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HOW STRICT IS THE CYCLE?
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Chomsky (1995) proposes two ways of capturing cyclicity effects, which we will refer to as the *Extension Condition* and the *strength conception of the cycle*.¹ Chomsky (1995:248, 254) requires that both Merge and Move take place at the root only (the Extension Condition).² This conception of the basic syntactic operations of Merge and Move rules out all acyclic movement, lexical insertion, and assembling of separately built trees. In addition, Chomsky (1995:233–234) proposes to derive at least some cyclicity effects through the definition of “strength,” the notion developed to force overt movement. He defines strong features as elements that are not tolerated by the derivation and therefore must be eliminated from the tree (almost) immediately upon insertion into the structure. More precisely, he defines strength in the following way:

- (1) Suppose that the derivation D has formed Σ containing α with a strong feature F. Then, D is canceled if α is in a category not headed by α .

This conception of strength disallows acyclic checking of heads with strong features.

The Extension Condition and strength clearly overlap in their effects. For example, if in order to void Relativized Minimality effects with superraising and *wh*-islands we acyclically insert the intervening specifiers in (2) (*whether* and *it*), we violate both the Extension Condition and (1), an undesirable redundancy.

- (2) a. ??Who_i do you wonder whether John likes t_i?
 b. *John_i seems it was told t_i that Peter likes Mary.

For helpful comments and thought-provoking questions, we thank two anonymous reviewers and the participants of a 1997 syntax seminar at the University of Connecticut.

¹ Chomsky (1995:254) (see also Collins 1997) actually hints at an additional way of obtaining cyclicity effects based on Kayne’s (1994) Linear Correspondence Axiom and Epstein’s (1995) view of c-command.

² The Extension Condition was originally proposed in Chomsky 1993. On the Extension Condition, see also Kitahara 1995.

Moreover, the Extension Condition (at least its application to Move) is problematic in several respects. In particular, LF movement and head adjunction appear to freely violate the condition; as a result these operations have been exempted from it (see Chomsky 1993), another conceptually undesirable move. Given the problematic nature of the Extension Condition, we suggest eliminating the redundancy between it and the notion of strength with respect to cyclicity effects by simply dispensing with it. Head adjunction and LF movement are thereby brought in line with the cycle. For example, no additional stipulations are now needed to accommodate overt V-to-I movement in French, which we assume is driven by strong feature checking. Also, since LF movement is by definition not driven by strong feature checking, it is automatically consistent with the strength conception of the cycle.³

An interesting property of this conception of the cycle is that it does not in principle ban elements that do not have any strong features from entering the structure acyclically. In this squib we will explore some empirical consequences of this effect of the strength conception of the cycle, suggesting that the effect may be empirically desirable.⁴

1 French *Wh*-in-Situ

We will start by examining the distribution of *wh*-in-situ in French. Consider the paradigm in (3)–(5).⁵

- (3) a. Tu as vu qui?
 you have seen whom
 ‘Who did you see?’
 b. Qui as-tu vu?
- (4) a. Pierre a demandé qui tu as vu.
 Pierre has asked whom you have seen
 ‘Pierre asked who you saw.’
 b. *Pierre a demandé tu as vu qui.

³ Occasional arguments have been made for a separate cycle in LF (see Bures 1993, Branigan and Collins 1993, Jonas and Bobaljik 1993, and Watanabe 1995). The existence of a separate LF cycle is inconsistent with minimalist approaches to cyclicity, which relate cyclicity to other independently motivated mechanisms (phrase structure building and strength) and therefore will not be assumed here. (Needless to say, this move requires reevaluation of arguments for an LF cycle, which to us do not seem overwhelming.) Ensuring the existence of a separate LF cycle would require postulating the cycle as an independent principle along the lines of the definition of the cycle given in Chomsky 1973, which would be greatly redundant with the minimalist approaches discussed above. Furthermore, we will suggest below that under certain well-defined conditions syntactic operations can take place acyclically, which makes rigid definitions of the cycle such as that in Chomsky 1973, intended to rule out all acyclic operations, simply empirically inadequate.

⁴ Another recent work that appeals to acyclic lexical insertion in certain well-defined contexts is Hegarty 1994.

⁵ Note that overt C questions like (5a) are not acceptable in all dialects of French.

- (5) a. Qui que tu as vu?
 whom c you have seen
 'Who did you see?'
 b. *Que tu as vu qui?

Bošković (in press c) shows that the distribution of *wh*-in-situ in French can be accounted for rather straightforwardly under the minimalist view of lexical insertion, that is, the operation Merge.

Merge, which includes lexical insertion, generally takes place in overt syntax. Chomsky (1995) observes that this follows without stipulation. Thus, if an NP such as *John* is inserted in LF, the derivation crashes because LF cannot interpret its phonological features. If, on the other hand, *John* is inserted in PF, PF does not know how to interpret its semantic features. The only way to derive legitimate structures in PF and LF is for *John* to be inserted before the 'S-Structure' is reached. PF then strips off the phonological features of *John*, and its semantic features proceed to LF. This line of reasoning allows lexical insertion to take place in PF and LF under certain conditions. To be more precise, it allows PF insertion of semantically null elements and LF insertion of phonologically null elements. Focusing on the second possibility, notice that phonologically null elements could in principle enter the structure in LF even if they bear a strong feature under Chomsky's (1995) definition of strength.

Bošković (in press c) argues that this is exactly what happens in the French constructions under consideration. In particular, he argues that C with a strong [+wh] is inserted in the LF structure of (3a). *Wh*-movement then does not take place in (3a) overtly for a trivial reason: its trigger is not present overtly. The LF insertion of the strong [+wh] C triggers LF *wh*-movement, which checks the strong [+wh] of C.⁶ The LF insertion of the strong [+wh] C, whose availability is a prerequisite for *wh*-in-situ in French under Bošković's (in press c) analysis, fails in (4b) because it results in a violation of (1), and in (5b) because the complementizer is not phonologically null (i.e., the very fact that the complementizer is pronounced indicates that it has been inserted overtly, which should trigger overt *wh*-movement).⁷

Now consider the following data from Bošković, in press c:

- (6) a. *Jean et Pierre croient que Marie a vu qui?
 Jean and Pierre believe that Marie has seen whom
 'Whom do Jean and Pierre believe that Marie saw?'

⁶ According to Chomsky (1995:382, n. 17), strength must be removed for convergence even if not embedded. We assume that this holds for both interface levels.

⁷ See footnote 6. Bošković (in press c) presents a slightly different analysis of (4b) and (5b). Notice that we cannot assume that the interrogative C in French is inserted overtly but that its [+wh] can be either strong or weak. If we were to do that, we would never be able to enforce the *wh*-movement option, which would leave the ungrammaticality of (4b) and (5b) (see also (6) and (7)) unaccounted for.

Two anonymous reviewers raise the question why the LF C-insertion deri-

- b. Qui Jean et Pierre croient-ils que Marie a
whom Jean and Pierre believe-they that Marie has
vu?
seen
(same)
- (7) a. ?*Jean ne mange pas quoi?
Jean NEG eats NEG what
'What doesn't Jean eat?'
b. Que ne mange-t-il pas?
what NEG eats-he NEG
'What doesn't he eat?'

Notice first that under the LF C-insertion analysis of French *wh*-in-situ, French *wh*-in-situ constructions must involve LF *wh*-movement. Unselective binding is not an option in such constructions because it would leave the strong [+wh] of C, inserted in LF, unchecked (see footnote 6). Given this, the contrasts in (6) and (7) appear to indicate that LF *wh*-movement is more local than overt *wh*-movement, which is the conclusion drawn in Bošković, in press a. That LF *wh*-movement is responsible for the ungrammaticality of (6a) and (7a) is confirmed by (8a–b).⁸

- (8) a. Qui croit que Marie a vu qui?
who believes that Marie has seen whom
'Who believes that Marie saw whom?'

vation is not allowed in English. (The derivation would incorrectly yield *John bought what?* as a well-formed true nonecho question.) Bošković (in press c) claims that the LF C-insertion derivation is blocked in English because the English matrix interrogative complementizer is lexically specified as a phonological affix, which must be attached to a verbal element in PF. The presence of phonological information in the lexical entry prevents the complementizer from entering the structure in LF. (For an alternative analysis, see Chomsky 1995, Lasnik (1999) and Bošković (in press c) show that the analysis is seriously flawed both empirically and conceptually and therefore cannot be maintained.) Evidence that the matrix interrogative complementizer in English is a verbal affix comes from the fact that the complementizer must always be adjacent to a verbal element in PF. (For discussion of the embedded interrogative complementizer in English, which superficially appears not to be subject to the adjacency requirement, see Bošković, in press c.) This is not the case in French, where the interrogative complementizer is not a verbal affix. Thus, French (i) strongly contrasts with its English counterpart.

- (i) Qui tu as vu?
whom you have seen
'Who did you see?'

The LF C-insertion analysis raises other interesting questions (e.g., why both *wh*-in-situ and overt *wh*-movement are available in matrix null C questions in French) that we cannot go into here for reasons of space. They are discussed in detail in Bošković, in press c.

⁸ Notice that French differs from Iraqi Arabic, which never allows *wh*-

- b. Qui ne mange pas quoi?
 who NEG eats NEG what
 'Who doesn't eat what?'

Bošković (in press c) observes that (8a–b) are acceptable on the true question, pair-list reading. They crucially differ from (6a) and (7a), which are degraded on the true question, nonecho reading, in that they contain another *wh*-phrase that is located overtly in the interrogative [Spec, CP]. This *wh*-phrase can check the strong [+wh] of C, so that there is no need for the *wh*-phrase in situ to move in LF. The *wh*-phrase in situ can then be unselectively bound. In (6a) and (7a), on the other hand, the *wh*-phrase in situ is the only element that can check the strong [+wh] of C and is therefore forced to undergo LF *wh*-movement. Unselective binding by C is not an option in these constructions, since it would leave the strong [+wh] of C unchecked. (The *wh*-phrase would never enter the checking domain of C.) The contrasts under consideration indicate that (at least in French) movement to [Spec, CP] is driven by an ‘inadequacy’ of the interrogative C, as suggested by Chomsky (1995). When this inadequacy is taken care of, as in (8a–b), the *wh*-phrase in situ does not have to move in LF. When the inadequacy of C is not taken care of, as in (6a) and (7a), the *wh*-phrase must move in LF. Given that the *wh*-phrase in situ needs to undergo LF *wh*-movement in (6a) and (7a) but not in (8a–b), it seems plausible to attribute the ungrammaticality of (6a) and (7a) to locality restrictions on movement. (6a) and (7a), which contrast with (3a), seem to indicate that, in contrast to V and I, C and negation have a blocking effect on LF *wh*-movement. Bošković (in press a,c) appeals to Move F to account for this blocking effect.

Chomsky (1995) observes that a natural consequence of the standard minimalist assumption that movement is driven by feature checking is that, all else being equal, the operation Move should apply to features and not to syntactic categories. Overt movement, which feeds PF, still has to apply to whole categories, given the natural assumption that lexical items with scattered features cannot be interpreted/pronounced at PF. Since considerations of PF interpretability are not relevant to LF, in LF the operation Move should apply only to features. Chomsky instantiates this feature movement as adjunction to X^0 elements. He argues that in LF formal features (FFs) move to heads bearing matching features. Under a natural interpretation of this analysis, all LF movement necessarily involves head movement. Given this,

phrases in situ within finite clauses (the counterparts of both (6a) and (8a) are ill formed in Iraqi Arabic; see Wahba 1991). As a result, Ouhalla's (1996) analysis of Iraqi Arabic that treats Iraqi Arabic *wh*-phrases as *wh*-anaphors, subject to Condition A (this is the reason why *wh*-phrases in Iraqi Arabic must all be close to their antecedent, [+wh] C), cannot be extended to French. Notice also that Ouhalla's analysis of Iraqi Arabic was prompted by a similarity in the morphological makeup of Iraqi Arabic *wh*-phrases and reflexive anaphors, which is not found in French.

LF *wh*-movement involves movement to C, and not to [Spec, CP]. If we adopt Rivero's (1991) and Roberts's (1992) proposal that Relativized Minimality applies to head as well as phrasal movement, LF *wh*-movement is movement to an \bar{A} -head position. It is then no surprise that it is blocked by intervening \bar{A} -heads, such as C and Neg, but not by intervening A-heads, such as V and I (see Bošković, in press a, for technical details of the analysis). Bošković's (in press a,c) analysis thus accounts for the contrast between (3a) and (6a)/(7a). However, the analysis is inconsistent with Chomsky's (1995, MIT lectures 1995) conceptually appealing proposal to reduce all checking configurations to the FF-head relation. Chomsky proposes that every time movement motivated by feature checking takes place, checking FFs adjoin to the head that induces the movement. This holds for both overt and covert syntax. Chomsky proposes that, in addition to the feature-checking chain, in overt syntax a derivative category chain is formed, whose purpose is to ensure PF convergence—more precisely, to ensure that we do not end up with scattered lexical items in PF. In this system FFs and categories form separate chains: FF chains, which are constructed to satisfy the requirements of Attract F, being created in both covert and overt syntax, and category chains, which are constructed to ensure PF convergence, being created only in overt syntax (see Ochi, in press, and Agbayani, in press, for interesting empirical evidence for this approach). Since feature movement takes place in both covert and overt syntax, we can then reduce all checking configurations to a single configuration, FF-head, an appealing move conceptually.

At first sight it appears that in this system we would not expect to find instances of LF movement that are more local than the corresponding overt movements, since both LF and overt movement involve Move F.⁹ The French facts discussed above thus appear to pose a challenge for Chomsky's (1995) two-movements hypothesis.¹⁰ The strength conception of the cycle, which allows acyclic insertion of weak heads, eliminates the challenge. Under this analysis LF movement and overt movement in French long-distance and negative questions take place in different structural environments. Whereas complementizer *que* and the negation must be present in the structure when LF movement takes place, they can be absent from the structure when overt movement takes place. Consider first (6). Since complementizer *que* plausibly does not have any strong features, nothing prevents it from entering the structure acyclically. In particular, nothing prevents it from entering the structure after overt *wh*-movement takes place.¹¹

⁹ The converse situation (overt movement being more local than covert movement) would not be unexpected since overt movement involves an additional operation, namely, category pied-piping movement. For much relevant discussion on this point, see Ochi, in press.

¹⁰ Bošković (in press a,c) in fact explicitly rejects the two-movements hypothesis.

¹¹ Interestingly, Chomsky (1973) and Lasnik and Uriagereka (1988) suggest that English complementizer *that* can be inserted acyclically.

- (9) a. Qui_i Jean et Pierre croient-ils Marie a vu t_i?
 b. Qui_i Jean et Pierre croient-ils que Marie a vu t_i?

Although *que* can enter the structure acyclically, being phonologically realized it clearly must have entered the structure in (6) before LF. We then have a very simple explanation why *que* induces a blocking effect for LF movement, but not for overt *wh*-movement. *Que* must be present in the structure when LF *wh*-movement takes place, but not when overt *wh*-movement takes place. As a result, even if both overt and covert syntax involve Move F, as argued by Chomsky, and even if complementizer *que* indeed has a blocking effect on *wh*-feature movement, as argued by Bošković (in press a,c), the contrast between (6a) and (6b) can still be accounted for.¹²

The analysis of the contrast in (6) can be readily extended to (7) if French negation does not have any strong features, a lack that would

¹² A potential problem for this analysis is raised by certain facts concerning infinitival complementation in French. Bošković (in press a) shows that there is a dialectal split with respect to constructions such as (i) (see also Boeckx, in preparation).

- (i) (*)Avoir convaincu ses amis, Pierre le croit.
 to-have convinced his friends Pierre it believes
 (cf. *Pierre croit avoir convaincu ses amis* 'lit. Pierre believes to-have convinced his friends')

Bošković (in press a) suggests that for the speakers who reject (i) the infinitival complement is a CP, and for those who accept (i) it is an IP. The ungrammaticality of (i) for the first group of speakers would then reduce to the ungrammaticality of English (iia–b). (For accounts of these, see Stowell 1981, Pesetsky 1992, and Ormazabal 1995, among others, where it is argued that moving a complement headed by a null C results in a violation of licensing conditions on the null C.)

- (ii) a. *John likes Mary is believed by everyone.
 (cf. *That John likes Mary is believed by everyone*)
 b. *John likes Mary Peter never believed.
 (cf. *That John likes Mary Peter never believed*)

Bošković further observes that the speakers for whom *croire* takes a CP infinitival complement reject constructions such as (iii) on the true question reading of the *wh*-phrase, whereas the speakers for whom *croire* takes an IP infinitival complement accept such constructions.

- (iii) (*)Tu crois avoir vu qui?
 you believe to-have seen whom

These facts indicate that the null C, as well as the overt C, has a blocking effect on LF *wh*-movement. This is unexpected under the current analysis (though not under Bošković's (in press a) analysis). Assuming that the infinitival complementizer does not have any strong features, since the complementizer is phonologically null it should be possible to delay its insertion until LF; that is, it should be possible to insert it even after LF *wh*-movement. Since the complementizer then would not be present in the structure at the point when *qui* moves in (iii), it would not be expected to affect the movement of *qui*. Clearly, we need a way of preventing the complementizer from entering the structure in LF. To do that, following a suggestion by Masao Ochi (personal communica-

enable it to enter the structure acyclically. Since French negation is phonologically realized, we know that it has entered the structure before Spell-Out in (7). It then must be present in the structure when LF movement takes place, but not necessarily when overt movement takes place, giving rise to the now familiar asymmetry.¹³

We conclude, therefore, that the strength conception of the cycle enables us to account for Bošković's (in press a,c) data concerning French *wh*-in-situ while still maintaining Chomsky's two-movements hypothesis, which reduces all checking configurations to the FF-head relation.

Having shown how the proposal to capture cyclicity effects through (1) deals with French *wh*-in-situ constructions, in the next section we discuss further consequences of this proposal. In particular, we show how the proposal enables us to account for some previously unexplained Empty Category Principle/Subjacency asymmetries.

2 Empty Category Principle/Subjacency Asymmetries

Quite generally, traditional Empty Category Principle (ECP) violations with extraction of adjuncts go hand in hand with Subjacency violations with extraction of arguments. More precisely, quite generally, in the contexts in which extraction of adjuncts leads to an ECP violation, extraction of arguments leads to a Subjacency violation. This is illustrated in (10) with respect to several different types of islands.

- (10) a. ??What_i do you wonder [whether Peter bought t_i]?
 b. *How_i do you wonder [whether Peter fixed the car t_i]?
 c. ??Who_i did Mary leave for London [after Peter had visited t_i]?
 d. *Why_i did Mary leave for London [after Peter had visited her t_i]?
 e. ??What_i did you see [a tall man who fixed t_i]?
 f. *How_i did you see [a tall man who fixed your car t_i]?

Continuing the research program that originated with Chomsky 1986, Chomsky and Lasnik (1993) develop a system in which traditional ECP violations with adjuncts and Subjacency violations with arguments reduce to the same economy condition, the only distinction between the two being that with argument Subjacency violations the offending trace is deleted in LF, whereas with adjunct ECP violations it remains present in the final LF representation. In this system we would not expect to find a configuration in which extraction of adjuncts

tion), we speculate that the complementizer is lexically specified as a phonological affix. (The same proposal has been made by Ormazabal (1995).) The presence of phonological information in the lexical entry of the complementizer prevents it from entering the structure in LF.

¹³ We assume here that *ne* either is base-generated in its surface position, or is generated in some lower position and then undergoes PF cliticization.

would lead to an ECP-type violation, but extraction of arguments would not lead to a Subjacency-type violation. It is well known, however, that such configurations exist. For example, as discussed by Rizzi (1990), pseudo-opacity effects and inner island effects obtain with adjunct extraction, but not with argument extraction. We illustrate this in (11) with respect to pseudo-opacity.¹⁴

- (11) a. [Combien de livres]_i a-t-il beaucoup consultés t_i?
 how-many of books has he a-lot consulted
 ‘How many books did he consult a lot?’
 b. *Combien_i a-t-il beaucoup consultés [t_i de livres]?
 (cf. *Combien_i a-t-il consultés [t_i de livres]?*)

The way of capturing cyclicity effects adopted above can explain this asymmetry between the ECP and Subjacency, which is unexpected in light of (10), provided that we adopt Lasnik and Saito’s (1984, 1992) proposal that adjunct traces are checked with respect to locality restrictions only in LF, whereas argument traces can be checked in overt syntax.¹⁵ Assuming that *beaucoup* does not have any strong features to check and is not required to be present in the structure to check strong features of another element, rather plausible assumptions, it could enter the structure acyclically in the current system. However, since *beaucoup* is phonologically realized, it must have entered the structure in overt syntax. Given Lasnik and Saito’s proposal, *beaucoup* then does not have to be present in the structure when argument chains are checked with respect to locality restrictions, but it does have to be present in the structure when adjunct traces are checked with respect to locality restrictions. The surprising asymmetry between the ECP and Subjacency exhibited by pseudo-opacity is thus captured in a way that, as far as we can tell, does not have any undesirable consequences for (10).¹⁶

3 Superiority

One potential problem for the view of the cycle adopted above is raised by superiority effects.

¹⁴ As far as we can tell, our discussion of pseudo-opacity carries over straightforwardly to inner islands. For relevant discussion, see also Takahashi 1994.

¹⁵ See Lasnik and Saito 1984, 1992 for motivation for this proposal, and for a potential way to deduce this difference between adjuncts and arguments from independent mechanisms of the grammar. It remains to be seen how Lasnik and Saito’s proposal can be incorporated into current approaches to locality of movement and trace licensing. The argument-adjunct asymmetry in grammaticality judgments, as well as extraction out of nonrelativized minimality islands in general, is actually very difficult to capture in the current system. For a survey of issues and problems associated with them, see Lasnik, in press.

¹⁶ It seems plausible to assume that the postverbal clause in (10c–d) would be considered an adjunct even without the presence of *after*, in which case

(12) ?*What_i did John persuade who to buy t_i?

A potentially problematic derivation involves *wh*-movement of *what* followed by acyclic insertion of *who*. At least under some approaches to superiority (in particular, derivational approaches), including Chomsky's (1973) original Superiority Condition and the economy account of superiority (see, e.g., Chomsky 1995, Bošković 1997, in press b, Cheng 1997, Kitahara 1997), we would not expect any superiority effects in (12) on this derivation.¹⁷ However, the potential problem disappears if, as argued extensively by Bošković and Takahashi (1998) and Lasnik (1995c) (see also Hornstein 1998, 1999), θ -roles are features and they are strong in English. This would prevent acyclic insertion of *who*, a θ -bearing element. Lasnik's (1995a,b,c) claim that Agr_O in English has a strong D-feature would have the same effect, given that the relevant feature of the matrix Agr_O would have to be checked by *who*. Thus, either the strong-features view of θ -roles or the obligatoriness of overt object shift in English would force *who* in (12) to enter the structure cyclically, since *who* would be involved in

the acyclic insertion of *after* would not void the Adjunct Condition effect in (10c–d).

An anonymous reviewer observes that under our analysis we might expect *beaucoup* to block LF movement of *wh*-arguments in constructions like (i).

- (i) Il va beaucoup consulter quoi?
 he is-going a-lot to-consult what

Our informants disagree about the status of (i) on the true question, nonecho reading. (For help with judgments, we thank Michèle Bacholle, Cédric Boeckx, and Viviane Déprez.) Accounting for the speakers who reject (i) on this reading is straightforward. We speculate that for the speakers who accept it, the direct object *wh*-phrase can undergo A-movement for accusative Case checking while crossing *beaucoup*, which would void the blocking effect of *beaucoup*, an \bar{A} -element, given Relativized Minimality. Notice that the lack of the blocking effect of *beaucoup* on overt movement of argument *wh*-phrases cannot entirely be attributed to the possibility that movement for Case checking across *beaucoup* feeds *wh*-movement, as indicated by (ii). The construction is accepted by all our informants, including the one who accepts (i) on the true question reading. (Our informants do not find a significant difference in grammaticality between (ii) and *Qui soupçonne-t-il beaucoup?* 'Who does he suspect a lot?', involving short-distance *wh*-extraction.)

- (ii) Qui soupçonne-t-il beaucoup que Marie a/ait vu?
 who suspects he a-lot that Marie has/has(SUBJUNCT) seen
 'Who does he suspect a lot that Marie saw?'

It is clear that the accusative Case-checking position for the direct object *wh*-phrase in (ii) is below *beaucoup*. The *wh*-phrase then must be undergoing *wh*-movement when crossing *beaucoup*. (The same test cannot be applied for covert movement since covert movement of *wh*-phrases can never take place long-distance, as discussed in section 1.)

¹⁷ Under representational approaches (e.g., Lasnik and Saito's (1992) account), the possibility of acyclic insertion of *who* in (12) would not void the superiority violation in (12).

checking strong features.¹⁸ The potential problem raised by constructions such as (12) is thus resolved.

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¹⁸ The θ -theoretic approach might be necessary to account for the lack of the matrix clause reading of *when/where* in (i), presumably a superiority effect.

(i) What did you prove John to have stolen when/where?

We can then prevent acyclic insertion of *when/where* by assuming that *when* and *where* are arguments, as argued convincingly by Murasugi (1991, 1992) and Murasugi and Saito (1993). (According to these authors, who argue against Huang's (1982) empty P analysis of *when* and *where*, *when* and *where* are arguments of I or the event predicate associated with V.)

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