A Note on A-bar Dependency and the Theory of

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A Note on A-bar Dependency and the Theory of CP-Recursion

Hiroyuki Ura

Abstract
This paper will present a generalization according to which the extraction operation of an adjunct element is not permissible from a clause where the non-root topicalization is not permissible. After pointing out the incorrectness of the alleged generalization that the non-root topicalization is possible in a clause whose overt complementizer that can be deleted, we will devise an explanation for the distribution of the non-root topicalization through extending Watanabe’s (1992) theory of CP recursion. Furthermore, in order to give an account to the fact that the adjunct-wh extraction shows a Subjacency effect, we will propose a new theory of A-bar chain formation under the framework of Chomsky (1992). Finally, it will be shown that our new theory of chain formation provides a natural solution to the question as to why an adjunct wh-phrase can be extracted only from a clause in which the non-root topicalization is permissible.*

*I wish to thank Noam Chomsky, Ken Hale, Howard Lasnik, David Pesetsky, Mamoru Saito, and Akira Watanabe for their discussions and comments. Thanks are also due to Roger Martin, Carson Schütze, and Brian Yeager for their judgments on some of the examples. Needless to say, however, all remaining errors are mine alone. The work presented here was partially supported by a Fulbright fellowship.

Here, a word is in order about the date this paper was actually written up: I wrote it up in the fall/winter of 1992 and submitted it as a term paper for the first year syntax class taught by Ken Hale and David Pesetsky, but it has been in my desk for a long while, never to be published anywhere, partly because it did not impress me as a publishable paper in quality and mainly because A-bar dependency held very scant attention of the researchers at that time. A quarter century after that, nonetheless, I have now decided to publish it here with only very minor refinements of its wording and bibliographic information; for, the kind of data about A-bar dependency discussed herein has hitherto been neglected in the literature as far as I am aware, and they therefore seem to me to be somewhat contributory on empirical grounds to future research into A-bar dependency, notwithstanding its deficit on theoretical/technical grounds.
0. Introduction: Adjunct Extraction and Non-Root Topicalization

Since the discovery of the locality of movement operation by Ross (1967), the extraction of an argument *wh*-phrase has been deeply investigated. On the other hand, except for few works such as Cattell (1978), the extraction of an adjunct *wh*-phrase has been less studied until the early 80's. The theory of Chomsky (1986), elaborated on the significant studies of Huang (1982) and Lasnik and Saito (1984), stipulates that the locality of the extraction of an adjunct *wh*-phrase should be more restricted than that of an argument *wh*-phrase. Until recent years, it has been largely considered that the movement of an adjunct *wh*-phrase does not show a Subjacency effect, which is alleged to be milder than an ECP violation. This is primary because it has seldom been noticed that the extraction of an adjunct *wh*-phrase out of some islands causes a mild violation.

As the examples in (1)-(3) below show, there, indeed, are cases in which the adjunct extraction from some environments yields milder deviancy than the adjunct extraction from a *wh*-island.

(1) Right Dislocated Clause

a. ??How is it likely [that John will win the prize *t*]?  
b. ??How is it possible [that John will win the prize *t*]?  

(Hooper & Thompson 1973)

c. ??How do you consider it likely [that John will win the prize *t*]?

d. ??How do you make it possible [that John will win the prize *t*]?

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1 Recently, Lasnik and Saito (1992) and Ura (1992a), for instance, have reported that the extraction of an adjunct *wh*-phrase out of a "Topic island" creates a less severe violation than an ECP violation.

2 The adjunct extraction in these environments is less severe than the adjunct extraction from a *wh*-island, which is claimed to cause a severe ECP violation.
(2) Extraposed Clause

a. ??How did you believe that John won the prize from the bottom of your heart?
(b. ??How did you accept that John won the prize after a while?

(cf. OK How did you believe [that John won the prize t]?
(cf. OK How did you accept [that John won the prize t]?)

(3) Clausal Complement of Manner-of-Speaking Verbs

a. ??How did you scream that John kissed Mary?

b. ??How did you murmur that John kissed Mary?

(Cinque 1990)

Very interestingly, these environments correspond pertinently to the environments that do not allow the non-root topicalization.

(4) Right Dislocated Clause

a. *It is likely that the prize, John will win.

(Hooper & Thompson 1973)

b. *It is possible that the prize, John will win.

(Hooper & Thompson 1973)

c. *I consider it likely that the prize, John will win.

d. *I make it obvious that the prize, John will win.

(Ura 1992b)

(5) Extraposed Clause

a. *I believed from the bottom of my heart that the prize, John won?

(cf. OK From the bottom of my heart, I believed that the prize, John won.)

b. *I accepted after a while that the prize, John won.

(Ura 1992b)

(cf. OK After a while, I accepted that the prize, John won

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3 Note that likely and possible are not factive predicates.
(6) Clausal Complement of Manner-of-Speaking Verbs

a. *I screamed ([that the prize, John won t].) (Ura 1992b)
b. *I murmured ([that the prize, John won t].) (Ura 1992b)

These examples indicate that the environments where the adjunct extraction shows a mild deviancy coincide with the ones where the non-root topicalization is mildly constrained.

With regard to the non-root topicalization, it has often been claimed in much literature that the non-root topicalization is possible only in a clause whose overt complementizer that can be deleted (see Authier 1992). As Watanabe (1992) accurately points out, however, this claim is shown to be inadequate by the following examples.

(7) a. It is likely ([that) John will win the prize at that race].
b. It is possible ([that) John will win the prize at that race].
c. I doubt ([that) John kissed Mary].

Although the complementizer that can be completely deleted safely in the examples in (7), the non-root topicalization is not permissible in the same environment, as shown in (4a, b) above and (10d) below. The conclusion is that the statement in (8) below is not an adequate generalization about the non-root topicalization:

(8) **Fake Generalization**

The non-root topicalization is permissible in an embedded clause EC if and only if the overt complementizer that in the EC can be safely deleted.

Now, it is very interesting to note the following examples, which indicate that the contexts where the adjunct extraction shows a severe de-
viancy coincide with the contexts where the non-root topicalization is totally disallowed (we will, in the following sections, give an account to the difference in the deviancy found between the mildly deviant examples in (1)-(6) and the totally deviant ones in (9)-(10)).

(9) Factive Clauses
   a. * How did you regret [that you offended John t]?
   b. * How did you ignore [that John kissed Mary t]?
   c. * I regretted [that John, I offended t]. (Watanabe 1992)
   d. * I ignored [that Mary, John kissed t]. (Watanabe 1992)

(10) Negative Clauses
   a. * How did you deny [that you offended John t]?
   b. * How did you doubt [that John kissed Mary t]?
      (Cattel 1978, Hegarty 1991)
   c. * I denied [that John, I offended t].
   d. * I doubted [that Mary, John kissed t].
      (Hooper & Thompson 1973)

Naturally, the facts shown in (1)-(6) and (9)-(10) lead us to the following generalization.

(11) True Generalization

The non-root topicalization is (mildly) permissible in an embedded clause $EC$ if and only if the extraction of an adjunct element is (mildly) permissible from the $EC$.

In this paper we will first explore the distribution of the non-root topicalization, and aim at providing a natural account to the correspondence of the mild deviancy of the non-root topicalization and the “subjacency” islandfood of the adjunct-$wh$ extraction. To approach this goal, we will crucially utilize Watanabe’s (1992) theory of CP recursion.

In Section 1, we will review Watanabe’s (1992) CP recursion analysis of the non-root topicalization. It will be shown, however, that some

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5 Note also that the verbs that appear in the examples in (10) are not factive predicates.
of the above examples cannot be explained only with Watanabe’s (1992) theory. In Section 2, we will then make a proposal for the condition on the LF-deletion of the overt complementizer *that*, the condition which is derived theoretically from the more general condition of Full Interpretation (Chomsky 1992 and Chomsky and Lasnik 1993). In Section 3, we will apply the CP recursion analysis to the adjunct-*wh* extraction and explore a theory of movement in terms of Minimality, which gives a solution to the question why the adjunct-*wh* can be marginally extracted out of some domains. Conclusion will come in Section 4.

1. Watanabe’s (1992) Theory of CP Recursion

1.1. CP Recursion and Topicalization

Before challenging to explicate the generalization stated in (11), we will introduce Watanabe’s (1992) theory of the non-root topicalization. Pointing out that the non-root topicalization is disallowed within a factive complement clause, Watanabe (1992) proposes that the CP projection in a factive complement clause must recur to create a landing site for the factive operator which cannot appear in the Spec of a non-*wh* clause because of its feature [+wh]. Watanabe’s (1992) idea is that the distinction between [+wh] and [−wh] in an embedded clause must be reflected on whether the Spec of the topmost CP in the clause has something [+wh] or [−wh]. That is to say, if an embedded clause is determined to be [−wh] by the verb selecting the clause, the Spec of the [−wh] clause may not be filled with a [+wh] element. To guarantee the landing site for a [+wh] element in a [−wh] clause, Watanabe (1992) extends the Larsonian recursion to the CP-system. Accordingly, the head of a [−wh] clause (= the overt complementizer *that*) in the lower CP must move up to the higher C°, when a [+wh] element appears in its specifier. The configuration of the non-root topicalization and a factive complement clause can be delineated, thus, as in the following because Watanabe (1992) claims that a topicalized element as well as the factive
operator is [+wh]:

(12) Non-Root Topicalization
\[ \ldots [\text{CP} \, [-w h] \, \text{that} \, [\text{CP} \, @ [-w h] \, t_e] \, [\text{IP} \ldots \, (\@: \, \text{topicalized element})] \]

(13) Factive Clause
\[ \ldots [\text{CP} \, [-w h] \, \text{that} \, [\text{CP} \, \text{Op.} \, [+w h] \, t_e] \, [\text{IP} \ldots \, (\text{Op.}: \, \text{factive operator})] \]

Watanabe (1992) further hypothesizes that the recoverability condition on deletion requires that the complementizer of the higher CP should manifest itself phonologically. When there is no CP-recursion in an embedded clause, the overt complementizer *that*, which is the head of the single (non-recursive) CP, can be safely deleted, since the single CP, being selected directly by the matrix verb, is readily recoverable because the overt \(C^0\) head is connected with the matrix \(V^0\) head by the selectional relation. On the other hand, if the overt complementizer *that* acting as the head of the recursive CP projections is deleted, the CP structure cannot be recoverable, since the trace of *that* in the lower CP fails to be identified by any element; for, the deleted *that*, being phonologically null, cannot contribute to recoverability. Consequently, the recursive CP structure cannot be recoverable (even though the empty \(C^0\) position in the higher CP is recoverable by the matrix verb) if the complementizer *that* is deleted. To put it differently, the CP-recursion takes place only if the complementizer *that* phonologically appears. Besides, the CP cannot allow recursion of its projection more than twice: If CP recurs twice (i.e., there are three CP nodes in a single clause), the trace of *that* in the third (lowest) CP projection cannot be recovered by the trace in the second CP (although the second trace is recoverable by the overt *that* in the topmost CP).

Now, recall that the topicalized element in an embedded clause and the factive operator in a factive complement clause each require their own CP projection within the recursive CP system, as illustrated in (12) and (13) above. This means that the illicit three-layered CP recursion would occur if the non-root topicalization takes place within a factive complement clause; as a result, Watanabe’s (1992) theory leads us to
the correct conclusion that the non-root topicalization is never allowed within a factive complement clause, as the ill-formedness of (9c, d) above shows.

There is another environment where a [+wh] element requires the CP recursion and the non-root topicalization is disallowed. As shown in (10c, d) above (repeated below as (14a, b)), the complement clause selected by a verb with a negative meaning does not accommodate the non-root topicalization:

(14) a. *I denied [that John, I offended t].
    b. * I doubted [that Mary, John kissed t].

(Hooper & Thompson 1973)

According to Progovac (1988), these verbs select a negative complementizer which requires a negative operator in its spec. Since the negative operator is [+wh], the CP projection selected by them must recur because the selected clause itself is [−wh]. Just as in the case of a factive complement clause, the non-root topicalization also is disallowed in a negative complement clause because the CP recursion is prohibited from occurring twice.

1.2. CP Recursion and Adjunct Extraction

Watanabe’s (1992) theory can also give an account to the fact that the adjunct wh-extraction is not allowed in a factive/negative complement clause, the fact which is illustrated by the ill-formedness of (9a, b) and (10a, b) above, repeated here as (15a, b, c, d):

(15) a. * How, did you regret [that you offended John t]?
    b. * How, did you ignore [that John kissed Mary t]?
    c. * How, did you deny [that you offended John t]?
    d. * How, did you doubt [that John kissed Mary t]?

In these cases, the Spec of the lower CP in the embedded CP recursion system has been already occupied by some [+wh] element, i.e., the factive operator or the negative operator. If the Spec of the lower CP is a possible landing site for an A’-element, then, the movement of an ad-
junct *wh*-phrase beyond this position causes a $\gamma$-marking in terms of Minimality in Chomsky and Lasnik’s (1990) sense, resulting eventually in a severe ECP violation.

1.3. Problems

Nevertheless, Watanabe’s (1992) theory fails to explain the other facts observed in (1)-(6) above. If we could assume that, in these examples, there is a [+wh] element in the Spec of the embedded clauses and it requires the CP recursion, then the same account for the ungrammaticality found in (15) would hold true here. It is difficult, however, to assume that such a [+wh] element other than the extracted adjunct *wh*-phrase exists in the environments shown in (1)-(6). Furthermore, even if we assumed such a [+wh] element, Watanabe’s (1992) theory could not predict that the degree of the ungrammaticality of the adjunct-*wh* extraction in (1)-(3) is milder than (15); for, such an assumption would lead us to the erroneous conclusion that a severe violation of ECP takes place in (1)-(3).

To recapitulate, Watanabe’s (1992) theory fails to capture the generalization stated in (11) above although it can give a pertinent explanation to the impossibility of the non-root topicalization in a factive/negative complement clause. In the next section, we will make a proposal concerning the constraint on LF-deletion of the overt complementizer *that*, the proposal which is to explain the full distribution of the non-root topicalization. In Section 3, we will give an account to the mild deviancy of the adjunct *wh*-extraction in the contexts shown in (1)-(3).

2. Deletion of *That* and Full Interpretation

Following Lasnik and Saito (1984), let us assume that the complementizer *that* does not show up at LF due to Full Interpretation, which requires that every element must “have a uniform, language-independent interpretation at the interface” (Chomsky 1992: 37). Since
the complementizer *that* has no semantic content, it can neither get any interpretation nor appear in the LF representation. Then, what happens after the deletion of *that* at LF? Suppose that we cannot create its trace at LF, but its vacant position merely remains there. Note, in passing, that we are presuming that the recoverability condition is supposed to be relevant at PF, but irrelevant at LF. Put differently, in order to satisfy the requirement of Full Interpretation, we have to assume that there should be no empty element corresponding to *that*, after the *that*-deletion at LF. Hence, the position itself need not be subject to the ECP in Rizzi’s (1990) sense, as explicitly stated in (16) below (or not subject to any principle requiring head-government to empty categories), since there is no empty category there.

(16) **Empty Category Principle** (Rizzi 1990)

   Every non-pronominal empty category must be head-governed at LF. (Elements deleted by the requirement of the Full Interpretation are not empty categories.)

   Let us now consider the configuration of the CP recursion after *that*-deletion, as illustrated below.

   (17) ... X₀ [CP [C _ [CP [C tᵢ [IP ...

   Here we cannot delete the trace tᵢ at LF, since it is a member of a uniformed (head-)chain. The head position of the topmost CP, i.e., the position which is left after *that*-deletion, trivially satisfies the ECP, as discussed above. However, the trace tᵢ would violate the ECP unless head-governed, since it is an non-pronominal empty category. Now, *that* cannot head-govern the trace tᵢ, since it does not exist any longer. Notice here that if there is a proper head-governor X₀ which governs the CP, then, the trace of *that* can be governed by the head, since there is no other head intervening between the head X₀ and the trace tᵢ. Then, it follows that whenever the CP recursion occurs, the configuration is not legitimate unless some others head-govern the outermost CP.

   Given this, we can attribute the unacceptability of the examples in (1)-(3) to a violation of the ECP (head-government requirement), since
the traces of *that* in those examples fail to be head-governed at LF. First, let us consider the case of Right Dislocated clauses shown in (1a, b), where the non-root topicalization occurs in the complement of a certain class of predicate such as *likely* and *possible* (see Hooper and Thompson 1973 for more examples). As shown in (18) below, the CPs following these predicates may optionally appear in the subject position instead of the expletive *it*. This fact suggests that the subject position of these predicates is theta-marked.

(18) a. It₈ is likely [that John will win the prize]₈.

b. [That John will win the prize] is likely.

c. It₈ is possible [that John will win the prize]₈.

d. [That John will win the prize] is possible.

Here, following the spirit of Chomsky’s (1992) Minimalist framework, we stipulate that the thematic relation (including the direction of theta-marking) is observed at LF (see Saito and Hoshi 2000 for the same idea and its elaboration). Thus, the complement clauses following these predicates at surface structure move up to the subject position to be theta-marked at LF. The expletive subject *it* in this construction, which has no semantic content like the complementizer *that* and the expletive *there*, is replaced by the complement clauses at LF. The complementizer *that*, therefore, is deleted at the subject position in LF; consequently, if the non-root topicalization occurs, the trace of *that* cannot be head-}

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6 In Section 3, we will return directly to the question as to where the less severe deviancy of (1)-(3) comes from, despite their violation of the ECP

7 Comparing the *likely*-type predicates with other adjectival non-factive predicates that take both the theta-marked subject and the clausal complement (such as *sure* and *aware*), we have a clear difference in acceptability of the adjunct-wh extraction and the non-root topicalization, as the examples below show.

(i) a. How, are you sure/aware that John will behave tᵈ at that party?
b. ??How, is it likely/possible that John will behave tᵈ at that party?
c. I am sure/aware that Mary₈, John kissed tᵈ.
d. *It is likely/possible that Mary₈, John kissed tᵈ.

These examples show that the CP recursion is allowed in the complement clause of an adjective which selects both of the internal and external arguments.
governed and violates the ECP. If the CP recursion is not required for any reason, the moved clause in the subject position does not violate any principle, since the position where *that* is deleted need not be subject to the ECP, as we have seen in the previous section. The examples in (7) above also indicate the point. The overt complementizer *that* in the complement of a *likely*-type predicate can be deleted without any violation.

Next, let us turn to (1c, d), which shows another type of Right Dislocation, where the right-dislocated CP acts thematically as the subject of the small clause. If the CP remains in the dislocated position, i.e., an adjunct position, at LF, the CP recursion causes an ECP violation because of the lack of the properly head-government for the adjunct position. Instead, the CP can be moved back to the small clause subject position at LF. Then, the question is whether the subject position of a small clause is head-governed by the verb that selects the small clause. In fact, Kayne (1983) demonstrates, through showing the following examples, that it is not the case:

(19) a. Mary makes [sc out [sc John a liar]].
   b. * Mary makes [sc [sc John a liar] out].
   c. * John was being made [sc [sc t a liar] out].

The ill-formedness of (19b, c) indicates that the subject position of a small clause cannot be properly head-governed by the verb. Thus, even if the extraposed clause is reconstructed at LF, the trace of *that* in (1c, d) fails to be head-governed, and violates the ECP, again.

Secondly, let us consider the examples involving Extraposed clauses, as shown in (2). Suppose that the extraposed CP is adjoined to a position outside of VP and remains there at LF. Then, the CPs cannot be head-governed by any proper head-governor and the trace of *that* which is created by the CP recursion violates the ECP. The question is whether the extraposed clause moves back to the direct object position of the verb selecting it at LF. Let us here examine the following facts that Hegarty (1991) points out (originally noted by Kayne 1983).
Following Pesetsky (1982), which argues that the Path Containment Condition (PCC) applies at LF as well as S-structure, the contrast in (20), thus, indicates that whereas there is no crossing paths of movement in (20b) at LF (or at S-structure), there is in (20a). In other words, the complement of *say* is base-generated at the sister position of the verb and is extraposed; on the other hand, the complement of *yell* is base-generated in the adjoined position. Since the verb *yell* is a manner of speaking verb, the complement is not directly selected by the verb (see Stowell 1981). Keep this in mind, let us consider the following examples.

(21) a. *Who did you mention *to [that Bill was there]?
   
   b. Who did you mention it to [that Bill was there]?

(21a) indicates that, when the dative prepositional phrase appears, the complement clause of *mention* is extraposed leaving a trace, so that there is a path from the trace in the sister position of the verb to the extraposed position, resulting a PCC violation, as in (20a). On the other hand, when the expletive *it* associated with the complement clause appears in the sister position of the verb, there is no such path, and no PCC violation occurs. In contrast, no reconstruction occurs in (21b). We conclude, therefore, that the extraposed clause does not move back to the sister position of the verb at LF; hence, the CP recursion in a extraposed clause yields an ECP violation, as discussed above.

Lastly, the clausal complement of a manner-of-speaking verb is also supposed not to be in the sister position of the verb (Stowell 1981 and Cinque 1990). Given that the complement clause of a manner-of-speaking verb is not directly selected by the verb, the trace of *that* fails to be properly head-governed and violates the ECP.

In this section we have discussed the *that*-deletion at LF and explained the ungrammaticality of the non-root topicalization in the environments presented in (1)-(3). We are, thus, regarding those phenomena
as signifying that they are subject to the ECP in terms of head-
government at LF under the assumption that the traces of that is li-
censed by proper head-government. An immediate question, however,
soon arises: why is it that the examples in (1)-(3) are not so severely
deviant as the well-known examples with an ECP violation if we are on
the right track in arguing that the examples in (1)-(3) violate the ECP?
In the next section, we will advance toward an explanation for the mild
deviancy of the adjunct wh-extraction in (1)-(3).

3. Adjunct-Wh Chain and Minimality Condition

If we can succeed in establishing the theory of the adjunct-wh ex-
traction according to which the CP recursion always occur when an ad-
junct wh-phrase is extracted out of the clause, the generalization in (11)
straightforwardly follows: We can attribute the ill-formedness of (1)-(3)
to the same reason of the ill-formedness of (4)-(6). (We will soon touch
on their difference in the degree of ill-formedness.) The question is,
then, what requires the CP recursion when an adjunct wh-phrases is
moved across an embedded clause. Since no element can move beyond a
possible landing site (i.e., the Minimality condition on the chain forma-
tion (Chomsky 1992)), the adjunct wh-phrase must land in the Spec of
any of the embedded CPs. On the other hand, the clausal type of those
embedded CPs is determined by the verb which selects the CP system;
that is, it is determined as either [+wh] or [−wh] by the selecting V. Ac-
cording to Watanabe’s (1992) theory, as we have argued in Section 2, if
an intermediate trace of the adjunct-wh movement has a [−wh] feature,
it can land at the Spec of those embedded [−wh] CPs with the overt
complementizer that, and the CP recursion is not required by any rea-
son. We, therefore, need the following stipulation here, so that an inter-
mediate trace of the adjunct-wh movement is prohibited from appearing
in the Spec of the [−wh] CP.
Stipulation on the [+/-wh] feature of a wh-trace:

Whereas an intermediate trace of the argument-wh movement is [-wh], an intermediate trace of the adjunct-wh movement is [+wh].

Given this, the CP system must recur to accommodate the landing site of an intermediate [+wh] trace of an extracted adjunct wh-phrase if the adjunct wh-phrase is extracted out of an embedded [-wh] clause. Since there is no [+wh] element in the Spec of the topmost [-wh] CP in this case, this meets the requirement of the clause type selection.

(23) and (24) illustrate the configuration where the adjunct-wh extraction occurs and the one where the argument-wh extraction occurs, respectively:

(23) argument-whi . . . [CP t′ thatj [IP . . . ti . . .

(24) adjunct-whi . . . [CP t′ thatj [IP . . . ti . . .

The trace of an argument wh-phrase can be left in the Spec of the embedded [-wh] CP by virtue of its feature [-wh]. Since the operation which is not required by any reason is barred by the general economy condition, the CP recursion does not take place in the case of the argument-wh extraction. The question arises here whether the chain formation from the intermediate trace of an adjunct-wh phrase in the Spec of the lower CP beyond the Spec of the topmost CP is possible. As far as the Minimality condition assumed thus far concerned, the Spec of the topmost CP would block the chain formation, since it is a possible landing site for A’-movement. But, one should notice here that this position and the Spec of the lower CP are equidistant from the initial trace

8 Ken Hale (personal communication) points out that in Irish, the [-wh] complementizer agreement with an intermediate trace of a wh-phrase in its Spec position is executed only when the extracted wh-phrase is an argument. This fact cannot be accounted for by the assumption that an intermediate trace of the adjunct-wh movement lands in the Spec of the [-wh] clause. On the other hand, it follows from our stipulation that an intermediated trace of the adjunct-wh movement cannot stay in the Spec of the [-wh] clause, so that there should be no Spec-head agreement between the adjunct-wh movement and the [-wh] complementizer.
of the \textit{wh}-phrase within the IP projection thanks to the movement of the complementizer \textit{that} (see Chomsky 1992 for the definition of equi-distance). It follows that the chain formation can skip the Spec of the topmost CP. What is more, the chain formation must, indeed, skip that position, given the ban on Vacuous Movement (see Saito 1994). Thus, the adjunct-\textit{wh} extraction is successfully achieved, satisfying both the clause type selection and the condition on chain formation (Minimality) in the context where the CP recursion is allowed.

Now, we are ready to answer the question as to why the examples in (1)-(3) are somewhat deviant, but not so severely degraded as the well-known examples with an ECP violation (such as the adjunct-\textit{wh} extraction out of a \textit{wh}-island). Let us recall that the CP recursion is disallowed in those environments, since if it occurs, the trace of \textit{that} would violate the ECP, as we have argued in Section 2. Then, the adjunct-\textit{wh} extraction out of those environments cannot utilize the CP recursion strategy which is necessary to satisfy the clause type selection. As a result, the adjunct \textit{wh}-phrase inevitably moves beyond the Spec of the CP in order to avoid a violation of the requirement for the clause type selection. Does such an operation violate any condition? Apparently, it violates the Minimality condition, since the adjunct \textit{wh}-phrase moves over a possible landing site; namely, the Spec of the embedded CP. But, if we follow the standard assumption that an violation of Minimality by an adjunct \textit{wh}-phrase results always in total ungrammaticality, the sentences in (1)-(3) are incorrectly predicted as being totally degraded, contrary to the fact that they are mildly deviant in grammaticality.

What differentiates the mildly deviant cases in (1)-(3) from the severely degraded cases of the Minimality condition violation? Let us take the adjunct-\textit{wh} extraction out of a \textit{wh}-islands for an example. In what respect does this example differ from the ones in (1)-(3)? It seems that the [+/-\textit{wh}] feature of the intervening CP acts as the trigger of the Minimality condition violation. To put it differently, if the intervening possible landing site is compatible with the moved element in terms of
[+]wh feature, the Minimality violation would be strong. On the other hand, if the intermediate possible landing site is not compatible with the moved element in terms of [+]wh feature, the result would be a weaker violation. The following are the formal statements of what we have just detected above.

(25) **Minimality Condition** (on A-bar chain)

When two distinct A-bar positions (\(\alpha\) and \(\beta\)), where \(\alpha\) is structurally higher than \(\beta\), are linked by a single Form-Chain operation and another A-bar position (\(\gamma\)), which is not involved in this operation, structurally intervenes between \(\alpha\) and \(\beta\) and is not equidistant from \(\alpha\), the operation is subject to the Minimality Condition.

a. **Stronger Violation** (The Relativized Minimality Condition)

If \(\alpha\) and \(\gamma\) have the same feature in terms of [+]wh, the Form-Chain operation that links \(\alpha\) and \(\beta\) is totally impossible.

b. **Weaker Violation** (The Subjacency Condition)

If \(\alpha\) and \(\gamma\) differ in [+]wh-feature, the Form-Chain operation that links \(\alpha\) and \(\beta\) is marginally permissible.

Given this condition, we are prepared to examine the derivations of the wh-extractions involved in the examples (1)-(3).

First, let us return to the examples in (15), where the adjunct-wh extraction out of a factive/negative complement clause causes a severe degradation. In these examples, the CP recursion must take place because of the existence of the [+]wh elements in the CP system, as argued in Section 2. When “Form chain” applies at LF (Chomsky 1992), an intermediate trace of the extracted adjunct wh-phrase cannot go through the Spec of the lower CP, since the factive/negative operator already exists there. Nor can it go through the Spec of the topmost [−wh] CP, since the position must not be filled with a [+wh] element. Thus, the adjunct wh-phrase must skip both the topmost CP Spec and the lower CP Spec. According to the Minimality condition stated in (25a) above, we correctly predict that the movement beyond the lower CP
Spec occupied by the $[\text{+wh}]$ factive/negative operator causes a stronger violation, since the intermediate trace of an adjunct $wh$-phrase is $[\text{+wh}]$ which shares the same feature with the lower CP Spec. Now, let us explain the mild deviancy of the examples in (1)-(3), where the adjunct-$wh$ extraction out of a complement clause causes a less severe degradation in grammaticality, as we observed above. It is important to recall that the CP recursion is prohibited in the complement clauses involved in these examples. Therefore, the adjunct $wh$-phrase must skip the Spec of the $[-wh]$ CP to satisfy the clause type selection. The Minimality condition in (25b) above again accounts for the marginal grammaticality of these sentences; for, the $wh$-feature at the intervening CP Spec differs from the intermediate trace of the extracted adjunct $wh$-phrase.

Thus far, we have appropriately derived the “Subjacency” effect on the adjunct-$wh$ extraction through the Minimality condition in terms of $[\text{+/−wh}]$ feature distinction; consequently, the generalization stated in (11) follows, as required.

4. Conclusion

In this paper we have pointed out the fact that there indeed exists a “Subjacency” effect on an adjunct A’-chain, the fact which has been unnoticed so far in the literature. According to the existing theory of A-bar dependency such as Chomsky and Lasnik’s (1990) approach, the “mild” deviancy of a movement operation is derived solely from the deletablity of a $\gamma$-marked trace at S-structure (see, also, Lasnik and Saito 1984). Under the theory of this kind, the trace of an operator-variable chain is deletable at S-structure, but that of a uniformed A-bar chain such as the one created by an adjunct-$wh$ phrase is not. Then, it follows that there is always a severe degradation in the case of the adjunct-$wh$ extraction. Thus, we cannot maintain this kind of movement theory on empirical grounds.

In contrast, we have incorporated the notion of “Minimality” into
the theory of Form Chain, and managed to derive the “Subjacency” effects on adjunct A-bar chains, as required.

There may remain some unsolved problems. For example, is the notion of “Minimality” alone responsible for the theory of Form Chain, or do we still need a notion of “barrier”? Moreover, what principle forces a trace to be head-governed? The last question is actually at issue, since the notion of “government” and the role of head-government requirement of the ECP has been reconsidered by some recent works such as Chomsky (1992) and Saito (1994). We expect that whatever principle replaces these notions also should cover the phenomena discussed herein-before.

REFERENCES


