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## A Note on Weakest Crossover

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Conditions on variable binding are of two types: those that (roughly) require a pronoun to be A-bound, and those that ban locally  $\bar{A}$ -bound pronouns. While the two types are usually felt to be extensionally equivalent, I argue here on the basis of weakest crossover that the former type, which fits the Minimalist Program better, is also empirically superior.

*Keywords:* weak crossover, weakest crossover, topicalization, sloppy identity

In 1991, the debate on weak crossover (WCO) took a new turn with Lasnik and Stowell's discovery of weakest crossover. The examples they presented, though well formed, appeared to violate the condition that prohibits WCO. The discovery prompted Lasnik and Stowell to revise the condition, a revision later refined by Safir (1996). I argue here that the problem raised by weakest crossover facts is particular to Lasnik and Stowell's choice of WCO condition. If a different type of WCO condition is adopted, no revision is required to accommodate the weakest crossover facts.

It will be useful to distinguish two types of crossover conditions, which I will refer to as licensing conditions and configurational conditions. Consider the examples of WCO in (1) and (2).

- (1) a. Who<sub>i</sub> loves his<sub>i</sub> mother?  
 b. ??Who<sub>i</sub> does his<sub>i</sub> mother love t<sub>i</sub>?
- (2) a. ??His<sub>i</sub> mother loves every boy<sub>i</sub>.  
 b. ??every boy<sub>i</sub> his<sub>i</sub> mother loves t<sub>i</sub>

*Licensing* conditions, as I define them, are positive requirements: they state that for a pronoun to be interpretable as a bound variable, it must enter into a required relation with *some* (operator) expression. In this manner, the bound variable interpretation is ruled *in* if certain conditions are met. This category includes the proposals in Higginbotham 1980, 1983, Reinhart 1976, 1983,

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and Ruys 2000. An example of a licensing condition (basically Reinhart's) would be that a pronoun must be A-bound in order to count as a bound variable. This allows the bound variable reading in (1a), where the pronoun is A-bound, but excludes it in (1b), and in (2a) with LF representation (2b).

*Configurational* conditions, on the other hand, are negative: they state that a pronoun may not enter into a certain proscribed relationship with *any* (operator) expression. In this manner, structures containing a bound pronoun are ruled *out* under certain conditions. This category includes the proposals in Koopman and Sportiche 1982 and Safir 1984, 1996. Koopman and Sportiche's Bijection Principle, for example, states that an operator may not simultaneously bind two variables, where a locally  $\bar{A}$ -bound pronoun counts as a variable. This condition entails that a pronoun may not be locally  $\bar{A}$ -bound; this rules out the binding configurations in (1b) and (2b).<sup>1</sup>

Conceptually, preferences for one condition type or the other typically depend on the framework. In Government-Binding Theory, there were reasons for preferring a configurational constraint like the Bijection Principle: a cleanly syntactic, semantically blind constraint considering only structural relations and syntactic indexing. A licensing condition, which might require a pronoun to be, say, A-bound (contrary to Condition B) just in case a certain interpretation was intended, was perhaps more difficult to understand as a rule of syntax, especially when it was thought to apply at S-Structure. In the Minimalist Program (see Chomsky 1995), the tables have turned. A licensing condition is a natural candidate to be a property of the conceptual-intentional interface: in order to interpret a pronoun as a bound variable, an appropriate binder must be found; any one will do. On the other hand, the crucial use of indices in configurational constraints is deprecated, and it is hard to see why the conceptual-intentional interface should disallow a bound variable interpretation just because the structure happens to contain some operator that is *not* in the right position to qualify as a binder.

Empirically, licensing conditions and configurational conditions are hard to distinguish. For instance, a requirement of A-binding and a ban on  $\bar{A}$ -binding are almost always equivalent. However, they can be empirically distinguished in structures where a pronoun has both an "appropriate" antecedent, which satisfies the condition, and an "inappropriate" antecedent, which violates it, at the same time: will the "appropriate" one sanction the structure (licensing) or will the "inappropriate" one disallow it (configurational)? Weakest crossover structures belong to this category; we can make use of them to decide which condition type should be preferred. I will argue that the licensing approach wins out.

The article is organized as follows. Section 1 presents the weakest crossover facts discussed by Lasnik and Stowell (1991). Section 2 proposes a licensing analysis of these facts. Section 3 discusses the configurational analyses of weakest crossover proposed by Lasnik and Stowell (1991) and Safir (1996). Section 4 deals with crossover in topicalization constructions (problematic in the light of Postal 1993) and concludes that topicalization is not a weakest crossover structure and provides independent evidence for the licensing approach.

<sup>1</sup> In case Quantifier Raising (QR) does not derive LF representation (2b) for (2a), a bound variable reading for (2a) is ruled out by the independent Scope Condition: a variable must be in the scope of its operator.

## 1 Weakest Crossover

Lasnik and Stowell (1991) (henceforth L&S) discuss the weakest crossover examples in (3).

- (3) a. Who<sub>i</sub> t<sub>i</sub> will be easy for us [NO<sub>i</sub> to get [his<sub>i</sub> mother] to talk to e<sub>i</sub>]?  
 b. This book<sub>i</sub> was too obscene [NO<sub>i</sub> to have [its<sub>i</sub> author] publicize e<sub>i</sub>].  
 c. Who<sub>i</sub> did you stay with t<sub>i</sub> [NO<sub>i</sub> before [his<sub>i</sub> wife] had spoken to e<sub>i</sub>]?  
 d. This book<sub>i</sub>, NO<sub>i</sub> I expect [its<sub>i</sub> author] to buy e<sub>i</sub>.  
 e. Gerald<sub>i</sub>, who<sub>i</sub> his<sub>i</sub> mother loves t<sub>i</sub>, is a nice guy.

L&S observe that these examples are all well formed, even though they contain a pronoun that is locally  $\bar{A}$ -bound: by the null operator NO in (3a–d), by the relative pronoun in (3e). Consider each case in turn. Example (3a) is a case of *tough*-movement (see, e.g., Chomsky 1977, Browning 1987, Mulder and Den Dikken 1992 for discussion). The presence of the null operator is supported by the fact that its displacement can cause Subjacency violations; also, it can license parasitic gaps. Hence, the subject of *easy* is merged in the matrix clause, and not A-moved there (see Chomsky 1993). (3b) is a case of *too*-movement; again the null operator obeys restrictions on  $\bar{A}$ -movement and licenses parasitic gaps.<sup>2</sup> The third clear weakest crossover case is the parasitic gap construction (3c) (see Contreras 1984, Chomsky 1986a; also see Nunes 2001 for a recent analysis without the null operator). The topicalization and appositive relative examples (3d) and (3e) are less straightforward as weakest crossover examples; I will delay discussion of these cases until section 4.

In weakest crossover, the pronoun is coindexed with two expressions: the null operator or relative operator, and the external, “full” expression. This configuration allows us to empirically distinguish licensing and configurational variants of WCO conditions. The first operator locally  $\bar{A}$ -binds the pronoun, producing a structure locally similar to (1b). Hence, a configurational constraint will rule out these examples just like (1b), irrespective of the second expression. On a licensing approach, even though the bound reading is not licensed by the first operator, it might yet be licensed by the second.

Below, I will argue that a licensing approach predicts the well-formedness of weakest crossover. L&S, however, take a configurational view of WCO. While they do not adopt any particular theory of WCO, they assume that (4), a variant of the proposal in Stowell, to appear, is a roughly correct description of the facts.

### (4) *The Generalized WCO Hypothesis*

In a configuration where a category C  $\bar{A}$ -binds a pronoun P and a trace T, P may not be contained in an argument phrase XP that c-commands T.

From this configurational perspective, the well-formedness of (3) is surprising: (4) is violated because of the null operator and the relative pronoun. L&S conclude that (4) must be revised.

<sup>2</sup> *Enough*-movement, like *too*-movement, is a weakest crossover structure.

(i) Most books<sub>i</sub> are important enough [NO<sub>i</sub> to ask [their<sub>i</sub> authors] to publicize e<sub>i</sub>].

They propose this generalization: in weakest crossover configurations, the  $\bar{A}$ -binder involved in violating the configurational constraint is not a “true Quantifier Phrase (QP)” (quantifying over a nonsingleton set) but either a semantically vacuous null operator, or referential. L&S propose that such operators leave a particular type of trace that is not visible for the condition prohibiting WCO.<sup>3</sup>

I delay detailed discussion of the hypothesis formulated by L&S until section 3. In the next section, I argue that the complication introduced by their proposal is unnecessary if one takes a licensing view of crossover.

## 2 A Licensing View of Weakest Crossover

Assume some licensing account of bound variable anaphora. Then in the core cases of weakest crossover, (3a–c), there are two potential licensers to consider: the semantically vacuous operator postulated by L&S, and an external, nonvacuous expression that determines its value (the presence of which is forced by Chomsky’s (1986b) principle of strong binding). The former is not in a position from which it licenses a bound reading; if it were, (1b) would also be allowed. Nevertheless, we expect the bound reading to obtain, if the external, nonvacuous expression can license the bound variable pronoun.<sup>4</sup> This is indeed the case: consider again the key examples (3a–c), repeated here, now paired with structurally parallel examples that lack a null operator.

- (3) a. Who<sub>i</sub> t<sub>i</sub> will be easy for us [NO<sub>i</sub> to get [his<sub>i</sub> mother] to talk to e<sub>i</sub>]?  
 a’. Which girl<sub>i</sub> t<sub>i</sub> was so anxious for the principal to talk to her<sub>i</sub> mother?  
 b. This book<sub>i</sub> was too obscene [NO<sub>i</sub> to have [its<sub>i</sub> author] publicize e<sub>i</sub>].  
 b’. Most books<sub>i</sub> are so obscene that we cannot publish them<sub>i</sub>.  
 c. Who<sub>i</sub> did you stay with t<sub>i</sub> [NO<sub>i</sub> before [his<sub>i</sub> wife] had spoken to e<sub>i</sub>]?  
 c’. Who<sub>i</sub> did you stay with t<sub>i</sub> without ever talking to him<sub>i</sub>?

The well-formed primed examples indicate that the external antecedents are able to license bound variable pronouns in these configurations. In (3a’) and (3b’), this is straightforward: the pronouns are A-bound by (the traces of) the operators *which girl* and *most books*, so that these structures resemble (1a) in relevant respects. Consequently, the external operators in the structurally similar

<sup>3</sup> Authier (1993) argues that echo (and incredulity) questions are also weakest crossover contexts.

- (i) A: The claim that he was drunk bothered [mumble, mumble].  
 B: The claim that he<sub>i</sub> was drunk bothered WHO<sub>i</sub>??

According to Authier, the echo *wh*-operator is not a true quantifier: it ranges not over a nonsingleton set of individuals, but over the particular individual that has (unintelligibly) been introduced into the discourse. If so, the well-formedness of (i) confirms L&S’s generalization. However, Authier’s analysis entails that the pronoun in (iB) may also be analyzed, not as a bound variable, but as a referential pronoun, referring to the particular individual whose description has been lost in the utterance. This is confirmed by the fact that it does not need to be in the scope of the echo operator.

- (ii) A: The claim that [mumble, mumble] was drunk cost him<sub>i</sub> his<sub>i</sub> job.  
 B: The claim that WHO<sub>i</sub> was drunk cost him<sub>i</sub> his<sub>i</sub> job??

<sup>4</sup> L&S discuss one configurational straw-man theory of weakest crossover (an extension of Chomsky’s (1982) LF’ approach), which also makes use of the external expressions. They dismiss it on the basis of counterarguments that apply to a configurational theory, but not to a licensing alternative.

weakest crossover examples will also be able to license the pronouns as bound variables (e.g., through A-binding). In fact, any licensing theory of WCO, if it successfully predicts the bound variable reading in the primed examples, will be automatically successful in dealing with weakest crossover. The null operators do not play a role.

Consider (3a) as an example. Assuming for concreteness that the null operator functions as a  $\lambda$ -operator that changes the AP into a predicate that applies to the matrix subject (see, e.g., Mulder and Den Dikken 1992), we expect the interpretation (5a), which converts correctly to (5b).

- (5) a. for which  $x$ ,  $\lambda y$ (it will be easy for us to get  $x$ 's mother to talk to  $y$ )( $x$ )  
 b. for which  $x$ , it will be easy for us to get  $x$ 's mother to talk to  $x$

The point is essentially the same for the adjunct case (3c), (3c'). (3c') shows that the adjunct-external operator can create a bound reading for the pronoun; hence, this reading will be licensed for the pronoun in (3c) in the same way. Any successful account of (3c') will automatically extend to (3c), and no weakest crossover puzzle arises. A complication, though one that is not directly relevant to our concerns, is that accounting successfully for (3c') is not straightforward, in any type of WCO theory. If one assumes that verbal complements do not c-command into adjunct clauses, (3c') fails to conform to the proposals in Reinhart 1983 and Higginbotham 1983, but also to most configurational proposals (e.g., Koopman and Sportiche's Bijection Principle).<sup>5</sup> Indeed, the anti-c-command condition on parasitic gaps (see, e.g., Chomsky 1982) would entail that the pronoun cannot be c-commanded by the trace of the external operator in (3c). On the other hand, evidence for the anti-c-command condition is weak (see, e.g., Chomsky 1986a for discussion), and there is other evidence that verbal complements do c-command into adjuncts for purposes of binding, negative polarity item licensing, and so forth (see, e.g., Larson 1988, and esp. Stroik 1990).<sup>6</sup> The anti-c-command requirement can be reconciled with this evidence along the lines suggested in Pesetsky 1995 (also see Pesetsky 1995 for discussion of the role of the PP in (3c), (3c')).

<sup>5</sup> With the exception of Stowell, to appear, and Ruys 1994. Stowell proposes that pronouns embedded in nonarguments are invisible to WCO; this constraint is incorporated in L&S's Generalized WCO Hypothesis (4).

<sup>6</sup> Examples like (ia) (see Contreras 1984) suggest that a verb's complement c-commands into a *before*-clause for Condition C; but examples like (ib) (from L&S 1991) argue against this.

- (i) a. ??Mary discovered them<sub>i</sub> [before John had read the papers<sub>i</sub>].  
 b. Mary kicked John<sub>i</sub> [before the bastard<sub>i</sub> had a chance to grab her].  
 (ii) Which assailant<sub>i</sub> did Mary escape from t<sub>i</sub> [before the bastard<sub>i</sub> had a chance to steal her money]?]



(ii) (also from L&S 1991) is trickier: to escape Condition C, *the bastard* must not be A-bound by the trace of *which assailant*. But then we expect a WCO violation by virtually every theory of WCO except those developed in Stowell, to appear, and Ruys 1994, which render elements contained in adjunct clauses invisible to WCO; this also deals correctly with (3c) and (3c') (but see example (i) in footnote 7). Finally, examples like (iia), from Stowell, to appear, suggest that A-binding must be ultimately insufficient as a licensing condition on bound anaphora (and 'no A-binding' insufficient as a configurational condition). The point remains: any licensing condition that explains (iia) will also account for weakest crossover in (iib), brought to my attention by an anonymous *LJ* referee.

- (iii) a. Who<sub>i</sub> did Mary say [t<sub>i</sub> was a fool] [after staying with him<sub>i</sub>]?  
 b. Who<sub>i</sub> did you say [that John would see t<sub>i</sub>] [NO<sub>i</sub> before his<sub>i</sub> mother said Mary would see e<sub>i</sub>]?]

The point is, however, that for whatever reason, *who* in (3c') licenses the bound pronoun; hence, we equally expect *who* to license the pronoun in (3c). Any account of (3c') will extend to (3c), provided it is a licensing account.<sup>7</sup>

The conclusion is that weakest crossover configurations create a problem only if we take a configurational approach to the question of bound variable anaphora. Therefore, these examples present strong *prima facie* evidence against a configurational approach, hence against Koopman and Sportiche's (1982) Bijection Principle, Safir's (1984) Parallelism Constraint on Operator Binding, and the Generalized WCO Hypothesis (4).<sup>8</sup>

Hornstein (1995) discusses weakest crossover from a related point of view. He demonstrates that weakest crossover can be explained by Higginbotham's (1983) linking theory. This theory describes referential dependencies in terms of the asymmetric linking of an anaphor to its antecedent. Anaphors may only be linked to A-positions, and a pronoun that is linked to (hence "dependent on") a variable must be c-commanded by the variable. This entails that (6a) is allowed, but (6b) is a WCO violation.

- (6) a. Who <sub>t</sub> likes his mother?  
  
 b. ??Who does his mother like <sub>t</sub>?  


This explains weakest crossover, because the following linking is allowed:

- (7) Who <sub>t</sub> will be easy for us [NO to get [his mother] to talk to <sub>e</sub>]?  


<sup>7</sup> The parallelism between (3c) and (3c') could break down, however, if one assumed that the adjunct clause may be merged in different positions. One could then argue that both the anti-c-command condition on parasitic gaps and the A-binding requirement on bound variable pronouns hold; the adjunct in (3c') could be generated in a position low enough for the pronoun to be bound, and the adjunct in (3c) could be generated high enough for the parasitic gap to escape c-command. This predicts that an externally bound pronoun and a parasitic gap cannot occur simultaneously in an adjunct clause, unless the former is bound by a higher constituent than the latter. This is exactly what Hornstein (1995) argues on the basis of (i).

- (i) \*Which man<sub>i</sub> did John tell <sub>t<sub>i</sub></sub> about every song<sub>j</sub> [without recording it<sub>j</sub> for <sub>t<sub>i</sub></sub>]?

If this approach is correct (i.e., if one assumes the anti-c-command requirement) and if the awkwardness of (i) is indeed due to WCO, then a licensing approach to WCO cannot account for the bound pronoun in (3c) (and neither, incidentally, can Hornstein's approach to weakest crossover; see below). If instead of the anti-c-command requirement one assumes a 0-subjacency account of parasitic gaps (Chomsky 1986a), then (i) can still be made to follow (see Hornstein 1995:223 fn. 23), and so can (3c).

<sup>8</sup> L&S present two subject parasitic gap examples that appear problematic for a licensing analysis.

- (i) a. Which man<sub>i</sub> is [NO<sub>i</sub> everyone who asks the boss to talk about <sub>e<sub>i</sub></sub>] usually interested in <sub>t<sub>i</sub></sub>?  
 b. Which man<sub>i</sub> is [NO<sub>i</sub> everyone who asks his<sub>i</sub> wife to talk about <sub>e<sub>i</sub></sub>] usually interested in <sub>t<sub>i</sub></sub>?  
 (ii) a. Who<sub>i</sub> did [NO<sub>i</sub> Mabel's stories about <sub>e<sub>i</sub></sub>] annoy <sub>t<sub>i</sub></sub>?  
 b. Who<sub>i</sub> did [NO<sub>i</sub> his<sub>i</sub> mother's stories about <sub>e<sub>i</sub></sub>] annoy <sub>t<sub>i</sub></sub>?

In the (b) examples, the pronoun is locally  $\bar{A}$ -bound by the null operator, but there seems to be no external licenser in an A-position; L&S claim that the (b) examples are not worse than the (a) examples. Hornstein (1995) argues that the examples are not convincing. (ii) has a psych verb, so that licensing may occur under reconstruction. As for (ib), Hornstein reports it to be at least as unacceptable as a standard WCO case; if so, L&S's approach is falsified. See Hornstein 1995: 105 for further discussion.

Linking theory shares the success of the licensing conditions discussed above, because it can ignore the null operator; the appropriately placed external, nonvacuous antecedent is sufficient for well-formedness. That Higginbotham's WCO hypothesis explains weakest crossover is expected, because it is a licensing condition: it requires that there be *some* c-commanding variable to which the pronoun can be linked. However, any other licensing condition will work as well.<sup>9</sup>

### 3 Configurational Analyses

I have argued that licensing conditions positively predict the absence of a WCO effect in weakest crossover structures. Under a configurational approach, such as (4), one must somehow prevent the local  $\bar{A}$ -binder in (3) from causing a WCO violation. In this section, I discuss the proposals made by L&S (1991) and Safir (1996).

According to L&S, weakest crossover obtains when the  $\bar{A}$ -binder is not a "true QP": one that contains a quantifier ranging over a (possibly) nonsingleton set. The  $\bar{A}$ -binders in (3) are either semantically vacuous (NO in (3a–d)) or referential ((3e), and (3d) on an analysis of topicalization without NO). Non-QPs are exempt from the condition on WCO, because movement of a non-QP does not leave the same type of trace as movement of a true QP. Both types of movement leave a  $[-a, -p]$  empty category. But the class of  $[-a, -p]$  empty categories is now further subdivided into variables (*wh*-trace and QP-trace), and null epithets (trace of non-QP, the covert counterpart of such expressions as *the bastard*). Variables generate WCO effects, but epithets do not.

For this account to amount to more than just an alternative descriptive generalization, two things are required. First, independent evidence is needed to justify the extended typology of NPs it entails; but L&S present no firm evidence that covert epithets behave differently from other covert  $[-a, -p]$  NPs with respect to other phenomena than WCO.<sup>10</sup> Second, it should be ex-

<sup>9</sup> The situation is more complicated than I've suggested so far, however. Hornstein (1995:100) provides a reformulation of Higginbotham's WCO condition that turns it into a configurational condition: "a pronoun cannot be linked to a variable on its right." This still works, because (as long as a bound variable pronoun must be bound/linked) configurational conditions and licensing conditions differ only in cases where a pronoun has both an "appropriate" and an "inappropriate" antecedent: a licensing condition will allow such a structure, a configurational one will not. In a linking theory, a pronoun only needs to be linked to one ("appropriate") variable (rather than coindexed with several), so the distinction breaks down. Hornstein attributes the success of linking theory to this "intransitivity" property of linking, but that is also a simplification. Any theory that either allows "intransitive" analyses, or uses a licensing condition, or both (like Higginbotham's) can deal with weakest crossover without L&S's special assumptions about the null operator.

<sup>10</sup> They do point out that Overt Pronoun Constraint effects (see Montalbetti 1984) are sensitive to the presence of a semantically empty operator; it is not clear, however, that this effect reduces to a feature of the trace of the operator, nor does it reveal a common property of (normal) epithets and vacuous operator traces.

Lasnik (1991) proposes an extended NP typology that employs an added feature  $[\pm r]$  and distinguishes names  $[-a, -p, +r]$  from epithets  $[-a, +p, +r]$ . This captures the nonidentical distribution of these expressions in some languages (such as Vietnamese and Thai). But L&S's extended typology is not based on this work: with respect to WCO, names and epithets do behave identically (neither triggers WCO); in the present context, we want to distinguish names and epithets, on the one hand, from true variables (*wh*-trace, QP-trace), on the other. It would be interesting, however, to inspect the properties of null operator traces in Vietnamese and Thai. If L&S are correct in characterizing these traces as epithets, and if Lasnik (1991) is correct in claiming that epithets may be (nonlocally) bound (by nonpronouns) in Vietnamese and Thai, then we expect there to be no strong crossover (SCO) in these languages in such structures as *John<sub>i</sub> is too ugly [NO<sub>i</sub> PRO to promise the bastard<sub>i</sub> to kiss e<sub>i</sub>]*. I have not been able to verify this prediction.



plained *why* null epithets are exempt from the condition prohibiting WCO; or at least, the condition should be reformulated so as to *state* the exemption. Recall that L&S abstain from adopting any particular theory of crossover; accordingly, they do not attempt a reformulation of the WCO configuration that implements the exceptionality of epithets. As it turns out, the exception cannot insightfully be incorporated into any of the WCO accounts discussed by L&S, either Koopman and Sportiche's (1982) Bijection Principle (BP), Safir's (1984) Parallelism Constraint on Operator Binding (PCOB), or Stowell's (to appear) formulation of the condition prohibiting WCO. I will discuss these options and then turn to Safir's (1996) account.

The BP and the PCOB are symmetrical. The former states that there is a bijective correspondence between operators and variables. The latter implies that if an operator  $\bar{A}$ -binds two variables, both must be [-lexical]. These conditions work because, in a WCO configuration, they do not distinguish the operator trace from the locally  $\bar{A}$ -bound anaphoric pronoun: both types of elements count as variables. Hence, if two such elements are present, the conditions apply. In order to incorporate L&S's adjustment, however, the conditions must be asymmetrical.

For although (empty category) epithets functioning as null operator traces must be exempted from the condition prohibiting WCO, (lexical) epithets functioning as bound variable anaphors must not be exempted. This follows from the examples in (8).

- (8) a. \*Who<sub>i</sub> does the bastard's<sub>i</sub> mother love t<sub>i</sub>?  
 b. \*The idiot's<sub>i</sub> father hates every boy<sub>i</sub>.
- (9) a. [Which boy's<sub>i</sub> father]<sub>j</sub> t<sub>j</sub> loves the bastard<sub>i</sub>?  
 b. Every boy's<sub>i</sub> father hates the idiot<sub>i</sub>.

When, as in (8), it is not the trace but the anaphor that is an epithet, a WCO violation occurs, although, as (9) shows, lexical epithets can function as bound variables, if care is taken to avoid a Condition C violation. Apparently, the exemption of epithets from WCO must apply only to the trace in the configuration, not to the anaphor. A simple modification of the symmetrical BP or PCOB will therefore not do; taking "variable" in these conditions to exclude epithets will allow weakest crossover, but also (8). Instead, we are reduced to adopting something like (10), not as a descriptive generalization, but as our actual theory of WCO. I feel this does not provide an insightful account.

- (10) In a configuration where a category C  $\bar{A}$ -binds a pronoun P and a trace T, P may not be contained in an argument phrase XP that c-commands T, *unless T is an epithet*.

As for the configurational account of WCO in Stowell, to appear, it leaves even less room for a reformulation that exempts epithets. Stowell proposes that an argument containing a bound pronoun is assigned the index of the pronoun under a slash.

- (11) a. \*Who<sub>i</sub> does [<sub>NP</sub> his<sub>i</sub> mother]<sub>k/i</sub> love t<sub>i</sub>?  
 b. Who<sub>i</sub> t<sub>i</sub> will be easy for us [NO<sub>i</sub> to get [his<sub>i</sub> mother]<sub>k/i</sub> to talk to e<sub>i</sub>]?  
 c. \*Who<sub>i</sub> t<sub>i</sub> likes the bastard<sub>i</sub>?  
 d. \*Who<sub>i</sub> t<sub>i</sub> will be easy for us [NO<sub>i</sub> to get him<sub>i</sub> to talk to e<sub>i</sub>]?



WCO in (11a) is now explained because the trace of *who* violates Condition C. In order to incorporate L&S's description of weakest crossover (e.g., (11b)) into this account, one would need to exempt epithets from Condition C. However, as L&S note, both overt epithets and traces of non-QP operators obey this condition; see (11c–d).

It appears that, at the time L&S 1991 was written, there existed no configurational theory of WCO that could incorporate their descriptive account.

Let us consider next the proposal in Safir 1996. Safir revises his (1984) PCOB in terms of “ $\bar{A}$ -consistency.”  $\bar{A}$ -chains may be either derivational (the foot is a trace) or representational (the foot is a pronoun or a resumptive element); an  $\bar{A}$ -binder must either head only derivational chains or only representational chains. This explains WCO in (1b) because *who* heads both a derivational and a representational chain. Safir points to evidence from Irish and Hebrew purportedly showing that resumptive pronouns do not cause WCO violations: an operator may simultaneously  $\bar{A}$ -bind a resumptive pronoun and an anaphoric pronoun because both chains count as representational. This account is supplemented with the following stipulation (based on L&S's generalization): “A derivational variable  $v$  is converted to a resumptive (pronoun) iff  $v$  is not bound by a true quantifier” (p. 323). This entails that in weakest crossover constructions, if the binder does not count as a true quantifier, the trace is converted to a resumptive, so that the chains are  $\bar{A}$ -consistent.

This account of weakest crossover shares one weakness with L&S's: the stipulative special property of vacuous operator trace, which lacks independent evidence (the trace does not, for instance, amnesty island violations like a normal resumptive). There are also empirical problems. Some relate to weakest crossover in topicalization constructions; I discuss these in the next section. In addition, the assumption that resumptive elements do not cause WCO violations is not unproblematic. Recall Koopman and Sportiche's (1982) description of WCO in Vata, which motivated their BP. Vata resumptive pronouns wear their resumptiveness on their sleeves. Normal pronouns ( $\acute{o}$ ,  $l$ ) bear a mid-high tone; resumptives ( $\grave{o}$ ,  $\grave{i}$ ), which occur in subject position, bear a low tone. This makes it possible to construct what is definitely a WCO configuration, differing minimally from (1b) in that a resumptive takes the place of the trace.<sup>11</sup>

- (12) \* $\acute{a}l\acute{o}_i$   $\acute{o}_i$   $n\acute{o}$   $g\grave{u}g\grave{u}$   $n\bar{a}$   $\grave{o}_i$   $m\grave{l}i$   $l\grave{a}$   
 who his mother think that he-RES left *WH*  
 ‘Who did his mother think left?’

<sup>11</sup> When anaphoric pronoun and resumptive pronoun cannot be distinguished, a well-formed counterpart of (12) does not prove that resumptive pronouns are invisible to WCO, because the subject-embedded pronoun could be analyzed as the resumptive one. Then the construction is allowed by whatever explains the well-formedness of *Which boy's mother loves him?* (Higginbotham's (1983) V-chain mechanism, Safir's (1996) Q-Chain Convention, my (Ruys 2000) transitivity of scope; see section 4). A similar point is made by McCloskey (1990) (with reference to Irish SCO in resumptive structures) and by Demirdache (1991) (with reference to Hebrew WCO in resumptive structures). Furthermore, Demirdache shows that Hebrew resumptives do cause WCO violations when the anaphor can be distinguished from the resumptive, namely, when the anaphor is an overt epithet. McCloskey presents one well-formed example of this type (his (35)). I suspect this may be a case of coreference rather than variable binding; if not, there is some evidence that resumptives do not always cause WCO.

As (12) shows, a WCO violation occurs when the nonresumptive pronoun is locally  $\bar{A}$ -bound, even though both chains are representational by Safir's definition.

I conclude that accounting for weakest crossover is far from straightforward in a configurational approach to WCO, and requires special stipulations.<sup>12</sup> Therefore, a licensing approach is to be preferred.

#### 4 Topicalization

In this section, I argue, against L&S, that topicalization is not a weakest crossover configuration; given the right conditions, WCO effects can be observed. These facts constitute empirical evidence against L&S's account of weakest crossover.

According to L&S, (3d) is allowed because the  $\bar{A}$ -binder is a non-QP: the trace is bound either by the null operator (see Chomsky 1977 for the null operator analysis) or, in case there is no null operator and the topic itself has moved, by *this book* (see Lasnik and Saito 1991 for discussion of these two types of topicalization construction; but see also Authier 1992). However, Postal (1993) points out that quantificational expressions do cause WCO violations when topicalized; see (13).<sup>13</sup>

(3) d. This book<sub>i</sub>, (NO<sub>i</sub>) I expect [its<sub>i</sub> author] to buy e<sub>i</sub>.

(13) \*Everybody else<sub>i</sub>, (NO<sub>i</sub>) I told his<sub>i</sub> wife that I had called t<sub>i</sub>.

Apparently, topics cannot variable-bind pronouns. For L&S's approach, (13) is problematic.<sup>14</sup>

<sup>12</sup> An anonymous *LJ* referee suggests an interesting possible implementation of L&S's generalization. Say non-QPs are truly semantically vacuous; then Full Interpretation directs their deletion at LF, removing the WCO violation. If so, weakest crossover configurations no longer decide between configurational and licensing approaches, as there is only one antecedent at the relevant level. We expect weakest crossover constructions to be allowed just in case the external, nonvacuous operator is a proper antecedent, as I have argued. I am not convinced the null operator in (3a–c) has no semantic function, however; if the null operator is not needed for linking the two chains in (3b–c), or as a  $\lambda$ -operator in (3a), what could force its movement to the correct operator position? But perhaps deletion is subject to a requirement of 0-subjacency with the antecedent, or to Chomsky's (2000) Phase Impenetrability Condition. Also, it is unclear how the trace of the null operator in (3a–b) would evade Condition C after the deletion. The account does not hold for topicalization without a null operator (but see the next section). I cannot foresee whether the suggestion can be maintained, but the option appears worth pursuing further.

<sup>13</sup> The facts are not restricted to *QNP else*. Lee (1996) reports that many speakers allow (ia)–but not (1b), a WCO case.

(i) a. Every employee<sub>i</sub>, the boss invited t<sub>i</sub> to his<sub>i</sub> birthday party.

b. \*Every employee<sub>i</sub>, her<sub>i</sub> friend came to visit t<sub>i</sub>.

<sup>14</sup> Although the contrast between (3d) and (13) accords with L&S's intuition that non-QPs and true QPs behave differently with respect to WCO, as Postal points out, (13) is problematic for L&S's and Safir's analyses. In both (3d) and (13), the trace is locally bound by a non-QP null operator; this should render it invisible to WCO. One potential remedy is to postulate that the null operator in (13) is irrelevant: the trace does not become an epithet/resumptive, because the ultimate (semantically nonvacuous) binder is a true QP. I believe this is the approach favored by Safir, but it upsets the explanation for the core weakest crossover examples discussed in section 1. In the parasitic gap construction (3c), the external binder is also quantificational (a problem acknowledged by Safir (1996:fn. 13)). The same holds for (3a), and for this variant of (3b) (from L&S 1991:696):

(i) No child<sub>i</sub> is old enough for us [NO<sub>i</sub> [PRO to ask [his<sub>i</sub> mother] to give up e<sub>i</sub>]].

An alternative would be to block the null operator option for (13), but it is unclear how this can be implemented, given that QPs can be base-generated (see footnote 15).

On a licensing approach, (13) can be explained by positing that the topic position, base-generated or otherwise, is not a licensing position. This derives the WCO effect.<sup>15</sup> But what about (3d)?

Since my analysis makes no distinction between QPs and non-QPs, it predicts further that referential topics should also be unable to variable-bind pronouns. L&S predict that they should, because non-QPs do not generate WCO violations; this prediction is independent of the null operator analysis. So again consider (3d). If the topic *this book* indeed does not license a bound variable reading for *its*, this must be a case of simple (“accidental”) coreference, not subject to the condition prohibiting WCO. L&S argue against this view on the basis of the sloppy identity reading of (14).

- (14) This book<sub>i</sub> [NO<sub>i</sub> [I would never ask its<sub>i</sub> author to read e<sub>i</sub>]], but that book<sub>j</sub> [NO<sub>j</sub> [I would \_\_\_\_\_]].

How reliable is this test? Lasnik (1976) detected no sloppy readings in (15).

- (15) a. Harry’s mother believes he is intelligent, and Bill’s mother does \_\_\_\_\_ too.  
b. The woman who emulated Harry believes he is intelligent and the woman who emulated Bill does \_\_\_\_\_ too.

The explanation was that the sloppy reading comes about when the pronoun is interpreted as a bound variable (Sag 1976, Williams 1977) and that this bound variable reading is subject to the usual conditions, including WCO (Lasnik 1976, Reinhart 1983).

However, these facts have not remained unchallenged. Fiengo and May (1994) do report sloppy readings for (16) ((16b) attributed to Michael Wescoat); see also Tomioka 1996 and references cited there.

- (16) a. Max’s mother loves him, and Oscar’s mother does \_\_\_\_\_ , too.  
b. The policeman who arrested John read him his rights, and the one who arrested Bill did \_\_\_\_\_ , too.

In particular, if a sloppy reading is available for (16b), a bound variable analysis of this reading is excluded, since *John* is contained in a (Complex NP Constraint) scope island. Fiengo and May propose that sloppy readings in VP-ellipsis are not caused by a bound variable reading for the pronoun. If the overt pronoun is merely coreferential with its antecedent, the elided pronoun may either share the reference of the overt pronoun (strict) or maintain a coreference relation structurally parallel to the one in the antecedent (sloppy). In either case, the parallelism requirement on VP-

<sup>15</sup> One could attempt an alternative explanation: stipulate that only the base-generated topic (with null operator) is in a licensing position and that quantificational expressions do not allow base generation: then *everybody else* in (13) is not in a licensing position, but *this book* in (3d) is. This approach fails, however. Consider left-dislocation in (i).

- (i) a. Everybody else, I like them.  
b. \*Everybody else, I like him.

(ia) shows that quantificational expressions can be base-generated. The ill-formedness of (ib) shows that the base-generated position does not allow bound variable licensing; if it did, the pronoun would not have to be coreferential, and therefore plural.

ellipsis is satisfied. Hence, when *him* in (16b) is coreferential with *John*, the elided pronoun may be coreferential with *Bill*. This allows a sloppy reading in (14) as well, without variable binding.<sup>16</sup>

In conclusion: (14) does not prove that *its* is a bound variable, and the view that the topic position does not license bound anaphora can be upheld. This predicts WCO effects in topicalization, with both QPs and non-QPs. Other tests in Reinhart's (1983) arsenal confirm this prediction (examples below are cited from Reinhart 1986). A bound variable reading is required for sloppy identity in bare argument ellipsis (see esp. Reinhart 1991; Fiengo and May concur).

- (17) a. You could probably find Charlie in his room right now, but not Snoopy.  
 b. The rebellion against Jabba the Hutt bothered him, and the rebellion against the other tyrant too.  
 c. Her dog talks to Lucy, when he's in a good mood, and to Linda too.

A sloppy reading is available in (17a). Reinhart's analysis says that *Charlie* in (17a) undergoes QR to form a derived constituent with *but not Snoopy*, which variable-binds the pronoun through the trace of *Charlie*. There is no sloppy reading in (17b) or (17c), as the conditions on variable binding are not met. Now consider (18).

- (18) a. Linda, her dog hates, and Susan too.  
 b. Linda, her dog hates, but not Susan.

There is no sloppy reading in (18). This confirms the predictions: WCO (i.e., absence of licensing) prevents the bound reading in (18). L&S's and Safir's analysis could explain (18) (and indeed, (17)) only if the derived constituents *Linda and Susan too* and *Linda but not Susan* counted as true quantifiers; this would seem to require a revision of L&S's definition.<sup>17</sup>

<sup>16</sup> A bound variable analysis for (14) would, furthermore, violate Sag's (1976) and Williams's (1977) requirement that the antecedent VP may not contain free variables that end up bound by a different operator token after copying. However, this requirement has also been challenged. Fiengo and May allow a sloppy reading in (ia); Hardt (1992) allows one in (ib); (ic) is from Merchant 1999:69 fn. 8 (May (1988:129) reports similar intuitions); see also Partee and Bach 1984, as well as Hardt 1999 and references cited there (observe, incidentally, that *Mary* in (ib) cannot bind *her*).

- (i) a. I didn't know that Bill was a bigamist; Mary just said he is married to her, and Sally said he is, too.  
 b. A: [Speaking of Mary] John asked her out.  
 B: Really—I'm surprised that any girl would want him to.  
 c. I know what I like and what I don't.

In case (16) were judged unconvincing, and proven less significant than (15), the weakest crossover case (14) might be distinguished from (15) along the following lines. Suppose a coreference relation can be copied (or satisfy parallelism) just in case the relation is not "interrupted" through the copying procedure. In terms of a linking analysis: a link may be copied, but not severed and then restored in the ellipsis site. In (15), the coreference relation crosses the boundary of the copied VP, but in (14) the coreference relation (between pronoun and trace of topic or null operator) is internal to the ellipsis site.

<sup>17</sup> L&S and Safir probably cannot maintain Reinhart's analysis of bare argument ellipsis; if they allowed QR for referential NPs, they would allow variable binding in, for example, *His mother loves John*. This may not be a problem for VP-ellipsis, which may not depend on variable binding, but it would create a problem for the distribution of "paycheck" readings (see (20)).

Another test for variable binding discussed by Reinhart is exemplified in (19).

- (19) a. Even Winnie thinks he is smart.  
 b. Even Winnie his mother likes.

(19a) has a coreferential reading for *he* (even Winnie thinks Winnie is smart) and a bound variable reading (even Winnie is one of those who consider themselves smart). The topicalization structure (19b) has only a coreferential reading. This again shows a WCO effect in a topicalization context. What L&S and Safir predict depends on a refinement of the “true QP” notion.

Finally, consider pronouns of laziness (see Karttunen 1969, Cooper 1979; also see Ruys 2000 for discussion of the variable-binding requirement in paycheck sentences).

- (20) a. John gave his paycheck to his wife, and Peter gave it to his mistress.  
 b. His paycheck proved that Bill was rich, and it proved that John was poor.  
 c. John, I expect his mother to like, but Peter, I expect her to hate.  
 d. John, his dog bit, but Peter, it licked.

There is a “paycheck reading” in (20a) (Peter gave his own paycheck to his mistress) but not in (20b) because this reading depends on variable binding into the pronouns (both the antecedent and the pronoun of laziness itself; see Ruys 2000). The absence of a paycheck reading in (20c) and (20d) confirms my assumptions. These cases are problematic for configurational approaches to WCO because non-QPs show a WCO effect here; hence, L&S’s generalization fails. The licensing approach, on the other hand, can explain the WCO effects in all topicalization cases discussed here.

Additional evidence that the topic can cause WCO, even if it is a non-QP, comes from Postal’s (1993) “secondary crossover” examples. Consider first (21) and (22).

- (21) a. [ $\alpha$  Whose<sub>i</sub> mother]<sub>j</sub> t<sub>j</sub> loves him<sub>i</sub>?  
 b. Whose<sub>i</sub> [ $\alpha$  t<sub>i</sub> mother]<sub>j</sub> t<sub>j</sub> loves him<sub>i</sub>?  
 (22) a. \* $[\alpha$  Whose<sub>i</sub> father]<sub>j</sub> does his<sub>i</sub> mother hate t<sub>j</sub>?  
 b. \* $[\alpha$  Whose<sub>i</sub> father]<sub>j</sub> does he<sub>i</sub> hate t<sub>j</sub>?

This is a widely discussed paradigm, originally due to Higginbotham (1980). Even assuming that *whose* in (21a) moves out of  $\alpha$  at LF to take scope over the pronoun, as in (21b), how is a WCO configuration avoided or, alternatively, how is the pronoun licensed as a bound variable? It appears that the relevant relation is not between *whose* and the pronoun, but between  $\alpha$  and the pronoun; WCO or SCO obtains (see (22)), iff  $\alpha$  (or its trace) is not in an A-position c-commanding the pronoun. This analysis has been implemented in many different ways (see Ruys 1992 for an overview). For concreteness, consider Safir’s Q-Chain Convention, which will work for licensing theories and configurational theories alike. By this convention, because *whose* is a quantified expression with its trace contained in  $\alpha$ , the index of *whose* is added, under a slash, to the index on the trace of  $\alpha$ . For (21a) and (22a), this results in (23).

- (23) a. Whose<sub>i</sub> [ $\alpha$  t<sub>i</sub> mother]<sub>j</sub> t<sub>j/i</sub> loves him<sub>i</sub>?  
 b. \*Whose<sub>i</sub> [ $\alpha$  t<sub>i</sub> father]<sub>j</sub> does his<sub>i</sub> mother hate t<sub>j/i</sub>?

In (23a), the pronoun is properly A-bound (because of the index  $i$  on the subject trace); but in (23b), it is not. The same effects are observed with embedded QNPs (inverse linking in *Every boy's mother loves him*, *Someone in every city hates it*).

Given this background, consider (24) ((24a) and (24c) from Postal 1993:544 and 543, respectively; (24b) and (24d) are from Safir 1996:326).

- (24) a.  $*[_{\alpha}$  Everybody else's <sub>$i$</sub>  wife] <sub>$j$</sub> , I told him <sub>$i$</sub>  that I had called  $t_j$ .  
 b.  $*[_{\alpha}$  Someone else's <sub>$i$</sub>  mother] <sub>$j$</sub>  his <sub>$i$</sub>  brother will never love  $t_j$ .  
 c. [ $_{\alpha}$  Jerome's <sub>$i$</sub>  sister] <sub>$j$</sub> , I informed him <sub>$i$</sub> ; you were waiting for  $t_j$ .  
 d. [ $_{\alpha}$  John's <sub>$i$</sub>  mother] <sub>$j$</sub>  his <sub>$i$</sub>  brother will never love  $t_j$ .

(24a) (SCO) and (24b) (WCO) show the “secondary crossover” effect of (22) in a topicalization context. Postal points out that the effect does not occur with an embedded nonquantificational expression; see (24c–d). However, while the facts again suggest a distinction between QPs and non-QPs, they do not follow from L&S's analysis; why should the referential properties of the embedded NP be relevant to the behavior of  $\alpha$  and determine whether the trace of  $\alpha$  counts as an epithet? Even if no null operator is present to render the trace of  $\alpha$  immune to WCO,  $\alpha$ 's own status as a non-QP should.<sup>18</sup>

The ill-formedness of (24a–b) again follows from the assumptions made here. There is indirect licensing via  $\alpha$  in (21) (through a Q-chain, through a V-chain (Higginbotham 1983), or through the mechanisms in Reinhart 1987 or Ruys 1992, 2000), but not in (24a–b) since  $\alpha$  and its trace are not in a licensing position.<sup>19</sup> This explains the WCO effect in (24a–b). No bound variable licensing is needed in (24c–d).<sup>20</sup>

I began this article by distinguishing two types of WCO conditions: licensing conditions and configurational conditions. While this distinction lacks a formal characterization and does not apply to all WCO conditions known from the literature, it provides a convenient classification that allows us to discuss the relevance of weakest crossover for various WCO conditions in general

<sup>18</sup> Safir (1996) provides this solution: after QR of the QNPs, their indices are attached to the trace of  $\alpha$ , causing WCO in (24b) and SCO (the trace is A-bound by the pronoun) in (24a). Nonquantificational NPs do not trigger slash indexing. While this analysis works, it stretches the Q-Chain Convention. After slash indexing in (24b), the trace of  $\alpha$  is bound both by a non-QP ( $\alpha$ , or the null operator) and by a true QP (*someone else's*). Does it turn into a resumptive or not? One answer is that it does not, because at least one binder is a true QP—this explains (24) but raises the problems for regular weakest crossover pointed out in footnote 14. An alternative is to assume, with Safir, that not the trace but its index can be turned into a resumptive; then only the original index on  $t_{\alpha}$  becomes a resumptive and the slash index violates the condition prohibiting WCO; but this analysis makes the slash indices irreducible. Note, finally, that the trace of *someone else's* must somehow be excluded from consideration (Safir 1996:fn. 9).

<sup>19</sup> Perhaps there is an additional SCO (Condition C) effect in (24a); see Safir 1999 for a discussion of reconstruction in these contexts.

<sup>20</sup> I have not discussed appositive relative clauses, which L&S claim also show a weakest crossover effect in (3e). However, L&S provide no evidence that the pronoun in (3e) is a bound variable, rather than merely coreferential with *Gerald*. They do analyze the relative operator as a pronoun coreferential with the head NP, a plausible analysis since the head NP must be referential (or specific) for it to allow an appositive relative. Consequently, we can analyze the anaphoric pronoun as coreferential as well, as proposed earlier by Clark (1992). I feel this approach is also compatible with Safir's (1996) LF' account of appositives.

Also, a licensing analysis of the pseudocleft crossover examples in Postal 1993 must await further research.



terms. I have argued that a successful licensing condition will automatically derive most weakest crossover facts, whereas configurational conditions require special stipulations in order to describe weakest crossover. As for apparent counterexamples found in topicalization constructions, I have argued that these are not cases of weakest crossover. On closer inspection, a WCO effect does appear in these constructions, a fact that seems problematic for existing configurational analyses of weakest crossover. I conclude that weakest crossover argues against a configurational approach to WCO, and for a licensing approach.

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