Antecedent-Contained Deletion and the Syntax of Quantification
Author(s): Christopher Kennedy
Source: *Linguistic Inquiry*, Vol. 28, No. 4 (Autumn, 1997), pp. 662-688
Published by: The MIT Press
Stable URL: http://www.jstor.org/stable/4178999
Accessed: 29/05/2009 11:00

Antecedent-Contained Deletion and the Syntax of Quantification

Christopher Kennedy

Hornstein (1994) proposes an account of antecedent-contained deletion that differs from previous analyses (e.g., Sag 1976, May 1985) in that it resolves the antecedent containment paradox manifested by the surface structure of these sentences through the syntactic principles governing Case assignment to arguments, rather than those involved in the interpretation of quantifiers. If this analysis is correct, one of the principal empirical arguments for the existence of a syntactic operation of Quantifier Raising (QR) disappears. In this article I reassess the evidence and show that the argument for QR remains. I conclude by discussing the implications of this result for the syntactic representation of quantification, setting the discussion in the context of Chomsky 1995.

Keywords: antecedent-contained deletion, Quantifier Raising, scope, Logical Form, ellipsis

1 Antecedent-Contained Deletion

1.1 The QR Account

Sentences involving antecedent-contained deletion (ACD), such as (1), have been of considerable interest to generative grammarians since they were first discussed by Bouton (1970).

(1) Kollberg recognized every suspect Beck did.

Because the elided VP is contained within the VP that serves as its antecedent, ACD poses an interesting problem for any theory that assumes that VP-deletion involves either deletion of an elided VP under identity with some antecedent or copying of an antecedent into the position of an elided VP. Either operation seems to entail that (1) has the structural representation shown in (2), which contains an infinitely large, and presumably uninterpretable, VP.

(2) Kollberg [$_{VP}$ recognized every suspect Beck did [$_{VP}$ recognized every suspect Beck did [$_{VP}$ recognized every suspect Beck did [$_{VP}$ . . .]]]]

The basic analysis of ACD within the Extended Standard Theory, proposed originally in Sag 1976 and developed in the principles-and-parameters framework in May 1985, Larson and May 1990, and Fiengo and May 1994, ties the resolution of ACD to the interpretation of quantifica-

This article was written while I was a member of the Linguistics Department at the University of California, Santa Cruz, which provided an ideal environment for conducting the research reported here. I am particularly grateful to Jim McCloskey, whose questions, suggestions, and observations contributed a great deal to the development of this work. I would also like to thank Norbert Hornstein, Howard Lasnik, Robert May, Jason Merchant, and two anonymous *LI* reviewers for very helpful comments on earlier versions of the article, as well as audiences at the University of California, Santa Cruz, and NELS 26. Any errors or inconsistencies that remain are my responsibility.

Linguistic Inquiry, Volume 28, Number 4, Fall 1997
662–688

tional phrases at a level of semantic representation.[1] In Sag 1976, VP-deletion is licensed just in case the logical representation of an elided VP is an alphabetic variant of the logical representation of some other VP in the discourse (modulo constraints on alphabetic variance; see Sag 1976: 104). Sag observes that the logical representation of a sentence like (1) is (3), in which the logical form of the deleted VP ($\lambda z.recognize(z,x)$), which contributes to the restriction of the universal quantifier introduced by the direct object, is external to the logical form of the matrix VP ($\lambda y.recognize(y,x)$), which provides the operator's nuclear scope.[2]

(3) $every_x$[suspect(x) & λz.recognize(z,x)(Beck)][λy.recognize(y,x)(Kollberg)]

Deletion of the embedded VP in (1) is licensed by (3) because its logical form is an alphabetic variant of the logical form of the matrix VP. Crucially, because the conditions licensing VP-deletion are stated in terms of the syntax of the logical representation in (3), the S-Structure containment relation in (1) is irrelevant.

May (1985) recasts Sag's analysis in terms of the syntax of Logical Form (LF), a syntactic level derived transformationally from S-Structure at which the semantic relations between constituents are transparently represented. A component of the mapping from S-Structure to LF is the operation of Quantifier Raising (QR), a type of Ā-movement that adjoins a quantificational constituent to a dominating node (typically IP or VP). In the case of ACD, QR generates structures in which the antecedent containment relation is eliminated, as illustrated by the LF representation of (1).

(4) $[_{IP}[_{DP}$ every suspect Beck did $[_{VP}$ e$]]_i$ $[_{IP}$ Kollberg $[_{VP}$ recognized $e_i]]]$

Because the quantificational DP *every suspect Beck did* has been raised to an adjoined position that dominates VP, the elided VP is not contained within its antecedent. The matrix VP may be copied into the position of the elided VP, deriving the well-formed LF representation (5), which accurately represents the meaning of (1): 'Kollberg recognized every suspect Beck recognized' (i.e., (5) maps directly onto an interpretation of (1) in a logical representation language such as (3)).[3]

(5) $[_{IP}[_{DP}$ every suspect Beck did $[_{VP}$ **recognized** $\mathbf{e_i}]]_i$ $[_{IP}$ Kollberg $[_{VP}$ recognized $e_i]]]$

A result of this analysis, which I will refer to as the *QR account*, is that ACD provides a

[1] Baltin (1987) proposes an alternative account of ACD in which antecedent containment is eliminated by extraposition of the relative clause containing the elided VP. See Larson and May 1990 for evidence that this account cannot be maintained (but also see Wilder 1995 for a reworking of some of Baltin's proposals).

[2] (3) is actually a notational variant of Sag's logical forms, which are stated in terms of unrestricted quantification.

[3] Alternatively, VP-deletion can be analyzed as an actual Phonetic Form (PF) deletion phenomenon, where deletion is licensed by identity at LF (in which case (5) is the representation that licenses the deletion in (1)). Whether the phenomenon generally referred to as "VP-deletion" involves deletion at PF or copying (or reconstruction, in the sense of Fiengo and May 1994) at LF is not a question I will address here; what is important is that both deletion and copy/reconstruction analyses share the assumption that VP-deletion is licensed by an identity relation that holds at LF. For expository ease, I will assume here that VP-deletion involves base generation of a null VP and copying or "recycling" of syntactic structure at LF (see Williams 1977, May 1985, Kitagawa 1991, Chung, Ladusaw, and McCloskey 1995), though nothing hinges on this assumption.

crucial piece of empirical evidence for a syntactic operation of QR. The function of QR is to generate a syntactic structure for every quantificational DP that can be straightforwardly mapped onto an interpretation involving restricted quantification. If LF directly represents the formal properties that ensure the proper interpretations of the expressions of the language, as argued in May 1991, then QR is semantically motivated precisely because nominal quantification in natural language is restricted. Nevertheless, since LF is a syntactic level and QR is a syntactic operation, it should also be possible to give a syntactic argument for its application. If the QR account is correct, then ACD provides this type of evidence. The basic argument is given in (6).

(6) *The argument for QR from ACD*
  a. VP-deletion is licensed by an identity relation that holds at LF.
  b. Only QR generates a well-formed LF representation that licenses ACD.
  ∴ If ACD, then QR.

1.2 The A-Movement Account

Hornstein (1994) proposes a novel account of ACD within the framework of the Minimalist Program (Chomsky 1993, 1995) that calls into question the soundness of the argument sketched in (6). Hornstein argues that ACD does not require movement of a quantificational phrase to an (adjoined) $\bar{A}$-position outside VP, but rather involves A-movement to a VP-external specifier position ([Spec, Agr_O]) (this approach is also advocated in Takahashi 1993 and discussed in Lasnik 1993). I will refer to this analysis as the *A-movement account*. The arguments in support of the A-movement account are of two kinds: theory-internal and empirical.

The primary argument of the first sort derives from Minimalist Program principles of economy and the Minimalist Program assumption that grammatical constraints are enforced only at the interface levels LF and PF. In order to account for examples like (7)–(8), which appear to provide solid evidence that Condition C applies at S-Structure, Chomsky (1993:25–26, 41) proposes that operators are moved to scopal positions at LF, but the constituents that introduce their restrictions remain in situ.[4] The result is that the LF representations of (7)–(8) are (9)–(10), which violate Condition C.[5]

(7) *Who said that he_i read how many articles about $John_i$?

(8) *He_i read most articles about $John_i$.

[4] This is a simplification of Chomsky's proposal, though it accurately describes the result. More precisely, the entire constituent undergoes QR, just as in the traditional account. The crucial difference is that movement is construed as a "copy and delete" operation. In the case of examples like (7) and (8), the restriction is deleted from the raised constituent while the operator is deleted from the base constituent, resulting in the LF representations (9) and (10).

[5] As observed by an anonymous *LI* reviewer, if only quantificational determiners are moved, some kind of interpretive procedure must be developed to ensure the proper interpretation of structures like (9) and (10) as restricted quantifications. As things stand, an LF representation like (10) maps onto an *unrestricted* quantification, which is problematic since not all natural language quantifiers can be given a semantics in terms of unrestricted quantification (see the discussion of this point in Barwise and Cooper 1981).

(9) [who_k how $many_j$] [e_k said that he_i read [e_j articles about $John_i$]]

(10) [$most_j$] [he_i read [e_j articles about $John_i$]]

Hornstein observes that these assumptions are incompatible with the QR account of ACD. If QR moves only the determiner of a quantificational argument, then the relative clause that contains the elided VP in an ACD configuration is dominated by the antecedent VP at LF, with the result that May's solution to the infinite regress problem is unavailable. Hornstein points out that a solution to this problem is built into the architecture of the Minimalist Program, however. Whereas LF Ā-movement may move only an operator, LF A-movement must move an entire DP. The only A-movement allowed at LF is movement to satisfy some featural requirement of a DP; one such requirement is that an argument DP check its Case features in the specifier of an appropriate functional head. If internal arguments must move to a VP-external [Spec, Agr] position at LF to satisfy Case requirements, the resulting configuration is one in which the DP containing the elided VP is no longer contained in the antecedent VP, eliminating the infinite regress configuration. According to this analysis, the LF representation of a typical sentence involving ACD is that shown in (11) (assuming the clause structure proposed in Chomsky 1993).[6] The elided VP (VP_2) is not contained in its antecedent (VP_1); therefore, the problem of infinite regress does not arise.

As empirical arguments for the A-movement account, Hornstein presents three kinds of data that bear on the question of whether ACD involves QR: examples in which the QR account predicts there to be more interpretations of ACD than are actually observed, examples in which there is a lack of parallelism between quantifier scope and ACD, and examples of apparent ACD that the QR account cannot explain. Since the first set of data provides some of the most compelling arguments for the A-movement account, I will limit my attention to this group.[7]

[6] Strictly speaking, (11) cannot represent the actual LF structure of an ACD configuration. The problem is that the direct object has moved past the trace of the VP-internal subject in [Spec, VP], in violation of Shortest Movement (Chomsky 1993). In order for the complement of V^0 to legally move past the subject trace and into [Spec, Agr_O], V^0 must first move to $Agr_O{}^0$, extending the domain of V^0. The result of this head movement is that [Spec, VP] and [Spec, Agr_O] are equidistant from the base position of the direct object; hence, movement into [Spec, Agr_O] does not violate Shortest Movement. The fact that V-movement must occur before movement of the direct object raises crucial questions for the A-movement account of ACD, because at the point in the derivation at which the antecedent containment relation is eliminated (after head movement), the VP is devoid of lexical content. It is therefore extremely important to precisely explain the interaction of head movement, A-movement, and the copying or identity relation that licenses VP-deletion. (One possibility is that head movement is a copy/delete operation, and that the resolution of ellipsis occurs after copying but before deletion.) Because the purpose of this article is to investigate the correlation between ACD and quantification, I will assume that this problem can be resolved (see Hornstein 1994:475–477 for some suggestions), and henceforth ignore it.

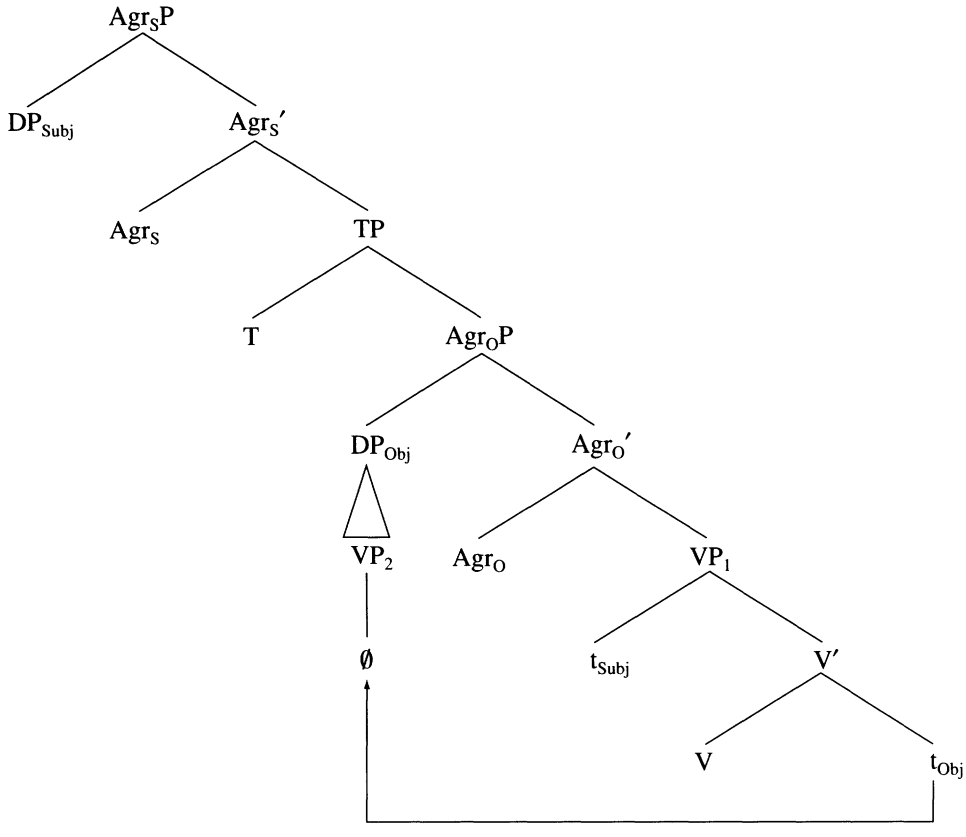
[7] Nonparallelism of ACD and quantifier scope is illustrated by (i) and (ii); here, the subject of a small clause cannot have inverse scope over a subject, yet ACD is licensed in this context.

(i) At least two senators consider every government program a waste of taxpayers' money.
(ii) At least two senators consider every government program Jones does a waste of taxpayers' money.

If the absence of an inverse scope reading in (i) indicates that small clause subjects cannot undergo QR to the matrix IP, then the acceptability of (ii) is unexpected in the QR account (in which ACD requires the DP *every government program Jones does* to undergo QR to IP), but not in the A-movement account, where the configuration that licenses ACD is generated by A-movement of the small clause subject to the [Spec, Agr_O] position in the matrix clause.

Two observations are relevant here. First, although inverse scope readings are generally unavailable in this context,

(11)



this restriction is not absolute. For example, (iii) has an interpretation in which majorities covary with proposals, and (iv) has a reading in which *each proposal* has scope over *at least ten senators*.

(iii) If a majority of representatives finds every proposal unacceptable, then I guess we'll be without a budget for a very long time.

(iv) If at least ten senators find each proposal reasonable, then I'll start to get optimistic.

Second, as pointed out by Hornstein (1994:fn. 18), the A-movement account has no explanation for the absence of an inverse scope interpretation. This fact does not reduce the success of the A-movement account in explaining the availability of ACD in an example like (ii), but it leaves open the possibility that the general unavailability of inverse scope is due to some factor other than a restriction on QR.

Examples that appear to show that the QR account undergenerates involve nonrestrictive relative clauses. Names are not quantificational and therefore should not undergo QR. ACD nevertheless seems to be licensed in nonrestrictive relatives.

(v) Kollberg suspects Petrus, who Beck does as well.

A number of researchers have argued that examples like (v) do not involve ACD, however. For example, Lasnik (1994) presents evidence suggesting that the deletion in (v) is a type of pseudogapping, and Fiengo and May (1994) argue that the nonrestrictive relative is not dominated by VP, but instead is a daughter of IP (see McCawley 1982, 1988; see also the discussion of these examples in Hornstein 1994:fn. 21). I will assume here that constructions such as (v) do not involve ACD and therefore do not constitute arguments against the QR account.

Three sets of facts show that an account of ACD that relies on unbounded Ā-movement overgenerates, predicting there to be more interpretations of ACD in certain contexts than are actually observed, whereas an account that relies on (bounded) A-movement explains the unavailability of these readings. The first set, which consists of sentences subject to what Hornstein designates the *Boundedness Restriction* on ACD, was originally noticed by Baltin (1987). Baltin showed that if multiple *wh*-questions are interpreted by a process of absorption (Higginbotham and May 1981) that requires that all non-D-linked (in the sense of Pesetsky 1987) *wh*-phrases occupy [Spec, CP] at LF, then the LF representation of a sentence like (12) should be (13).

(12) Who thought that Fred read how many books that Bill did?

(13) $[_{CP}$ who$_x$ [how many books that Bill did]$_y$ $[_{IP}$ e$_x$ thought that Fred read e$_y$]]

Baltin argues that since the elided VP in (12) is not contained in either the embedded or the matrix VP after movement, it should be possible to copy either one into the position of the elided VP, with the result that (12) should be ambiguous between a reading in which the matrix VP is copied and a reading in which the embedded VP is copied (I will refer to these two interpretations as the *matrix reading* and the *embedded reading*, respectively). (12) is not ambiguous, however: it has only an interpretation corresponding to (14a), in which the lower VP is copied, not an interpretation corresponding to (14b), which would be the result of copying the matrix VP.

(14) a. *Embedded reading* (available)
Who thought that Fred read how many books that Bill read?
b. *Matrix reading* (unavailable)
Who thought that Fred read how many books that Bill thought that Fred read?

The second type of overgeneration argument comes from the contrast between examples in which a deleted VP is contained in an exceptional Case-marking (ECM) subject (15) and examples in which it is contained in the subject of a finite embedded clause (16). Only the former type of sentence permits a matrix reading, as shown by the ungrammaticality of (16).

(15) Beck believes every suspect Kollberg does to be guilty.

(16) *Beck believes that every suspect Kollberg does is guilty.

This contrast is straightforwardly explained in the A-movement account if ECM subjects must move to the specifier of the matrix Agr$_O$P to satisfy Case requirements. This type of movement is impossible in (16); therefore, the deleted VP cannot escape antecedent containment, and the sentence is correctly predicted to be ungrammatical.[8]

The third set of facts involves "adjunct ACD": constructions in which a deleted VP is contained in a VP adjunct, as in (17).

[8] An embedded reading is unavailable for (16) because it would involve copying the lower VP, generating an LF representation that would be ill formed because the relative operator would not bind a variable.

(i) *Beck believes that [every suspect Op$_x$ Kollberg does **is guilty**] is guilty

(17) Kollberg worded his questions as carefully as Beck did.

The A-movement account distinguishes between arguments of V on the one hand, which must raise to the specifier of an agreement projection at LF, and VP adjuncts on the other, which do not need to check Case features and therefore do not raise. Since the position of an adjunct is fixed, the A-movement account predicts that an elided VP in an embedded adjunct should have only an embedded reading. Hornstein (1994) presents examples like (18) as verification of this prediction.

(18) Kollberg wanted to word every question as Beck did.

1.3 Outline of the Article

In the following sections I will examine the arguments for the A-movement account in detail, concentrating both on the facts presented in Hornstein 1994 as empirical evidence in favor of the A-movement account and on additional facts not discussed by Hornstein. The remainder of the article is divided into four sections.

First, I will take a closer look at the evidence for the A-movement account, focusing on the interaction of ACD and quantifier scope. I will show that consideration of a wide array of data indicates that the Boundedness Restriction is not as restrictive as Hornstein suggests, and I will present evidence involving quantifier scope and the interpretation of embedded ACD that argues in favor of the QR account. Next, I will investigate adjunct ACD, first demonstrating that matrix readings are possible in some contexts, and second showing that the A-movement account generates uninterpretable LF representations in other contexts. Finally, I will examine ACD constructions in which the elided VP is contained in a complement of N^0, a configuration that is predicted to be impossible by the A-movement account, but can be explained within the QR account. I will conclude by discussing the implications of these results for our understanding of the syntax of quantification, setting my observations in the context of Chomsky 1995.[9]

2 Embedded ACD, Restructuring, and Scope

2.1 Boundedness and Restructuring

A strong argument in favor of the A-movement account is that it provides a straightforward explanation of the Boundedness Restriction. Because the restriction of a *wh*-operator remains in situ at LF, the clause containing the elided VP in Baltin's example (12) must remain in [Spec, Agr_O] of the embedded CP, and only the lower VP is available as an antecedent.

It should be noted, however, that although examples like (12) pose a potential problem for

[9] I should note that my specific purpose in this article is to compare the account of ACD proposed in Hornstein 1994 only with an account that relies on QR. I will not discuss alternative analyses such as the interpretive accounts described in Jacobson 1992 and Dalrymple, Shieber, and Pereira 1991, or the "vehicle change"-based analyses proposed in Wyngaerd and Zwart 1991 and Brody 1995 (see Lasnik 1993 for discussion of some problems with a vehicle change analysis).

the QR account, a sentence like (19), which also permits only an embedded interpretation of the elided VP, does not.

(19) Larsson thought that Kollberg questioned every suspect Beck did.

The crucial difference between ACD in (12) and ACD in (19) is that (12) involves *wh*-in-situ, whereas (19) involves a quantificational DP, and the syntactic operations involved in generating the LF representations associated with these two types of constituents are not the same. The interpretation of *wh*-in-situ involves establishing a relation between the in situ *wh*-phrase and another *wh*-operator in a particular [Spec, CP] (see, e.g., Baker 1970, Higginbotham and May 1981, Huang 1982, Pesetsky 1987); in many cases, this relation exhibits the apparent unboundedness that is characteristic of overt *wh*-movement. The interpretation of a QP, on the other hand, involves adjunction to any appropriate maximal projection. It is well known that this operation is more constrained than other types of Ā-movement. Specifically, QR is subject to a *clause-boundedness* constraint: in the unmarked case, QR cannot raise a DP out of a finite clause (Farkas 1981). Note that this is a descriptive generalization: if QR is a type of Ā-movement, then it is not clear why this principle should hold.[10] That it does hold in the general case is a fact, though it remains possible that there are contexts in which it is violated.

For the purpose of this article, it is not necessary to explain why clause-boundedness holds. It is enough to point out that in the QR account of ACD, the Boundedness Restriction on examples like (19) is a consequence of the clause-boundedness of QR. Since the QP in (19) may adjoin to the embedded IP but no higher, the relative clause containing the elided VP remains contained in the matrix VP at LF, with the result that only the embedded VP is a possible antecedent. The absence of a matrix reading in (19) is therefore not an argument against the QR account of ACD; rather, it reflects a more general restriction on the operation of QR.

Clause-boundedness also explains the second type of boundedness effect discussed in section 1.2: the contrast between (15) and (16), repeated here.

(15) [$_{IP}$ Beck believes [$_{IP}$ every suspect Kollberg does to be guilty]]

(16) *[$_{IP}$ Beck believes that [$_{IP}$ every suspect Kollberg does is guilty]]

Although QR is bounded in finite clauses, it has been observed that nonfinite clauses are generally more porous, often permitting "long" QR (see the discussion in Larson and May 1990, for

[10] A number of recent proposals suggest potential explanations for the clause-boundedness effect, however. One possibility, suggested by Fox (1995b), is that QR is constrained by economy. If QR is driven by the need to generate a structure that permits the proper interpretation of a quantificational determiner, then economy dictates that the shortest move that would result in the appropriate structure should be preferred over other possible moves (this is a somewhat modified statement of Fox's basic idea; see section 5 of this article). In an example like (19), adjunction to the embedded IP satisfies the interpretive requirements of the quantificational determiner; therefore, additional movement is ruled out.

A very different type of explanation comes from the work of Beghelli and Stowell (1995), who posit distinct Ā-positions for quantificational expressions between Agr_SP and Agr_OP. In this type of analysis, general constraints on movement would force a QP to move to the first available landing site, which is presumably always in the same clause as the quantifier.

example; this point will be discussed in more detail below). If QR of the ECM subject to the matrix IP is possible in (15), but QR of the subject of the tensed embedded clause in (16) is restricted to adjunction to the embedded IP, then the contrast between (15) and (16) can be explained as another example of the role played by the clause-boundedness restriction on QR in controlling the interpretation of ACD.

If clause-boundedness is a restriction on QR, and if QR and LF *wh*-movement should be distinguished, as I have suggested, then Baltin's example (repeated here) seems to remain unaccounted for.

(12) Who thought that Fred read how many books that Bill did?

The basic principles of the Minimalist Program suggest a very plausible explanation of the unambiguous interpretation of this sentence, however. Assume that the in situ *wh*-phrase in an example like (12) must raise out of VP in order to resolve ACD (and, anticipating later discussion, assume that movement to [Spec, Agr_O] is insufficient). Since a relation with the *wh*-phrase in the matrix [Spec, CP] must ultimately be established, and because principles of locality require movement to the first available landing site, the specifier of the embedded CP is the optimal target of movement, generating (20).

(20) $[_{CP}$ who$_x$ e$_x$ thought $[_{CP}$[how many books that Bill did]$_y$ that Fred read e$_y$]]

At this point in the derivation, antecedent containment is resolved with respect to the embedded VP, licensing copying of the VP headed by *read* into the position of the elided VP. It is still necessary to establish the appropriate relation between the embedded *wh*-phrase and the matrix one. This could be accomplished either by moving the entire *wh*-phrase in the lower CP to the matrix (as in Higginbotham and May 1981) or by moving the *wh*-operator only (or the features associated with the operator; see Chomsky 1995). Since the latter operation is more economical, the former is not licensed. It follows that the restriction of the in situ *wh*-phrase moves no higher than the embedded CP, and the deleted VP remains contained in the matrix VP. The result is that only copying of the embedded VP is possible, and (12) has only an embedded reading. If this analysis is on the right track, and if Fox's (1995b) suggestions about the clause-boundedness effect are correct (see footnote 10), then the Boundedness Restriction on ACD in both QR and *wh*-in-situ contexts can ultimately be explained in terms of the same basic principle: economy.

Because it ties the resolution of ACD to the operations involved in interpreting quantificational constituents, and because these operations are constrained by general principles of the grammar (such as economy), the QR account makes the following prediction: there should be an observable parallelism between quantifier scope and the possible interpretations of ACD. Specifically, contexts that permit a wide scope interpretation of an embedded quantifier should also allow a matrix reading of embedded ACD. I will return to this issue in more detail in section 2.3; for the moment, examples (21) and (22), originally discussed in Larson and May 1990, provide initial verification of this prediction.

(21) At least one tourist wants to visit every city.

(22) Tim wants to visit every city Bill does.

(21) is clearly ambiguous between a reading in which the QP is construed as having narrow scope with respect to the indefinite subject of the matrix clause, and an inverse scope interpretation in which the QP has scope over the indefinite. (22), which is ambiguous between a reading in which the elided VP is headed by *visit* and one in which it is headed by *want*, shows that ACD in this context has both an embedded and a matrix interpretation.

Before moving to a more detailed discussion of the relation between ACD and scope, I should note that the ambiguity of (22) raises an important question for the A-movement account. If ACD is resolved through A-movement, then how does this sentence come to have a matrix reading? Constraints on A-movement should restrict movement of the constituent containing the deleted VP to the *embedded* [Spec, Agr_O], predicting that only the embedded reading is available.

Hornstein (1994) accounts for the ambiguity of examples like (22) by suggesting that the availability of a matrix reading in sentences of this sort does not indicate the work of unbounded QR; rather, it indicates that *want* is a "restructuring" verb (see Aissen and Perlmutter 1983, Rizzi 1978). Hornstein (1994:468), citing Roberts 1992, claims that the crucial aspect of restructuring is that it unifies "the domains of the embedded and restructuring verb into one complex," licensing local A-movement across sentential boundaries.[11] He cites additional examples of sentences in which the matrix VP is headed by a restructuring verb (23)–(24), which also exhibit both embedded and matrix readings, as evidence in favor of the proposal, as well as examples involving nonrestructuring verbs such as *expect, hope,* and *hate* (25), which do not permit a matrix reading of the embedded ACD.

(23) Which man has to read which book that you do?

(24) Which man started to sing which song that you did?

(25) Which student expects/hopes/hates to visit which city that you do?

Note that the characterization of *want, start,* and so on, as restructuring verbs does not argue against the QR account of ACD. In fact, it provides an explanation of the availability of both matrix readings of ACDs and wide scope interpretations of embedded QPs. If restructuring unifies the domains of an embedded verb and a matrix verb, in effect reformulating a biclausal sentence into a monoclausal one, then movement of a QP to either the matrix or embedded IP node is compatible with the general clause-boundedness restriction on QR. (26)–(27), which are parallel to (23)–(25), also permit wide scope readings of embedded QPs.

(26) At least one senator has to read every document.

(27) Two representatives started to sing every state song.

[11] Hornstein does not discuss the technical details of restructuring. Given the Minimalist Program principles of economy, in particular Shortest Movement, determining how restructuring results in domain unification and what the consequences are for the possibility/impossibility of extraclausal A-movement is nontrivial. As I will show that the basic argument that only restructuring verbs allow matrix readings of ACDs is not convincing, I will not attempt to work out the details of the analysis of restructuring at this time.

Thus, even if it were true that only restructuring verbs licensed matrix readings of ACDs, this fact alone would not distinguish between the QR and A-movement accounts of ACD.

This point should be emphasized. Assuming for the moment that the restructuring analysis of verbs such as *want* is correct, the basic empirical predictions of the A-movement and QR accounts of ACD with respect to the Boundedness Restriction are very similar. In constructions involving restructuring verbs, they are identical. Both analyses predict that matrix readings of ACDs should be unavailable whenever an elided VP is contained in a finite embedded clause, and both analyses predict that matrix readings should be available when the elided VP is contained in a nonfinite clausal complement of a restructuring verb. The differences between the two accounts can be teased apart, however, through careful consideration of a wide array of data. With respect to the interpretation of embedded ACD, two points of empirical difference can be distinguished. First, the A-movement account predicts that nonrestructuring contexts and nonrestructuring verbs should never allow matrix readings of embedded ACDs; the QR account does not make this prediction. Second, the QR account makes stronger predictions about the relation between ACD and scope, since ACD is dependent on QR. I will address these points in the following sections.

2.2 Matrix Readings in Nonrestructuring Contexts

As noted above, any context that forbids restructuring but licenses a matrix reading of an embedded ACD provides a direct argument against the A-movement account. Three sets of facts show that matrix readings of embedded ACD are available in nonrestructuring contexts.

First, as noted by Aissen and Perlmutter (1983:380) and Rizzi (1978:3–4), whenever an overt subject appears in the complement of a restructuring verb, restructuring is not licensed. The A-movement account incorrectly predicts that examples like (28)–(29), which contain embedded subjects, should only allow embedded readings ((28) is from Sag 1976). These examples have clear matrix readings, however.

(28) Betsy's father wants her to read every book her boss does. (*wants her to read*)

(29) Erik wants Polly to invest in the very same stock her broker does. (*wants her to invest in*)

Second, restructuring is blocked by multiple embeddings (Rizzi 1978:39–40). Matrix readings of embedded ACDs are fully available in these contexts, however.[12]

[12] Rizzi shows that restructuring in Italian is blocked by the sequence Aux-V_1-Aux-V_2, where V_1 is the restructuring verb and V_2 is the embedded verb, as shown by the failure of clitic movement in (ii). ((i)–(ii) are Rizzi's (150a–b).)

(i) A quest'ora, Mario avrebbe dovuto aver*lo* già finito, il suo lavoro.
'At this time, Mario would have had to have already finished *it*, his work.'

(ii) *A quest'ora, Mario *lo* avrebbe dovuto aver già finito, il suo lavoro.
'At this time, Mario *it* would have had to have already finished, his work.'

As pointed out by Norbert Hornstein (personal communication), (30)–(31)—not, for example, (iii) (which also allows a matrix reading)—constitute proper tests of whether multiple embeddings block matrix readings in English, because auxiliary verbs in Italian are underlyingly main verbs.

(iii) Willie was asked to be photographed in the same shower Frank was, but he declined.

(30) Now that we're both in therapy, Marie wants to start to make the same changes in lifestyle that I do. (*want to start to make*)

(31) When she started the program, Polly had to begin to learn every language Erik did. (*had to begin to learn*)

Finally, many nonrestructuring verbs permit matrix readings of ACD. Each of the following sets of examples contains sentences headed by nonrestructuring verbs; in each case, matrix readings of embedded ACD are available. These readings are marked in comparison to the embedded readings, but this is not unexpected in the QR account if QR is clause-bounded in the unmarked case. The important point is that if the A-movement account is correct, none of the following sentences should have matrix readings.

To begin, (32)–(34), in which the embedded *wh*-phrase is plural instead of singular, permit a matrix interpretation of the embedded ACD.[13]

(32) Which of your friends expects to visit which cities that you do?

(33) Which of your colleagues hopes to attend which conferences that you do?

(34) Which TA hates to read which homeworks that you do?

Examples (35)–(37), in which the context is particularly compatible with a matrix interpretation, also allow matrix readings.

(35) If you intend to read all of the articles Albert does, then you'd better get started now.

(36) If you don't like to work as much as Jorge does, then you probably shouldn't TA for him.

(37) Marena usually tries to get a paper accepted at most of the conferences Ted does.

[13] An *LI* reviewer raises an important question in conjunction with these examples: what triggers movement of the in situ *wh*-phrase to [Spec, CP]? As I will argue in section 5, QR of entire constituents is motivated by general principles governing the interpretation of quantificational determiners. This type of explanation cannot obviously be applied to *wh*-in-situ, which, as argued in Pesetsky 1987, can be interpreted without movement in the same way as unselectively bound indefinites (see Heim 1982).

What is different about QR and *wh*-movement, however, is that *wh*-movement is *feature driven* (although if Beghelli and Stowell's (1995) proposals are correct, then QR is also feature driven). It follows that LF movement of *wh*-in-situ to [Spec, CP] is *possible*, but not optimal, since economy favors derivations in which only the formal features of a constituent are moved over those in which the entire constituent is moved (Chomsky 1995). If reconstruction of a deleted VP is a necessary condition for convergence, however, then movement of *wh*-in-situ to [Spec, CP] in examples like (32)–(34) is not only possible, it is *optimal*. The argument runs as follows. If only the formal features of the *wh*-phrase move, while the constituent itself remains in place, then every step in the derivation that involves copying of the antecedent VP into the position of the elided one also copies the elided VP. Therefore, every derivation in which the *wh*-phrase does not move does not converge, either because it fails to reconstruct an elided VP or because it always reconstructs an elided VP and so is infinite. Since only convergent derivations are compared for economy, those in which the entire *wh*-phrase moves to [Spec, CP] are trivially more economical than those in which it does not. The remaining puzzle is why movement in these examples is not limited to the embedded [Spec, CP]; for now, I will assume that whatever licenses QR out of nonfinite clauses also licenses *wh*-movement to the matrix CP (see the discussion of clause-boundedness and Baltin's example (12) above).

When the lexical form of the auxiliary that governs the elided VP is more compatible with a matrix interpretation than with an embedded interpretation, the matrix reading is clearly available.

(38) The First Lady is required to answer every question the President is.

(39) The First Lady is obliged to attend every hearing the President is.

(40) The First Lady was asked to describe the same documents the President was.

The availability of matrix readings in (32)–(40) is unexpected in the A-movement account, because the DP containing the ACD should be able to move no farther than [Spec, Agr_OP] in the embedded clause. This account can be maintained only if all of the verbs in these examples can be analyzed as restructuring verbs. Ignoring for the moment the question of whether this would be empirically justified, as noted above, even if it were the case that these verbs could be analyzed in this way, this alone would not argue against the QR account.

2.3 Embedded ACD and Scope

The availability of matrix readings in (32)–(40) is expected in the QR account if we assume that although QR is in general clause-bounded, it can move quantified DPs out of nonfinite clauses (possibly as a marked option). Moreover, if it is true that nonfinite clauses permit long QR, then the QR account predicts there to be an observable parallelism between ACD interpretation and quantifier scope in these contexts. Specifically, wide scope interpretations of embedded quantifiers should be available in examples parallel to those that permit matrix readings of embedded ACD (see Larson and May 1990 and the discussion of this point in section 2.1). The sentences in (41)–(47) support this prediction. Each of these sentences has an interpretation in which the embedded quantifier has wide scope with respect to the indefinite subject of the matrix clause.[14]

(41) At least two American tour groups expect to visit every European country this year.

(42) Some agency intends to send aid to every Bosnian city this year.

(43) At least four recreational vehicles tried to stop at most AAA approved campsites this year.

(44) Some congressional aide asked to see every report.

(45) More than two government officials are obliged to attend every state dinner.

(46) A representative of each of the warring parties is required to sign every document.

(47) At least one White House official is expected to attend most of the hearings.

In contrast, the A-movement account makes no claims about (41)–(47), leaving the parallelism between these sentences and those discussed in the previous section to be explained in other ways.

[14] The availability of wide scope readings of QPs in some of these contexts is also discussed in Hornstein 1984:98.

A second argument for the QR account comes from a different set of scope facts. As noted originally by Sag (1976), the interpretation of embedded ACD affects the interpretation of the restriction of the quantifier that heads the constituent containing the elided VP. Whenever an ACD embedded under an intensional predicate has a matrix interpretation, the quantifier's restriction (which is partially provided by the deleted VP) must be interpreted *de re*, that is, outside the scope of the intensional predicate (see also Larson and May 1990 and Fiengo and May 1994 for discussion of this point). This fact is illustrated by (48), which has only the interpretation in (49a): 'Everyone Beck wants to answer these questions is such that Kollberg wants him to answer them'. The *de dicto* interpretation in (49b) is unavailable.

(48) Kollberg wants everyone Beck does to answer these questions.

(49) a. $every_x$[λy.want(y,ˆanswer(x,these questions))(Beck)] [λz.want(z,ˆanswer(x,these questions))(Kollberg)]

b. *want (Kollberg, ˆ$every_x$[λy.want (y, ˆanswer(x,these questions)) (Beck)] [answer(x, these questions)])

Interestingly, this restriction does not hold in examples that do not involve ACD.

(50) Kollberg wants everyone Beck wants to interrogate to answer these questions.

(50) is ambiguous between a reading corresponding to (49a), in which Kollberg's desire concerns particular individuals, and one corresponding to (49b), in which his desire concerns any individual who meets the requirements imposed by the restriction (that Beck wants to interrogate him).

If ECM subjects must move to the specifier of the matrix Agr_OP to receive Case, a general assumption in the Minimalist Program and one that is crucial to the A-movement account (see the discussion of (15) and (16) in section 1.2), then the fact that (50) is ambiguous means that the specifier of the agreement projection that immediately dominates the VP headed by *want* is within the scope of *want* at LF. But if ACD in (48) is resolved by movement of the ECM subject to this position, then the A-movement account incorrectly predicts that (48) should also permit a *de dicto* interpretation of the restriction of *every*. Under these assumptions, (48) and (50) are structurally identical at LF.

(51) a. $[_{IP}$ Kollberg $[_{Agr_OP}[_{DP}$ everyone Beck does $[_{VP}$ **wants** $[_{IP}$ **t_i to answer these questions**]]]$_i$ $[_{VP}$ wants $[_{IP}$ t_i to answer these questions]]]]

b. $[_{IP}$ Kollberg $[_{Agr_OP}[_{DP}$ everyone Beck wants to interrogate]$_i$ $[_{VP}$ wants $[_{IP}$ t_i to answer these questions]]]]

The QR account, on the other hand, can explain the absence of the *de dicto* interpretation in (48). In order to generate a structure that licenses ACD, the ECM subject must adjoin to the matrix IP, as shown in (52).

(52) $[_{IP}[_{DP}$ everyone Beck does]$_x$ $[_{IP}$ Kollberg $[_{VP}$ wants $[_{IP}$ t_x to answer these questions]]]]

Adjunction to IP moves the DP that contains the elided VP out of the scope of *want*; therefore, only the *de re* reading of the restriction of *every* is available.[15]

3 Adjunct ACD

3.1 Matrix Readings in Adjunct ACDs

As noted in section 1.2, the A-movement analysis predicts that an ACD contained in a constituent adjoined to an embedded VP should only have an embedded reading, not a matrix reading. Hornstein (1994) presents examples like (18) (repeated here) as evidence in support of this prediction.

(18) Kollberg wanted to word every question as Beck did.

The structure of (18) is shown in (53). Because the manner phrase is an adjunct and does not have to check Case features, it cannot move from its base position in the embedded clause, despite the fact that *want* is a restructuring verb.

(53) $[_{IP}$ Kollberg $[_{VP}$ wanted $[_{IP}$ PRO to $[_{VP}[_{VP}$ word every question$]$ $[_{PP}$ as Beck did$]]]]]$

[15] It should be noted that the implication is one way: a matrix interpretation of embedded ACD forces a *de re* interpretation of the restriction, but a *de re* restriction does not necessarily force a matrix interpretation of the deleted VP. This point is illustrated by (i), noted by Norbert Hornstein (personal communication).

(i) John believed that Bill had seen a certain film that I did.

The favored interpretation of the indefinite *a certain film that I did* is *de re*, but this sentence does not permit a matrix reading of the embedded VP: (i) can be interpreted only as (ii), not as (iii).

(ii) John believed that Bill had seen a certain film that I saw.

(iii) *John believed that Bill had seen a certain film that I believed that Bill had seen.

The following example makes a similar point:

(iv) An editorial implied that Beck arrested none of the men he (actually) did.

This sentence is ambiguous between a "sensible" reading, in which the editorial implies that Beck arrested none of a certain group of men whom we know to be the men he actually arrested, and a "contradictory" reading in which the implication is that none of the men Beck arrested are such that he arrested them (see Hasegawa 1972, Postal 1974, and Kennedy 1996 for different analyses of this ambiguity). The sensible reading is derived when the restriction of the quantifier *none* is interpreted outside the scope of *imply*, and the contradictory reading when it is interpreted inside the scope of *imply*. Nevertheless, even on the sensible reading of (iv), the quantifier *none* cannot take scope over the indefinite subject *an editorial*, nor can the elided VP have a matrix interpretation.

The puzzle presented by these examples is how to reconcile the possibility of a *de re* interpretation of the indefinite in (i) and of the restriction of the quantifier in (iv) with the hypothesis that QR is clause-bounded, a claim that is supported both by the impossibility of matrix interpretations of the elided VPs and by the absence of a wide scope interpretation of *none* in (iv). A number of recent proposals, made independently to account for the apparent unboundedness of the scope of indefinites and related expressions, provide several options for solving this puzzle (see, e.g., Abusch 1994, Farkas 1993, 1995, Fodor and Sag 1981, Kennedy 1995, 1996, Kratzer 1995, and Reinhart 1995). What these approaches have in common is that the interpretation of an expression that restricts the value of a variable (i.e., an indefinite or the restriction of a quantifier) may be determined by factors other than its structural position at LF (such as indexical dependencies, as in Farkas 1993, 1995, or choice functions, as in Reinhart 1995 and Kratzer 1995). It is not the purpose of this article to argue for one of these approaches over the other; what is important is that they provide a means of generating a *de re* interpretation for the indefinite in (i) and the restriction in (iv) without abandoning the assumption that QR is clause-bounded.

The fact that (18) does not exhibit a matrix reading is not an argument against the QR account, however. The phrase that contributes the manner argument of *word* in (18) is not quantificational and thus is not the type of constituent that would normally undergo QR. As shown by (54)–(55), in contexts in which the elided VP is contained in a quantificational adjunct, the matrix reading becomes available.

(54) Jones says he wants to word the proposal in the same way I do, but I'm not sure that I can trust him to do so.

(55) Tim likes to perform in the same clubs that Bill does.

The elided VP in these sentences is contained in an adjunct of the form *the same N . . . ,* a construction that has already been shown to be particularly amenable to ACD. Both examples have readings in which the elided VP receives its interpretation from a higher VP (*want* in (54) and *like* in (55)), contrary to the predictions of the A-movement account.

The availability of these readings is expected in the QR account, because QR moves any quantificational constituent to an adjoined position, regardless of whether it is an argument or an adjunct. A possible LF representation of (55) is (56), in which the QP has adjoined to the matrix IP, licensing copying of either the embedded or the matrix VP.

(56) $[_{IP}[_{DP}$ the same clubs that Bill does$]_i$ $[_{IP}$ Tim $[_{VP}$ likes $[_{IP}$ to $[_{VP}[_{VP}$ perform$]$ $[_{PP}$ in $e_i]]]]]]$

The A-movement account, however, incorrectly predicts the matrix reading to be unavailable in these examples, because the constituent containing the ACD should not be able to move from its base position adjoined to the embedded VP to a position outside the matrix VP.

3.2 Adjunct ACD and Full Interpretation

(57) illustrates an important point: in the A-movement account, "adjunct ACD" is actually not ACD at all, because the elided VP is not contained in its antecedent (the lower segment of the adjunction structure).

(57) Tim has $[_{VP}[_{VP}$ performed$]$ $[_{PP}$ in every club Bill has$]]$

Hornstein (1994:471) suggests that elided VPs in adjuncts such as the locative phrase in (57) are interpreted without movement of the containing constituent, simply by copying the lower VP into the position of the elided one. Applying this operation to (57) gives (58).

(58) Tim has $[_{VP}[_{VP}$ performed$]$ $[_{PP}$ in every club $[_{CP}$ Op_i Bill has $[_{VP}$ **performed**$]]]]$

(58) is not a well-formed LF representation, however, because the relative operator associated with the relative clause *every club Bill has* does not bind a variable. That is, (58) is an instance of vacuous quantification (see Koopman and Sportiche 1982).

The basic problem for the A-movement account is that in order to generate a well-formed LF representation for examples of adjunct ACD, it is necessary to introduce a syntactic position that provides a variable for the relative operator to bind. The basic machinery of the A-movement

account does not accomplish this, with the result that structures of this type are incorrectly predicted to be ungrammatical.[16] In order to explain adjunct ACD, some additional machinery is needed.

The most promising solution to this problem—but one that ultimately fails—comes from Chung, Ladusaw, and McCloskey's (1995) work on sluicing (Ross 1969). If Chung, Ladusaw and McCloskey's analysis of sluicing is correct, then the grammar includes an operation whose function is to introduce into LF a position that provides a variable for an operator to bind. This operation, which Chung, Ladusaw, and McCloskey (1995:246) refer to as *sprouting*, is a very general structure-building operation that is "subject only to the constraints of X-bar theory and the requirement that the structures created be licensed by the appropriate properties of the elements in the LF." Sprouting explains the grammaticality of examples like (59), in which the antecedent of the sluice does not include a syntactic position for the *wh*-operator to bind.

(59) Joan ate dinner, but I don't know with whom.

In Chung, Ladusaw, and McCloskey's analysis, a sluice is interpreted by first copying an IP into the position following the stranded *wh*-phrase in the surface form. The postcopy LF representation of (59) is (60), which, like (58), appears to be an ill-formed instance of vacuous quantification.

(60) . . . but $[_{IP}$ I don't know $[_{CP}$ with whom $[_{IP}$ **Joan ate dinner**]]]

The effect of sprouting is to introduce into a structure like (60) a variable for the operator to bind. Because the argument structure of the verb *eat* is compatible with a comitative adjunct, an appropriate syntactic position can be sprouted and a variable of the right type introduced, as in (61).

(61) . . . but $[_{IP}$ I don't know $[_{CP}$ with whom$_x$ $[_{IP}$ **Joan** $[_{VP}[_{VP}$ **ate dinner**] $[_{PP}$ **e**$_x$]]]]]

Sprouting is constrained by a number of factors. First, sprouted material must be compatible with the licensing properties of the material already contained in the recycled IP. Second, although sprouting can introduce syntactic structure, it cannot introduce lexical material. Consider, for example, (62).

(62) The governor was speaking with reporters, but I don't know $\left\{\begin{array}{l}[_{PP}\text{ what about}]\\ [_{PP}\text{ about what}]\\ *[_{DP}\text{ what}]\end{array}\right\}$.

The fact that the third option in (62) is ungrammatical indicates that although a PP can be sprouted (providing appropriate LF representations for the first two options), a PP with a head filled by a lexical item (i.e., $[_{PP}$ **about e**]) cannot. The impossibility of this kind of sprouting can be interpreted as an aspect of a more general constraint prohibiting LF operations from selecting items from the lexicon (see Chomsky 1993:22).

At first glance, sprouting appears to be exactly the type of operation needed to augment the A-movement account in order to explain adjunct ACD. Moreover, if sprouting is a generally

[16] This problem is observed independently by Lasnik (1994) and Brody (1995).

available LF operation, then it should be an option in elliptical processes (in the sense of Sag and Hankamer 1984) other than sluicing, such as VP-deletion. But what kind of sprouting operation would be required in order to build the necessary LF representation for (57)? There are two options. A bare PP can be sprouted, as in (61), to generate (63).

(63) Tim has $[_{VP}[_{VP}$ performed$]$ $[_{PP}$ in every club $[_{CP}$ Op_i Bill has $\mathbf{[_{VP}[_{VP}}$ **performed**$\mathbf{]}$ $\mathbf{[_{PP}}$ $\mathbf{e_i]]]]]}$

This would be unusual, however, considering that null operators cannot in general bind bare PPs, as shown by (64) (cf. *Tim has performed in every club Bill has performed in*).[17]

(64) *Tim has performed in every club Bill has performed.

Assuming that (63) is ruled out for the same reason (64) is, in order for the A-movement account to generate the correct LF representation for (57), sprouting must introduce lexical material into an LF representation, namely, the preposition that heads the adjunct. This would permit generation of (65), which correctly represents the meaning of (57).

(65) Tim has $[_{VP}[_{VP}$ performed$]$ $[_{PP}$ in every club Op_i Bill has $\mathbf{[_{VP}[_{VP}}$ **performed**$\mathbf{]}$ $\mathbf{[_{PP}}$ **in** $\mathbf{e_i]]]]}$

We thus arrive at a contradiction. As pointed out by Chung, Ladusaw, and McCloskey (1995), it is necessary to assume that sprouting *cannot* introduce lexical material into an LF representation. This constraint is supported both on empirical grounds (by examples like (62)) and on theoretical grounds (see the discussion in Chomsky 1993:22). In order to generate an appropriate LF representation for (57), however, the A-movement account would be forced to abandon this assumption.

In the QR account, adjunct ACD is no different from "argument" ACD: a well-formed LF representation for an example like (57) is generated in the standard way. First QR adjoins the QP to IP, deriving (66).

(66) $[_{IP}[_{DP}$ every club Op_i Bill has$]_i$ $[_{IP}$ Tim has $[_{VP}[_{VP}$ performed$]$ $[_{PP}$ in $e_i]]]]$

The maximal VP may then be copied into the position of the elided VP, generating (67), a well-formed LF representation that accurately represents the meaning of (57).

(67) $[_{IP}[_{DP}$ every club Op_i Bill has $[_{VP}[_{VP}$ performed$]$ $[_{PP}$ in $e_i]]]_i$ $[_{IP}$ Tim has $\mathbf{[_{VP}[_{VP}}$ **performed**$\mathbf{]}$ $\mathbf{[_{PP}}$ **in** $\mathbf{e_i]]]]}$

4 NP-Contained ACD

Sentences involving "NP-contained ACD," such as (68)–(70), in which a deleted VP is contained in a prepositional complement of N^0, are extremely problematic for the A-movement account.

[17] Note that the ungrammaticality of (64) also argues against an analysis of adjunct ACD in which a null PP is base-generated, as in (i).

(i) Tim has $[_{VP}[_{VP}$ performed$]$ $[_{PP}$ in every club $[_{CP}$ Op_i Bill has $\mathbf{[_{VP}}$ **performed**$\mathbf{]}$ $[_{PP}$ $e_i]]]]$

If (i) were a possible structure, then (64) should be perfectly grammatical.

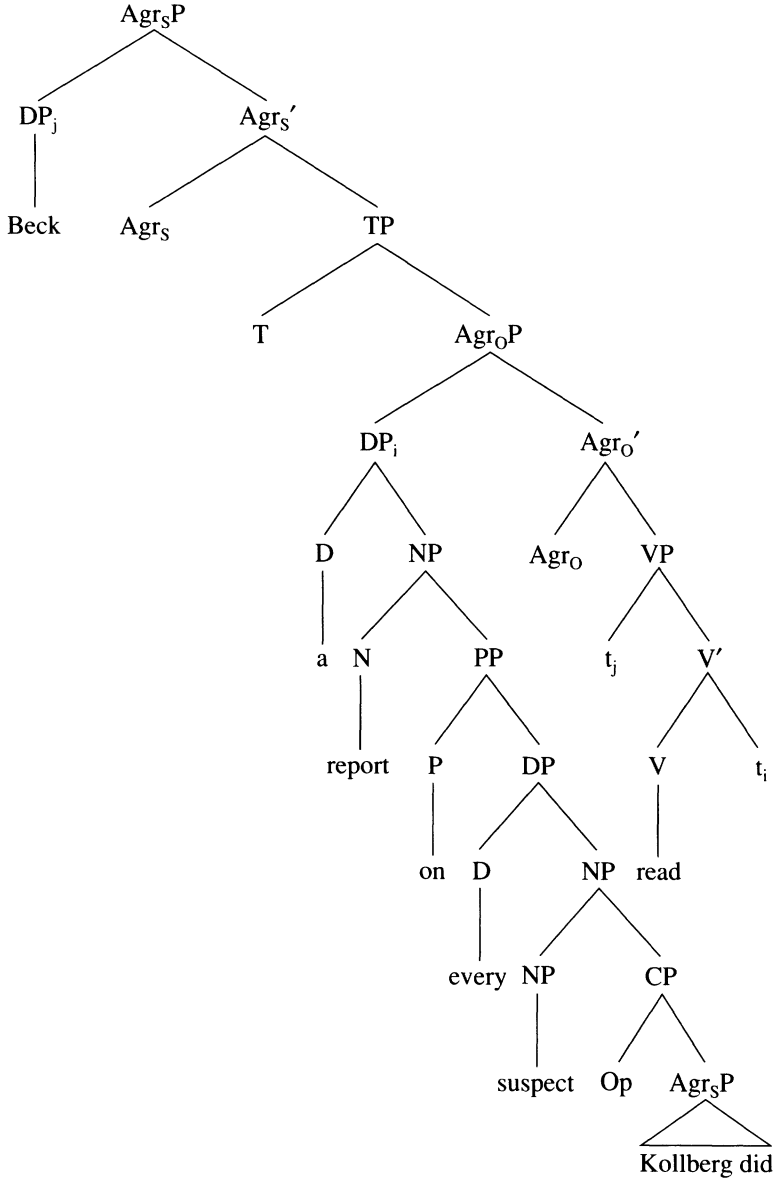
(68) Beck read a report on every suspect Kollberg did.

(69) Melander requested copies of most of the tapes Larsson did.

(70) Kollberg took pictures of the same people Beck did.

Consider the derivation of (68) in the A-movement account. At LF the direct object *a report on every suspect Kollberg did* must move to [Spec, Agr_OP] to check Case features. After movement (68) has the structure shown in (71).

(71)



Copying the antecedent VP into the position of the elided one generates (72), which has the interpretation in (73).

(72) Beck $[_{Agr_OP}[_{DP}$ a report on every suspect Kollberg $[_{VP}$ **read** $\mathbf{t_i}]]_i$ $[_{VP}$ read $t_i]]$

(73) Beck read a report on every suspect Kollberg read.

(73) does not correspond to the actual meaning of (68), however. (68)–(70) have the interpretations in (74)–(76), in which the elided VP is replaced not by a constituent of the form $[_{VP}$ V e], where the empty category *e* bound by the relative operator is the direct object of the verb, as in (72), but by a constituent of the form $[_{VP}$ V $[_{DP}$ . . . N $[_{PP}$ P e]]], where DP is the direct object of the verb and *e* is an argument of the noun that heads the direct object.

(74) Beck read a report on every suspect Kollberg read a report on.

(75) Melander requested copies of most of the tapes Larsson requested copies of.

(76) Kollberg took pictures of the same people Beck took pictures of.

The problem that NP-contained ACD presents for the A-movement account is that there is no way to generate LF representations for sentences of this type that have interpretations corresponding to their actual meanings. Unlike normal cases of ACD, NP-contained ACD requires an antecedent that includes both the verb and its internal argument (with a variable in place of the embedded quantificational DP). The only constituent in (71) that meets this description is Agr_OP. But even if we allow for the possibility of "Agr_OP-deletion," NP-contained ACD cannot be properly resolved: since Agr_OP also contains the deleted VP, it cannot be copied into this position without triggering an infinite regress. The result is that in the A-movement account, there is no stage in the derivation of sentences like (68)–(70) at which a constituent of the sort necessary to provide the interpretation of the elided VP is available for copying.

NP-contained ACD is not just a problem for the A-movement account of ACD; it is a general problem for the Minimalist Program assumption that the restriction of a quantificational determiner does not participate in QR. In order to properly interpret NP-contained ACD, it is necessary to generate a structure in which the elided VP is external both to the predicative constituent that serves as its antecedent and to the argument that contains it at Spell-Out. If QR moves only an operator, however, there is no way to generate an LF representation that satisfies both of these conditions. Such a structure can be generated only by extracting the entire embedded QP out of VP (or Agr_OP), leaving the internal argument behind.

The derivation of (68) in the QR account illustrates this point.[18] First, the embedded quantificational constituent moves to an IP-adjoined position.

(77) $[_{IP}[_{DP}$ every suspect Kollberg did$]_i$ $[_{IP}$ Beck $[_{VP}$ read $[_{DP}$ a $[_{NP}$ report $[_{PP}$ on $e_i]]]]]]]$

After QR the deleted VP is external to its antecedent. In addition, QR has the effect of replacing

[18] For simplicity, I leave the direct object in its base position. The analysis is the same if the direct object has moved to [Spec, Agr_OP], with the exception that Agr_OP must be the constituent that licenses VP-deletion in examples of this type.

the embedded QP with an empty category, deriving a structure of the form [$_{VP}$ V [$_{DP}$ . . . N [$_{PP}$ P e]]]. Copying the antecedent VP into the position of the elided VP generates (78), which accurately represents the interpretation of (68).

(78) [$_{IP}$[$_{DP}$ every suspect Kollberg **[$_{VP}$ read [$_{DP}$ a [$_{NP}$ report [$_{PP}$ on e$_i$]]]]]]$_i$ [$_{IP}$ Beck [$_{VP}$ read [$_{DP}$ a [$_{NP}$ report [$_{PP}$ on e$_i$]]]]]]

Note that it is crucial to the QR account that the internal argument of the verb remain within VP at LF (or within Agr$_O$P, if this is the locus of deletion). As observed by an anonymous *LI* reviewer, if the indefinite DP *a report on* e_i in (77) must also undergo QR and adjoin to IP, then the QR account predicts that NP-contained ACD structures should have LF representations that, like the ones generated by the A-movement account, do not include a VP constituent of the sort necessary to provide the correct interpretation of the elided VP. This is illustrated by (79), which shows that if the indefinite is raised, the only constituent available for copying is the VP *read* e_j, generating an LF structure that does not represent the actual interpretation of (68).

(79) [$_{IP}$[$_{DP}$ every suspect Kollberg **[$_{VP}$ read e$_j$]]**$_i$ [$_{IP}$[$_{DP}$ a [$_{NP}$ report [$_{PP}$ on e$_i$]]]]$_j$ [$_{IP}$ Beck [$_{VP}$ read e$_j$]]]]

A solution to this problem comes from the work of Diesing (1992). Diesing provides a number of arguments (including data from ACD; see Diesing 1992:71) that presuppositional indefinites and strong quantifiers are treated differently from weak indefinites at LF. Whereas presuppositional indefinites and strong quantifiers are interpreted as generalized quantifiers and must undergo QR, weak indefinites remain inside VP, where they are interpreted as restrictions on variables bound by existential closure (see Heim 1982). If Diesing's proposals are correct, then (68)–(70) have LF representations in which the containing argument remains within VP, with the result that a constituent of the type required to properly interpret the elided VP is available for copying after the embedded quantificational constituent has undergone QR.

This approach predicts that examples of NP-contained ACD in which the containing argument is a weak indefinite should contrast with examples in which the containing argument is quantificational, since the latter should have LF representations in which both the embedded quantificational constituent and the internal argument of the verb must undergo QR, as in (79). (80)–(82) show that this is indeed the case: examples of NP-contained ACD in which the containing argument is quantificational are ill formed.[19]

[19] This contrast extends to presuppositional indefinites: if the containing arguments in (68)–(70) are interpreted presuppositionally, the examples are as unacceptable as (80)–(82). Note that the problem is not simply one of generating the wrong interpretation. (81), for example, does not mean that 'Melander requested every copy of most of the tapes Larsson requested', which is what we might expect if its LF representation were as in (79). Rather, it is simply ungrammatical. Why ACD is impossible in this context remains an open question, though a number of theories of ellipsis include mechanisms that make the correct predictions. In Sag 1976, for example, (80)–(82) are ruled out because the logical forms of the elliptically related VPs contain variables bound by distinct operators and therefore are not alphabetic variants. Of course, the question then becomes, why is this type of variable binding impossible in the context of VP-deletion? See Kennedy 1994 for discussion of this issue.

(80) *Beck read most reports on every suspect Kollberg did.

(81) *Melander requested every copy of most of the tapes Larsson did.

(82) *Kollberg took no pictures of the same people Beck did.

Two final pieces of evidence for QR in NP-contained ACD come from facts that indicate a clear parallelism between overt Ā-movement out of DP and NP-contained ACD. First, as observed by Postal (1974:406) (who was the first to discuss sentences of this type, though in a different context), NP-contained ACD shows specificity effects. As illustrated by the contrast between (83) and (84), overt Ā-movement out of DP is impossible when the DP is definite. Since QR is a type of Ā-movement, it should also be sensitive to specificity, and NP-contained ACD should be ungrammatical when the containing DP is definite. (86) verifies this prediction.[20]

(83) Which orgy did Jill buy a picture of?

(84) *Which orgy did Jill buy Melvin's/that picture of?

(85) Jill bought a picture of the same orgy Arthur did.

(86) *Jill bought that picture of the same orgy Arthur did.

Second, Norbert Hornstein (personal communication) points out that NP-contained ACD is sensitive to the lexical items involved—both the verb (87) and the direct object (88).

(87) *Oliver destroyed copies of every report William did.

(88) *James met a student of every subject I did.

(89) and (90) show that overt Ā-movement is also ungrammatical in these contexts (see Chomsky 1977, Bach and Horn 1976).

(89) *Which reports did Oliver destroy copies of?

(90) *Which subject did James meet a student of?

Although it is unclear what blocks extraction out of DP in (87)–(90), the fact that both *wh*-movement and ACD are impossible in the same contexts supports the position that some type of Ā-movement is involved in NP-contained ACD.

To summarize, the facts discussed in this section lead to the following conclusion. In order to generate an LF structure that accurately represents the interpretation of NP-contained ACD, it is necessary to extract the entire DP containing the deleted VP from the internal object and to

[20] Note that the unacceptability of (86) cannot be explained as a semantic anomaly triggered by the demonstrative, since *that picture* can be used to refer not only to a particular token (in which case (86) would make the unusual claim that Jill and Arthur bought the same object), but also to an abstract object that may have more than one physical instantiation, as in (i).

(i) [Pointing at a picture on the front page of the *San Francisco Chronicle* of former mayor Frank Jordan naked in a shower with two disc jockeys.]
"By now, half the city has seen *that picture*."

Even on the latter reading, (86) is unacceptable. I am grateful to Marcel den Dikken for bringing this issue to my attention.

target a constituent that includes both the verb and the direct object as antecedent of the deleted VP. Given Minimalist Program assumptions about Case assignment, which restrict movement to agreement projections to arguments, QR is the only means of achieving this result.

5 The Syntax of Quantification

Chomsky (1995) proposes a radical revision of the theory of LF Case assignment to arguments. Chomsky points out that principles of economy dictate that the optimal derivation is one in which movement is minimized. Since movement is motivated solely by morphological considerations—by the requirement of some feature that it be checked—the optimal derivation is one in which only the formal features associated with a linguistic expression are moved to an appropriate checking position. Movement of a feature F is subject to the following economy principle (Chomsky 1995:262):

(91) F carries along just enough material for convergence.

Chomsky (1995) suggests that *convergence* in (91) means "PF convergence" and that overt movement is a type of "generalized pied-piping" whereby the lexical material associated with a feature that must be checked before Spell-Out (a "strong" feature) is carried along because movement of the feature alone would violate Full Interpretation (bundles of formal features are unpronounceable, hence uninterpretable by PF rules). (91) entails that feature-driven movement in the covert component should never trigger pied-piping of lexical material. That is, because pied-piping in the context of formal feature-driven movement is motivated only by factors relating to PF convergence, elimination of these factors eliminates the need for pied-piping, with the result that "covert raising is restricted to feature raising" (Chomsky 1995:265).

A consequence of Chomsky's proposals is that the A-movement account of ACD is no longer available. The requirement that an internal argument check its Case features holds of the formal Case features associated with the argument, not of the lexical material with which the features are associated. If Case assignment at LF involves movement of formal features only (to a functional head-adjoined position; see the discussion in Chomsky 1995), then the lexical material associated with an internal argument remains in a VP-internal position at LF. The result is that in ACD structures, LF A-movement of the formal features of the constituent containing the deleted VP does not eliminate antecedent containment, and the infinite regress problem remains unresolved.

What is the status of QR in this type of system? Chomsky (1995:265) suggests that "only PF convergence forces anything beyond features to raise," a position that seems to rule out the possibility of movement of quantificational constituents at LF. The importance of ACD is that it provides direct empirical evidence against this view. The facts presented in sections 2, 3, and 4 of this article reestablish the soundness of the argument for QR from ACD sketched in (6), leading to the conclusion that entire quantificational constituents—both operator and restriction—must move to a position outside VP at LF. The question then becomes how to incorporate QR into the Minimalist Program framework.

I would like to suggest that the principles that force LF movement of lexical material are

essentially the same as those that force overt (PF) movement: interpretability at the interface level. May (1991:335) characterizes a logical form as a representation of "those formal properties which are required to insure the proper application of the semantic rules. LF—a level of linguistic representation—will be a logical form . . . only if it manifests those properties." If a linguistic representation does not manifest the formal properties that are required to ensure the application of semantic rules, then it is not a logical form. This characterization of logical form can be used to define a necessary condition for LF convergence.

(92) A derivation $\langle s_1, s_2, \ldots, s_n \rangle$ converges only if s_n is a logical form.

(92) imposes an interpretability condition on syntactic derivations: if a derivation fails to terminate in a structure that manifests the formal properties necessary for the interpretation of its constituents, it does not converge.[21] Assuming a more general version of (91), "Move just enough material for convergence," a consequence of (92) is that QR of entire constituents is forced by the formal requirements imposed by quantificational determiners.

Quantifiers impose two basic requirements on the structures in which they appear. First, a quantifier must bind a variable: vacuous quantification is ruled out by Full Interpretation (see Koopman and Sportiche 1982). This requirement forces at least movement of a quantificational determiner to an operator position so that it will bind the variable associated with its maximal projection (see the discussion of *wh*-movement in Chomsky 1993). Second, as discussed in section 1.1, nominal quantification in natural language is *restricted.* It is not enough to generate an operator-variable construction; a quantifier must also combine with an open formula that restricts the possible assignments of values to the variables it binds in its scope. The facts of ACD, which show that QR targets both a quantificational determiner and its restriction, provide evidence that this relation is explicitly represented at LF as the relation between a head and its complement.

The consequence of these requirements is that if (92) constitutes a general condition for LF convergence, QR of an entire DP headed by a quantificational determiner is not only compatible with Minimalist Program assumptions, it is necessary for convergence. The importance of ACD is that it provides *syntactic* evidence that restricted quantification is represented at the level of LF through the application of QR.[22]

[21] The proposal that formal interpretability requirements can determine convergence departs from Chomsky 1995, in which it is argued that "derivations are driven by the narrow mechanical requirement of feature checking only" (Chomsky 1995:201; see Beghelli and Stowell 1995 for a feature-based analysis of QR).

[22] The Condition C facts discussed in section 1.2 are a puzzle that remains to be explained if QR involves entire constituents and if the conditions of the binding theory apply at LF (see Fiengo and May 1994 and Fox 1995a for different approaches to this problem). The resolution of this issue is beyond the scope of this article, but it is an important area for further research, as a detailed examination of the interaction of QR and Condition C will provide a set of empirical observations that bear directly on a number of important issues. Among these is the status of the conclusion I have argued for here—that QR is driven by the *internal* requirements of quantificational determiners—versus an alternative: that QR occurs only when forced by *external* factors, that is, when convergence factors contrive to make the derivation that involves movement the optimal one (see the discussion of ACD and *wh*-in-situ in footnote 13), or when QR is required to derive an interpretation that could not otherwise be obtained (see Fox 1995a,b, Reinhart 1995). (Although it is difficult to see how the latter approach could be made to work. A syntactic operation like QR that has the effect of generating

6 Conclusion

Two conclusions should be drawn from this article. First, the arguments in favor of a QR-based account of ACD outweigh those in favor of the A-movement account proposed in Hornstein 1994. The facts presented here indicate an intimate connection between ACD and quantification that is reflected in parallels between quantifier scope and matrix interpretations of ACD, the relation between matrix readings of ACD and the scope of the restriction, the interpretation of "adjunct ACD," and the phenomenon of NP-contained ACD.

Second, the facts associated with ACD structures support a theory of the syntactic representation of quantification in which full quantificational DPs—both determiner and restriction—are raised to an adjoined position at LF. This position is compatible with Minimalist Program assumptions if LF movement is driven by the formal requirements of the meaningful elements of the sentence.

References

Abusch, Dorit. 1994. The scope of indefinites. *Natural Language Semantics* 2:83–135.

Aissen, Judith, and David Perlmutter. 1983. Clause reduction in Spanish. In *Studies in Relational Grammar 1*, ed. David Perlmutter, 360–403. Chicago: University of Chicago Press.

Bach, Emmon, and George Horn. 1976. Remarks on "Conditions on Transformations." *Linguistic Inquiry* 7:265–300.

Baker, C. L. 1970. Notes on the description of English questions: The role of an abstract question morpheme. *Foundations of Language* 6:197–219.

Baltin, Mark. 1987. Do antecedent-contained deletions exist? *Linguistic Inquiry* 18:579–595.

Barwise, John, and Robin Cooper. 1981. Generalized quantifiers and natural language. *Linguistics and Philosophy* 4:159–219.

Beghelli, Filippo, and Tim Stowell. 1995. Distributivity and negation. Ms., University of California, Los Angeles.

Bouton, Lawrence. 1970. Antecedent contained pro-forms. In *Papers from the Sixth Regional Meeting of*

---

multiple interpretations can be recast in terms of operations on logical representations, as in Cooper 1983, for example, in which case QR would never be "necessary" to achieve multiple interpretations of a surface string.)

The importance of Condition C is that it provides an empirical base for distinguishing these two approaches. The "internal" approach claims that QR (of constituents headed by quantificational determiners; see Diesing 1992) always occurs, whereas the "external" approach allows for contexts in which QR does not occur. It follows that the former approach may bleed Condition C in contexts in which the latter feeds it. For example, if QR occurs to resolve ACD but not otherwise, there should be a contrast between (i) and (ii), because only in the former example would QR eliminate the illicit command relation holding between the pronoun *him* and the referring expression *Erik*.

(i) Polly introduced him_i to everyone Erik_i wanted her to.

(ii) Polly introduced him_i to everyone Erik_i wanted to meet.

Fiengo and May (1994) (see also Fox 1995a) claim that there is a contrast between these examples (though Fiengo and May use it to argue for an alternative conception of Condition C rather than a particular implementation of QR). My own research calls these judgments into question, however: of 13 native speakers interviewed, only 1 judged (ii) unacceptable on the intended reading. This result is expected if the quantificational constituents in both of these sentences must undergo QR, but not if QR is somehow dependent on ACD. If it can be shown that similar results obtain in related examples, this will support the position I have articulated here: that QR is driven solely by the formal requirements of quantificational determiners.

the Chicago Linguistic Society, 154–167. Chicago Linguistic Society, University of Chicago, Chicago, Ill.

Brody, Michael. 1995. *Lexico-Logical Form: A radically minimalist theory*. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 1977. On *wh*-movement. In *Formal syntax*, ed. Peter Culicover, Adrian Akmajian, and Thomas Wasow, 71–133. New York: Academic Press.

Chomsky, Noam. 1993. A minimalist program for linguistic theory. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Kenneth Hale and Samuel Jay Keyser, 1–52. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 1995. Categories and transformations. In *The Minimalist Program*, 219–394. Cambridge, Mass.: MIT Press.

Chung, Sandra, William Ladusaw, and James McCloskey. 1995. Sluicing and Logical Form. *Natural Language Semantics* 3:239–282.

Cooper, Robin. 1983. *Quantification and syntactic theory*. Dordrecht: Kluwer.

Dalrymple, Mary, Stuart Shieber, and Fernando Pereira. 1991. Ellipsis and higher order unification. *Linguistics and Philosophy* 14:399–452.

Diesing, Molly. 1992. *Indefinites*. Cambridge, Mass.: MIT Press.

Farkas, Donka. 1981. Quantifier scope and syntactic islands. In *Papers from the Seventeenth Regional Meeting of the Chicago Linguistic Society*, 59–66. Chicago Linguistic Society, University of Chicago, Chicago, Ill.

Farkas, Donka. 1993. Modal anchoring and NP scope. Report LRC-93-08, Linguistics Research Center, University of California, Santa Cruz.

Farkas, Donka. 1995. Evaluation indices and scope. Report LRC-95-05, Linguistics Research Center, University of California, Santa Cruz.

Fiengo, Robert, and Robert May. 1994. *Indices and identity*. Cambridge, Mass.: MIT Press.

Fodor, Janet, and Ivan Sag. 1981. Referential and quantificational indefinites. *Linguistics and Philosophy* 5:355–398.

Fox, Danny. 1995a. Condition C effects in ACD. In *MIT working papers in linguistics 27: Papers on minimalist syntax*, 105–119. MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Fox, Danny. 1995b. Economy and scope. *Natural Language Semantics* 3:283–341.

Hasegawa, Kinsuke. 1972. Transformations and semantic interpretation. *Linguistic Inquiry* 3:141–159.

Heim, Irene. 1982. The semantics of definite and indefinite noun phrases. Doctoral dissertation, University of Massachusetts, Amherst.

Higginbotham, James, and Robert May. 1981. Questions, quantifiers, and crossing. *The Linguistic Review* 1:41–79.

Hornstein, Norbert. 1984. *Logic as grammar*. Cambridge, Mass.: MIT Press.

Hornstein, Norbert. 1994. An argument for minimalism: The case of antecedent-contained deletion. *Linguistic Inquiry* 25:455–480.

Huang, C.-T. James. 1982. Logical relations in Chinese and the theory of grammar. Doctoral dissertation, MIT, Cambridge, Mass.

Jacobson, Pauline. 1992. ACD in a variable free semantics. In *Proceedings of SALT II*, 193–213. Department of Linguistics, Ohio State University, Columbus.

Kennedy, Christopher. 1994. Argument contained ellipsis. Working Paper LRC-94-03, Linguistics Research Center, University of California, Santa Cruz.

Kennedy, Christopher. 1995. Comparatives, indices, and scope. In *Papers from the Sixth Annual Meeting of the Formal Linguistics Society of Midamerica*, 115–126. Indiana University Linguistics Club, Indiana University, Bloomington.

Kennedy, Christopher. 1996. An indexical account of certain ambiguities. In *Proceedings of the 1995 Eastern States Conference on Linguistics*, 103–114. Cornell University, Ithaca, N.Y.

Kitagawa, Yoshihisa. 1991. Copying identity. *Natural Language & Linguistic Theory* 9:497–536.

Koopman, Hilda, and Dominique Sportiche. 1982. Variables and the Bijection Principle. *The Linguistic Review* 2:136–161.

Kratzer, Angelika. 1995. Scope or pseudoscope? Are there wide scope indefinites? Ms., University of Massachusetts, Amherst.

Larson, Richard, and Robert May. 1990. Antecedent containment or vacuous movement: Reply to Baltin. *Linguistic Inquiry* 21:103–122.

Lasnik, Howard. 1993. Lectures on minimalist syntax. University of Connecticut Occasional Papers in Linguistics 1. MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Lasnik, Howard. 1994. Antecedent contained deletion and/or pseudo-gapping. Paper presented at MIT, Cambridge, Mass.

May, Robert. 1977. The grammar of quantification. Doctoral dissertation, MIT, Cambridge, Mass.

May, Robert. 1985. *Logical Form.* Cambridge, Mass.: MIT Press.

May, Robert. 1991. Syntax, semantics, and logical form. In *The Chomskyan turn,* ed. Asa Kasher, 334–359. Oxford: Blackwell.

McCawley, James. 1982. Parentheticals and discontinuous constituents. *Linguistic Inquiry* 13:91–106.

McCawley, James. 1988. *The syntactic phenomena of English.* Chicago: University of Chicago Press.

Pesetsky, David. 1987. *Wh*-in-situ, movement, and unselective binding. In *The representation of (in)definiteness,* ed. Eric Reuland and Alice ter Meulen, 98–129. Cambridge, Mass.: MIT Press.

Pollock, Jean-Yves. 1989. Verb movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20:365–424.

Postal, Paul. 1974. On certain ambiguities. *Linguistic Inquiry* 5:367–424.

Reinhart, Tanya. 1995. Interface strategies. OTS Working Papers OTS-WP-TL-95-002. University of Utrecht.

Rizzi, Luigi. 1978. A restructuring rule in Italian syntax. In *Recent transformational studies in European languages,* ed. Samuel Jay Keyser, 113–158. Cambridge, Mass.: MIT Press.

Rizzi, Luigi. 1990. *Relativized Minimality.* Cambridge, Mass.: MIT Press.

Roberts, Ian. 1992. Restructuring and clitic movement. Ms., University of Wales, Bangor.

Ross, John Robert. 1969. Guess who? In *Proceedings of the Fifth Regional Meeting of the Chicago Linguistic Society,* 252–286. Chicago Linguistic Society, University of Chicago, Chicago, Ill.

Sag, Ivan. 1976. Deletion and Logical Form. Doctoral dissertation, MIT, Cambridge, Mass.

Sag, Ivan, and Jorge Hankamer. 1984. Toward a theory of anaphoric processing. *Linguistics and Philosophy* 7:325–345.

Takahashi, Daiko. 1993. On antecedent-contained deletion. Ms., University of Connecticut, Storrs.

Wilder, Chris. 1995. Antecedent-containment and ellipsis. Ms., Max-Planck-Gesellschaft, Arbeitsgruppe Strukturelle Grammatik, Berlin.

Williams, Edwin. 1977. Discourse and Logical Form. *Linguistic Inquiry* 8:101–139.

Wyngaerd, Guido van den, and Jan-Wouter Zwart. 1991. Reconstruction and vehicle change. In *Linguistics in the Netherlands 1991*, ed. Frank Drijkoningen and Ans van Kemenade, 151–160. Amsterdam: John Benjamins.

Department of Linguistics
Northwestern University
2016 Sheridan Road
Evanston, Illinois 60208

kennedy@babel.ling.nwu.edu