

2003

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Publication Info

Postprint version. Published in *Glott International*, Volume 7, Issue 9/10, 2003, pages 230-243.
Davies, W. D., & Dubinsky, S. (2003). Raising (and control). *Glott International*, 7(9/10), 230-243.
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Raising (and Control)

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1. Introduction

This article examines current analyses of Raising and Control constructions, paying particular attention to (i) current analyses of Raising-to-Object(RtoO)/ECM structures in the Minimalist paradigm, (ii) analyses of RtoO/ECM-like constructions in languages where the structures have finite clausal complements, and (iii) recent attempts to unify accounts of Raising and Control, along with arguments in opposition to this. In order to fully understand the current analyses and the theoretical perspectives that they represent, it is necessary to examine the evolution of syntactic approaches to these issues, beginning with Rosenbaum 1967, Chomsky 1973, and Postal 1974 (as done in great detail in Davies and Dubinsky 2004 (to appear)). Taking this approach will make transparent why current analyses have the form that they do, and to what extent they are truly novel or are adaptations of older ideas using newer theoretical assumptions. For clarity, we adopt throughout this discussion the acronym RtoO as a descriptive label, regardless of the particular analysis being considered.

Our focus here is on RtoO rather than Raising in general (that is, exclusive of Raising to Subject, Possessor Raising, etc.). The reason for this is that it is RtoO that has played so central a role in the evolution of Chomskyan syntactic theory, and that has been a recurring topic of debate over the past 30-35 years. As becomes clear, the main impetus for its centrality in syntactic debates stems largely from the desire in “standard” theory (from the Conditions model of Chomsky 1973 through the GB/P&P model of Chomsky 1981/1982/1986a/1986b) to separate RtoO from RtoS.

Our attention to the extension of RtoO/ECM accounts to finite clausal complement constructions is due to the fact that clausal non-finiteness plays a key role in the licensing of these constructions in the GB/P&P model. Thus, apparent cases of RtoO/ECM in finite complement constructions have tested and continue to test any theory that binds those properties to one another. As we shall see, the rise of the MP has caused a reassessment of this connection, which plays an important role in current discussions.

We include some consideration of Control in this discussion since throughout the development of generative analyses of RtoO, the relation of the sentences in (1) and (2) has been criterial.

- (1) Barnett believed the doctor to have examined Tilman.
- (2) Barnett persuaded the doctor to examine Tilman.

Clearly, the surface strings in (1) and (2) are virtually identical; each contains NP-V-NP-*to*-VP. However, the conventional wisdom in generative grammar has been that RtoO (1) and object control (2) are to be distinguished syntactically on the basis of a number of tests, including

interaction with passive complement clauses, assignment of thematic roles, selectional restrictions, pleonastic subjects such as *it* and *there*, and interaction with embedded idioms. Some theoretical approaches (e.g., Categorical Grammar, Lexical-Functional Grammar, Head Driven Phrase Structure Grammar) have long denied a syntactic distinction, and recent developments in the Minimalist Program have led to a reconsideration of the issue.

2. *The rise and demise of the ECM analysis*

Going back at least to Rosenbaum 1967, linguists have recognized two “traditional” empirical properties of non-finite RtoO complements which separate them from tensed complements: (i) the possibility of applying passive to the subject of the complement clause, and (ii) the grammaticality of anaphors (e.g., reflexives and reciprocals) in subject position of the complement. The following data, from Postal 1974 (pp. 40 and 42), illustrate the phenomena.

- (3) *passivization of embedded subject* [Postal 1974:(22) and (23)]
- (a) Jack believed (that) Joan was famous.
 - (b)*Joan was believed (that) was famous by Jack.
 - (c) Jack believed Joan to be famous.
 - (d) Joan was believed to have been famous by Jack.
- (4) *distribution of anaphors in embedded subject position* [Postal 1974:(25)]
- (a) Jack₁ believed (that) he₁ was immortal.
 - (b)*Jack₁ believed (that) himself₁ was immortal.
 - (c) Jack₁ believed himself₁ to be immortal.
 - (d)*Jack₁ believed him₁ (he₁) to be immortal.

The embedded subject *Joan* in (3c) is passivized in (3d). This is not possible when the complement clause is finite. Compare (3a) and (3b). Similarly, the embedded subject of (4c) must be an anaphor if it has the matrix subject as its antecedent (contrast (4d)). When the complement clause is finite however, as in (4a) and (4b), it must be pronominal.

Although the above facts do indeed motivate distinct analyses for the infinitival and finite complement clause constructions, the data are grossly indeterminate with respect to what sort of analysis might be correct. In the 1970s, three basic approaches arose, each able to accommodate these facts. Following Rosenbaum 1967, Postal (1974) proposed a rule-based derivation for (3c), in which *Joan* moves out of underlying complement subject position into matrix object position, as illustrated in (5).

- (5) D-structure: Jack believed [Joan to be famous]
 S-structure: Jack believed Joan [to be famous]

For Postal, both passive and reflexive/reciprocal anaphora are clause-bound phenomena, and the grammaticality of (3d) and (4c) is expected if (3c) has constituent S-structure shown in (5). The fact that (3a), with a tensed complement clause, cannot be derived in a similar manner must be

accounted for either specifically in the grammar of English or by appeal to universal principles.

For Bach 1977 (and others following in the tradition of his non-derivational proposals, such as Bresnan 1978), the S-structure recognized by Postal **is** the structure of (3c), there being only one level of representation. In his “no rule” (i.e., non-transformational) approach, the grammaticality of (3d) and (4c) receives the same explanation as in Postal 1974, *himself* and *Joan* being dependents of the matrix clause at a single level of structure. In this view, the property of (3c) requiring an explanation is the fact that *Joan* is interpreted as the subject of the infinitival complement rather than as an object of the matrix clause. The non-derivationalist view of Bach thus encumbers the grammar with semantic/interpretive rules in the place of derivational/transformational ones.

Chomsky 1973 also adopts a non-derivational analysis of RtoO constructions. However, for him it is Postal’s D-structure that is claimed to be the structure of (3c) at all levels. Under Chomsky’s analysis, interpreting *Joan* as the subject of the infinitival complement clause is trivial, since it **is** the subject of this clause at all levels. The burden of explanation thus centers on formulating an account for the data paradigm in (3) and (4). Having dispensed with the derivational analysis that would allow passive and anaphora to be clause bound, Chomsky adopts the then-radical notion that derivational rules are not themselves marked as intraclausal (e.g., passive) and interclausal (e.g., wh-movement). Rather, he proposes that rules may all, in principle, apply anywhere, and that they are “conditioned” by the context of their application. Thus, the contrast between (4b) and (4c) obtains, not because *himself* is in the matrix clause of (4c), but because the reflexive inside the **tensed** clause in (4b) may not have an antecedent outside of this clause. This Tensed-S Condition applies not specifically to reflexives, but to the application of virtually any rule. Thus, (3d) and (4c) are held to be grammatical, not because the embedded subject has raised into the main clause, but because no condition prevents reflexivization or passive from applying across a non-tensed (i.e., infinitival) clause boundary. It is this perspective which has formed the basis of Chomskyan models of syntactic theory from 1973 through the present day.

GB theory (Chomsky 1981) does away with the Tensed-S Condition as a separate principle, incorporating its effects within a set of articulated grammatical modules and the new principles operating within them. This change brought with it the ECM analysis of RtoO and new explanations for why movement was not involved in the analysis. In the ECM analysis, the sentence in (1) is assigned the D-structure and S-structure representations in (6).

- (6) a. Barnett believed [_{S'} [_S the doctor to have examined Tilman]]
b. Barnett believed [_S the doctor to have examined Tilman]

As an NP with a phonetic matrix, the embedded subject *the doctor* must be assigned Case or the structure will not pass the Case Filter. However, Case cannot be assigned within the embedded S since nonfinite INFL *to* is not a Case assigner. The matrix verb *believe* cannot assign the required accusative Case in the structure in (6a) since the S' node blocks its ability to govern the complement subject, and Case must be assigned under government. Thus, Chomsky proposes that *believe* is lexically-marked to govern a rule of S'-deletion, reflected in (6b), which allows it to exceptionally govern into the complement clause and thus exceptionally Case-mark the

complement subject. The deletion of the S' node also plays a crucial role in the account of binding facts. Since *believe* governs the subject of the infinitival complement but not the tensed complement, (4c) is grammatical since *himself* is bound by *Jack* in its governing category, satisfying Principle A of the Binding theory, and (4b) is ungrammatical since *himself* is not bound in its governing category (which in this case is the embedded S).

The ECM analysis was further bolstered by Theta Theory. Previously, there had been no principle blocking movement of the subject of the infinitival complement to direct object of the matrix clause; the analysis depended solely on assertions regarding its S-structure position. The θ -Criterion stipulates that each argument can be assigned one and only one θ -role. Further, Chomsky asserts (1981:137) that all complement positions are θ -positions, positions to which a θ -role is assigned. Since the complement subject receives a θ -role from the embedded VP, movement to matrix object position results in assignment of two θ -roles to the same argument, a violation of the θ -Criterion. Thus, movement is blocked.

Theoretical innovations of the mid- and late-1980s (Zagona 1982, Kitagawa 1986, Sportiche 1988, Larson 1988) opened the door to a reassessment of the ECM analysis, and the proposals in Pollock 1989 would ultimately lead to a reconsideration of the ECM approach to RtoO clauses in favor of a neo-Raising movement analysis. Pollock proposed that Infl (projecting IP) should be divided into separate categories for tense (T, projecting TP) and agreement (Agr, projecting AgrP). The central motivation for this proposal comes from the distribution of verbal heads in French with respect to adverbs and negation.

In French, a tensed verb appears before the negation element (i.e., *pas*) and before an adverbial such as *souvent* 'often'. On Pollock's account, tensed lexical verbs must move out of VP. The negative adverb *pas* is assumed to lie outside of VP and VP adverbs like *souvent* are assumed to be adjoined to the edge of VP, suggesting verb movement as depicted in (7).

(7) FINITE VERB₁ ... pas ... [_{VP} souvent ... t₁ ...]

In making a case for the separation of T and Agr, Pollock notes that infinitival verbs may optionally appear on either side of a VP adverb, but may not appear in front of the negative adverb *pas* (in contrast with tensed verbs, which can do so). The contrastive distribution of finite and non-finite lexical verbs is depicted in (8).

(8) FINITE VERB ... pas ... NON-FINITE VERB ... [_{VP} souvent ... NON-FINITE VERB ...]

On the basis of this, and much other evidence, Pollock argues for an intermediate landing site for the verb, one which is VP-external and subordinate to the head of TP. This position, between *pas* and the adverbial (e.g., *souvent*), is the target of "short verb movement", and is a functional head. Two functional heads, T and Agr, are proposed to account for the two VP-external positions shown in (8).

It is further assumed in this account, and others arising from it, that the projection of Agr is involved both in the assignment of nominative Case to the subject and in subject-verb agreement. In the terminology of the developing Minimalist Program (MP), nominative Case on the subject is "checked" by a finite verb when the two are in a specifier-head configuration (in

AgrP). In this context, the traditional assignment of accusative Case by a verb to its object complement stands out as rather anomalous, and early MP analyses (Chomsky 1989) adopted an AgrO[bject] functional category, analogous to AgrS[ubject], for the purpose of checking the accusative Case of an object. This account of accusative Case requires both the verb and its object would move, at least by LF, into a functional projection outside of VP, as in (9).

(9) [Agr_{OP} OBJECT₁ VERB₂ ... [VP ... t₂ t₁ ...]]

Under this view of accusative Case assignment/checking, the ECM analysis of RtoO constructions is no longer tenable, there being no functional position between the matrix verb and infinitival subject wherein Case might be checked. Since ordinary direct objects were now assumed to raise out of the VP, so too must ECM subjects.

Although Johnson (1991) resurrects a movement analysis of RtoO as part of his study of objects and object positions, the official reassessment of RtoO constructions came in Lasnik and Saito (L&S) 1991. There, they lay out the theoretical motivation for reconsidering and rejecting the ECM approach, resuscitating older, previously discarded arguments in favor of Raising (from Postal 1974) and introducing some newer arguments of their own.

Typical of the Postal 1974 arguments that L&S reexamine is one involving the quantifier scope differences illustrated in (10) [=Postal 1974:222 (44)].

- (10) a. The FBI proved that few students were spies.
 b. The FBI proved few students to be spies.

According to Postal, in (10a), with a tensed complement clause, the quantified expression *few students* may have either wide or narrow scope. That is, (10a) can have either of the interpretations given in (11), in which (11a) asserts the existence of students and (11b) does not.

- (11) a. There are few students such that the FBI proved them to be spies. (wide scope)
 b. The FBI proved that there were few students who were spies. (narrow scope)

In (10b), on the other hand, *few students* can only have the wide scope interpretation given in (11a). Postal suggests that the reason for this contrast may be attributed to the application of Raising to the infinitival subject of (10b), *few students*. Although there is not universal agreement about the interpretations of (10a) and (10b), L&S 1991 concur both with Postal's judgements and with his conclusions about what these data indicate about the structure of (10b).

For their own part, L&S introduce new data that show the infinitival subject in an RtoO clause to have undergone Raising, only to a position higher than the matrix VP. In constructing their argument, they first examine the antecedent-anaphor relation holding in (12) between the direct object *the defendants* and the reciprocal *each other*.

- (12) ?The DA accused the defendants_i during each other's_i trials. [L&S 1991:(26)]

Notice first that the verb complement position in (12) does not c-command into the adverbial PP

headed by *during*. This can be made clear with bracketing, as in (13).

(13) [_{VP} [_{VP} accused the defendants_i] [*during* each other's_i trials]]

In this configuration, *the defendants* cannot bind *each other* and (12) should therefore be expected to violate Condition A of the Binding Theory (which states that anaphors must be bound in their governing category). That it does not is taken by L&S as evidence for the movement of *the defendants* into a position outside of VP for Case checking, as shown in (14).

(14) [_{AgrOP} [*the defendants*_i]₁ accused₂ [_{VP} [_{VP} t₂ t₁] *during* each other's_i trials]

From its position in Spec,AgrO, *the defendants* c-commands and binds the anaphor *each other* in satisfaction of Condition A.

L&S go on to show that the embedded subjects of RtoO constructions exhibit the same behavior in this regard, and contrast markedly with the embedded subjects of tensed complement clauses. Consider the contrast between (15a) and (15b) here below [=L&S 1991:(25) and (27)].

- (15) a. ?The DA proved [*the defendants to be guilty*] *during* each other's trials.
b. ?*The DA proved [*that the defendants were guilty*] *during* each other's trials.

Example (15a) is parallel to (12), strongly suggesting that the infinitival subject moves into the matrix AgrOP for accusative Case checking, so coming into a position from which it can bind the reciprocal *each other* in the adverbial PP. The relative unacceptability of (15b) shows that the subject of the finite complement clause cannot move high enough in the structure to bind an anaphor in the matrix VP.

L&S stop short of asserting that the movement of the infinitival subject to the matrix Spec,AgrOP occurs before Spell-Out, however. At the time, the tensed verb in English was analyzed as remaining in the VP at Spell-Out and moving only at LF, based largely on evidence presented in Pollock 1989. There, he argues on the basis of evidence such as in (16) and (17), that while tensed verbs in French move overtly (by Spell-Out) to a functional Projection outside of VP, English tensed verbs appear not to.

- (16) a. John often kisses Mary.
b. *John kisses often Mary.

- (17) a. *Jean souvent embrasse Marie.
b. Jean embrasse souvent Marie.

The ungrammaticality of the English (16b) in contrast with the French (17b) is understood to arise as a result of the overt movement of French finite verbs into a position outside of VP (and above adverbs such as *souvent*). English finite verbs, remaining within VP (at least until LF), can only appear lower than adverbs such as *often*. Given these facts, if the infinitival subject of an RtoO construction were claimed to raise overtly to a functional projection in the main clause

while the matrix tensed verb does not, then the surface word order of an RtoO construction ought to be as in (18).

(18) *Joan him believes to be intellegent

Thus, given the facts about verb movement, along with the theoretical assumptions of the time, it makes sense to assume that movement of the infinitival subject must also be covert given it follows the verb in PF. This covert movement approach leaves a PF-interface structure that is analogous to the S-structure of ECM, suggesting that Chomsky was never really mistaken about the surface constituent structure of these. It should be noted that both the old and new data considered by L&S involve phenomena that are typically ascribed to LF computation (e.g., quantifier scope), which would be consistent with the covert movement approach.

Following L&S, a number of researchers (including Koizumi 1993, 1995, Runner 1995, Ura 1993) examine the status of the object and argue explicitly for overt movement in RtoO. As part of the evidence he marshals in support of his analysis, Runner resurrects two arguments from Postal regarding the placement of adverbs in RtoO structures. First, using Postal's data, he notes that if Raising does not occur until LF, there is no account for why the adverb *very strongly* in (19b) cannot precede the RtoO subject.

(19) a. I believe very strongly that Tony is honest. [Postal 1974 (102a)]
b. *I believe very strongly Tony to be honest. [Postal 1974 (102a)]

Since adverbs can clearly precede clausal complements (19a), if *Tony* were in the embedded clause at Spell-Out, (19b) should be perfectly grammatical. However, (19b) is parallel to adverb placement with objects; that is, the adverb may not intercede between the verb and its object, (20).

(20) *I believe very strongly Tony's assertion.

If both the object *Tony's assertion* in (20) and the RtoO subject *Tony* in (19b) raise to Spec,AgrOP in overt syntax, the ungrammaticality of (20) and (19b) are expected.

Runner also offers some novel arguments, one of which concerns quantifier float. He notes that in finite clauses a sentential adverb such as *probably* can naturally precede the floated quantifier *all* (21a) but not follow it (21b).

(21) a. The boys probably all will leave after the movie.
b. ?*The boys all probably will leave after the movie.

Runner notes that the same ordering effects obtain in nonfinite clauses.

(22) a. It would worry Martha for [the boys all to leave].
b. ?It would worry Martha for [the boys probably to leave].

- (23) a. ?It would worry Martha for [the boys probably all to leave].
 b. *It would worry Martha for [the boys all probably to leave].

It is not entirely felicitous for *probably* to occur in nonfinite clauses (as indicated by the judgment of (22b)), thus, the contrast between (23a) and (23b) is what is crucial here. Note that although (23a) is somewhat degraded, (23b) is significantly worse. This is similar to the facts in (21). Now, in both (21) and (23) *the boys* is in Spec,AgrSP, the expected position for subjects in English. One can therefore safely conclude that the appropriate ordering of elements is subject-*probably-all*. Now, Runner reasons, if raising is covert and the RtoO subject is in an embedded Spec,AgrSP at Spell-Out, it is predicted that the order subject-*all-probably-to* should be ungrammatical, just as in (23b). However, this order is indeed possible, as (24) illustrates.

- (24) John expects the boys all probably to have left.

Under Runner's analysis of the positions of *probably* and *all* in the tree structure (the details of which will not concern us here), the unanticipated ordering found in (24) can be accounted for if the RtoO subject moves overtly to Spec,AgrOP. This is because the quantifier *all* can reside in the Spec,AgrSP vacated by the RtoO subject, a position that precedes the adverb.

Of course, in order for the overt movement analysis to be correct, the verb must also move in the overt syntax to a position above Spec,AgrOP so that the tensed verb and the object stand in the appropriate order at Spell-Out. That is, if matrix AgrOP is outside the highest verbal projection and the Case of *the boys* is checked in Spec,AgrOP, then the verb will need to move overtly to a position above AgrOP, as in (25).

- (25) ... expects₂ [_{AgrOP} the boys₁ ... [_{VP} t₂ [t₁ to have left]]]

Failure of the verb to move overtly above matrix AgrOP in (24/25) would result in word order like that in (18), above. To accommodate this state of affairs, Runner, in his general analysis of objects in English, proposes that the tensed verb moves overtly to adjoin to a functional head that he designates as F, much in the spirit of Johnson (1991), who designates this undefined functional head μ . While Runner does not attach a particular name to this functional head (like Johnson, his primary focus is the syntax of the structures), he speculates that the functional head may be where inflectional aspect (e.g., perfective, non-perfective) may reside.

3. *RtoO/ECM and the (non-)finiteness of the complement clause*

Beginning with Rosenbaum 1967 and Postal 1974, linguists have taken contrary positions regarding the interaction of complement clause finiteness and RtoO structures. For Rosenbaum, a raising verb such as *believe* bears a lexical rule feature [+PR] (+ pronoun replacement) which obligatorily triggers raising in case an infinitival complement is selected. For Postal, on the other hand, it is the application of Raising which determines the non-finiteness of the complement clause (in English). It is, therefore, perfectly consistent with Postal's view for a language to have Raising out of finite clauses, and for Raising to be optional. This perspective led directly, from

the mid-1970s on, to the application of a raising analysis to constructions in which the complement clause is clearly a tensed CP (see Kuno 1976 on Japanese, Chung 1976 on Indonesian, Jake and Odden 1979 on Kipsigis, Seiter 1983 on Niuean). Example (26) illustrates this construction in Japanese, and (27) Indonesian.

- (26) Yamada wa Tanaka o baka da to omotteita. [Kuno 1976:(17b)]
TOP ACC fool is COMP thought
‘Yamada thought Tanaka to be a fool.’
- (27) Mereka anggap buku itu sudah di-baca oleh Ali. [Chung 1976:(38)]
they believe book that PERF PASS-read by A
‘They believe this book to have been read by Ali.’

The ECM analysis of RtoO structures in the GB/P&P model, like Rosenbaum, determined a structure that was deemed to be a consequence of a lexical feature on the matrix verb (S-bar erasure in this case) and the non-finiteness of the complement clause (which would fail to assign Case to its subject). Accordingly, ECM for GB/P&P (like Raising for Rosenbaum) ought not to be possible, in principle, into a finite complement clause. However, this did not deter people from trying to extend the ECM analysis to languages, such as Quechua (Cole and Hermon 1981, Lefebvre and Muysken 1988), Kipsigis, Fijian, and Niuean (Massam 1985), and Japanese (Kaneko 1988, Ueda 1988).

Probably the earliest systematic approach to these cases in the GB/Barriers framework was Massam 1985. In addition to containing finite complement clauses, the following properties distinguish these structures from ECM in English: (i) the ECM'd NP is not in the canonical subject position but may be outside the complementizer, (ii) the trace of the raised NP is in a Case-marked position, and (iii) in many languages it is not restricted to subjects. The Fijian example in (28) illustrates the first two of these properties: the pronoun *iko* precedes the complementizer *mo*, and its trace occupies the subject position of a finite clause where it would normally receive nominative Case.

- (28) Au a vinakati **iko**_i [mo mokuti Timoci t_i].
1SG PST want you COMP_[SUBJ.2SG] hit T
‘I wanted you to hit Timothy.’

To accommodate these properties within GB, Massam must propose some innovations. Every position in the embedded clauses is Case-marked, so movement and ECM cannot be motivated by the need for Case. What is more, since the trace of *iko* is in a Case-marked position, the Chain <*iko*_i, t_i> is more like an A'-Chain than an A-Chain. Thus, for these languages, Massam proposes movement to a second, higher SPEC position in the complement CP, which she labels SPEC2 (the normal, lower SPEC being reserved for *wh*-movement). Thus, (28) has the structure:

- (29) au a vinakati [_{CP} **iko**_i [_{CP} mo mokuti Timoci t_i]]

In (29), the D-structure subject of the complement clause *iko* ‘you’ has moved to SPEC2. Since the complementizer *mo* is not a governor, the matrix verb can govern *iko* and assign Case to it.

It may be that at least some of the assertions of RtoO/ECM with finite complements are incorrect. Close examination of the data in some Austronesian languages indicates that analogues of the Indonesian sentence in (27) are better analyzed as prolepsis. Arguing from language-particular morphological facts, interpretation of embedded idioms, productivity, and other grammatical characteristics, Davies (2001) demonstrates that the Madurese sentence in (30a) is best analyzed as in (30b), and thus parallels the proleptic object construction of the literal English translation.

- (30) a. Hasan ngera Siti ja’ melle montor.
 H AV.think S COMP AV.buy car
 ‘Hasan thinks Siti bought a car.’
 lit: ‘Hasan thinks about Siti that she bought a new car.’
 b. Hasan ngera Siti_i [_{CP} ja’ pro_i melle montor]

Whether or not the prolepsis analysis applies beyond Indonesian-type languages to other alleged instances of RtoO/ECM with finite complements is a possibility that must be explored.

Alongside these cases of apparently mis-analyzed “RtoO” constructions with tensed complements are cases in which RtoO might actually operate out of a tensed clause. Recall the Japanese RtoO construction cited above in (26). Like other cases discussed here, it involves a tensed complement clause with an overt complementizer. Further, as shown in (31) here, RtoO is optional. The subject of the complement clause can be marked with accusative Case, appropriate to a matrix direct object, or with nominative Case, appropriate to the surface subject of the embedded clause.

- (31) Yamada wa Tanaka ga/o baka da to omotteita.
 TOP NOM/ACC fool is COMP thought
 ‘Yamada thought Tanaka is/to be a fool.’

It is assumed in Kuno 1976 that (31) involves Raising when the embedded subject has accusative Case. Following Postal 1974, Kuno based his analysis on a familiar battery of diagnostics, which include (i) the possibility of inserting a main clause adverb between *Tanako o* and *baka da* (but not between *Tanako ga* and *baka da*), (ii) the possibility of scrambling *Tanako o* (but not *Tanako ga*) to the front of the main clause, (iii) quantifier scope evidence analogous to (10) above, and (iv) the fact that *Tanako o* cannot be replaced by a pronoun, *kare o* ‘him[acc]’, coreferential with the matrix subject due to a presumptive violation of Binding Condition B (but *Tanako ga* can be so replaced, indicating that it is inside the lower clause).

While noting that Japanese RtoO constructions involve a tensed complement clause and an overt complementizer, Kuno did not consider this a reason to reject an RtoO structure for it, finiteness being a possible but unnecessary property of the complement clause under his assumptions. However, as we have noted above, this property of Japanese RtoO (combined with the fact that “Raising” is optional) was highly problematic for a GB/P&P-type ECM approach to

the construction, and led some to propose alternatives. Marantz 1983 and Saito 1983 each propose an alternative in which the accusative nominal in (31) is base-generated outside of the complement clause. Marantz's analysis resembles Bach's (1977) proposal, apparently relying on semantic rules of interpretation to mediate the subjecthood of the accusative nominal relative to the embedded clause. Saito's analysis relies on the existence of an optionally (and usually) null pronoun in the lower clause, similar to the analysis of Madurese discussed above. Neither analysis got much traction as a viable alternative, though, since they failed to accommodate much of the critical data. As we shall see presently, the development of the MP not only opens the door to a reconsideration of Raising (in place of ECM), but also makes tensed CP less of an obstacle to a derivation than it had been.

Kuno 1976 finds Japanese RtoO constructions to be anomalous in one other very important way, one which does in fact call into question the Raising analysis for them. The embedded subject cannot undergo simple (as opposed to adversative) passivization. Consider example (32) which contrasts with the English data in (3) above.

- (32) a. *Sono hon wa Yamada ni tumaranai to omowareta.
 that book TOP DAT boring COMP was.thought
 ‘That book was thought by Yamada to be boring.’
 b. Yamada wa sono hon o tumaranai to omotta.
 TOP that book ACC boring COMP thought
 ‘Yamada thought that book to be boring.’

While *sono hon* might not be expected to passivize if it were inside the embedded clause and in a position where it would have been marked by nominative *ga*, (32a) should be grammatical with (32b) as its source, on the assumption that *sono hon* involves Raising into the matrix clause and that passivization of such a nominal is normally acceptable (which it is). The problem presented by (32) was addressed in a couple of ways. Some, including Marantz 1983, took issue with the facts and argued that passive of Japanese RtoO is possible (but that (32a) is ruled out for other reasons). Others, including Sells 1990, took (32) as evidence in support of the position that the purported RtoO nominal is in fact never raised out of the lower clause at all (at least not via A-movement).

All told, RtoO and ECM type analyses each have a particular set of problems. For the RtoO account, the leading confounds involve the question of how to account for A-movement across a CP boundary, and how to avoid double Case marking of the raised NP. For an ECM approach, there is the inverse issue of managing Case assignment across a CP boundary, as well as explaining the substantial evidence that the accusative nominal can indeed be outside the embedded clause. Only Sells 1990 approach avoids these problems, by proposing for data such as (32b) the lexical (embedded-clause internal) assignment of accusative Case to *sono hon*, and an object scrambling operation to account for cases in which the accusative embedded subject appears to be outside of the lower clause. Recent proposals by syntacticians working within the MP have faced these issues in disparate ways.

Some, such as Hiraiwa (2001), combine aspects of RtoO and ECM to achieve the desired effect. Hiraiwa separates movement (i.e., MOVE) from Case-checking, suggesting a separate

operation AGREE that suffices to check the accusative case of *sono hon* in (32b) within the embedded CP. In this regard, his account of accusative Case in (32b) is in the ECM tradition. He goes on to propose that accusative embedded subjects (such as *sono hon*) may also optionally undergo MOVE, thereby accounting for cases in which the underlying embedded subject is arguably outside of the embedded clause at Spell-Out. Here, his analysis appears to incorporate an overt RtoO component, and is reminiscent of Sells 1990.

Another approach, seen in Bruening (2001a, 2001b, 2002), involves positing multiple derivations to handle apparent cases of optionality. While Passamaquoddy data form the central focus of his analysis, Bruening claims to be able to account for a range of apparent RtoO structures in many languages, including Japanese. His account of RtoO constructions involves two distinct structures, shown here in (33). The derivation schematized in (33a) can be characterized as movement to Comp (Spec,CP), and the one schematized in (33b) involves movement from Comp.

- (33) a. [... V (NP) [CP NP_i [... t_i ...]]] Movement to Comp
 b. [... V (NP) NP_i [CP t_i [... pro_i ...]]] Movement from Comp

Bruening proposes the movement to Comp analysis for Passamaquoddy (and other languages) on the basis of the moved element being on the left edge of the clause and the fact that the trace of movement behaves as a bound variable. Movement from Comp is posited since the moved NP has no apparent thematic role in the matrix clause but must be in a sufficiently local position to be able to move into a matrix argument position. The structures in (33) are very similar to those proposed in Massam 1985 for Raising in Fijian (once the differences between the MP and the P&P model are factored into the comparison). Bruening applies this approach to Japanese RtoO constructions in the following way. For cases in which the accusative nominal appears to have remained in the embedded clause, Bruening proposes the “neo-ECM” analysis of (33a), in which the nominal moves from its initial IP/TP internal position into Spec,CP. To account for those instances in which the accusative nominal shows signs of being outside of the embedded clause, Bruening’s assumes a “neo-RtoO” structure like that given in (33b). There, the accusative nominal is base-generated in Spec,CP, binds a null *pro* in IP/TP, and moves into the matrix clause.

A third approach involves a reconsideration of the once-discrete categories of A and A' movement, and is favored by Tanaka (2002), who adopts a uniformly “neo-RtoO” analysis of the construction. Recalling Kuno’s arguments in favor of Raising and introducing some additional facts in its favor, Tanaka rejects optional movement in RtoO structures, taking issue with Hiraiwa’s and Bruening’s assertion that the accusative nominal may remain within the embedded clause. Proposing instead that RtoO constructions in Japanese all involve Raising, Tanaka asserts that A-movement goes through Spec,CP. In this he relies on Chomsky’s (1998, 1999) notion of “phase”, and treats Spec,CP as a generic “escape hatch” for movement. However, Tanaka must acknowledge that (without additional stipulations) Spec,CP is an A'-position, out of which A-movement ought to be prohibited. His proposed solution to this is that RtoO verbs lexically select a CP “whose head can license an A-position in its edge [that is, in Spec,CP]” (Tanaka 2002:651). In this respect, Tanaka’s solution is dependent on the sort of lexical diacritic

particular to raising verbs that was first proposed in Rosenbaum 1967.

To be fair to the several authors cited here above (as well as some others, such as Harada (2003), whose work we do not have the space here to comment on), each has endeavored and succeeded in some measure in extending the empirical domain that any treatment of Japanese RtoO must cover. At the same time, none of these analyses can explain all the important facts. Thus, while syntactic theory has substantially changed from the 1980s, recent theoretical innovations have not yet brought about a clear resolution to the problem of accounting for Japanese RtoO. There is evidence that the accusative nominal might be inside the embedded clause, as well as evidence that it is not. For instance, Landau (personal communication) suggests that the unacceptability of (32a) stems from the accusative nominal having raised into Spec,CP (which is the account provided in Landau 2002 for the unacceptability of **There was prevented from being a riot.*). Further, not only is Japanese RtoO restricted to a certain class of matrix Raising trigger verbs (as is the case in English), but it is also constrained by the lexical category and argument structure of the embedded predicate itself. This is noted in Sells 1990, wherein he shows that RtoO complement clauses are restricted to those headed by predicate nominals (such as *baka* ‘fool’ and *hannin* ‘culprit’) and that these predicate nominals are arguably unaccusative (that is, their single argument is underlyingly a direct object). The successful analysis will need to accommodate all these facts, regardless of the theoretical devices brought to bear.

4. *The unification/separation of Raising and Control*

As stated above, the traditional syntactic distinction between Raising and Control in much of generative grammar was based on a number of data points, including interpretation of passive complement clauses, assignment of thematic roles, selectional restrictions, pleonastic subjects, and interpretation of embedded idioms. For example, with raising predicates, sentences with embedded passive and active are truth conditionally equivalent; so, (34) and (35) are synonymous.

- (34) Barnett believed the doctor to have examined Tilman.
- (35) Barnett believed Tilman to have been examined by the doctor.

In contrast, with a matrix control predicate, the embedded passive and active are not synonymous. The state of affairs expressed in (36) is not the same as that expressed in (37).

- (36) Barnett persuaded the doctor to examine Tilman.
- (37) Barnett persuaded Tilman to be examined by the doctor.

In (36) the doctor must be persuaded, while in (37) Tilman must be persuaded. From at least Rosenbaum (1967) on, it was assumed that the base structure for object control includes both a matrix object and complement clause while that for RtoO the raising structure includes only a complement clause.

Not all working within the general generative tradition subscribed to a syntactic distinction between Raising and Control. Early analyses of Brame (1976), Bach (1977), and Bresnan (1978) take the position that the **syntactic** structures of RtoO and object control are identical, the apparent differences residing in semantic/interpretative rules. The structures include a matrix object and a subjectless VP (for Bresnan VP'), as in (38).

- (38) a. Barnett [_{VP} believed [_{NP} the doctor] [_{VP} to have examined Tilman]]
 b. Barnett [_{VP} persuaded [_{NP} the doctor] [_{VP} to examine Tilman]]

Semantic rules ensure that in (38a) *the doctor* is interpreted only as the agent of the predicate *examine*, while in (38b) *the doctor* is interpreted as both the agent of *examine* and the persuadee. It should be noted that the meaning postulates or interpretive rules required for (38a) versus (38b) are of a different type (as expounded in Bach 1997). To the extent that these rules differ, the analysis is only unified syntactically. This analysis has continued in Categorical Grammar (Jacobson 1992). Syntactic **and** interpretive unification is achieved in some descendants of this analysis—the so-called ‘structure sharing’ analyses of LFG (Bresnan 1982), Generalized Phrase Structure Grammar (Gazdar, Klein, Pullum and Sag 1985), and HPSG (Pollard and Sag 1994)—in which a single form occupies both a matrix and embedded position, the thematic roles being assigned to the positions in the usual way.

Within GB/P&P, such an analysis is not possible; Raising and Control must be kept distinct. This is due to the strictures of the Extended Projection Principle and Theta Theory. The EPP requires that all subcategorized positions be projected at D-structure, S-structure, and LF, and that a subject be projected in all clauses. According to Chomsky’s interpretation of Theta Theory, all complement positions are θ -positions. As we saw above, this forces the ECM analysis of RtoO, in which the ECM’d NP is subject of a complement clause. These principles also ensure that object control must have a distinct syntactic analysis. The type of structure sharing or VP analysis of LFG, HPSG, and Categorical Grammar is ruled out by the θ -Criterion: no argument can be assigned more than one θ -role. Additionally, the EPP requires that all clauses have a subject, and thus a D-structure subject. These principles determine the familiar object control analysis in (39), in which the matrix object is coindexed with PRO.

- (39) Barnett persuaded the doctor_i [PRO_i to examine Tilman]

The θ -roles of *persuade* and *examined* are all discharged and assigned to unique arguments, and the embedded clause has its required subject at all levels of representation.

The minimalist abandonment of ECM is an important theoretical step away from keeping the analyses of Raising and Control separate in that framework. With the Neo-RtoO account presented in Lasnik and Saito 1991, the infinitival subject in (34) *the doctor* is assumed to raise into a surface position outside the infinitival complement. Whether the movement of this category is overt (i.e., moved by Spell-Out) or covert is of little consequence, since at LF both (34) and (36) would have *the doctor* in a position outside the infinitive. In L&S’s Neo-RtoO account, the landing site for movement of *the doctor* in (34) is assumed to be Spec,AgrO. In (34) then, *the doctor* moves from a position inside the infinitival complement into Spec,AgrO of the

matrix clause. In (36), *the doctor* moves from the object position of the matrix verb *persuade* into Spec,AgrO of the matrix clause. The differences in the derivation of the pronoun in the two constructions, relative to the infinitival clause and its containing VP, is shown here in (40).

- (40) a. Neo-RtoO: [AgrOP the doctor₁ ... [VP ... [t₁ to have examined ...]]]
 b. Control: [AgrOP the doctor₁ ... [VP ... t₁ ... [PRO₁ to examine ...]]]

Here we see that, at LF at least, the difference between the two structures reduces to whether *the doctor* is coindexed with a single NP-trace (40a) or an NP-trace and a PRO (40b), and the difference between Raising and Control constructions now reduces to distinctions in the number and type of null categories involved in each structure. This state of affairs leads directly to proposals for doing away with the Raising/Control distinction.

Now if Raising and Control are to be unified, then there are two paths that one might take. Either Control is to be analyzed as a kind of Raising (that is, they both involve syntactic, e.g., movement, operations), or Raising should be analyzed as kind of Control (that is, they both involve interpretive, e.g., LF, computations). Hornstein 1999 takes the first path, rejecting the Theta Criterion (i.e., that part of it which prevent an argument from having more than one semantic role), and dispensing with PRO as a separate type of null category. He proposes instead that Control and Raising involve movement alone. In place of the PRO in (40b) would be another NP-trace as in (41b).

- (41) a. Neo-RtoO: [AgrOP the doctor₁ ... [VP ... [t₁ to have examined ...]]]
 b. “Control” as movement: [AgrOP the doctor₁ ... [VP ... t'₁ ... [t₁ to examine ...]]]

Under Hornstein’s account, *the doctor* enters the derivation as the subject of the infinitival clause in both Raising and Control structures. In the RtoO case, it moves directly to a functional projection, but in the Control case, it moves through the position labeled t'₁, picking up an extra semantic role along the way (n.b., (41b) actually involves MERGE and MOVE operations).

Culicover and Jackendoff (2001, C&J 2001) and Jackendoff and Culicover (2003, C&J 2003) take the second path and argue against Hornstein’s unified syntactic approach to Control and Raising. While approving of the elimination of formal syntactic devices (e.g., the Theta Criterion and PRO), C&J contend that the proposal doesn’t go far enough and that, like the non-derivational generative approaches of HPSG and LFG, it should “eliminate the binding relation in syntactic structure” altogether. Thus, while sympathetic to the idea that raising and control clauses have the same syntactic structure, they see no reason for any sort of movement operations or linked NP positions to derive the interpretation of either construction. The derivations in (41) would just as well be replaced by something like (42), which is much the same analysis proposed in Bach 1977.

- (42) a. [_{IP} Barnett [_{VP} believed [the doctor] [_{VP} to have examined Tilman]]]
 b. [_{IP} Barnett [_{VP} persuaded [the doctor] [_{VP} to examine Tilman]]]

According to C&J, both *believe* and *persuade* “project their subject argument downward into the

argument structure of the complement" VP, the difference between them resting on the fact that only the former assigns an independent theta role to its subject.

Alongside the C&J's proposals discussed above, one finds Manzini and Roussou 2000 (M&R) and Rooryck 2000, each of which offers a minimalist account of Control that appears to be a syntactic operationalization of a semantic account. M&R eschew overt movement of DP phrases, asserting the theoretical superiority of F(eature)-movement in contexts where A-movement has traditionally been assumed.

Boeckx and Hornstein 2003 (B&H) responds to C&J 2001, taking issue with their overall rejection of syntactically based accounts of Control. B&H challenge C&J's assessment of the *promise* class of control predicates (which violate the Minimal Distance Principle) and reject the conflation of control verbs and control nouns. While the Hornstein 1999 movement account of Control may ultimately not be the correct one, B&H insist that some syntactic account is to be preferred over a purely semantic/thematic analysis such as C&J propose.

Manzini and Roussou (2000) (M&R) propose an account in the spirit of these proposals. M&R's minimalist account of Control appears to be a syntactic operationalization of a semantic account (and thereby analogous to C&J's proposals). M&R eschew overt movement of DP phrases, asserting the theoretical superiority of F(eature)-movement in contexts where A-movement has traditionally been assumed.

But there is disagreement regarding the advisability of this merging of Raising and Control. In recent work, Rooryck (2000) examines the empirical contrasts between French and English raising and control constructions (building on observations in Ruwet 1982/1991), and points to the formal problems arising from trying to adapt an ECM account to minimalist assumptions. His analysis of Raising and Control proposes uniform (CP) complementation for both constructions and an "ECM-RtoO" derivation for the raising cases. Raising (but not Control) first involves movement of the entire embedded AgrSP complement into the Spec of its containing CP, as in (43), thereby permitting subsequent movement of the embedded subject to the matrix Spec, AgrOP.

(43) Barnett believed [_{CP} [_{AgrSP} the doctor to have examined Tilman]_i [C⁰ t_i]]

In contrast, Control is claimed not to have movement of AgrSP to Spec,CP.

In other work, Landau (2003) points to some potentially serious problems for this unification of Raising/Control derivations, arguing that such a merger is untenable. For example, he notes that Hornstein's "Control is movement" approach presents no obvious way to block the propagation of Control across a passive matrix verb (this having been pointed out previously in Brody 1999). Thus, (44a) with the control verb *hope* is ungrammatical in contrast with (44b) with the raising verb *expect*.

(44) a. *John was hoped to win the game. [= Landau 2003:(5a)]
 b. John was expected to win the game. [= Landau 2003:(6a)]

Hornstein's account of (44b) would have John moving directly from the embedded IP into the subject position of the matrix IP, skipping over the matrix VP since there is no theta role for it to

acquire there. This is shown here in (45).

(45) [IP John was [VP expected [IP John to [VP John win the game]

In principle, there is nothing to rule out the generation of (44a) on the same principles, with a derivation such as shown in (46).

(46) [IP John was [VP hoped [IP John to [VP John win the game]

While Hornstein 2000 presents a solution to this problem, Landau points out that it is supported by some rather dubious grammaticality judgements.

5. *Conclusions*

In assessing the current state of affairs vis-à-vis the grammar of Raising and Control, it is clear that a number of issues either remain to be adequately addressed, or remain to be resolved. First, assuming some sort of movement and given recent innovations in the MP, there are still questions as to the precise landing sites of the RtoO nominal and the tensed matrix verb. In English, overt movement of the derived OBJ in RtoO would be to the same landing site utilized by the simple object of a transitive main clause, presumably o the Spec of some phrase yP (no longer deemed to be AgrOP). Since the verb precedes the OBJ at Spell-out, the verb must also move overtly, presumably to the head of a higher phrase xP.

(47) a. I read the book.
 ... [XP read_i [YP the book_j [t_i t_j]]]
 b. I found the book to be interesting.
 ... [XP found_i [YP the book_j [t_i [t_j to be ...]]]]

Given Pollock's observations about French, the xP that houses the Spell-out version of the verb in English must be lower than that of French, and perhaps still within the verb phrase complex. This raises questions about landing sites, about the nature and distribution of functional projections, and about other issues.

Secondly, it is still unclear whether the application of a Raising rule is or is not linked to properties of the complement clause; whether the rule is optional or motivated; whether it is licensed or blocked by certain categories (e.g., CP, IP) or by certain features (e.g., tense); and whether it involves A movement, A-bar movement, or both. The prospective answers to these questions for the grammar of Raising and Control in English (and probably French as well) are confounded, as we saw in section 3, by potential RtoO constructions in languages such as Madurese and Japanese. Some of these cases (e.g., Madurese) may ultimately turn out not to be Raising at all, while others will arguably involve Raising or something like it (e.g., Japanese). The work that still needs to be done is to determine (i) which languages actually have a rule of raising, and (ii) how to account for the construction where it does exist in languages where Raising/Control do not correlate with infinitival complementation. There are clearly many

unresolved questions in this area.

Finally, there is the issue of whether Raising and Control can be merged, and whether they ought to be so. If they can and should be merged, are there reasons to support a semantic over a syntactic account (or vice versa)? And if they cannot and should not be merged, what is the correct formal description of the difference between them? Thus far, it would appear that the decision of whether to separate or merge one's account of Raising and Control, and whether to attribute their properties to syntactic or semantic components of the grammar is to some extent a matter of theoretical predisposition. However, it is fair to ask whether the answers to these questions turn entirely on theoretical predispositions, or whether there might be an empirical basis for determining, if not the best analysis of these, then at least what module of the grammar is involved and whether there is an independent basis for the Raising/Control distinction. Unified analyses of Raising and Control are principally concerned with accounting for the distribution of the controller or raisee (e.g., case, semantic role assignment, surface constituency, etc.). Ultimately, empirical considerations will need to play a greater role than theory-internal ones.

Acknowledgements

We wish to thank the following individuals for their helpful comments and suggestions: John Alderete, Lisa Cheng, Norbert Hornstein, and Idan Landau. Any remaining errors are the responsibility of the authors.

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Text: 8591 words
References: 2202 words
Total: 10,803 words