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SUBJECT EXTRACTION AND THE NULL SUBJECT PARAMETER

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0. Introduction

Among the most interesting developments in recent syntactic theory are the proposals in Chomsky(1982) concerning the typology of empty categories and their contextual definitions. In this paper we shall explore the implications of these ideas for cases of extraction from subject position in some Romance languages, specifically Standard Italian and certain other dialects of Italian. Our claim is that the proper interpretation of the principles which regulate the distribution of empty categories yields an account for certain facts which previously were thought to require the postulation of independent mechanisms. In particular, we will argue that it is not necessary to invoke the Empty Category Principle of Chomsky(1981) to account for the impossibility of certain syntactic extractions. We believe our account is superior to one which relies crucially on the ECP because it covers cases which are left unaccounted for within an ECP analysis; because the principles invoked are required independently of this set of facts; and, because those same principles extend to cover other facts which at first sight appear to be quite unrelated.[1]

1. ECP Effects

Following Rizzi(1982) and references cited there, I will assume that in null subject languages like Italian, 'long' extraction of a subject proceeds from post-verbal position, and not [NP,S] position. Thus, a sentence as in (1) is assigned an S-structure as in (2):

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- (1) Chi credi che abbia comprato una casa?
 Who think-2s that has bought a house
 'Who do you think has bought a house?'

- (2) [Chi [credi [che [ec [[abbia comprato una casa] t]]]]]

with t the extraction site which functions as a variable for the wh-quantifier, and ec an expletive empty pure pronominal. Extraction from post-verbal position is available in Italian given the option of free inversion. It is forced in this case since extraction from [NP,S] position would result in a violation of the ECP, much as in the following English sentence:

- (3) *Who did you say that has bought a house?

Extraction from post-verbal position, on the other hand, does not violate the ECP, since the extraction site there satisfies the requirements of that condition [2]. This is the analysis of long extraction in Italian given in Chomsky(1981), Rizzi(1982), Jaeggli(1982) and other references cited in these works.

The central claim of this paper is that the ECP is not required to force the derivation given in (2). The argument will proceed in two steps: first I will show that there are cases where extraction from [NP,S] position is not allowed which are not accounted for by the ECP; and then I will show that there is an alternative account of the impossibility of pre-verbal extraction which covers examples like (2) and the other cases not covered by the ECP. I will then go on to explore some of the implications of this alternative approach.

1.1. Justification of post-verbal extraction

The post-verbal extraction analysis is attractive because it accounts for a difference between English and Italian without recourse to any special stipulation. The *that-t filter of Chomsky & Lasnik(1977) appears to be violated in Italian but not in English (compare (1) and (3) above)[3]. The analysis presented above explains this difference given an independent difference between English and Italian: the option of free inversion. Free inversion of subjects is possible in Italian but not in English. Hence, extraction of a subject in Italian can always proceed from post-verbal position, where it satisfies the requirements of the ECP. Subject extraction in English, on the other hand, is only possible from [NP,S] position, and an ec in this position doesn't meet the ECP if the immediately c-commanding COMP is lexically filled.

Rizzi(1982) provides empirical grounds for holding that extraction occurs from the inverted position in Italian. The relevant facts have to do with the partitive clitic ne. (Since this argument is quite well-known, I will present only a summary

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of the essential point. Full details are available in Rizzi(1982, pp. 148-151)). Rizzi points out that long extraction of an ergative subject requires the presence of the clitic ne if the extracted subject phrase has a null head. Cf.:

- (4) a. Quante hai detto che ne sono cadute?
 How+many have-2s said that of+them are fallen
 'How many of them did you say have fallen?'
 b. *Quante hai detto che sono cadute?

The subject sentences behave as direct objects (cf. Burzio(1981)). This is accounted for if we assume that they have been extracted from [NP,VP] position. The sentences in (4), then, show unambiguously that extraction must proceed from post-verbal position, at least in the case of ergative verbs. Below we will see that this situation can also be shown to hold in the case of unaccusative and transitive verbs in Trentino.

The incorrect derivation from pre-verbal position is ruled out by the ECP. Only the correct derivation yields a variable which satisfies the ECP. Thus, the choice can be attributed to this principle. Rizzi(1982, pp. 151-153) points out, however, that there are cases where wh-movement must be forced to occur from post-verbal position, but where the ECP cannot force this choice. These cases arise when a subject is locally extracted to the nearest COMP, as in (5) below:

- (5) ... [[Wh] [t VP]] ...

In these cases the ECP is satisfied because the trace in [NP,S] position is properly governed from COMP. Thus, preverbal extraction should be possible. But this prediction is not borne out by the data. Instead, only post-verbal extraction is allowed, even in these cases. Consider the following sentences from Rizzi(1982):

- (6) a. Quante ne sono cadute?
 How many of+them are fallen
 'How many of them have fallen?'
 b. *Quante sono cadute?
 (7) a. Quanti ne sono usciti?
 How+many of+them are come+out
 'How many of them came out?'
 b. *Quanti sono usciti?

Post-verbal extraction in these cases must follow from something independent of the ECP.[4] The analysis suggested in section 3 exploits this independent mechanism to force post-verbal extraction in all cases.

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1.2. Trentino

Further confirmation for Rizzi's analysis of extraction comes from consideration of extraction possibilities in Trentino, a dialect of Italian spoken in and around Trento. In fact, Trentino provides evidence which confirms Rizzi's analysis in a much more complete way than Standard Italian. Recall that in Standard Italian it is possible to show that subject extraction proceeds from post-verbal position, but that this demonstration must confine itself to ergative verbs. This is so because the subject of non-ergative verbs never occupies [NP,VP] position. This is the position from which ne cliticization is obligatory with a [Q-ec] phrase. Ne-cliticization is impossible from VP-adjoined position, the position occupied by inverted subjects in the case of unaccusative and transitive verbs. Hence, nothing can be shown in these cases.

The situation is different in Trentino. This language has a set of subject clitics which signal whether a subject occurs in pre- or post-verbal position. If the subject is in pre-verbal position, the clitic must appear obligatorily. If the subject is in post-verbal position, the clitic must be obligatorily absent. Consider the following examples with ergative, unaccusative, and transitive verbs.[5]

- (8) a. El Mario *(el) ven. 'Mario is coming.'
 b. El Mario *(el) parla. 'Mario is speaking.'
 c. El Mario *(el) magna. 'Mario is eating.'
- (9) a. (*el) ven el Mario.
 b. (*el) parla el Mario.
 c. (*el) magna el Mario. [6]

These clitics can be used to test Rizzi's theory of extraction in Trentino. In fact, only extraction from post-verbal position is allowed. Consider the following examples:

- (10) a. Quante putele penset che sia vegnu?
 How+many girls think-2s that are-3s come
 'How many girls do you think have come?'
 b. *Quante putele penset che le sia vegnude.
- (11) a. Chi penset che magna?
 Who think-2s that eat-3s
 'Who do you think is eating?'
 b. *Chi penset che el magna?

The subject clitic in the b examples, le (feminine plural) in (10)b and el (masculine singular) in (11)b show that extraction in those sentences must have been from pre-verbal

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position. The result is ungrammatical. When extraction is from post-verbal position, as shown by the absence of the clitic in (10)a and (11)a, the result is grammatical. Notice that in (11) we are no longer dealing with an ergative verb. This is possible in Trentino because the tell-tale subject clitic in Trentino occurs with all types of verbs.

The impossible extractions in (10) and (11) could once again be attributed uniquely to the ECP. However, identical facts occur in cases of short extraction. Consider the following examples:

- (14) a. Quante putele è na via?
 How+many girls are gone away
 'How many girls have left?'
 b. *Quante putele ele nade via?[7]

- (15) a. Chi ha magnà?
 Who has eaten
 b. *Chi halo magnà?

These sentences show clearly that subject extraction must always proceed from post-verbal position in Trentino, whether forced by the ECP or not. In the next section, we turn our attention to the statement of the mechanism which will force post-verbal extraction in all these cases. In order to address this issue, we must briefly consider the typology of empty categories as well as certain principles regulating their distribution.

2. The typology of empty categories & their distribution

Chomsky(1982) points out that the Binding theory partitions the class of NPs into four different categories of expression, as in (14):

- (14) a. [+anaphor, -pronominal]
 b. [-anaphor, +pronominal]
 c. [+anaphor, +pronominal]
 d. [-anaphor, -pronominal]

He suggests that each type of category can be empty, resulting in the following four types of empty NPs: NP-trace, pro, PRO, and variable. Each type is associated with certain specific properties. These properties can be taken as defining characteristics of these categories. Hence: the functional definition of empty categories. Alternatively, one can suppose that the features [+/- pronominal], [+/- anaphoric] are assigned randomly to an empty category as it enters a derivation, and then impose certain grammatical principles on the well-formedness of a derivation containing an empty category with a certain feature specification [8]. Assuming this alternative interpretation, we will suppose that the following statements hold either as independent

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principles of grammar, or follow from independently motivated principles of grammar.

- (15) a. Every variable must be bound by an operator, and every operator must bind a variable. [An open sentence is uninterpretable and vacuous quantification is disallowed]
 b. An anaphor must be A-bound in its governing category. [Principle A of the Binding Theory]
 c. A pronominal must be free in its governing category. [Principle B of the Binding Theory]
 d. PRO cannot be governed. [Principles A & B of the Binding Theory]

The statements in (15) regulate the distribution of variables, anaphors, and PRO and overt pronominals. However, a [+pronominal, -anaphoric] empty category, aside from meeting the Binding theory, must also meet a condition of identification (cf. Chomsky(1982; pp. 78-89)). It must be locally determined by "rich" agreement features. Let us assume that this determination process is captured by the following condition:

- (16) An ec is [+pronominal, -anaphoric] iff it is governed by a "rich" Agreement element.

(16) in effect expresses the so-called Null Subject Parameter (as stated in Chomsky(1982)). Null subject languages are languages in which Agreement is rich enough to allow for (16). Non pro-drop languages are languages in which Agreement is not rich enough to allow for (16). I will assume that (16) applies at S-structure, and that it captures the basic insight of the pro-drop parameter.

3. Subject extraction

Given these assumptions, let us return to the main topic of this paper: subject extraction in Italian and Trentino. Consider the surface structure of a sentence involving subject extraction --short subject-extraction, in fact-- as in (17)a. If extraction occurs from pre-verbal position, the surface structure would be (17)b.

- (17) a. Chi ha comprato una casa?
 Who has bought a house
- b. [Chi [ec [AGR] [ha comprato una casa]]]

The empty category at surface structure is governed by a rich AGR element, since Italian is a pro-drop language. Hence, that empty category can only satisfy (16) if it is a pro at Surface Structure. In other words, the surface structure of (17)a is really (18):

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(18) [Chi [pro [AGR] [ha comprato una casa]]]

It is easy to see that this derivation can be ruled out simply if we disallow the possibility of pro behaving as a variable bound by the wh-quantifier chi. If pro cannot function as a variable for chi, this quantifier will not bind a variable, failing to satisfy (15)a. Hence, the sentence will be ruled out (with this derivation) as an instance of vacuous quantification.

What happens in a case of post-verbal extraction? Given a post-verbal extraction derivation, the surface structure of (17)a would be as in (19):

(19) [Chi [ec [[ha+AGR comprato una casa] ec]]]

Consider now the status of the empty categories. The pre-verbal empty category must be an expletive pro, otherwise the Theta-Criterion would be violated. Following Safir(1982), I am assuming that post-verbal subjects in these Romance languages are not coindexed with the expletive element in subject position, i.e. they are not bound by the expletive in subject position. The post-verbal empty category is neither an anaphor, nor a PRO, nor a pro. It is not an anaphor, because if it were it would fail to meet the Binding theory since it is not bound in its governing category. Neither is it a PRO, since PRO is not allowed in this context [9]. It is not a pro either, since AGR, though within the VP, is not the head of this category containing the ec. Hence, AGR cannot determine pro in that position. The only remaining option is for it to be a variable, bound by the wh quantifier. In fact, this option yields a grammatical output.

Trentino provides confirming evidence that pro is never determined in post-verbal position. Null subjects in Trentino are obligatorily accompanied by an overt subject clitic, as can be seen in the following sentences:

(20) a. *Ven.
Come-3s

b. El ven.
SCL come-3s
'He is coming.'

(21) a. *Magna.
Eat-3s

b. El magna
SCL eat-3s
'He is eating.'

It seems reasonable to interpret the appearance of this subject clitic as a realization of AGR under INFL. Since AGR is the head of S, it governs [NP,S] position, licensing a pro there.

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Notice that the SCL shows up even when the pre-verbal subject is lexical. This is consistent with the assumption that AGR is under INFL also in these cases. Thus, in pre-verbal position lexical subjects and pro both require a subject clitic.

When a lexical subject is in post-verbal position, however, the subject clitic disappears in Trentino, as can be seen in the sentences in (9). The disappearance of the clitic can be explained as follows. In cases of inversion, the AGR features move into VP, where they are realized on the verb in the morphology. Since they are no longer under INFL, no subject clitic appears. The movement into the VP, accomplished by some version of the rule R (cf. Chomsky(1981)), is required either because of Case reasons (AGR assigns nominative Case) or because if these features stay under INFL they will determine a referential pro in [NP,S] position (or both). This would lead to a violation of the Theta-Criterion. If the features move into the VP, INFL is left without AGR features and [NP,S] position can only be an expletive pro. If referential pro could appear in post-verbal position, we would expect it to pattern with a lexical subject, as it does in pre-verbal position. If this is the case, the SCL should be absent, and the corresponding sentences should still be grammatical. But (20a) and (21a) clearly show that this is not true. Thus, we must conclude that pro is never allowed in post-verbal position.

To summarize, sentence (17)a is derived correctly only if extraction occurs from post-verbal position because this is the only position which yields a variable that the wh-operator can bind. Pre-verbal position fails to yield such a result because the empty category left by movement gets determined as pro at S-Structure following principle (16), and pro cannot be a variable. Our crucial claim, then, is given in (22):

(22) pro cannot function as a variable if locally bound by an operator.

We are claiming, in fact, that the functional definition of a variable given in Chomsky(1981, 1982) does not hold directly of pronominals. The definition states that a category is a variable if it is in an A-position and is locally A'-bound. This would make the pro in (18) a variable, and the structure should be well-formed. Pre-verbal extraction should then be possible. Notice that this has negative consequences not only in the case of short movement, but especially in an instance of long movement. Recall that in cases of long movement it is possible to rule out pre-verbal extraction via the ECP. But this is only possible if the empty category in [NP,S] position is non-pronominal, since it is well known that pronominals are exempted from the ECP. If the category in subject position after extraction has occurred is a pronominal "variable", contra (22), the ECP would not rule out that derivation either [10]. Even within an account where the impossibility of extraction follows

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from the ECP (at least in certain cases), it would be undesirable to allow pro to function as a variable. Otherwise, we would lose an ECP account for all cases, not only cases of short movement.

In the next section we will consider some independent justification for the claim in (22), and explore some of the predictions it makes.

4. Variables and pro

Montalbetti(1983) points out that overt pronouns in Spanish cannot function as bound variables in certain contexts. Consider in this respect the following sentence:

- (23) Muchos estudiantes piensan que ellos son inteligentes.
 Many students think that they are intelligent

The overt pronoun ellos in (23) cannot be understood as a variable bound by the quantified NP muchos estudiantes. However, there is evidence that this cannot be true simply because overt pronouns can never function as bound variables in Spanish. That is, the stipulation in (24) is incorrect:

- (24) Overt pronouns in Spanish cannot function as bound variables.

In a sentence like (25) the overt pronoun can indeed function as a bound variable:

- (25) Muchos estudiantes dijeron que ec piensan que ellos son
 Many students said that think-3pl that they are
 inteligentes.
 intelligent

Overt pronouns can function as bound variables, but not in the configuration found in (23). A careful consideration of the relevant data leads Montalbetti to conclude that the correct generalization concerning the possibility of an overt pronoun having a bound variable interpretation is as in (26):

- (26) [In Spanish] overt pronouns cannot be bound, unless linked to a bound pronominal.

The overt pronoun ellos in (25) can be interpreted as a bound variable because it is "linked" to the pronominal ec in the higher sentence. It is the presence of this bound pronominal which licences the bound reading for the overt pronominal, Montalbetti argues. I will assume this generalization to be a correct description of the facts. [11]

Now, if short extraction of a subject out of a clause left as its trace a pronominal which functions as a variable

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bound by the wh-quantifier, this bound pronominal should then licence the interpretation of an overt pronoun which it c-commands as a bound variable. That is, if our claim in (22) is false, then the following sentence should have an interpretation with ellos as a bound variable.

- (27) Quienes piensan que ellos son inteligentes?
Who thinks that they are intelligent

But in fact this expectation is not borne out. (27) does not allow a bound variable reading for ellos. This would be very surprising if the "trace" of quienes were a pro which functioned as a bound variable. Especially if one considers that in the following sentence, ellos can indeed be construed as a variable bound by the wh-quantifier:

- (28) Quienes dijeron que ec piensan que ellos son inteligentes?
Who-pl said that think-3pl that they are intelligent

That is, (28) clearly shows that given the appropriate "antecedent", ellos can be understood as "bound" to a wh-operator. In (28) this "binding" is done via the empty category, which is a pro which itself functions as a variable bound by the trace of quienes, a non-pronominal variable. We must conclude, then, that in (27) there is no bound pronominal, in accordance with our claim in (24). Since an overt pronoun in Spanish cannot be interpreted as a bound variable unless it is linked to a bound empty pronominal, the impossible interpretation of (27) is immediately accounted for if we assume that in that sentence there is no bound empty pronominal. The "trace" of wh-movement in (27) is simply a non-pronominal variable. Such an element does not licence a bound interpretation of an overt pronoun in Spanish, as can be seen in (23), too. (In section 5, we discuss when an (empty) pronominal can be interpreted as a bound pronominal variable). Thus, the interpretive possibilities of overt pronouns in Spanish confirms our claim in (24).

Next I would like to consider certain predictions made by the analysis presented above. Further consideration of certain facts suggest that (24) holds true in a large number of cases, but that it can be relaxed in certain configurations. Brandi and Cordin(1983) point out that pre-verbal extraction is disallowed in most cases of wh-movement in Trentino --both in contexts of "short" and "long" movement. In certain instances, however, exactly the reverse appears to hold true. Only pre-verbal extraction is allowed, post-verbal extraction yields ungrammatical results. In such instances, the subject clitic is obligatorily present, and its absence leads to ungrammaticality. Brandi & Cordin(1983) offer no grammatical explanation for this phenomenon. We will see, however, that there is nothing puzzling about these cases. In fact, given the account sketched above, they are entirely predictable.

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The logic of our argumentation leads us to expect the following situation. If there is a context where a variable left by extraction is disallowed, and where the only possibility would be to have a pro functioning exceptionally as a variable, it should appear to be the case that only pre-verbal extraction is possible, while post-verbal extraction should be impossible. Since a pro is just a gap, it will look like a case of extraction. Two such contexts in Trentino are: 1) restrictive relativization from within a complex NP, and 2) appositive relative clauses. We will consider each separately.

Trentino has two strategies to form restrictive relative clauses. One strategy involves wh-movement, as is generally the case in Italian, Spanish, English, etc. The other one involves a resumptive pronoun strategy. This strategy is used with indirect objects --which do not concern us here-- and when extraction would otherwise violate another grammatical principle. For example, since extraction from a complex NP is barred because of locality conditions on movement (e.g. the Complex NP Constraint, or Subjacency), the resumptive pronoun strategy is used in order to relativize into a complex NP. In a resumptive pronoun strategy, a pronominal is exceptionally used as a variable for the wh-operator. When the relativized NP is in subject position, the result is a sentence with a subject gap, and a subject clitic. Cf. (29):

- (29) a. Le putele che gh'è in giro la voze che le è
 the girls that there+is around the rumor that SCL is
 rivade algeri ...
 arrived yesterday
 'The girls that there is a rumor that they have arrived
 yesterday'
- b.* Le putele che gh'è in giro la voze che è
 the girls that there+is around the rumor that is
 rivade algeri ...
 arrived yesterday

Here pre-verbal extraction appears to be the only possibility! But in fact this need not be the case. An alternative analysis of (29)a perfectly compatible with the theory of extraction sketched above would be to claim that in these cases there is no extraction at all. Rather, (29)a contains a resumptive pro in pre-verbal position which exceptionally functions as a variable, a marked option only made available within islands like a complex NP. Extraction from post-verbal position in fact is barred, say, by Subjacency, as can be seen in (29)b. The resumptive pronoun strategy for relativization is invoked. This strategy utilizes a pronominal as a "variable". A pro is not licenced in subject position in (29)b, since there is no subject clitic. The sentence is then ruled out because there is no "variable" available for

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relativization. Thus, far from disconfirming our hypothesis, these cases are truly the exception which proves our point.

Appositive relative clauses function in a similar way. Consider the following sentences. (30)a is an instance of "short" appositive relativization, while (30)b is an instance of the same phenomenon at a distance.

- (30) a. La Maria, che l' ha ciapà 4 de matematica, ...
 The M. that SCL has gotten 4 in mathematics
 'Maria, who got a 4 in math, ...
- b. La Maria, che pensavo che la fusa vegnuda con ti, ...
 The M. that thought-1s that SCL-was come with you
 'Maria, who I thought had come with you,...

Notice that if (30)b were a case of movement it would constitute an ECP violation. However, the lack of movement cannot be due to this, since even in (30)a, where the ECP would not be violated, there appears to have been no movement. Instead, we must assume that appositive relative clauses uniformly have the option of using a resumptive pronoun strategy for subject position, and that a movement strategy is barred. It is unclear to me what prevents a movement strategy in these cases. Unfortunately the data provided in Brandi and Cordin(1983) are insufficient to pursue this issue further. However, the results are entirely consistent with Rizzi's hypothesis that extraction never occurs from pre-verbal position, assuming a resumptive pronoun strategy in these cases too. [12]

Our central claim that wh-extraction from subject position is not allowed in languages like Italian and Trentino because the gap left in [NP,S] position gets interpreted as a pro relies crucially on the idea that pro cannot function as a variable if locally A'-bound. That is, that in the following configuration: Q ... pro, where the quantifier Q locally binds pro, Q in fact does not bind a variable. If Q binds no other variable in the sentence, such structures are ruled out by the requirement that prohibits vacuous quantification. The account yields interesting results, but it raises the following questions: 1) is it ever possible for a pro to function as a variable bound by a quantifier? and 2) if yes, in what structural configurations? We turn to examine these questions next.

5. Pronominals as Bound Variables

Condition (24) disallows pro from functioning as a variable if locally A'-bound. Generalizing we can say that a pronominal cannot function as a variable if locally A'-bound. (This statement should be qualified to take into account resumptive pronoun strategies, discussed above, where it is flagrantly violated. I will assume that these are special cases,

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where an alternative strategy for forming "variables" is used). However, it is well-known that pronominals can function as variables bound by a quantifier under certain structural configurations. In fact, we have already given several examples of this above. The pro's in (27) and (28) function as variables bound by the quantifiers in the respective sentences. How is it that in these cases a pronominal can function as a variable, but not in other cases?

The difference between the two cases mentioned above has already been given, in fact. In one case, the pronominal is locally A'-bound. In this case, it cannot behave as a variable. In the other case, it is not locally A'-bound. Rather, it is bound by a variable, i.e. the trace of the quantifier left either by Wh-movement or QR. That is, the admissible cases all have the following structure at LF:

(31) Q ... x ... pronominal
 i i i

Let us assume that this is the only way a pronominal can be interpreted as a variable. That is, I will assume that the idea expressed in footnote 11 of Higginbotham(1980; p. 690) "that pronouns become bound variables through the mediation of empty categories appropriately related to them [...]" is correct, and that this is the only way in which pronominals can become bound by quantifiers (modulo resumptive pronoun strategies). The crucial question which comes up at this point is what exactly is meant when we say that in order for an empty category to licence a bound variable reading of a pronominal it must be "appropriately related" to it. What exactly is this appropriate relation?

An obvious candidate is c-command. As a first approximation, let us state the following condition on the possibility of a bound variable interpretation of a pronominal.

(32) Condition on Bound Pronominals [13]

A pronominal p can be interpreted as a variable bound by a quantifier Q only if bound by a variable of Q.

"A is bound by B" is interpreted in the strict syntactic sense of "A and B are co-indexed and B c-commands A". (32) applies at LF-structure, after QR has applied. This condition gives the right results in the cases mentioned above. Since it states that a pronoun becomes a variable only through the mediation of another variable, it disallows direct binding by a quantifier as a means of turning a pronoun into a variable. That is, condition (22) is now a special case of (32). [14]

Condition (32) has interesting consequences for the analysis of cases of so-called "weak crossover". Consider two typical cases of weak crossover:

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- (33) a. Who does his father hate?
 b. His father hates everyone.

In neither case can the pronominal be interpreted as a variable bound by the quantifier in its sentence. Notice that this follows from (32). In neither case does the variable of those quantifiers bind the pronoun, since in neither case does it c-command it. If the c-command relations are reversed, however, it is well-known that bound variable readings are available:

- (34) a. Who loves his father?
 b. Everyone loves his father.

In other words, the Leftness Condition of Chomsky(1976) follows from the Condition on Bound Pronominals. Weak crossover effects, then, follow from the Condition on Bound Pronominals.[15] [16]

Further consideration of more complicated cases of weak crossover shows that the Condition on Bound Pronominals is too strong as stated in (32). Consider the following cases:

- (35) a. Everybody in some city hates its climate.
 b. Some mayor of every city hates it.

In these cases, the pronoun can be bound by the quantifier inside the subject NP (e.g. some city in (35)a, every city in (35)b). The variable of that quantifier, however, does not c-command the pronoun. The CBP in (32) predicts that no bound variable reading should be possible, contrary to the facts. In order to account for these facts, we must re-state the condition as in (36):

(36) Condition on Bound Pronominals (revised)

A pronominal \underline{p}_i can be bound by a quantifier Q_i if

there is a c-commanding variable \underline{x}_j such that:

(i) \underline{x}_j is the variable of Q_i , i.e. $i=j$, or

(ii) \underline{x}_j is the variable of a Q_j distinct from Q_i , and Q_j is within the scope of Q_i .

The Condition on Bound Pronominals now covers the sentences in (35). The variable of the quantifier that binds the pronoun does not directly c-command the pronoun. Rather, the pronoun is c-commanded by a variable of a quantifier which is within the scope of the quantifier which binds the variable. Notice that the higher quantified expression is in fact interpreted as having narrower scope with respect to the embedded quantifier. These are May's inverse linking cases. Adapting Haik's(1983) terminology,

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we might say that a quantifier directly binds a pronoun if condition (i) of the CBP is met, and that it indirectly binds a pronoun if condition (ii) is met.

Finally, I would like to consider some facts from Spanish which appear to confirm the intuition that it is the structural relations that hold between a variable and a pronominal that must be interpreted as bound by the quantifier binding that variable that are relevant for weak crossover. Consider the following Spanish sentence:

- (37) Le gusta su novia a Juan.
 him pleases his girlfriend to Juan
 'Juan likes his girlfriend.'

The NP immediately following the verb is the subject of the sentence, as shown by the fact that if that NP is pluralized, the verb agrees with that NP. Cf.:

- (38) Le gustan las manzanas a Juan.
 him please the apples to Juan
 'Juan likes apples.'

These subject NPs occupy [NP,VP] position, and should not be analyzed as instances of free inversion. In instances of free inversion the subject NP appears after any indirect objects, as in (39):

- (39) Le mando una carta a Juan su padre.
 him sent a letter to Juan his father
 'His father sent a letter to Juan.'

In the construction shown in (37), the subject NP can appear naturally after the indirect object PP only if it is very "heavy", with special intonation, as in (40):

- (40) Le gusta a Juan la chica que vive al lado del colegio.
 him pleases to Juan the girl who lives next to the school
 'Juan likes the girl who lives next to the school.'

Assuming, then, that subject NPs in the gustar construction occupy [NP,VP] position (as in the case of ergative verbs), the S-structure of sentence (37) is as in (41):

- (41) [ec [V NP PP]]

The ec in subject position is an expletive pro.

Notice, now, that if the PP is questioned, the variable left behind by Wh-movement will c-command the direct object NP. We assume that the dative preposition a does not count for c-command (as in other discussions of c-command, cf. Reinhart(1976)). Thus, if that NP contains a pronominal, it

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should be capable of functioning as a bound variable. That is, such sentences should not exhibit weak crossover effects. This prediction is borne out, in fact. Cf.:

- (42) Me pregunto a quien le gusta su novia.
 me ask-ls to whom him pleases his girlfriend
 'I wonder who likes his girlfriend.'

The same facts hold with quantifiers. Cf.:

- (43) Le gusta su novia a todo enamorado.
 him pleases his girlfriend to every beloved
 'Every loved one loves his girlfriend.'

Sentences like (37) can also have a different word order. The subject NP can be raised to [NP,S] position, as in (48):

- (44) Su novia le gusta a Juan.

In these structures the NP containing the pronominal su is not c-commanded by the PP a Juan. The VP intervenes between them. These structures should then exhibit weak crossover, if our hypothesis is correct. This is the case with a quantifier, as can be seen in (45):

- (45) ??Su novia le gusta a todo enamorado.

In cases of syntactic extraction, care must be taken to embed the whole sentence one down, since the presence of a wh-phrase in an adjacent COMP forces V-preposing in Spanish, which would once again obscure the effect. Once this is done, however, weak crossover effects do show up, as expected. Cf.:

- (46)?? A quien me dijiste que su novia le gusta?
 to whom me said that his girlfriend him pleases
 'To whom did you say to me that his girlfriend pleases?'

In such cases, the variable of a quien does not c-command the NP su novia. The pronominal su cannot be interpreted as a variable bound by that quantifier, hence the weak crossover effect.

6. Conclusion

In this paper we have shown that it is possible to prevent pre-verbal extraction in languages like Italian without appealing to the Empty Category Principle. Such an account is superior to an account which relies crucially on the ECP because this principle fails to give an adequate account of all the cases which require post-verbal extraction in these Romance languages.

Our account relies crucially on re-interpreting the conditions which sanction the type of an empty category not as

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conditions which define the empty category type (as in Chomsky(1982)) but rather as conditions which license the appearance of a particular type of empty category in a particular structure. In other words, we no longer need "functional definitions" of empty categories. Rather, empty categories are randomly assigned to a particular type within the typology allowed by combinations of the features [+/-anaphor], [+/-pronominal], and independently motivated conditions are imposed upon them. In particular, we assume that pronominals do not function as variables if locally A'-bound. This gives us the subject extraction facts of Romance, and quite interesting implications concerning the structural conditions which govern the crossover effects.

FOOTNOTES

1. We leave open the question of whether the ECP can be dispensed with altogether in Romance; or, for that matter, in UG. Such a question is independent of the central claim of this paper, though logically related to it.

2. Currently there are several different versions of the Empty Category Principle (cf. Chomsky(1981), Kayne(1981, 1982), Aoun(1981), Pesetsky(1982), Lasnik and Saito(1983)). One of the versions in Chomsky(1981, p., 273) is stated as follows:

ECP:[e] must be properly governed, where
 α properly governs β iff:
 i) α governs β and α is lexical; or,
 ii) α governs β and α is co-indexed with β

It is not my purpose in this paper to review the different options mentioned above or to evaluate them. Whatever the proper statement of this condition is, it must be met if extraction occurs from post-verbal position, and not met if long extraction occurs from pre-verbal position.

3. The apparent violations occur only with syntactic movement. Movement in LF has been argued to show *that-t effects in Italian (and Spanish), just as in French and English. Cf. Kayne(1979), Rizzi(1982) and Jaeggli(1982). For a different view, see Picallo(1983). We will consider only cases of syntactic extraction in this paper, though our proposals have interesting consequences for LF movement which are especially attractive in light of the claims made in Picallo(1983).

4. This point is noticed in Rizzi(1982) and Safir(1982, see in particular footnote 36, p.453). One possible way of forcing post-verbal extraction in all cases might be to stipulate that

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proper government from COMP is never possible in Italian (and similar languages). If this were true, a trace in [NP,S] position could not meet the ECP even if its antecedent were in an immediately adjacent non-branching COMP, because there would be no 'antecedent-government' in Italian. However, aside from the fact that the stipulation would be totally ad-hoc, there is evidence that proper government from COMP is possible in Italian if one considers the behavior of adjuncts. Adjuncts are not lexically governed. Hence, their traces can never meet the ECP via lexical government. If proper government from COMP were impossible in general in Italian, the trace of an adjunct would never meet the ECP. We predict that adjuncts should be unmovable in Italian. But this is not true. Cf.:

(i) Perche sei venuto?
 Why are-2s come
 'Why did you come?'

(ii) Come sei andato a finire la giu?
 How are-2s gone to end over+there
 'How did you end up over there?'

These cases show, then, that proper government is possible from COMP in Italian.

5. The Trentino examples are mostly drawn from Luciana Brandi and Patrizia Cordin's paper "Dialetti e italiano: un confronto sul parametro del soggetto nullo", April 1983, Scuola Normale Superiore, Pisa, Italia, or from Safir(1982) Syntactic Chains and the Definiteness Effect, unpublished MIT dissertation, who got them from another paper by Brandi & Cordin (1981) "On Clitics and Inflection in Some Italian Dialects", Scuola Normale Superiore, Pisa, Italia. I will not attempt to point out the source for each individual sentence.

6. The ungrammatical sentences in (11) are ok with right dislocation intonation, but not as cases of free inversion.

7. In main clause interrogatives the subject clitic and the first verbal element invert, hence the position of the clitic after the auxiliary e in this example and also in (14)b.

8. This alternative interpretation is mentioned in Safir(1983), and attributed there to Chomsky(class lectures).

9. The exact reason for this is unclear. A plausible assumption which has become standard in pro-drop studies is to say that this position is governed by the verb. This would also account for nominative Case assigned to that position. May(1984) argues convincingly, however, that adjoined positions are not governed by the head of the category that they are adjoined to. If he is correct, this cannot be the reason why PRO is excluded in this position. Perhaps the answer lies in the principles of Control

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theory. If the position is indeed ungoverned, issues related to how an ec in that position meets whatever is left of the ECP arise.

10. Notice that one cannot claim that the ECP applies to all variables, whether they are pronominal or not (or empty or full). There are clear cases of PRO which, though locally A'-bound and hence satisfying the contextual definition of 'variable', escape the effects of the ECP. These are Higginbotham's so-called 'PRO-gate' examples. For extensive discussion, cf. Higginbotham(1980) and Safir(1983). Also, resumptive pronouns which function as "variables" in languages like English, Italian, etc. clearly do not obey the ECP, or any other similar condition.

11. The generalization is correct only for overt pronouns occupying positions where a null alternative is possible. For example, within PPs pronouns are not allowed to be null in Spanish. Inside PPs overt pronouns can function as bound variables even if there is no c-commanding bound pro.

12. Brandi & Cordin(1983) report that Cleft Constructions also show the appearance of a subject clitic. They give the following two examples:

- (i) Perche l'e ela che la m'ha rovina i libri.
'Because it is she who has ruined my books.'
- (ii) L'e la to amica che tuti i pensa che la abia manda i soldi in Svizera.
'It's your girlfriend that everyone thinks that she has sent money to Switzerland.'

This means that a resumptive pronoun strategy is also used to form Clefts. Joseph Aoun informs us that in Arabic clefts can be formed with a resumptive pronoun strategy, too.

13. I will use the term bound pronominal to mean "a pronominal which is interpreted as a variable bound by a quantifier". Excluded from this interpretation is the case where a pronoun is bound by an argument, as in John said that he would be late or His mother said that John would be late. Reinhart(1983) argues that these cases should be distinguished. The first one should be analyzed much in the way of quantifier binding, while the second one should not count as a case of binding at all. We leave this issue open.

14. The discussion that follows will be based mostly on English examples. Our remarks concerning pronominals in this section apply to lexical pronouns in English, and pro in Romance. Lexical pronouns in Romance involve further complications, as Montalbetti(1983) points out. PRO in English (and Romance) also involves other factors, since Control theory steps in to do the job that c-command performs in (36). Hence, the 'PRO gate' cases of Higginbotham(1980) mentioned above in

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footnote 9 contain pronominals with bound variable readings without c-command, presumably because the pronominal is PRO, and Control theory takes over to "bind" it. A similar example is the following sentence, mentioned by Higginbotham and attributed to Robert Fiengo (cf. Higginbotham(1980; p. 690), footnote 11):

(i) Devotion to his country is expected of every soldier.

In this case one might assume that there is a PRO in specifier position of the subject NP.

15. Here we agree with Haik(1983) who claims that "weak crossover is the expression of the failure of an NP to be bound by the element which must bind it." This is exactly the intuition expressed by our Condition on Bound Pronominals.

16. The following intriguing possibility suggests itself at this point. Consider a case of strong crossover, as in (i):

(i) Who did he say had arrived late?

The S-structure of this sentence is (irrelevant details omitted):

(ii) [Who [he said [t [t had arrived late]]]

A case of strong crossover arises if who, he and t all have the same index. This possibility can be ruled out by assuming that variables must obey condition C of the Binding Theory. The trace in argument position would be a variable which does not satisfy this condition, hence the strong crossover effect.

Note that a similar result follows from the CBP without recourse to principle C. Assume that an empty category is a variable only if locally Operator bound, as in section 3 of Chomsky(1982). Then, (ii) contains no variable, and the sentence is ruled out as an instance of vacuous quantification.

A similar analysis is offered in section 3 of Chomsky(1982) --similar in that one need not appeal to principle C of the Binding theory in order to obtain strong crossover effects. But that account crucially relies on the functional definition of empty categories, which we reject.

REFERENCES

- Aoun, J. (1981) The Formal Nature of Anaphoric Relations, unpublished MIT PhD dissertation.
- Burzio, L. (1981) Intransitive Verbs and Italian Auxiliaries, unpublished MIT PhD dissertation.

SUBJECT EXTRACTION AND THE NULL SUBJECT PARAMETER

- Brandi, L. and P. Cordin (1981) "On Clitics and Inflection in some Italian Dialects," manuscript, Scuola Normale Superiore, Pisa, Italy.
- Brandi, L. and P. Cordin (1983) "Dialetti e italiano: un confronto sul parametro del soggetto nullo," manuscript, Scuola Normale Superiore, Pisa, Italy.
- Chomsky, N. (1976) "Conditions on Rules of Grammar", Linguistic Analysis 2, 303-351.
- Chomsky, N. (1981) Lectures on Government and Binding, Foris Publications, Dordrecht, Holland.
- Chomsky, N. (1982) Some Concepts and Consequences of the Theory of Government and Binding, MIT Press, Cambridge, MA.
- Chomsky, N. and H. Lasnik (1977) "Filters and Control," LI 8.3, 425-503.
- Haik, I. (1983) "On Weak Crossover", in I. Haik & D. Massam (eds), MIT Working Papers in Linguistics Volume 5, 232-242.
- Higginbotham, J. (1980) "Pronouns and Bound Variables", LI 11, 679-708.
- Jaeggli, O. (1982) Topics in Romance Syntax, Foris Publications, Dordrecht, Holland.
- Kayne, R. (1979) "Two Notes on the NIC," in A. Belletti, et al., eds. Theory of Markedness in Generative Grammar, proceeding of the 1979 GLOW Conference, Scuola Normale Superiore, Pisa, Italy.
- Kayne, R. (1981) "ECP Extensions", LI 12, 93-133.
- Kayne, R. (1982) "Connectedness," LI 13, 233-249.
- Lasnik, H. and M. Saito (1983) "On the Nature of Proper Government," unpublished paper, U. of Connecticut and MIT.
- May, R. (1984) Logical Form: Its Structure and Derivation, MIT Press, Cambridge, MA.
- Montalbetti, M. (1983) "Bound Pronouns in Spanish", unpublished paper, MIT, Cambridge, MA.
- Pesetsky, D. (1982) Paths and Categories, unpublished MIT Ph.D. dissertation.
- Picallo, C. (1983) "INFL and the Pro-drop Parameter," unpublished paper, MIT, Cambridge, MA (to appear in LI 16).

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- Reinhart, T. (1976) The Syntactic Domain of Anaphora, unpublished MIT PhD dissertation.
- Reinhart, T. (1983) "Coreference and Bound Anaphora: A Restatement of the Anaphora Question," Linguistics and Philosophy 6, 47-88.
- Rizzi, L. (1982) Issues in Italian Syntax, Foris Publications, Dordrecht, Holland.
- Safir, K. (1982) Syntactic Chains and the Definiteness Effect, unpublished MIT PhD dissertation.
- Safir, K. (1983) "Multiple Variable Binding", manuscript New York University (to appear in LI 15).