Gianni$_i$,	che	dovranno	convocare	anche	il-poliziotto
Gianni	who	they-will	summon	also	the-policeman

che	lo$_i$	arrestato	[prima di	poter	interrogare	e$_i$]
that	him	arrested	before	be able	interrogate	

'Gianni, who they will also have to summon the policeman
who arrested him before they will be able to interrogate.'

The above parasitic gap paradigms pattern exactly with the parasitic gap paradigms in Hebrew. Recall that, in Hebrew, the ill-formed order resumptive pronoun/parasitic gap was well formed once the resumptive pronoun was further embedded. To explain the behavior of resumptive pronouns, I assumed that the gap in the Hebrew equivalent of (26b) was not locally A'-bound because it was indirectly bound by the pronoun to its left. However, once the pronoun is further embedded, it can no longer indirectly bind the gap. Hence, the gap is locally A'-bound and the *Conditions on Variable Binding* are satisfied. I conclude that resumptive clitics in CLDL do license parasitic gaps. This supports the claim that CLDL is derived via wh-movement. Recall also that appositive relatives can license parasitic gaps, as was shown in Chapter III, Section 3.5.2.

4.2. *Why are Clitics Incompatible with Topicalisation and Wh-questions?*

As I mentioned earlier, Cinque takes the property of leaving a gap to be a diagnostic property of *S-structure* A'-movement. Since CLDL requires a clitic, it cannot involve *wh*-movement. Under the analysis of resumptive pronouns developed in this thesis, any pronoun (be it +/-wh or overt/non-overt) that has a resumptive function is a wh-chain. I will take the lack of +wh-features to be

diagnostic property of *LF* A'-movement[7]. The difference between CLDL, on the one hand, and topicalisation and question formation, on the other, is the level of representation at which movement takes place. Whereas wh-questions and topicalisation involve *S-structure* wh-movement of an operator, CLDL involves *LF*-movement of an operator. Thus, topicalisation and CLDL differ in two respects: a) the level at which movement takes place and, b) the [+/- lexical] feature value of the -wh-pronominal operator involved in these constructions. The -wh-pronominal operator in topicalisation is null. In contrast, the -wh-pronoun in operator in CLDL has overt pronominal features.

We then have a very simple explanation for the paradigm in (3). Recall that I argued in Section 5.1 of Chapter I, that the proposal that resumptive pronouns (in Class 2 languages) are wh-operators in-situ at S-structure made a very simple prediction. Namely, that a resumptive pronoun will never occur in structures involving S-structure movement. That is, if the pronoun is a wh-operator in-situ at S-structure, then it cannot co-occur with another wh-operator at S-structure. This prediction receives further support from the paradigm in (3) (repeated below). The resumptive clitics in (27a) and (27b) are impossible because there is already an operator in these constructions; namely the +wh-operator in (27a) and the (empty) -wh-operator in (27b) In contrast, the resumptive clitic is obligatory in (27c) because it is the (-wh-)operator of the clause. In fact, we can rule out the occurrence of a clitic in (27a) and (27b) for two reasons. First because there are two operators (the wh-phrase or the null

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7. Note that null -wh-operators (empty operators) always move at S-structure. Thus, they have to be *identified* (see Chapter III, Section 2.7) at S-structure. This presumably is due to their lack of phonological content. We have thus the following classification of resumptive pronouns: +wh-resumptives move at S-structure (because they are +wh); null -wh-resumptives move at S-structure (because they are null); and overt -wh-resumptives remain in situ at S-structure.

operator on the one hand, and the clitic on the other) and only one variable (the trace in object position); hence either one of these operators is violating the ban on vacuous quantification[8]. Further, the presence of the resumptive clitic in (27a) and (27b) induces a violation of the *Conditions on Variable Binding* (cf. (25) in the preceding section) That is, the trace of the operator in Spec CP is not locally bound since it is co-indexed with an intervening binder: the clitic.

4.3. Weak Crossover.

Cinque does not discuss whether or not CLDL is sensitive to weak crossover in Italian. According to Iatridou (1990), however, CLDL is immune to weak crossover in Greek, as shown below.

(27)   ton   Kosta   i-mitera-tu$_i$ ton$_i$ agapa
          DET/ACC Kosta   the/NOM-mother-cl/GEN cl-ACC loves
          'Kosta, his mother loves him'.

In (27), we see that the resumptive pronoun *ton* 'him' does not act like a variable in that it is not sensitive to weak crossover . This should not come as a surprise, if I am right in claiming that the clitic pronoun in CLDL is the LF equivalent of the wh-pronoun in appositives (as was discussed in Chapter III, Section 3.5.3). Since appositives are immune to weak crossover, we would expect CLDL also to be immune to weak crossover. First, however, we must determine if CLDL is really insensitive to weak crossover.

Recall that the resumptive pronoun in a Hebrew relative clause also did not seem to act like a wh-trace with respect to weak crossover. I argued that the

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[8]. Note that this argument goes through irrespective of whether topicalisation is null-operator movement or adjunction to IP. In either case, there is already an an operator in the sentence.

'apparent' lack of weak crossover was due to the fact there were two potential operators. Likewise, in (27), there are two potential operators: the clitic-possessive pronoun and the object clitic. Thus, there should be two possible derivations for (27): one of which will be well-formed; namely that in which the possessive pronoun is the operator and it pied-pipes the whole NP to Comp. However, my analysis of the lack of weak crossover with resumptive pronouns in Hebrew fails in Greek: it is impossible for a dislocated phrase to bind a clitic within an NP, as illustrated below.

(28)   *tin   Kosta   agapa   i-mitera-tu$_i$
          DET/GEN   Kosta   (he)-loves   the/NOM-mother-cl/GEN
          'Kosta, he loves his mother.'

The possessive NP in (28) is an island for LF-movement. Hence, the analysis proposed for the lack of weak crossover with resumptive pronouns in Hebrew restrictive relatives cannot be extended to CLDL. Since a possessive NP is an island, the nominative clitic in (27) is the only possible operator. Thus, CLDL is insensitive to weak crossover. As I said above, this is expected if CLDL patterns with appositive relatives. Thus, both the +wh-operator in an appositive relative and the -wh-operator in CLDL are immune to weak crossover; in contrast, the wh-operators in English restrictive relatives (or the -wh-operators in Hebrew restrictive relatives) do not trigger WCO

How do we explain the lack of Weak Crossover in (27)? Lasnik and Stowell (1990) discuss constructions involving A'-movement that are immune to WCO. They show that Tough (and Too/Enough) movement, non-restrictive relatives, Parasitic Gap and Topicalisation constructions are immune to WCO. They propose that WCO is determined by the logical status of the operator involved. If an operator is quantificational, then the trace that it binds is a

variable and, as such, triggers WCO. On the other hand if an operator is not quantificational, then the trace that it A'-binds is not variable: it is a null (non-variable) R-expression" (Lasnik and Stowell, page 11); as such , it will not trigger WCO. In particular, they propose that traces that are not bound by 'true' operators do not fall under whatever principle determines weak crossover because these traces are not variables, but null epithets (overt epithets that function quasi pronominally are immune to WCO). Thus, we could adopt Lasnik and Stowell's analysis and argue that the clitic in CLDL is not a variable but a pronominal epithet. As such it does not fall under whatever principal determines WCO. I will not adopt this proposal because if I do, I loose my analysis of parasitic gaps. I proposed to derive the distribution of parasitic gaps in CLDL from the *Conditions on Variable Binding* , which in turn requires that l treat the clitic as a syntactic variable. Alternatively, I will propose to derive the lack of WCO in CLDL by reconstructing the dislocated phrase in the position of the clitic (once it has been vacated). Support for this idea comes from the reconstruction facts mentioned in Section 3.3, and repeated below:

(29)   a.   A lei/*se stessa, Maria   dice   che   non   ci   pensiamo mai
            of her/herself   Maria   says   that   not   there   think   ever

        a.   A *?lei/se stessa, Maria   non   ci   pensa
            of her/herself   Maria   not   there   thinks

Note that restrictive relatives (as opposed to non-restritive relatives) show reconstruction effects which can be captured by reconstructing the head NP in the position of the wh-trace (once it has been vacated), as shown below.[9]

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[9] Note that under the analysis of appositive relatives in Chapter III, the head noun can not be reconstructed into the position of the S-structure gap at LF because it does not c-command the appositive clause at LF.

(30)   a. [The picture of himself$_i$]$_j$ [Ø$_j$ [that John$_i$ likes best t$_j$ is on the shelf.

       b. ??/*The picture of himself$_i$, which John$_i$ hates, is hanging on the wall.

To conclude, when we test the variablehood of an empty category, we must distinguish between two types of tests. Those that are a diagnostic for an A'-trace (i.e. a syntactic variable), a$_i$ λ those that are a diagnostic for a bound variable interpretation (i.e. a logical variable). In particular, operator/trace relations created by A'-movement license parasitic gaps, whether this relation is quantificational or resumptive. Thus, questions, restrictive relatives, appositive relatives and CLDL licence parasitic gaps because they all involve A'-movement. On the other hand, weak crossover is determined by the quantification status of the operator. Quantificational wh-chains exhibit weak crossover effects. Resumptive chains (as in appositive relatives, and CLDL) do not exhibit weak crossover effects. Since restrictive relatives involve wh-chains that are both quantificational and resumptive, they are marginally sensitive to WCO.

5. CLDL and Island effects

Cinque argues that the resumptive clitics in CLDL show island effects which suggest a wh-movement analysis of this construction. The problem with a wh-movement analysis of CLDL is capturing its locality constraints: it cannot violate strong islands but is insensitive to weak islands. This is illustrated below with examples from Greek (taken from Iatridou 1990) and Italian (Cinque 1990).

(31)   **Greek.**

Strong Islands.

a. Relative clause island:

*ton	Kosta_i	sinandisa	[tin	kopela	[pu_i	[t_i	ton_i	idhe]]]
the	Kosta	I-met	the	girl	who		him	saw

'Kosta, I met the girl who saw him'

b. Adjunct island:

*tin	efimeridha_i	apokimithike	[dhiavazondas	ti_i]
the	newspaper	he-fell asleep	reading	her

'The newspaper, he fell asleep reading it.'

c. Sentential subject island:

*ton	Kosta_i	ipes	[_{CP} oti	[_{IP}[_{NP}to	[_{CP} oti	i	Maria
the	Kosta	you-said	that	the	that	the	Maria

ton_i	agapa]]	tromazi	ton	Yani]]
him	loves	scares	the	Yani

'Kosta, you said that that Maria loves him scares Yani'

d. NP island:

*ton	Kosta_i	dhiavasa	[_{NP} tin	idhisi	[_{CP} oti	ton_i	apelisan]]
the	Kosta	I-read	the	news	that	him	they-fired

'Kosta, I read ɛ news that they fired him.

Weak Islands.

e. Wh-question island:

ton	Kosta_i	anarotiene	[_{CP} pios_j	[_{IP} t_j	ton_i	idhe]]
the	Kosta	I- wonder	who		him	saw

'Kosta, I wonder who saw him?'

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(32)   **Italian.**

Strong Islands.

a. <u>Relative clause island</u>:

*A Carlo$_i$	ti	parlaro	solo	del
to Carlo	to-you	will talk	only	about

[$_{CP}$ le	persone	[$_{CP}$ che	gli$_i$	piacciono	t$_i$]]
the	people		that	to-him	appeal

'Carlo, I will talk to you only about the people that appeal to him.'

b. <u>Sentential subject island</u>:

*Se	ricco$_i$	credi	che	[$_{IP}$ [$_{CP}$ [	esser-lo$_i$	stato]
If	rich	you-think	that		to-have-it	been

non	gli	giovi],	ti	sbagli
not	to-him	help	you	are wrong

'If rich, you think that to have been it does not help him, you are wrong.'

c. <u>Comparative clause</u>:

*A	voi$_i$	Mario	corre	piu?	[di
to	you	Mario	runs	more	than

quanto	non	vi$_i$	sembri]
how much	not	it	seems

'To you, Mario runs more than it seems to you'

d. <u>Ajunct island</u>:

*A	casa$_i$	lo	abbiamo	encontrato
to	home	him	we-had	met

[prima	che	ci$_i$	andasse]
before	that	there	he-went

'Home, we met him before he went there.'

Weak Islands.

e. Wh-question island:

Mario$_i$ non so [$_{CP}$ perché$_j$ [$_{IP}$ li$_i$ abbiano invitato t$_j$]]

Mario not I-know why him they-have invited

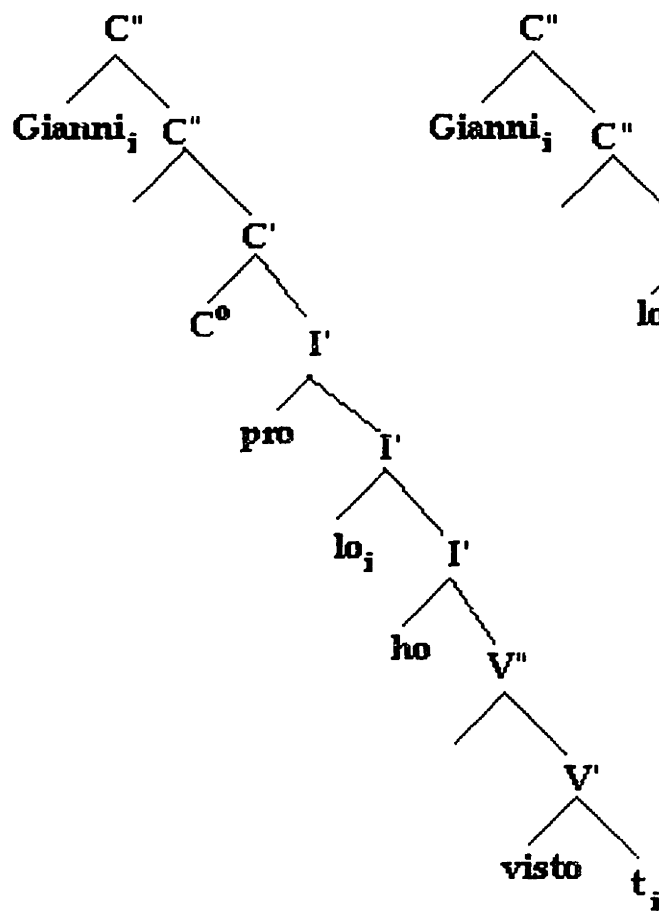'Mario, I don't know why they have invited him.'

The above paradigms raise the following questions: 1) why can resumptive clitics occur in weak islands but not in strong islands? and, 2) if resumptive clitics in CLDL undergo LF movement, why are they sensitive to strong islands. Recall that resumptives pronouns in Class 2 language (for instance, in Hebrew restrictive relatives) are insensitive to all islands.

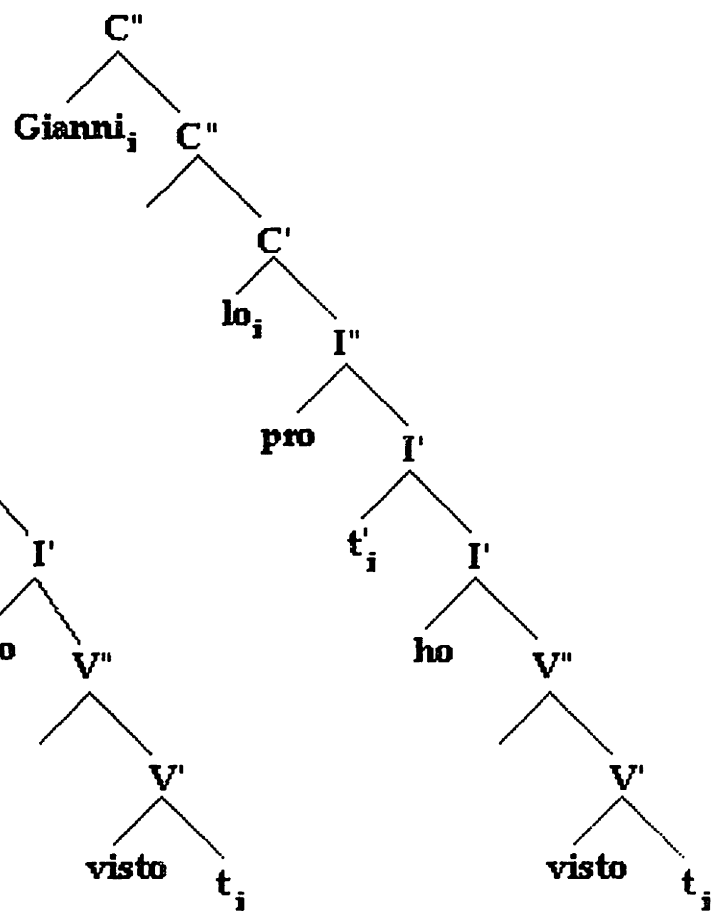*5.1. Resumptive Pronouns and Resumptive Clitics.*

Why is it the case that resumptive pronouns can occur at S-structure in both strong and weak islands in Hebrew or Irish relatives for instance, but are excluded from strong islands in CLDL? I will propose to derive this difference in locality constraints from the source of LF-movement. In particular, I will argue that LF-movement of the pronoun in Hebrew takes place from an A-position, whereas LF-movement of the clitic pronoun in Italian or Greek, takes place from an A'-position. Consider the following S-structures and LF- representations of CLDL in Italian and of a restrictive relative in Hebrew, respectively.
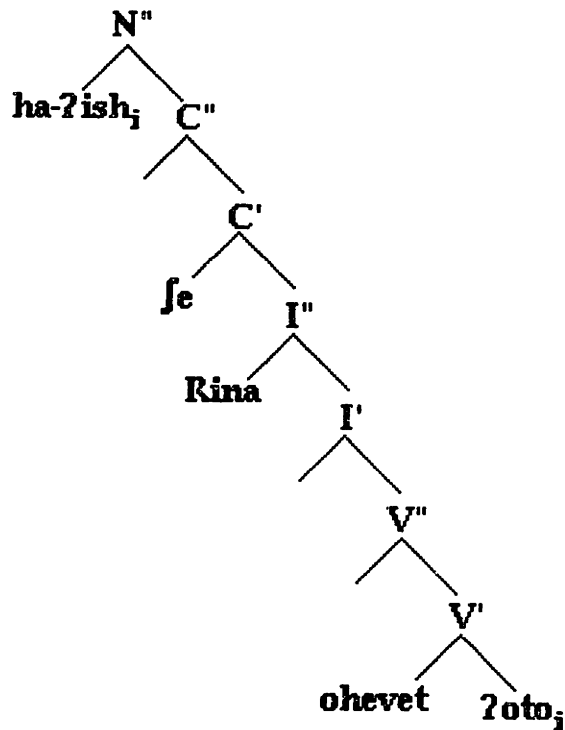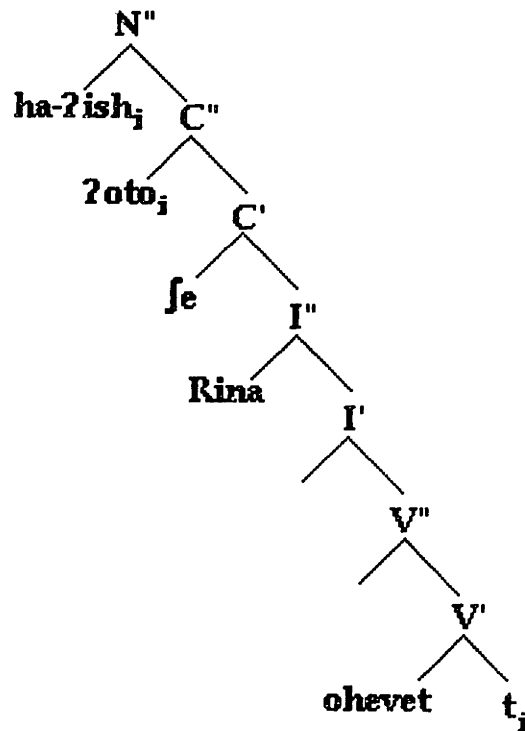
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(33)   *Italian.*

a. S-structure

```
                C"
               /  \
          Gianni_j  C"
                     \
                      C'
                     /  \
                   C°    I'
                        /  \
                      pro   I'
                           /  \
                         lo_j  I'
                              /  \
                            ho    V"
                                   \
                                    V'
                                   /  \
                                visto  t_j
```

b. LF

```
                C"
               /  \
          Gianni_j  C"
                     \
                      C'
                     /  \
                   lo_j  I"
                        /  \
                      pro   I'
                           /  \
                         t'_j  I'
                              /  \
                            ho    V"
                                   \
                                    V'
                                   /  \
                                visto  t_j
```

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(34) *Hebrew.*

a. Structure.   **b. LF**

```
            N"                                      N"
          /    \                                  /    \
    ha-ʔishⱼ   C"                           ha-ʔishⱼ   C"
              /    \                                   /    \
            C'                                      ʔotoⱼ    C'
          /    \                                          /    \
        ʃe     I"                                       ʃe     I"
             /   \                                            /   \
          Rina   I'                                        Rina   I'
               /   \                                             /   \
             V"                                                V"
           /    \                                             /    \
          V'                                                 V'
        /    \                                             /    \
    ohevet  ʔotoⱼ                                      ohevet   tⱼ
```

Note, first of all, that the left-dislocated NP in CLDL must be adjoined to CP (and not adjoined to IP or in Spec CP) since it always precedes a wh-phrase (if there is one) in Spec CP.

In (33), movement of the clitic at S-structure creates a first chain. Then LF-movement of the clitic from its S-structure position creates a second chain. The trace created by LF-movement in this case is not an A-trace. It is an A'-trace. In (34), on the other hand, the resumptive pronoun is extracted from an A-position. Its trace is an A-trace.

Thus, the difference between resumptives in Italian and resumptives in Hebrew follows from the fact that the former are clitics (adjoined to I' or V', at S-structure) whereas the latter are maximal projections. In support of this claim, note first that Italian distinguishes between clitic pronouns and full pronouns;

only clitic pronouns can occur in CLDL. Second, that resumptives in Hebrew do behave like maximal projections: they can be topicalised. Recall also that in Standard Arabic, there is an empty morpheme ʔ *iyya* that provides a base for an orphan (accusative) clitic, thus enabling it to topicalise; and, finally, that in certain dialects of Irish, PPs can front to Spec CP. Thus, it might be the case that object (and indirect object) resumptive pronouns in class 2 languages are in fact PPs: pronouns adjoined to case markers (see Chapter 1, Section 2.3.). In contrast, resumptives in CLDL, in Italian (or Greek), always cliticise onto a Infl.

Before discussing how the above proposal derives the locality constraints on CLDL, I will briefly present Iatridou 's (1990) analysis of CLDL.

5.2. Iatridou's (1990) analysis of Islands Effects and CLDL.

Iatridou (1990) proposes that long distance CLDL is derived by A'-movement. She argues that the left-dislocated XP in CLDL is base-generated adjoined to the minimal CP containing the clitic and then raises to its S-structure position. Thus, her analysis differs minimally from mine. We both analyse CLDL as a movement construction and, we both try to capture the sensitivity of CLDL to strong islands by assuming that movement originates from an A'-position. We differ in two respect: 1) She assumes that it is the dislocated XP itself that undergoes A'-movement, whereas I assume that the dislocated XP is base-generated in the position where it appears at S-structure, and that it is the IP-internal pronoun (on a par with a null operator) that undergoes movement; and 2) she assumes movement takes place at S-structure whereas I assume movement takes place at LF. I have only one objection to her analysis; namely, I disagree with the idea of base-generating XPs in positions in which you will never see them at S-structure (adjoined to the CP of a relative clause, for instance); but this is a very minor

objection. The point I want to stress is that we both try to capture the same idea: CLDL is selectively sensitive to islands because movement originates from an A'-position.

5.3. Deriving Island Effects.

I will try to explain Island effects in CLDL in terms of the following idea: movement at LF originates from an A'-position; LF-movement, thus, creates an A'-trace. However, this trace is , in fact, an intermediate trace: when you look at the whole chain created by A'-movement of the clitic, the original trace is an A-position. Thus, to state the locality constraints on CLDL, I will analyse the chain between the clitic and its trace as involving literal movement: first, S-structure movement from an A-position (the object position in (33)) to an A'-position leaves a trace that satisfies ECP, because it is lexically governed and antecedent governed. Second, LF-movement from an A'-position leaves an A'-trace that is not lexically governed. Hence, it must be antecedent -governed. If the adjunct trace crosses a barrier on its way up to its ultimate landing site, antecedent-government (as stated in (35)) will be blocked. If, on the other hand, the adjunct trace created at LF does not cross a barrier, then antecedent government will be satisfied.

(35)

> α antecedent-governs β iff α binds β and
> no barrier intervenes between α and β.

(36)

> γ is a barrier for β iff γ is not *selected* and
> γ is a maximal projection dominating β.

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(38)

       δ selects γ iff

       (i)   δ is a functional category and γ is a sister to δ

or (ii)   δ is a lexical category, δ theta-marks γ and δ m-commands γ.

Given (38i), no functional projection will count as barrier. Given (38ii), any category that is theta-marked will not count as a barrier.[10] Lets see how these definitions derive the paradigms in (32) and (33) above. Thus, adjunct clauses, relative clauses will be islands since they are not theta-marked. Sentential subjects will be islands although they are theta-marked by V because they are in Spec IP and Spec IP is not m-commanded by V. Finally, to explain why the CP complement of a noun is an island, I assume that nouns L-mark their complements, but that what is refered to as a noun-(clausal)complement construction does not involve complementation, but apposition, following Stowell (1982). Finally, the clitic can be extracted over a wh-island because no barrier is crossed: a wh-CP is theta-marked by the verb that selects it. Thus, to explain why resumptive clitics cannot occur in Strong Islands, I have made the following assumptions: 1) the clitic originates in an A'-position at LF; the trace it creates at LF must be antecedent governed; 2) antecedent-government is sensitive to barrierhood.

Assuming that movement takes place from an A'-position, however, does not explain the island effects in CLDL for the following two reasons. First, why couldn't the intermediate trace created at LF in (32b) delete? In the framework of Lasnik & Saito (1984, 1990) and Chomsky (1986) (which I am tacitly adopting)

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[10]. Note that I have defined selection by a lexical category (i.e. L-marking) in terms of m-command by a theta-marking category (and not in terms of the narrower relation of direct theta-marking) because I want Spec VP not to count as a barrier.

intermediate traces can delete at LF except if they are required by the ECP (i.e. in order to antecedent-govern another trace). The trace in object-position in (32) has been γ-marked at S-structure, the intermediate trace created at LF is, thus, not required at LF, and can freely delete. If the intermediate trace in (32b) deletes, the chain connecting the clitic to its D-structure position will be well-formed since the original trace was γ-marked at S-structure.

Second, the trace created by A'-movement in CLDL does not behave like an A'-trace (i.e. an adjunct trace) in one respect: it can be extracted over many wh-islands. Adjunct traces (whether they are created at S-structure or at LF) do not violate wh-islands. On the other hand, argument traces created at S-structure do not violate subjacency but argument traces created at LF do. In particular, at S-structure, arguments cannot be extracted over a wh-island; whereas at LF, arguments can be extracted over a wh-island. Thus, with respect to wh-islands, the clitic in CLDL behaves like an argument: when it moves at LF, it can cross a wh-island. To explain this paradox, I will pursue the following idea. In CLDL, movement at LF originates from an A'-position; LF-movement, thus, creates an A'-trace. However, this trace is , in fact, an intermediate trace: when you look at the whole chain created by A'-movement of the clitic, the original trace is an A-position. In particular, consider the following representation where $(\alpha_n...\alpha_1)$ is an operator-variable chain, α_n is the operator in an A'-position , α_1 is the trace in an A-position created at S-structure and α_2 the intermediate trace created at LF.

(39)   [α_n ... [$_\delta$ ... α_2 ... α_1]]

Antecedent government of α_2 by α_1 in (39) is blocked if δ is a barrier. Suppose we further assume that α_2 cannot delete if it is separated from its

antecedent by a barrier. Then, if δ in (39) is not a barrier, the intermediate trace can delete and the ensuing chain is well-formed. If, on the other hand, δ in (39) is a barrier, then α_2 cannot delete and the ensuing chain will be ill-formed (since antecedent government is blocked). Thus, by enforcing a condition on trace deletion, we can rule (39) out when δ is a barrier, irrespective of whether α_1 is an argument or an adjunct. Clearly, the assumption that a trace cannot delete when a barrier intervenes is a stipulation (but then the assumption that a barrier cannot be crossed is also a stipulation). However, this condition on deletion will solve the paradox discussed above. Namely, the clitic in CLLD behaves like a wh-in-situ argument with respect to extraction out of wh-islands: it can cross any (and many) wh-islands, whether these islands are created by wh-movement, topicalisation or CLDL[11]. However, with respect to Strong Islands, it behaves ether like an argument that is extracted at S-structure or like an adjunct.

6. Conclusion.

In this Chapter, I have proposed to analyse CLDL as a wh-movement: the clitic in the IP-internal position is a -wh-operator in situ at S-structure. In fact, I have claimed that CLDL must be a wh-construction: it is precisely because of its wh-features, that the pronoun has a resumptive function. Further, I have argued that sensitivity of CLDL to the referential status of the dislocated NP and its immunity to Weak Crossover show that the pronoun in CLDL does not have the

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[11] In particular, all the arguments of a verb can be clitic-left-dislocated and further, an XP can be left-dislocated over more than two consecutive wh-islands (created by wh-movement or topicalisation). This is not true of Topicalisation or ordinary wh-movement constructions in Italian in that they do not have the same freedom of extraction out of wh-islands.

interpretation of a logical variable. It does not show that this construction does not involve wh-movement.

Finally, to support the claim that the pronoun in CLDL undergoes LF movement, I would like to point out the following data from Icelandic and Dutch. According to Smits (1988, page 161), there are four types of pronouns that appear in left-dislocation structures in the Germanic and Romance languages. The pronoun in question can be a **clitic-pronoun**, as is the case in Romance. It can be "a **full personal pronoun** in its ordinary position in the sentence ... or a **pronoun that "has itself been moved to Comp"**, as in the following Icelandic examples:

(40)   a. þessi   hringur,   ólafur   hefur   lofað   Maríu   **honum**
           this   ring-DAT   O.   has   promised to M.   it-DAT
           'This ring, O. has promised it to M.'

    b. þessi   hringur,   **honum$_i$**   hefur   ólafur lofað   Maríu   t$_i$
           this   ring-DAT it-DAT   has   O.   promised to M.
           'This ring, O. has promised it to M.'

In (40a), the pronoun is in-situ at S-structure whereas in (40b), it has been fronted to Comp at S-structure. Finally, the pronoun in dislocation structures can be a special pronoun, what Smits calls a '**d-pronoun**' (for demonstrative pronoun). He gives the following two examples from Dutch. Again, the d-pronoun is either in-situ or in Comp at S-structure.

(40)   a. dat   boek,   ik   denk   niet   dat   hij   **dat**   gelezen heeft
           that   book   I   think   not   that   he   that   read   has
           'That book, I don't think that he has read that.'

    b. dat   boek,   **dat$_i$**   denk   ik   niet   dat   hij   t$_i$ gelezen heeft
           that   book   that   think   I   not   that   he   read   has
           'That book, I don't think that he has read that.'

Thus, the covert LF-movement that I have postulated in CLDL structures can also take place overtly in the syntax. This is exactly parallel to S-structure and LF pronoun fronting in Hebrew relatives.

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