Rigid and Relativized Minimality·

M. RITA MANZINI

Abstract

The central question that this paper addresses is whether the antecedent-government clause of the ECP, in the sense of Chomsky (1981), makes use of an antecedent-based definition of locality, as under Rizzi's (1990) Relativized Minimality, or of a non-antecedent-based definition, as under Chomsky's (1986b) (rigid) Minimality. Our answer favours the latter option. We consider the arguments that Rizzi (1990) puts forward in favor of Relativized Minimality, namely two types of islands, pseudo-opacity and inner islands. We argue that there are important theoretical reasons why Minimality is to be preferred. Crucially, we show that both pseudo-opacity and inner islands can be accounted for under Minimality, if a theory of A'-positions is assumed under which at most one A'-position is associated with each maximal projection. We conclude by noticing that our proposals, if correct, are not without consequences for another important topic of current discussion, the theory of A and A' positions.

Rigid and Relativized Minimality

As discovered in Huang (1982), the locality behavior of wh-dependencies created by arguments differs from that of wh-dependencies created by adjuncts. Thus, following Chomsky (1986b), while extracting an adjunct out of a wh-island gives ungrammatical results, as in (1), extracting an argument produces a fundamentally grammatical sentence, as in (2). Since Chomsky (1981), it has been assumed that under the ECP, traces must satisfy one of two requirements. Either they have a (proper) government relation to a head, or else they must have a (proper) government relation to an antecedent. The grammaticality of

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·This paper forms one of the two main sections of Manzini (to appear b), where another crucial notion of the theory in Rizzi (1990) as well as in Cinque (1991), that of referential index, is considered. The same material is also presented in the context of a proposal for the unification of locality theory in Manzini (to appear a). The relevant work was partially carried out in the fall of 1990 while I was a Resident Scholar at NIAS (Netherlands Institute for Advanced Studies) in Wassenaar, as part of the research group on "The Logical Problem of Language Acquisition" coordinated by T. Hoekstra and H. van der Hulst.

(2) is then explained under the assumption that the argument trace is properly governed by the V head, and hence need not satisfy antecedent-government. By contrast, the ungrammaticality of (1) depends on the assumption that the adjunct is not properly governed by any head, and antecedent-government is also violated:

(1) * How$_i$ do you wonder [what$_j$ to repair t_j t_i]
(2) What$_i$ do you wonder [how$_j$ to repair t_i t_j]

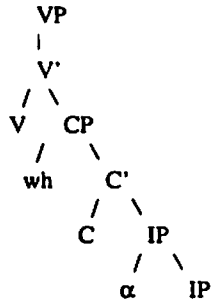
In the literature, essentially two definitions of antecedent-government are available. One is provided in Chomsky (1986b) and its core is a notion of Minimality. The second corresponds to Rizzi's (1990) Relativized Minimality. In what follows we will consider them in turn. According to Chomsky (1986b) antecedent-government is defined as in (4), in terms of the notion of barrier in (3). To be precise, the definition of barrier in (3), or minimality barrier, is only one of two definitions of barrier that enter into antecedent-government; (3) however is sufficient for the purposes of our discussion. The definition in (3) itself is recast with respect to Chomsky's (1986b); in particular no exceptional status is accorded to the projections of I, and the phrasal projection XP, rather than X', is conceived of as creating a barrier. But the central idea behind (rigid) minimality remains unchanged, namely that a head defines a barrier for its complements, though not for its Spec(s), nor for itself:

(3) ß is a barrier for α iff
ß is an XP, ß dominates α and α is not the head or Spec of ß
(4) ß governs α iff
there is no barrier for α that excludes ß

Objects, that satisfy head-government and therefore do not need to satisfy antecedent-government, do not give rise to wh-island violations, as in (2). Adjuncts, on the other hand, that do not satisfy head-government, and must therefore satisfy antecedent-government, do give rise to wh-island violations, as in (1). The crucial question is whether the theory of antecedent-government in (3)-(4) predicts the ungrammaticality of (1). The relevant structure for the violation in (1) is provided in (5). Since we are assuming, contrary to Chomsky (1986b), that the projections of I do not have exceptional status, the adjunct is shown in the IP-adjoined position α. We assume that such a position can be reached by the adjunct starting either from an IP-internal position or from a VP-internal one, in the latter case via adjunction to VP. Of course IP in (5) is not a barrier for α, since it does not dominate it in Chomsky's (1986b) sense. Hence if α can move to the Spec of CP position, no barrier is crossed. If the Spec of CP position is filled, however, CP must be crossed, and CP is a barrier for α in (5). Indeed CP dominates α, which is not in a head or Spec escape-

hatch position. Thus the crossing of the CP barrier violates antecedent-government, predicting the ill-formedness of (1), as desired:

(5)



Consider now Rizzi's (1990) theory. This is based on the idea that antecedent-government is crucially constrained by Relativized Minimality, as in (6); informally, antecedent-government is blocked whenever a potential antecedent-governor is crossed. The notion of typical potential antecedent-governor, which enters into (6), is defined as in (7); informally, an A'-Spec is a potential antecedent governor for an A'-dependency, an A-Spec is a potential antecedent-governor for an A-dependency, and so on:

(6) X antecedent-governs Y only if there is no Z such that
(i) Z is a typical potential antecedent-governor for Y, and
(ii) Z c-command Y and does not c-command X

(7) Z is a typical potential antecedent-governor for Y,
Y in an A-chain iff Z is an A Spec c-commanding Y
A'-chain iff Z is an A' Spec
head-chain iff Z is a head

Let us consider how Relativized Minimality works. Consider first wh-island violations, as in (1)-(2). Again, the object wh-phrase in (2) need not satisfy antecedent-government, but the adjunct wh-phrase must. Now suppose the adjunct in (1) has reached the IP-adjoined position α in (5). In the presence of a wh-phrase in the Spec of CP, its next possible landing site is adjoined to the matrix VP. However, movement from the IP-internal to the VP-adjoined position is blocked by Relativized Minimality, precisely because a typical potential antecedent-governor intervenes between the two positions in the form of the wh-phrase in the Spec of CP. Thus the ungrammaticality of (1) is again correctly predicted.

Crucially, though the theories of antecedent-government in Chomsky (1986b) and Rizzi (1990) are empirically equivalent with respect to (1)-(2), two

further types of islands are introduced in support of Relativized Minimality in Rizzi (1990), namely inner islands, in the sense of Ross (1984), and pseudo-opacity in the sense of Obenauer (1976; 1984). They belong to the same family as wh-islands in that adjuncts are sensitive to them, but objects are not. Hence under the simplest hypothesis the component of the theory involved in predicting them must be antecedent-government.

Consider first pseudo-opacity. The relevant data are of the type in (8)-(11). Both of the extractions in (8) and (9) are well-formed in French, where in (9) the quantifier *combien* moves stranding the rest of its DP, while in (8) the whole DP moves. Consider however the contrast in (10)-(11). (11), where only *combien* moves across the quantificational adverb *beaucoup*, is ill-formed; (10), where the whole DP moves across the adverb, is well-formed. If the D head *combien* is not properly head-governed, its movement out of DP is predicted to give rise to antecedent-government effects. Thus movement of *combien* across a wh-island in (13) is correctly predicted to be ill-formed, and movement of the whole DP to be well-formed, as in (12). The question however is whether the contrast between (10) and (11), and in particular the ill-formedness of (11), can also be accounted for:

(8) Combien de livres a-t-il consulté
How much of books has he consulted

(9) Combien a-t-il consulté de livres
How much has he consulted of books

(10) Combien de livres a-t-il beaucoup consulté
How much of books has he much consulted

(11) * Combien a-t-il beaucoup de livres
How much has he much consulted of books

(12) Combien de problemes sais-tu comment resoudre
How much of problems do you know how to solve

(13) * Combien sais-tu comment resoudre de problemes
How much do you know how to solve of problems

Under Rizzi's (1990) theory a Relativized Minimality island is straightforwardly defined in (11) by the quantificational adverb *beaucoup*, on the assumption that it is in the Spec of VP. If so, *beaucoup* counts as a potential A'-antecedent for the wh-trace, exactly as the wh-phrase in the Spec of CP in (13); hence the ill-formedness of both (11) and (13) follows, since movement takes place across a potential antecedent-governor. What is more, Relativized Minimality correctly predicts the contrast between (14) and (15), since in (15) an adjunct, *comment*, is extracted across the floated quantifier *beaucoup*, a potential antecedent-governor, while in (14) no potential antecedent-governor is crossed. Unfortunately, Chomsky's (1986b) Minimality does not yield any prediction with respect to either (11) or (15). In both cases

the lower VP is a barrier for the wh-phrase *combien* or *comment*, assuming the latter is generated VP-internally. But in both cases the VP barrier can be circumvented by simply adjoining to it. Of course adjunction to VP cannot circumvent Relativized Minimality, since the Spec of VP still intervenes between any VP-internal position and the VP-adjoined one:

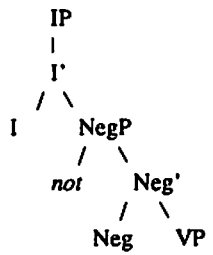
(14) Comment a-t-il resolu beaucoup de problemes
How did he solve much of problems
(15) * Comment a-t-il beaucoup resolu de problemes
How did he much solve of problems

Consider then inner islands. (17) differs from (16) only in the presence vs. absence of a sentential negation. (17) is ill-formed with the interpretation under which the adjunct is extracted from the embedded sentence, as indicated, though it is well-formed with the interpretation, irrelevant here, under which the adjunct is associated with the matrix verb. (16) is well-formed under both interpretations. Inner islands are the islands created by the negation in sentences of the type of (17). Crucially, no inner island effects arise with objects, as in (18):

(16) Why do you think John left
(17) * Why don't you think [Peter left t]
(18) What don't you think Peter did

Rizzi (1990) assumes that the negation element is generated in an A' Spec. This can be taken to be the Spec of VP; alternatively, if a sentential negation defines a NegP projection of its own, as in Kayne (1989), Pollock (1989), Chomsky (1989) and much recent literature, the negation can be taken to fill the Spec position of NegP. If so, the resulting phrase structure configurations are then of the type in (19), on the assumption that NegP is generated above VP and under IP. Given structures of the type in (19), the extraction of the adjunct in (17) must at some point cross *not*, a potential antecedent-governor for it in virtue of its A' Spec position. Hence antecedent-government does not hold under Rizzi's (1990) Relativized Minimality, and ill-formedness is correctly predicted to arise. Unfortunately, as before, no island is defined in (17) under Chomsky's (1986b) Minimality; like the VP barrier, the NegP barrier can be escaped by adjoining to it. Hence no predictions as to the ungrammaticality of (17) follow under Chomsky's (1986b) theory:

(19)



In summary, Minimality and Relativized Minimality are equally successful when applied to standard wh-island violations; but Relativized Minimality goes on to predict two other types of islands which remain unexplained under Minimality. Though the empirical evidence appears to favor Relativized Minimality, Minimality has potential theoretical advantages over it. Wh-islands, or indeed pseudo-opacity and inner islands, constitute only a subset of the islands to which (wh-)extraction is sensitive. Others include subject islands as in (20)/(23), adjunct islands, as in (21)/(24), and complex NP islands, as in (22)/(25), to which argument and non-argument wh-phrases are subject alike:

(20) * What does [explaining t] bother you
(21) * What was Mary bothered [because Peter explained t]
(22) * What do you know the girl [that explained t]
(23) * How did [fixing it t] bother Mary
(24) * How was Mary bothered [because John had fixed it t]
(25) * How do you know the girl [that fixed it]

Crucially, none of the islands in (20)-(25) can be subsumed under Relativized Minimality, since islands of the wh-type are predicted on the basis of the assumption that arguments are not sensitive to it, or indeed to any other antecedent-based condition. If so, any theory that embeds an antecedent-based definition of locality is of necessity disjunctive, since it must introduce a non-antecedent-based definition for islands of the type in (20)-(25). Since Minimality however is a rigid notion, there is no principled reason why an appropriate definition of it could not cover (20)-(25) as well. Hence there is no intrinsic reason why a theory that includes Minimality should be disjunctive. This appears to be a good reason to investigate Relativized Minimality's claim to empirical superiority further.

Another and more immediate reason to do so is that Minimality is of course more restrictive than Relativized Minimality. Thus under (7), the notion of potential antecedent governor is split three-ways according to whether head or phrasal movement is involved, and in the latter case, whether it is an

instance A or A'-movement. However, there appears to be no principled reason why the notion of potential antecedent-governor could not be relativized further. Of course, no similar considerations apply in the case of Minimality. Thus everything else equal, Minimality appears to have a clear theoretical advantage over Relativized Minimality.

Let us then consider again wh-islands, the one type of Relativized Minimality island that Minimality derives so far. Data of the type in (1) can be accounted for under Minimality, without recourse to Relativized Minimality, by having recourse instead to the fact that the adjunct wh-phrase can move neither through the Spec of CP, which is already filled, nor through a CP-adjoined position, since following Chomsky (1986b) adjunction to CP is impossible. Obviously, the analogous solution for inner and pseudo-opacity islands would be to say that the adjunct wh-phrase not only cannot move through the Spec of NegP or the Spec of VP for the obvious reason that it is already filled, as in (11), (15) and (17), but that it cannot move through a NegP-adjoined or VP-adjoined position either.

Suppose then we take the radical step of prohibiting adjunction to maximal projections in general. Consider first the consequences of this hypothesis for VP. If movement cannot proceed through adjunction to VP, the Spec of VP remains the only VP-internal escape hatch. The potential problem that arises is that, while an infinite number of adjunction sites are available at any given VP, there is just one Spec of VP position. Thus no two different wh-phrases can be extracted through the same Spec of VP, though infinite ones can be extracted through a VP-adjoined position. Now, let us assume that argument wh-phrases, that are properly head-government, can move in a single step to their final landing site. If so, not only they never need use the Spec of CP, thus accounting for the well-formedness of (2), but they never need use the Spec of VP either, thus accounting for the well-formedness of (10). Consider on the other hand adjunct wh-phrases. Any two such phrases adjoining to the same VP, must pass through the same Spec of CP as well; and movement of more than one of them through the same Spec of CP is blocked in any theory. Thus prohibiting adjunction to VP, and allowing only the Spec of VP to function as an escape hatch, appears to have no negative empirical consequences.

On the other hand, prohibiting adjunction to every maximal projection means prohibiting adjunction to IP as well. Since in this case the Spec position is systematically filled by a subject, the impossibility of adjunction means that movement must take place directly from the Spec of VP position to the Spec of CP position, crossing IP. Thus if IP is a barrier, as under the definition of Minimality that we have adopted so far, movement across IP becomes impossible in all cases; or else some stipulation concerning IP must be reintroduced into the theory, essentially the reverse of Chomsky's (1986b) stipulation, to the effect that adjunction is only possible to IP. Obviously the

first result is unacceptable, while the proposed alternative is at least undesirable.

It appears then that the strong hypothesis that adjunction to maximal projections is in general impossible cannot be maintained. Consider however a weaker hypothesis, namely that adjunction is possible only to those maximal projections which do not have an A'-Spec. This prevents adjunction to NegP and VP, while allowing adjunction to IP, as desired. Unfortunately, this hypothesis raises a problem of its own. If it is correct that adjunction and A' Specs are in complementary distribution, then the simplest grammar is one in which they are identified. Since CP must have a (unique) A' Spec, rather than (multiple) adjunctions, and the same is true of VP and NegP, this apparently means that the simplest grammar is one under which IP also has a (unique) A' Spec.

Suppose in fact we say that for each maximal projection there is at most one A'-position, as in (26), disregarding the question whether this is to be conceived as a Spec position or as an adjoined one. The question as to whether IP obeys (26) can largely be answered as for VP. Since the presence of a single Spec of CP position limits the number of non-argument wh-extractions to one per sentence in any case, the availability of one landing site at any other maximal projection does not have any negative empirical consequences. Thus as far as wh-movement is concerned, the hypothesis in (26) that there is at most one A'-position per maximal projection, can be maintained. Under (26) pseudo-opacity and inner islands are now straightforwardly derived on exactly the same grounds as wh-islands. Thus a quantificational adverb or negation in the A'-Spec of VP or NegP prevents a wh-phrase from passing through the same position, exactly as a wh-phrase in the A'-Spec of CP does. This forces the crossing of a barrier and hence an antecedent-government violation:

(26) Each maximal projection is associated with at most one A'-position

Since, on the other hand, we have limited our discussion so far to wh-movement, the question arises whether multiple adjunctions, as opposed to a single A' Spec, must be admitted for other types of movement. An obvious candidate is multiple adjunction to IP of quantified expressions, as in LF's of the type in (17), taken from May (1985). May (1985), in fact, basing himself on Guéron (1981), explicitly suggests that a syntactic principle of the type in (26) holds. According to May (1985), multiple adjunction to IP, as in (27), is unnecessary. Instead (27) is argued to be equivalent to (28), where one quantified DP is adjoined to IP, and the second one is adjoined to the first:

(27) $[_{IP}$ Every spy$_i$ $[_{IP}$ some Russian$_j$ $[_{IP}$ t_i suspects $t_j]]]$

(28) $[_{IP}$ $[_{DP}$ Every spy$_i$ $[_{DP}$ some Russian$_j]]$ $[_{IP}$ t_i suspects $t_j]]$

What is crucial is that in May's (1985) terms, in both (27) and (28) the two operators have the same absolute scope, since they have the same c-command domain, or equivalently they commute in relative scope, since they c-command each other. Technically, May (1985) defines a sigma-sequence as in (29), where O stands for an operator. Under (29), it is obvious that the two quantified DP's form a sigma sequence in both (27) and (28). May's (1985) Scope Principle then simply says that members of sigma-sequences are free to take on any type of relative scope relation, as in (30); under (30), (27) and (28) give rise to the same range of interpretations, as desired:

(29) S is a sigma-sequence iff
for all O_i and O_j in S, O_i c-commands O_j and O_j c-commands O_i

(30) Scope Principle
If O_i and O_j are members of a sigma-sequence, O_i and O_j are free in scope with respect to one another

Exactly as two quantifiers adjoined to one another can fill the unique A'-position associated with IP in (28), we on the other hand expect that two wh-phrases that commute in scope can be adjoined to one another and can therefore cooccur in the same Spec of CP. Since clusters of wh-phrases are in fact overtly excluded in English, as in (31), this prediction appears to be incorrect. However, in English multiple wh-phrases in the Spec of CP must be admitted at LF in cases of wh-in-situ at S-structure. In other words, something like (31) must in fact be the LF corresponding to the well-formed (32). Thus the prediction of the theory is once more seen to be correct. Furthermore, we can expect that given that structures of the type in (31) must be available at LF, and wh-movement is in general available in the syntax, the impossibility for (31) to occur in the syntax in English corresponds to some parameter that remains to be defined, rather than to a universal property of natural languages. Again this appears to be confirmed by the facts, since examples of the type in (31) are found in other languages, for instance in Slavic languages, as reported in Rudin (1988):

(31) * What who saw
(32) Who saw what

In short, the logic of our argument is as follows. From a theoretical point of view Minimality is preferable to Relativized Minimality, for the fundamental reason that Minimality is more restrictive. On the other hand, from an empirical point of view, Relativized Minimality is equivalent to Minimality, with respect to pseudo-opacity and inner islands, as well as wh-islands, once the restriction in (26) is introduced into the grammar. We then conclude that Minimality is to be preferred overall.

The potentially weak link in our reasoning is represented by (26), since it could be argued that (26) itself represents a complication of the grammar. What (26) effectively does is abolishing the distinction between (unique) A'-Specs and (multiple) adjoined positions in Chomsky (1986b). Suppose then we substitute the constraint in Chomsky (1986b) to the effect that only non-arguments can be adjoined to, with the principle in (33), to the effect that only non-arguments can be associated with an A'-position. (33) has the immediate advantage that under it, CP's can and must be non-arguments; by contrast, under Chomsky's (1986b) adjunction principle, CP's must be arguments, which goes against the theory of arguments of Chomsky (1981). In general, our answer to potential objections to (26) will be that the theory of A'-positions in (26) and (33) is a very simple and conceptually perspicuous one. Informally, what (26) says is that there is at most one operator associated with each maximal projection. If we think of an argument as an LF variable, what (33) says is that no operator can be associated with a variable, unless of course it binds it:

(33) An A'-position can be associated only with a non-argument maximal projection

Let us now return to questions of empirical evidence. The purpose of the discussion that precedes was to take into accounts arguments for Relativized Minimality from phrasal movement, as presented in Rizzi (1990). It must be noticed however that a number of arguments has recently surfaced in the literature in favor of Relativized Minimality for head-movement. For instance, Baker and Hale (1990) propose that a lexical head can move only to the next lexical head up, and a functional head to the next functional head up. This state of affairs can be captured by Relativized Minimality if the notion of potential antecedent governor is revised so that a potential antecedent-governor for a lexical head is another lexical head, while a potential antecedent-governor for a functional head is another functional head. Here we can only point out that the introduction of the lexical/ functional distinction in addition to the head/ phrase and A/ A' distinctions illustrates the general restrictiveness problem with Relativized Minimality already notice above.

A different extension of Relativized Minimality for head-movement is suggested in Roberts (1991). The latter's idea is that the A/ A' distinction is relevant not only for phrasal movement but also for head-movement. Thus an A-head is a potential antecedent-governor for another A-head, an A'-head for another A'-head. Notice that the general problem in this case is providing a characterization for what constitutes an A or an A' head. The crucial empirical evidence, on the other hand, includes apparent Long Head Movement patterns of the type observed in Lema and Rivero (1990). Thus in Portuguese, sentences of the type in (34) are found, where a non-finite form of the verb moves across

an auxiliary+clitic complex; such sentences can be analyzed as involving movement of the non-finite verb to C, across the clitic+auxiliary complex in I. Evaluating the class of data exemplified by (34) is beyond the scope of this article. It will suffice however to notice that in Lema and Rivero (1990), no recourse is made to Relativized Minimality; the solutions proposed there in terms of Minimality are then perfectly compatible with our present framework:

(34) Seguir-te-ei por toda a parte
Follow you will (I) everywhere

In conclusion, the wider implications of the main theoretical proposal of this article, namely (26), can be briefly considered. The obvious counterpart to (26) for A-positions is that each maximal projection is associated with at most one A-Spec, as indeed under current versions of X-bar theory. (26) can itself be easily expressed in terms of some revised version of the theory. It is then left to independent principles, including the Theta-Criterion, the Case Filter, as well as presumably principles such as the Wh-Criterion of Rizzi (1991), to further restrict the occurrence of A and A' Spec's, as well as to determine when they must be realized.

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