Mass.: MIT, Department of Linguistics and Philosophy, MITWPL.

Schmerling, Susan. 1976. *Aspects of English sentence stress.* Austin: University of Texas Press.

WCO, ACD, AND QR OF DPS
Heidi Harley
   University of Arizona

In this squib I point out a hitherto unnoticed interaction between weak crossover (WCO) and antecedent-contained deletion (ACD) that provides another piece of evidence for an LF Ā-movement account of ACD and against the A-movement account proposed by Hornstein (1994), adding to the case against Hornstein's proposal made by Kennedy (1997). Interestingly, the key piece of evidence, an ACD construction within a definite DP, implies that a quantificational type must be optionally available for definite DPs, but is exploited only when necessary to repair ACD violations.

1 Quantifier-Raising versus Case-Checking Accounts of ACD

Syntactic treatments of ACD since May 1985 have proposed that at LF the containment relation evident in (1a) is eliminated by applying Quantifier Raising (QR), resulting in a structure along the lines of (1b). The offending DP is no longer contained within its antecedent, and the structure can be straightforwardly interpreted along the lines proposed by Sag (1976).

(1) a. [$_{IP}$ Wakko [$_{VP}$ attacked [$_{DP}$ every mogul Dot did [$_{VP}$ e]$_i$]]$_i$].
    b. [$_{IP}$[$_{DP}$ every mogul Dot did [$_{VP}$ e]$_i$]$_j$ [$_{IP}$ Wakko [$_{VP}$ attacked t$_j$]$_i$]]

   Hornstein (1994) proposes an alternative account of ACD repair, according to which the containment relation is not eliminated by quantifier movement of the DP to an Ā-position. Rather, it is eliminated by movement of the object DP outside the VP to check Case (either in Spec,Agr$_O$ or, under more recent assumptions, by adjunction to vP).

2 ACD in Definite DPs and Optionality

Of course, movement to check Case is not restricted to quantificational DPs. ACD is not obviously restricted to quantificational DPs either.

(2) I read the book that John did.

A QR account of ACD has to claim that *the book that John did* raises to an Ā-position to repair the containment relation, with the theoretical

implication that either (a) definites can behave quantificationally or (b) QR is available optionally to all DPs, quantificational or not. Heim and Kratzer (1998:210) make the latter assumption, although they are not addressing this construction specifically. Heim and Kratzer's optional-QR approach is not compatible with standard Minimalist Program constraints, however: movement is never optional, as it is motivated by the need to check features. On the other hand, May (1985: 8) assumes that examples like (2) constitute evidence that definite DPs are quantificational; and he sketches a Russellian interpretation of them.

Hornstein's (1994) Case-checking approach to ACD repair, via movement of the offending DP to Agr$_O$ outside the VP, seems to have the attractive property of allowing the resolution of ACD in examples like (2) without requiring any unorthodox assumptions about the nature of definite DPs.[1] This approach can treat such DPs nonquantificationally and still resolve the ACD structure without permitting optional movement: the structure will automatically be repaired when the definite DP moves outside the VP to check accusative Case. This movement will be obligatory, as it checks Case features, and the DP need not be quantificational.

In the next section, however, I show that whatever type of movement is proposed to repair ACD in examples like (2), it must induce a WCO violation. Hornstein's Case-checking movement then becomes an unlikely candidate, and the standard QR approach to ACD repair appears to be more adequate.

3 ACD-Repairing Movement of Definite DPs Must Be Optional

Contra Hornstein (1994), and like Kennedy (1997), I argue here that the movement that repairs the containment in (2) must be Ā-movement.

Nonquantificational DPs are usually assumed not to undergo LF Ā-movement, as the standard WCO paradigm illustrates.

(3) a. His$_i$ mother loves John$_i$.
    b. *Who$_i$ does his$_i$ mother love t$_i$?
    c. *His$_i$ mother loves [every boy]$_i$.

In (3a) the pronoun *his* can corefer with *John,* but in (3b) it cannot be bound by *who.* Similarly, in (3c) *his* cannot be bound by *every boy.* The large literature dealing with this phenomenon contains many different analyses (for a summary, see Huang 1995 or, more recently, Ruys 2000), but they agree that the violations in (3b) and (3c) are parallel; in (3c) the DP *every boy* raises at LF by QR, resulting in the same configuration that *wh*-movement creates in (3b). Indeed, the ungrammaticality of (3c) is one of the primary arguments for QR at

---

[1] The extraposition account of ACD presented in Baltin 1987 would also permit a non-QR approach to examples like (2). I do not consider this approach here, however; for extensive argumentation against it, see Larson and May 1990.

LF, as it allows a unified treatment of (3b) and (3c), whatever that treatment may be.

It is clear, however, that the DP *John* in (3a), as well as the DP *the boy that Sue dislikes* in (4), cannot undergo QR at LF; if they did, a WCO violation should result. The self-evident reason that they do not undergo QR is that definite DPs are not, in fact, quantificational, and hence do not need to move to be appropriately interpreted.

(4) His_i mother loves [the boy that Sue dislikes]$_i$.

If QR is not available for definite DPs, then as outlined above Hornstein's account of ACD repair looks promising for (2). WCO will provide the litmus test, however: the DPs in (3a) and (4) must certainly be moving for Case-checking purposes. If Hornstein is right, a definite DP in a WCO *and* an ACD configuration will not trigger a WCO violation, because ACD repair is accomplished by the usual A-movement for Case. If such a DP does trigger a WCO violation, then ACD repair is Ā-movement even for definite DPs. As illustrated in (5), when an ACD site is contained within a definite DP that is coindexed with a possessive pronoun in the subject, a WCO violation indeed results.[2]

(5) *His_i mother [$_{VP}$ loves [the boy that Sue does [$_{VP}$ e$_j$]]$_i$]$_j$.

ACD repair is therefore accomplished by Ā-, not A-movement, contra Hornstein. The question then becomes, how can an ACD structure trigger such movement in definites, when it is obvious from (4) that such movement does not occur without an ACD structure?

4 Optionally Moving or Optionally Quantificational ACD Definites?

It appears from the contrast between (4) and (5) that definite DPs may undergo QR when needed for Full Interpretation (as in (5)), but not otherwise (as in (4)). Given Minimalist Program assumptions, however, this cannot be the correct characterization of the facts. The Last Resort economy principle (Chomsky 1995), presented here as formulated by Collins (1997), rules out any movement that does not satisfy a feature of the moving element.

(6) *Last Resort*
An operation OP involving α may apply only if some property of α is satisfied.

---

[2] Irene Heim (personal communication) points out that while WCO provides an account of the ungrammaticality of the sentence in (5) if binding of the pronoun *his* is assumed, there should also be a possible reading under which *his* is not bound but merely ''accidentally'' coreferential with the DP *the boy that Sue (loves)*. Some restriction on coreferential readings like Reinhart's (1986), which proposes that speakers avoid coreference when binding is syntactically available, would account for this particular case, but as that account has independently been shown to be unviable (see, e.g., Lasnik 1986), the unavailability of simple coreference in this reading remains unexplained.

Movement of ACD definite DPs cannot therefore be triggered by the fact that Full Interpretation will fail; rather, it must be triggered by some property peculiar to such DPs.[3] Let us assume in general that QR is triggered by the quantificational nature of the moving DP. Then to capture the contrast between (4) and (5), we must propose that DPs containing ACD structures are quantificational, but that DPs without such structures are not quantificational.

We will get the facts right if we assume that both types are available for definites in general. Then there will be two possible numerations that can generate the string in (4), one in which the DP *the boy that Sue dislikes* is quantificational and one in which it is not; only the one without a quantificational DP will converge (the other will induce a WCO violation at LF). Similarly, there will be two possible numerations for the string in (2), one in which *the book that John did* is quantificational and one in which it is not; only the one with a quantificational DP will converge (the other will result in infinite regress in the ACD structure). In the crucial example in (5), neither possibility will converge, as the quantificational DP type will trigger movement and produce a WCO violation and the nonquantificational DP type will result in no movement and make the ACD structure uninterpretable.

Why should ACD-repairing movement of definites necessarily be quantificational? An anonymous *LI* reviewer points out that examples like (4) do not argue against the possibility of LF Ā-movement of a nonquantificational type. As shown by Lasnik and Stowell (1991), topicalization of a DP does not induce WCO.

(7) This book$_i$ I would never ask its$_i$ author to read.

Lasnik and Stowell argue that such cases show that there are two possible types of trace that Ā-movement may leave: variable traces left by Ā-movement of a ''true quantifier,'' which trigger WCO, and ''null epithet'' traces left by Ā-movement of a nonquantificational DP. The reviewer notes that covert movement of the nonquantificational, ''null epithet'' type might exist in sentences like (4).[4]

Even if such nonquantificational LF movement is possible, however, it is not qualified to repair ACD, as the crucial example in (5) shows. Given the standard approach to ACD, according to which the

---

[3] It is clear that in general, economy principles are at work in ACD structures. In a recent discussion of the properties of ACD in a copy theory of movement, Merchant (2000) shows using Condition C effects that economy principles force deletion of the offending portion of the lower copy of the DP exactly to the degree required to repair the structure, no more and no less.

[4] Note that the example in (5) casts some doubt on Lasnik and Stowell's description of what a ''true quantifier'' is; on their characterization a true quantifier is associated with a nominal term T whose quantified-over range R is a ''nonsingleton set'' (or, more correctly, a set with cardinality ≥ 2, as Postal (1993) notes). The quantificational treatment of definite descriptions still involves a crucially singleton set as the range of the quantifier.

trace of the moved DP must be a variable, it follows that only quantificational Ā-movement will leave an appropriate trace, in the typology of Lasnik and Stowell. The contrast between (4) and (5), then, still leaves unaffected the conclusion that we must distinguish two types of definites.

5 Extension: *Even* and WCO Repair

An anonymous *LI* reviewer directed me to a very interesting paradigm noted by Postal (1993:fn. 14). Postal observes that the parallelism between the *wh*-movement and QR cases of WCO in (3b) and (3c), respectively, breaks down when the crossed-over pronoun-containing DP hosts a focus element like *even* or *only: even* can obviate the WCO effect in the *wh*-movement cases but not in the QR cases, as shown in (8).

(8) a. *Which man$_i$ do his$_i$ children dislike?
    b. Which man$_i$ do even his$_i$ children dislike?
    c. His$_i$ children dislike every man$_i$.
    d. *Even his$_i$ children dislike every man$_i$.

Authier (1998) analyzes the lack of WCO in (8b) in terms of the semantic representation of the existence presupposition introduced by *even* (i.e., that there are people other than his children who dislike the man in question), but does not discuss the reasons for the continued ill-formedness of (8d).

Postal takes this contrast to indicate that *wh*-movement and QR should not be treated as inducing the same kind of WCO violation, contra Lasnik and Stowell (and May and nearly everyone else who has considered the construction). If Postal is correct, the conclusion reached here that definite DPs containing ACD structures are quantificational should entail that the WCO induced by the ACD structure should *not* be ameliorated by including *even* in the crossed-over DP. Quite interestingly, however, it *is* repaired by *even*.

(9) Even his$_i$ mother dislikes [the boy that Sue does]$_i$.

While I do not propose to attempt an account of Postal's contrast here, it is worth noting that it seems clear that the ACD-repairing movement of the definite in (5) or (9) cannot be *wh*-movement. QR is the only extant likely candidate, as I conclude above. We can take (9), then, to militate against Postal's position that the facts in (8) necessitate distinct treatments of QR and *wh*-movement-induced WCO; (9) is apparently a case of QR-induced WCO that *is* repaired by *even*.

6 Conclusion

In this squib I have introduced a new piece of evidence in favor of the Ā account of ACD repair, and I have argued that given the assumptions of the Minimalist Program, an approach claiming that there is

more than one type of definite DP provides a way to account for the constellation of facts produced by the interaction of WCO and ACD.

References

Authier, J.-Marc. 1998. On presuppositions and (non)coreference. *Studia Linguistica* 52:244–275.

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

Chomsky, Noam. 1995. *The Minimalist Program.* Cambridge, Mass.: MIT Press.

Collins, Chris. 1997. *Local economy.* Cambridge, Mass.: MIT Press.

Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar.* Oxford: Blackwell.

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

Huang, C.-T. James. 1995. Logical Form. In *Government and Binding Theory and the Minimalist Program,* ed. by Gert Webelhuth, 125–176. Cambridge, Mass.: Blackwell.

Kennedy, Christopher. 1997. Antecedent-contained deletion and the syntax of quantification. *Linguistic Inquiry* 28:662–688.

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

Lasnik, Howard. 1986. On the necessity of binding conditions. In *Essays on anaphora,* 149–167. Dordrecht: Kluwer.

Lasnik, Howard, and Tim Stowell. 1991. Weakest crossover. *Linguistic Inquiry* 22:687–720.

May, Robert. 1985. *Logical Form: Its structure and derivation.* Cambridge, Mass.: MIT Press.

Merchant, Jason. 2000. Economy, the copy theory, and antecedent-contained deletion. *Linguistic Inquiry* 31:566–575.

Postal, Paul M. 1993. Remarks on weakest crossover effects. *Linguistic Inquiry* 24:539–556.

Reinhart, Tanya. 1986. Center and periphery in the grammar of anaphora. In *Studies in the acquisition of anaphora,* ed. by Barbara Lust, 123–150. Dordrecht: Reidel.

Ruys, E. G. 2000. Weak crossover as a scope phenomenon. *Linguistic Inquiry* 31:513–539.

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