LF Movement and the Minimalist Program

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Huang (1982) argues that LF movement is less constrained than overt movement. In particular, he argues that subjacency constrains overt movement but not LF movement. Evidence for his claim is provided by the contrasts in (1) under his assumption that wh-phrases that are located in situ at SS undergo LF wh-movement.

(1)   a. ??What does John wonder whether Peter bought?
          b. Who wonders whether Peter bought what?
          c. ?*What did you see the woman that bought?
          d. Who saw the woman that bought what?

Tsai (1994) and Reinhart (1995) propose an alternative analysis of (1a-d) that does not require stipulating a difference between LF and overt movement with respect to locality restrictions on movement. Essentially following work by Higginbotham (1983, 1985), where N is generated with an index-argument that must be bound, they argue that wh-NPs have an open position and therefore can introduce variables in situ. As a result, they can be unselectively bound by C.[2] Under their analysis *what* in (1b) and (1d) does not have to undergo LF movement. Subjacency is then trivially satisfied. They furthermore argue that wh-adverbs do not have an open position and therefore cannot introduce variables in situ.[3] As a result, wh-adverbs cannot be unselectively bound, hence still need to undergo LF wh-

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[2]In Reinhart's analysis wh-NPs are interpreted in situ via choice functions. (The function variable is bound by the question operator.)

[3]Under Reinhart's analysis, the lack of the N variable with wh-adverbs ultimately leads to their inability to be interpreted in situ via choice functions.

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movement. This is supposed to account for the ungrammaticality of constructions such as (2a-c), which are under traditional assumptions ruled out via the ECP.[4]

(2)   a. *Who wonders whether Peter left why?
        b. *Who saw the woman that left why?
        c. *Who left why?

In this paper I will show that there are constructions in which wh-NPs in situ must undergo LF wh-movement in spite of the possibility of unselective binding. I will use such constructions to investigate locality restrictions on LF wh-movement. While I will argue, along with Huang and contra Tsai and Reinhart, that there is a difference between LF and overt movement with respect to locality restrictions on movement, the conclusion I reach is very different from Huang's. In particular, I will argue that LF movement is more local than overt movement. I will show that this state of affairs can be accounted for by adopting Chomsky's (1995) Move F Hypothesis.

1.   French Wh-in-Situ Constructions

I will start by examining French wh-in-situ, in particular, 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
        b. *Pierre a demandé tu as vu qui.

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

In Bošković (1996c) I show that the above paradigm can be accounted for rather straightforwardly in the Minimalist system. I will briefly summarize here the necessary mechanisms from Chomsky (1995).

Chomsky argues that Merge, which includes lexical insertion, must expand the tree, i.e., it cannot take place in embedded positions. Merger generally takes place in overt syntax. This follows without stipulation. Thus, if an NP such as *John* is inserted in LF the derivation crashes because LF cannot interpret the phonological features of *John*. If, on the other hand,

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[4]While (2a,b) are more or less straightforward, accounting for the ungrammaticality of (2c) is actually rather tricky. For relevant discussion, see Bošković (1996c).

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

John is inserted in PF, PF will not know how to interpret the semantic features of *John*. The only way to derive a legitimate PF and a legitimate LF is for *John* to be inserted before the level of SS is reached. PF will then strip off the phonological features of *John* and the semantic features of *John* will proceed into 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. We are interested in this second possibility here.

The last mechanism relevant to the account of the paradigm in (3) is the notion of *strength*. Chomsky (1995) offers a derivational definition of strength, where strong features are defined as elements that cannot be tolerated by the derivation and therefore must be eliminated through checking from the structure immediately upon insertion. In Chomsky's words: "A strong feature...triggers a rule that eliminates it: [strength] is associated with a pair of operations, one that introduces it into the derivation...a second that (quickly) eliminates it." (p. 233)[6] Under this view, insertion of an element with a strong feature F must be immediately followed by an operation that checks F.

In this system, it is possible to insert even an element with a strong feature in LF as long as the element is phonologically null, the insertion takes place at the top of the tree, and the strong feature is checked immediately upon insertion. In Bošković (1996c) I argue that this is exactly what happens in French wh-in-situ constructions. I argue that C with a strong +wh-feature is inserted in the LF 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-feature of C. In (4b) the LF C-insertion derivation fails because it involves merger in an embedded position, and in (5b) because the complementizer is not phonologically null. In (3b), (4a), and (5a) the strong +wh C is inserted overtly, which triggers overt wh-movement given that strong features must be checked immediately upon insertion.[7]

Notice now that, in contrast to English (1b,d), unselective binding is not an option for the wh-phrase in situ in French (3a), because it would leave the strong +wh-feature of C unchecked. In (1b,d), the strong +wh-feature of C, which is standardly assumed to be the trigger for wh-movement, is checked in overt syntax, which is not the case in (3a). As a result, LF C-insertion of the complementizer must be followed by wh-movement of the wh-

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[6]Chomsky formulates strength somewhat differently on p. 234: "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." I will not adopt this formulation here since, as noted in Lasnik (1997) and credited to Máire Noonan, the formulation has an undesirable consequence in that it does not force checking of strong features of elements that are not embedded (i.e. that are located at the top of the tree). To do that it is necessary to assume that strength must be removed for convergence, even if not embedded (see Chomsky 1995, p. 382, n. 16).

[7]Notice that we cannot assume that the interrogative C in French is always inserted overtly but that its +wh-feature can be either strong or weak. If we were to do that we would not be able to ever enforce the +wh-movement option, which would leave the ungrammaticality of (4b) and (5b) (see also (6-8) below) unaccounted for. There are a number of interesting questions that the LF C-insertion analysis raises (e.g., why are both LF and overt C-insertion derivations in principle available in French, why is the LF C-insertion derivation blocked in English, etc.) that I cannot go into here due to space limitations. They are discussed in detail in Bošković (1996c).

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phrase in situ. French wh-in-situ constructions thus provide us with a tool for investigating locality restrictions on LF wh-movement.

1.1.   Questioning out of Finite and Negative Clauses in French

In Bošković (1996c) I show that French in situ questions have a very limited distribution. For example, long-distance in situ questions are unacceptable in French even when the interrogative complementizer is null and located at the top of the tree. According to my informants, (6a) is good only on the irrelevant echo question reading. Recall now that French in situ questions such as (3a) or (6a) involve LF insertion of a strong +wh-complementizer followed by wh-movement motivated by checking the strong +wh-feature of the complementizer. Given this, the contrast between (3a) and (6a) should be interpreted as indicating that French LF wh-movement is clause-bounded. Significantly, this is not true of overt wh-movement in French. As (6b) shows, overt wh-movement in French is not clause-bounded.

(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?'
        b. Qui Jean et Pierre croient-ils que Marie a vu?

A similar contrast between overt and LF wh-movement is found with long-distance questioning out of interrogative clauses. (7b), involving overt wh-movement, is somewhat degraded; it has the status of a subjacency violation. (7a), however, is even worse on the true question reading, on which *qui* is interpreted in the matrix SpecCP. This derivation must involve LF wh-movement, given the above discussion.[8]

(7)   a. *Jean et   Marie se demandent si Pierre aime qui?
            Jean and Marie wonder   if Pierre loves whom
            'Whom do Jean and Marie wonder if Peter loves?'
        b. ?Qui Jean et Marie se demandent-ils si Pierre aime?

The contrasts in (6-7) lead me to conclude that LF wh-movement is actually more local than overt wh-movement. This is confirmed by the contrast in (8), also noted in Bošković (1996c). (8a-b) show that wh-movement can take place across negation in overt syntax, but not in covert syntax. We thus have another context with respect to which LF wh-movement is more local than overt wh-movement.

(8)   a. ?*Jean ne   mange pas quoi?
            Jean neg eats   neg what

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[8]Notice also that (i) is acceptable only as an embedded question. The direct object wh-phrase cannot take matrix scope in (i) on the true question, non-echo reading.

(i)   Jean et   Marie se demandent qui a   vu   qui?
          Jean and Marie wonder   who has seen whom

'What doesn't John eat?'
   b. Que ne mange-t-il pas?

Notice also that there is independent evidence that LF wh-movement is responsible for the ungrammaticality of negative and long-distance in situ questions in French.[9] Consider (9).[10]

(9)   a. Qui croit   que Marie a   vu   qui?
          who believes that Marie has seen whom
      b. Qui ne mange pas quoi?
          who neg eats   neg what

(9a-b) are acceptable on the true question, pair-list reading. They crucially differ from (6a) and (8a), which are degraded on the true question reading, in that they contain another wh-phrase that is located overtly in the interrogative SpecCP. This wh-phrase can check the strong +wh-feature 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 (8a), on the other hand, the wh-phrase in situ is the only element that can check the strong +wh-feature 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-feature of C unchecked. (The wh-phrase would never enter the checking domain of the C.) The contrasts under consideration indicate that movement to SpecCP is driven by an inadequacy of the interrogative C, as suggested by Chomsky (1995). When this inadequacy is taken care of, as in (9a,b), the wh-phrase in situ does not have to move in LF. When the inadequacy of C is not taken care of ((6a) and (8a)), the wh-phrase must move in LF. Given that the wh-phrase in situ needs to undergo LF wh-movement in (6a, 8a) but not in (9a,b) it seems plausible to attribute the ungrammaticality of (6a) and (8a) to locality restrictions on movement. (8a) indicates that negation has a blocking effect on LF wh-movement.[11] (6a) appears to indicate that C also has

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[9]In what follows I take (6a) to be the representative of the latter class of questions.

[10]Note that in the relevant respect French crucially differs from Iraqi Arabic, which never allows wh-phrases in situ within finite clauses (the counterparts of both (6a) and (9a) are bad 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 make-up of Iraqi Arabic wh-phrases and reflexive anaphors, which is not found in French.

Note also that French is very different in the relevant respect from typical wh-in-situ languages such as Japanese, where both (6a) and (9a) are acceptable. The Japanese counterparts of unacceptable French constructions in (4-5) and (8) are also grammatical, which strongly indicates that French wh-in-situ is different from Japanese wh-in-situ. The LF insertion of a strong +wh C analysis is clearly inappropriate for Japanese. In Bošković (1996c), following Watanabe (1992) and Aoun and Li (1993b), I argue that wh-in-situ languages like Japanese actually involve overt null operator movement to SpecCP, which makes such languages uninformative in investigations of locality restrictions on LF wh-movement.

[11]Beck (1996) reaches the same conclusion with respect to German. However, her test gives an opposite result when applied to English and French. Beck's claim is based on the unacceptability of constructions such as (9b) in German. It does not carry over to English and French, where such constructions are acceptable. The German data Beck examines also lead her to conclude that all in situ wh-phrases move in LF (at least in German), a position I am arguing against here based on the French data under consideration. Wh-movement is driven by a formal inadequacy of the interrogative C. Once this inadequacy is taken care of, there is no need for LF wh-

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a blocking effect on LF wh-movement. Another potential trouble maker here could be the finiteness of the embedded clause. Certain facts concerning infinitival complementation in French, however, strongly indicate that finiteness is irrelevant and that C indeed has a blocking effect on LF wh-movement.

1.2.   Infinitival in Situ Questions

It is well-known that French differs from English in that it allows PRO even in propositional infinitivals. I will not be interested in this difference between English and French here (for a recent minimalist account of the difference, see Bošković 1996a, 1997). What I will be interested in is Huot's (1981) observation that the infinitival complement of propositional verbs such as *croire* 'believe' cannot be dislocated. In this respect *croire* differs from, for example, *vouloir* 'want', whose infinitival complement can be dislocated.

(10)   a. Pierre croit   avoir   convaincu ses amis.
            Pierre believes to have convinced his friends
        b. (*)Avoir convaincu ses amis, Pierre le croit.
            'To have convinced his friends, Pierre believes it'
(11)   a. Il   a   toujours voulu   revenir   mourir en France.
            he has always   wanted   to return to die in France
        b. Revenir mourir en France, il l'a toujours voulu.
            'To return to die in France, he has always wanted it'

In Bošković (1996a, 1997) I showed that the paradigm in (10-11) can be accounted for if the infinitival complement of *croire* is a CP, and that of *vouloir* an IP. The ungrammaticality of (10b), and the contrast between (10a) and (10b), is reminiscent of the following English constructions:

(12)   a. Everyone believes (that) John likes Mary.
        b. *John likes Mary is believed by everyone.
        c. cf. That John likes Mary is believed by everyone.
        d. *John likes Mary Peter never believed.
        e. cf. That John likes Mary Peter never believed.

Stowell (1981) observes that it is not possible to passivize or topicalize complements headed by a null C in English. He argues that doing this results in violation of licensing requirements on the null complementizer (in particular, the ECP). That the null C is indeed to blame for the ungrammaticality of (12b,d) is confirmed by the fact that the constructions become good if we use the lexical complementizer *that* (cf. (12c,e)). Returning now to (10b), we can account for Huot's observation concerning the dislocatability of the infinitival complement of *croire* if the infinitival is a CP. The ungrammaticality of (10b) then reduces to (12b,d). The grammaticality of (11b) should then be interpreted as indicating that the infinitival complement of *vouloir* is an IP, which is what I concluded in Bošković (1996a, 1997). The conclusions reached there, however, need to be slightly modified. Whereas all my informants

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movement. (At least not with wh-NPs. See below for discussion of wh-adverbs.)

agree on the acceptability of (11b), the status of (10b) is less clear: some of my informants accept, and some reject, (10b). This suggests that there is a variation with respect to the categorial status of the infinitival complement embedded under *croire* (and propositional verbs in general). For some speakers, the infinitival is a CP. For other speakers, it is an IP (for an interesting discussion of this variation and its consequences, see Boeckx in preparation).

Returning now to wh-in-situ, all the speakers I consulted allow long-distance wh-in-situ questions with the infinitival embedded under *vouloir*, which uniformly has IP status. As for the infinitival embedded under *croire*, the speakers for whom the infinitival is a CP (i.e. the speakers who reject (10b)) do not accept (13a) on the true, non-echo question reading. The speakers for whom the infinitival is an IP (i.e. the speakers who accept (10b)), accept (13a) on the true question reading. This state of affairs strongly indicates that C has a blocking effect on LF wh-movement, finiteness being irrelevant.

(13) a. (*)Tu crois   avoir vu qui?
           you believe to have seen whom
      b. Tu   veux faire quoi aujourd'hui?
           you want to do what today

To summarize the discussion so far, I have shown that when we exclude the possibility of unselective binding of wh-NPs, we can see that, contrary to what is standardly assumed, LF movement is more local than overt movement. In particular, C and Neg block LF wh-movement even in the contexts in which they do not block overt wh-movement. V and INFL, on the other hand, do not block LF wh-movement, as indicated by the grammaticality of (3a).

2.   German Wh-Adverbs in Situ

This conclusion is confirmed by certain facts from German. It is well-known that constructions involving wh-adverbs in situ are unacceptable in English (14). They are, however, not universally unacceptable. Thus, it is well-known that such constructions are acceptable in German, as illustrated in (15a-b). I will not be interested here in what is responsible for this difference between German and English. For an account of this difference, the reader is referred to Bošković (1996c). I will put aside here English (14) and concentrate on German questions containing wh-adverbs in situ.

(14)   *Who left why?

(15)   a. Wer hat es wie repariert?   (Haider 1996)
            who has it how fixed
            'Who fixed it how?'
        b. Wer is warum gekommen?   (Müller and Sternefeld 1996)
            who is why   come
            'Who came why?'

Notice first that, given that, as argued by Tsai (1994) and Reinhart (1995), wh-adverbs cannot be unselectively bound due to the lack of an open position, wh-adverbs in situ will have to

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undergo LF wh-movement even in the constructions in which a wh-phrase is present in the interrogative SpecCP. Given the French data discussed above, we would then expect that, in contrast to short-distance questions such as (15), wh-adverbs will not be able to occur in long-distance in situ questions. The prediction is borne out.[12]

(16)   a. *Wer hat gesagt daß Fritz warum ein Buch gelesen hat?
               who has said   that Fritz why   a book read   has
               'Who has said that Fritz has read a book why?'
        b. *Wen   hast du empfohlen   daß man wie bestrafen soll?
               whom have you recommended that one how punish   should
               'Who have you recommended that one should punish how?'

                                                    (Müller and Sternefeld 1996)

The contrast between (15) and (16) confirms that C has a blocking effect on LF wh-movement. Significantly, as shown in (17), in contrast to LF, adverbs can undergo long-distance wh-movement in overt syntax. The contrast between (17) and (16) confirms the conclusion reached above with respect to French wh-in-situ constructions that LF wh-movement is more local than overt wh-movement.[13]

(17)   a. Warum hat Hans gesagt daß Fritz t ein Buch gelesen hat?
        b. Wie hast du empfohlen daß man t Hans bestrafen soll?

        The data examined so far indicate that there is a difference between LF and overt movement with respect to locality, the former being more local than the latter. A question that arises now is whether this difference needs to be stipulated or whether it follows from independently motivated mechanisms of the grammar. In the next section I will show that the difference can be deduced given the Move F Hypothesis. Before doing that, I will make a brief digression to discuss the syntax of the *either* construction or, more precisely, the locality restrictions on *either*-movement, proposed by Larson (1985). I will show that *either*-movement exhibits the same locality restrictions as LF wh-movement, which will provide us with a clue where to look for an explanation for the locality effects with LF wh-movement. In what follows, for ease of exposition I will use relativized minimality and the A/A' distinction. Following Rivero (1991) and Roberts (1992), I assume that relativized minimality

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[12]Müller and Sternefeld observe that, in contrast to wh-adverbs, wh-NPs can remain in situ in long-distance questions.

(i)   Wer hat gesagt daß Fritz was   lesen soll?
           who has said   that Fritz what read should

This is expected given that, as argued by Tsai and Reinhart, wh-NPs can be unselectively bound and therefore do not need to move in LF.

[13]I ignore here negative questions containing wh-adverbs since they are not informative in the relevant respect due to two interfering factors: (i) even constructions involving overt movement of wh-adverbs from a position below negation are bad due to Inner Islands effects (see Ross 1983 and Rizzi 1990). (ii) As shown in Beck (1996), constructions containing wh-phrases in situ within the scope of negation are quite generally unacceptable in German, regardless of whether we are dealing with wh-NPs or wh-adverbs.

applies to head as well as phrasal movement, the status of heads with respect to the A/A' distinction being determined in the same way as the status of the corresponding specifiers (i.e., an A'-Spec implies an A'-head, and an A-Spec implies an A-head). It is my belief that any fully successful way of deriving the effects of relativized minimality and the A/A' distinction from independently motivated principles of the grammar will extend to the cases discussed below.[14]

3.　　*Either*-Movement

Consider the following constructions:

(18)　　a. John likes either football or chess.
　　　　b. Either John likes football or chess.

Larson (1985) argues that (18a) and (18b) have the same structure at some point. In particular, he argues that (18b) is generated with the same structure as (18a) after which *either* undergoes overt movement (for scopal reasons) to an A'-position.

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[14]Chomsky (1995) proposes one way of doing this based on feature-checking and the operation Attract. The analysis is, however, empirically problematic since it does not cover the full range of relativized minimality effects. In fact, the analysis fails to account even for the full range of Wh-Island effects, which are supposed to be its show-case. Under this analysis, the Wh-Island effect is captured by appealing to feature-checking instead of the A/A' distinction. Thus, (i) is ruled out because the matrix C, which needs to check its +wh-feature, fails to attract the closest +wh-feature bearing element (*where*).

(i)　　　??Which book$_i$ do you wonder where$_j$ John put t$_i$ t$_j$?

This seems to leave (ii) unaccounted for.

(ii)　　　??(Peter thinks that) That book$_i$ you wonder where$_j$ John put t$_i$ t$_j$.

It is not at all clear why an intervening +wh-feature should be relevant in the attraction of topics. A similar problem arises with respect to a number of other constructions, for example, relativization out of wh-islands (cf. *??The book that you wonder where John put* and *??The book, which you wonder where John put*) and tough-movement and enough-movement out of wh-islands (cf. *??This car is tough to ask Peter when to repair* and *??This car is old enough for us to wonder whether we should buy*). Notice that positing some kind of an operator feature that would be involved in the attraction here would not work, given Lasnik and Stowell's (1991) arguments that, in contrast to questions, appositive relatives, *tough*-movement, and *enough*-movement do not involve true operators (or variables for that matter). Under the operator feature attraction analysis we might also incorrectly predict that QNPs, which should bear the +op feature, will have a blocking effect on wh-movement (cf. *What did everyone buy*). Chomsky's (1995) system, which is based on Attract and in which feature-checking is intended to do the job of the A/A' distinction with respect to relativized minimality, thus fails to account for the full range of wh-island effects. Several other types of relativized minimality effects with A'-movement also remain unaccounted for in this system, for example, Rizzi's (1990) Pseudo-Opacity effects and Inner Island effects.

As shown in Takahashi (1994), in contrast to Attract, which considers movement from the point of view of the target, a conception of the Shortest Move Principle (SMP) that considers movement from the point of view of the moved element can readily accommodate the full range of relativized minimality effects. Takahashi shows that it can also accommodate the full range of Huang's (1982) CED phenomena and the Coordinate Structure Constraint, which remain mysterious under Attract. There thus may still be a need for the conception of the SMP that considers movement from the point of view of the moved element.

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(19)   Either$_i$ John likes t$_i$ football or chess.

I will adopt here Larson's analysis with a slight modification. Whereas Larson assumes that the movement in question can be either XP or head movement, I assume that the movement in question is uniformly head movement. Following Larson, I assume that we are dealing here with A'-movement.[15] Since the only heads *either*-movement crosses in (19) are A-heads (V and INFL), relativized minimality is then obeyed in (19). This analysis enables us to straightforwardly capture a number of facts concerning the distribution of *either*. Consider the following constructions. (Most of the relevant restrictions on the distribution of *either* are noted in Larson 1985.)

(20)   a. Peter believes that John likes either football or chess.
        b. *Either$_i$ Peter believes that John likes t$_i$ football or chess.

(21)   a. John wanted to play either football or chess.
        b. Either$_i$ John wanted to play t$_i$ football or chess.

(22)   a. John wanted for Mary to play either football or chess.
        b. ?*Either$_i$ John wanted for Mary to play t$_i$ football or chess.

(23)   a. John does not like either football or chess.
        b. ?*Either$_i$ John does not like t$_i$ football or chess.

(20b) is ruled via relativized minimality: *either* undergoes A'-head movement across another A'-head, namely C. The problem does not arise in (21b) given that, as argued extensively in Bošković (1996b, 1997), English control infinitivals are IPs. The only heads *either* crosses in (21b) are the A-heads V and INFL, just as in (19). (22b), on the other hand, is ruled out for the same reason as (20b), *either* again crosses C, an A'-head.[16] Finally, (23b) can also be ruled out via relativized minimality: *either* undergoes A'-head movement across an A'-head, this time negation. The relativized minimality head movement analysis thus straightforwardly captures the locality effects on *either*-movement.

Returning now to French wh-in-situ constructions, notice that LF wh-movement in French exhibits the same locality restrictions as *either*-movement. Like *either*-movement, LF wh-movement in French is blocked by C and negation, but not by V and INFL. This strongly indicates that a uniform account for the movements in question is in order. Chomsky's (1995) Move Hypothesis makes such an account possible.

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[15] I will not be interested here in the question of exactly where *either* lands.

[16] Throughout the paper I ignore superficial examples of ECM with *want*-class verbs (clauses containing a lexical infinitival subject without the complementizer *for*) since, due to the unclear status of constructions that would provide the relevant tests, it is not quite clear whether such constructions involve true ECM (in which case the relevant infinitivals could be IPs) or Case-marking by a null complementizer within the infinitival, which would then have to be a CP. For relevant discussion, see Bach (1977), Bošković (1996b, 1997), Larson et al (1997), Lasnik and Saito (1991), Martin (1996), Ormazabal (1995), Pesetsky (1992), and Postal (1974), among others.

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 the 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 move to heads bearing matching features. Under a natural interpretation of this analysis, all LF movement necessarily involves head movement. Given this, LF wh-movement involves movement to C, and not to SpecCP. In other words, it is movement to an A'-head position, just like *either*-movement. It is then no surprise that it is subject to the same locality restrictions as *either*-movement. The analysis of locality restrictions on *either*-movement given above straightforwardly extends to LF wh-movement: being movement to an A'-head position (C), it is blocked by A'-heads C and Neg, but not by A-heads V and INFL.[17]

4. Quantifier Raising

The analysis can be extended in an interesting way to other putative instances of LF movement. For example, it enables us to finally explain the mysterious (almost) clause boundedness of quantifier raising (QR). The clause boundedness of QR has always been an embarrassment for QR analyses, since it required positing different locality restrictions for QR and what was believed to be LF wh-movement. In the current system, however, QR displays the same locality constraints as LF wh-movement. Consider (24-25):

(24) a. Someone believes that John hates everyone.
      b. Someone believes John to hate everyone.

(25) a. Someone wants for John to hate everyone.
      b. Someone wants to hate everyone.

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[17] It is worth noting here that Chomsky (MIT Lectures 1995) suggests that when X undergoes overt phrasal movement to SpecYP there are actually two movements involved: Move F first adjoins formal features of X to Y for feature checking and then the rest of X undergoes phrasal movement to SpecYP ('pied-piping') followed by a repair strategy that makes X pronounceable. Under this analysis, it is not possible to make LF movement more constrained than overt movement by appealing to Move F, which I attempt to do here based on the data under consideration. Therefore, if the discussion here is on the right track the two separate movements analysis cannot be correct: the decision to 'pied-pipe' must be made immediately so that only one *actual* movement takes place (XP moves to SpecYP), as originally suggested by Chomsky (MIT Lectures 1994) and Chomsky (1995). (Chomsky 1995 is somewhat ambivalent on this issue. However, he crucially assumes throughout chapter 4 that the checking configuration is Spec-head for overt syntax and FF(adjoined to head)-head for covert syntax, which goes against the spirit of the two movements analysis.)

It is also worth noting here that Chomsky (MIT Lectures 1997) develops a system that dispenses with the covert/overt syntax distinction, traditional LF movement being reanalyzed in this system as pure feature movement, i.e., Move F without category movement. As noted by Noam Chomsky (personal communication), the instances of LF movement discussed above are amenable to the same reanalysis.

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Although QR is traditionally considered to be clause-bounded it has often been noted that certain infinitival clauses allow quantifiers to scope out of them more easily than finite clauses. Thus, it appears that it is easier for the embedded clause quantifier to take wide scope with respect to the matrix quantifier in (24b) than in (24a). (25a) and (25b) also contrast in the relevant respect, the wide scope reading of the embedded clause quantifier being much more salient in (25b) than in (25a).[18] These facts can be straightforwardly explained given that, as argued in Bošković (1996b, 1997), English ECM and control infinitivals are IPs. (24-25) then simply indicate that C, but not V and INFL, have a blocking effect on QR. QR then behaves in the same way as LF wh-movement in the relevant respect. The analysis of locality restrictions on LF wh-movement proposed above can be readily extended to account for the almost clause boundedness of QR, given the standard assumption that QR is A'-movement. (Being an LF operation, it would also have to involve Move F.)

        Another similarity between QR and LF wh-movement is that negation has a blocking effect on both. Aoun and Li (1993a) note that, in contrast to (26a), the direct object quantifier cannot take wide scope in (26b). Assuming that in order to take wide scope in (26b), the direct object must QR past negation, the unavailability of the reading in question reduces to the ungrammaticality of French (8a). The analysis of (8a) proposed above straightforwardly extends to (26b).

(26)   a. Someone likes everyone.
        b. Someone does not like everyone.

        The most interesting parallelism between Q-scope and wh-in-situ concerns French *croire*-class infinitivals. Recall that there is a variation with respect to the categorial status of such infinitivals. For some speakers such infinitivals are IPs, and for other speakers they are CPs. (The relevant test is the possibility of dislocation of the infinitivals in question, see section 1.2.). Significantly, among my informants, the lower quantifier in (27) can have wide scope in the IP dialect, but not in the CP dialect.

(27)   Quelqu'un croit   avoir   aidé   chaque enfant.
        someone   believes to have helped each   child

Recall now that the same split obtains with respect to long-distance in situ questions with this type of infinitivals. Such questions are acceptable in the IP dialect, but not in the CP dialect (see section 1.2.). Notice finally that none of my informants allows a quantifier contained within a finite complement of *croire* to scope over a matrix quantifier. This further confirms the parallelism between QR and LF wh-movement since, as discussed in section 1.1., long-

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[18]Although the relevant contrasts seem pretty clear the wide scope reading is not straightforward (the most salient reading) even in (24b) and (25b). As pointed out by William Snyder (personal communication), one needs to be careful about the intonation of the relevant sentences. In particular, the wide scope reading of the embedded quantifier is more salient when both the matrix and the embedded quantifier are stressed. (Notice, however, that even under this intonational pattern, the relevant contrasts can be observed.)

distance in situ questions are not possible with the finite complement of *croire*.[19]

(28) Quelqu'un croit   que Jean a   aidé   chaque enfant.
     someone   believes that Jean has helped each   child

To summarize, we have seen in this section that the almost clause boundedness of QR and the blocking effect of negation on QR receive a principled account under the current analysis. What is particularly important is that QR is now brought in line with other instances of LF A'-movement, in particular, LF wh-movement. The locality of QR is the same as that of LF wh-movement, which eliminates one of the biggest obstacles for the QR analysis of quantifier scope interpretation. In fact, the discussion in this section can be interpreted as an argument in favor of QR. It is certainly possible to account for scopal interpretation and interaction of QNPs without movement. However, the algorithm for scope interpretation having to mimic locality restrictions on movement would be a strong indication that non-movement analyses of quantifier scope interaction are on the wrong track.[20]

5.   Conclusion

I have argued in this paper based on a variety of constructions that LF movement is more local than overt movement. I have shown that there is no need to make any stipulations à la Huang (1982) to account for the difference between overt and covert movement. The difference follows in the Move F system. I have shown that LF movement exhibits locality restrictions of head movement, which can be captured given Move F.

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[19]See Déprez (1997) for additional data concerning QR in French, which can be readily accommodated under the current analysis.

[20]The discussion in this section is necessarily very sketchy. I am glossing over a number of complexities involved in scopal phenomena that need to be carefully examined and accounted for before we can safely conclude that either QR or some of the non-movement approaches (or perhaps a mixture of the two) is the right way to handle scope. Probably the most serious issue that still remains to be resolved under the QR analysis concerns the motivation for QR. In the current system QR would have to be feature-driven. It is unclear what the relevant feature is. For some discussion, see Beghelli (1995) and Watanabe (1997).

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