

On Factivity and Some of Its Effects*

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0. Introduction

Since Kiparsky and Kiparsky (1971), some peculiar phenomena concerning constructions with factive predicates have been focused on in much literature in the principles-and-parameters approach to the theory of grammar. As is well known, the following sentences involving factive verbs such as *regret* and *mention* are most typical examples, which we will mainly discuss in this paper:¹

- (1) a. I *regret* that Mary bought a car.
- b. I *mentioned* that Mary bought a car.

For example, in (1a), the speaker presupposes that the proposition expressed in the embedded clause is true and makes some assertion about that proposition. In this sense, we call "factive" the complements selected by *regret* and *mention* in the above sentences.

In this paper we will discuss how factivity can be represented syntactically. In particular, we will argue that the *Factive Operator* (henceforth FO) exists in the Spec of CP selected by factive verbs, which we claim to be responsible for factivity. We will see that this proposal has both theoretical and empirical consequences in the theory of grammar.

This paper is organized as follows. In section 1, we propose that the FO is in the Spec position of factive complements and discuss the question of how factivity can be represented syntactically, indicating the motivation for the postulation of the FO. Given that this proposal is correct, islands effects on extraction from factive complements can be explained straightforwardly. In section 2, we argue against Cinque's (1990) suggestion about the position of factive complements. In section 3, we present independent evidence for the existence of the FO on

the basis of data from French, suggesting that the structure of factive clausal complements is invariable across languages.² Concluding remarks are provided in section 4.

1. Factive Operator

In this section we will provide the motivation for the postulation of the FO on the basis of semantics of factivity proposed by Hegarty (1991) and discuss how the FO is licensed in the syntactic representation of the factive CP.

1.1. *Wh-Island Phenomena*

First of all, consider the following sentences involving the *wh*-extraction out of factive complements:

- (2) a. ??What do you regret that Mary bought t?
 b. ??What do you mention that Mary bought t?

The slightly degraded grammaticality of (2) suggests that the *wh*-extraction of argument NPs out of factive complements exhibits weak Subjacency effects just like cases of extraction out of a *wh*-island:

- (3) ??What do you wonder whether Mary bought t?

However, unlike (3), no blocking elements for the *wh*-extraction seem to be involved in the factive complements in (2). Why, then, does (2) produce slightly deviant grammaticality despite the fact that there are no barriers for extraction?³

This contrasts with the following sentence involving *wh*-extraction of an argument NP out of non-factive complements of "bridge" verbs like *think*. The sentence is perfectly grammatical:

- (4) Who do you think that Mary visited t?

Furthermore, *wh*-extraction of adjuncts like *why* is totally ungrammatical out of factive complements, while it is possible out of non-factive complements:

- (5) a. *Why do you regret [that Mary bought a book t]?
 b. Why do you think [that Mary visited John t]?

The argument/adjunct asymmetry between (2) and (5a) suggests that the phenomena concerning the extraction out of factive complements should be handled in terms of syntax, not semantics.⁴

The ungrammaticality of (5a) is parallel to that of the following sentence involving the extraction of *why* out of a *wh*-island:

- (6) *Why do you wonder [whether Mary bought a car t]?

From the parallel syntactic behaviour between "factive islands" and *wh*-islands, it is not unplausible to assume that factive complements involve some kind of empty operator (OP) in the Spec of CP,⁵ and the Spec position cannot be used as an "escape hatch" for movement. Thus, the island phenomena seen above with respect to factive complements can be explained straightforwardly. Consider the following abstract representations of (1a,b):

- (7) a. I regret [_{CP} OP [_C that [_{IP} Mary bought a car]]].
 b. I mention [_{CP} OP [_C that [_{IP} Mary bought a car]]].

These representations are analogous to sentences taking questions with *wh*-words like *whether*, which we assume to be base-generated in the Spec of CP:⁶

- (8) I wonder [_{CP} whether [_{IP} Mary bought a car]]].

If an adjunct like *why* is extracted out of a *wh*-island, an Empty Category Principle (ECP) violation results, yielding the ungrammatical sentence (6). We assume that the ECP is defined disjunctively as follows:

(9) *The Empty Category Principle:*

A nonpronominal empty category must be properly governed.

(Chomsky (1981))

(10) α properly governs β iff α governs β and

a. α is a lexical category X^0 (lexical government), or

b. α is coindexed with β (antecedent government).

(cf. Chomsky (1981))

(11) α governs β iff α μ -commands β and there is no γ ,

γ a barrier for β .^{7, 8}

(cf. Chomsky (1986a:9))

The trace of adjuncts left by extraction cannot be lexically governed.⁹ Thus it must be antecedent governed. However, in (6), since the *wh*-word *whether* is in the Spec of CP and the adjunct *why* cannot move successive cyclically, no antecedent government relation is established, resulting in an ECP violation. The same is true of factive complements. Since an empty operator occupies the Spec of CP selected by factive verbs, the trace left by the extraction of the adjunct *why* cannot be antecedent governed, hence the ungrammaticality of sentence (5a).

On the other hand, as we mentioned above, the sentences in (2) involve a weak Subjacency violation as in (3), satisfying the requirement of the ECP, that is, the trace left by the extraction of an argument out of factive complements is lexically governed, even if successive cyclic movement is blocked due to the existence of the empty operator.

Thus, if the hypothesis that some kind of empty operator, namely, the Factive Operator (FO) specified as [+Factive] is in the Spec of CP is correct, we can capture the syntactic parallel between factive complements and interrogative complements selected by *wonder* with respect to *wh*-movement.

However, a natural question arises immediately why we can say that an empty element occurs in factive complements selected by *regret* and *mention*, while it does not in non-factive complements selected by *think*? We claim here that the difference between factive and non-factive com-

plements lies in that of events they express. Hegarty (1991) argues that the propositional complement selected by *think*, *that Mary visited John* in (5b) denotes the set of all events, real or unreal, in which Mary visited John; and that the factive complement in (5a), on the other hand, denotes the actual event or the event which occurred in the previous discourse, in which Mary bought a car. Hegarty further argues that in the case of events denoted by factive complements, some kind of operator binds items which are actual or presupposed within the previous discourse.¹⁰ We assume here that Hegarty's (1991) semantic analysis of factivity is correct and that it is extensible to a syntactic analysis of factive complements. Assuming that tense is relevant to factivity, we can say that the FO, which bears the tense specification corresponding to the event that is actual or presupposed within the previous discourse, binds INFL (AGR) in factive complements. Thus, given this motivation based on the semantics of factivity, it is reasonable to assume that the operator (FO) exists in the syntactic representation of factive complements and that the FO is relevant to factivity.

1.2. "The Factive Criterion"

In this subsection we will extend Rizzi's (1991) analysis of "the *Wh*-Criterion" to factive complements and discuss how the FO can be licensed in the syntactic representation of the factive CP. The analysis to be proposed below makes more plausible our hypothesis that the FO exists in the Spec of CP.

First of all, let us consider how Rizzi (1991) formulates the *Wh*-Criterion. As Rizzi (1991) notes, in English, the Spec of the CP of an interrogative clause must be filled by a *wh*-element at D-Structure or S-Structure:

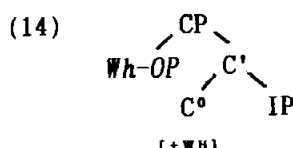
- (12) a. I wonder [_{CP} *whether* [_{IP} Mary bought a car]].
- b. I wonder [_{CP} *who* [_{IP} Mary visited *t*]].
- c. *I wonder [_{CP} ϕ [_{IP} Mary bought a car]].
- d. *I wonder [_{CP} ϕ [_{IP} Mary visited *who*]].

The ungrammaticality of (12c,d) indicates that the Spec of CP is marked [+WH] and thus it must be filled by some *wh*-element. In order to account for this fact, Rizzi (1991) proposes the following principle:

(13) *The Wh-Criterion:*

- a. A *Wh*-Operator must be in a Spec-Head configuration with an $X^0_{[+WH]}$
- b. An $X^0_{[+WH]}$ must be in a Spec-Head configuration with a *Wh*-Operator.

The *Wh*-Criterion states that an embedded complement is interpreted as a question when it is selected by the matrix verb taking questions and an interrogative operator is in the Spec of CP. The required configuration of the *Wh*-Criterion is represented as follows:

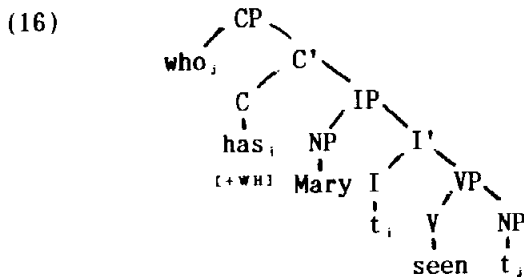


In (14), the *Wh*-Operator and the element specified as [+WH] in the position of the head C^0 are in a Spec-Head configuration, satisfying the *Wh*-Criterion. The *Wh*-Criterion provides a simple account of Subject-Aux inversion in English. Consider the following sentences noted by Rizzi (1991):

- (15) a. *Mary has seen who.
 b. * $[_{CP} \text{ Who [Mary has seen t]}]$.
 c. * $[_{CP} \text{ Has [Mary t seen who]}]$.
 d. $[_{CP} \text{ Who has [Mary t seen t]}]$.

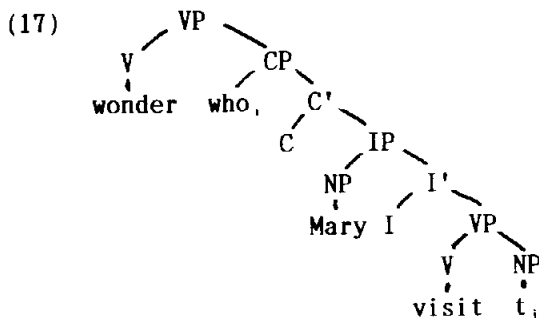
Assuming that in English, a verbal inflection can carry the specification [+WH], we can explain the paradigm in (15).¹¹ Subject-Aux inversion is forced to meet the requirement of the *Wh*-Criterion on the assumption that the head of CP can be specified as [+WH] if and only if

a verbal inflection carrying [+WH] is substituted to the vacant position of the head C^0 . Thus, we can correctly predict that only (15d) is well-formed on the basis of the above assumption. (15b), on the other hand, is ruled out because no element bearing [+WH] is substituted to the vacant position of the head C^0 . The ungrammaticality of (15b) indicates that the head of CP cannot be marked [+WH] by Spec-Head agreement with the overt *Wh*-Operator, since there is no empty element in the position of the head C^0 . The configuration of the well-formed sentence in (15d) is as follows:



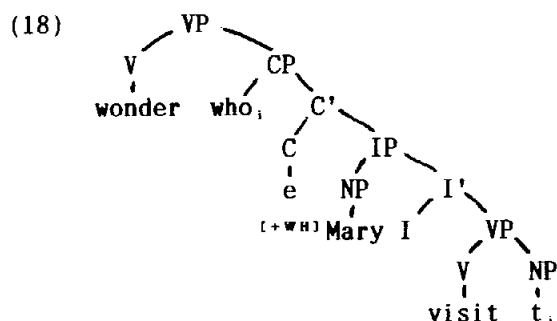
In (16), *who* and *has* specified as [+WH] are in a Spec-Head configuration, yielding a grammatical sentence. Thus, it follows that only (15d) meets the requirement of the *Wh*-Criterion.

However, in embedded sentences like (12a,b), which are fully grammatical, the *Wh*-Criterion does not seem to be satisfied. For example, consider the following relevant configuration of (12b):



At first glance, (17) violates the *Wh*-Criterion. Since there seems

not to be any elements marked [+WH] in the head C^0 , no Spec-Head configuration is established in the embedded CP. But, as Rizzi (1991) argues, we consider that the verb *wonder* selects an indirect question, and the head C^0 selected by *wonder* has an empty element specified as [+WH] at D-Structure. Thus, the head of CP in (17) actually bears a specification [+WH] as in (18), where the requirement of the *Wh*-Criterion is satisfied:



Note here that there might arise a question of why some empty element bearing [+WH] cannot occupy the vacant position of the head C^0 in the matrix CP and fulfill the *Wh*-Criterion just as in the case of the embedded CP in (18). We claim that, unlike the embedded CP, the position of the head C^0 in the matrix CP cannot have any empty elements specified as [+WH] because the matrix CP is not selected by any verbs.

The configuration in (18) can straightforwardly account for the fact that in embedded questions no Subject-Aux inversion occurs in English; in (18) the empty element marked [+WH] has already occupied the position of the head of CP:

- (19) *I wonder [_{CP} who_i [_{C'} has [_{IP} Mary visited t_i]]].

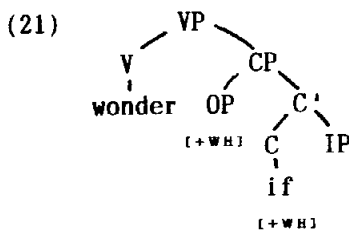
Since the empty element in the head C^0 is specified as [+WH] by the matrix verb *wonder* at D-Structure, there is no need of Subject-Aux inversion.¹²

Thus far, we have seen how the *Wh*-Criterion works out to determine the well-formedness of questions. Next, let us examine the cases

where the complementizer *if* is selected by the matrix verb *wonder*, although Rizzi does not mention it:

(20) I wonder if John goes to the movie.

Since the meaning which *if*-clauses denote is almost the same as the meaning of *whether*-clauses, we can say that an empty operator is involved in *if*-clauses as with the case of *whether*-clauses. Thus, we can conclude that the abstract representation of (20) is the following, assuming that the complementizer *if*, which is selected by *wonder* and is marked [+WH], is in the head of CP and the empty operator intrinsically specified as [+WH] occupies the Spec of CP:



That the empty operator is in the Spec of CP is indicated by the following sentences involving extraction both of an argument and of an adjunct out of the *if*-clause. As we mentioned in footnote 6, the extraction of arguments is marginally possible, as in (22a), while adjuncts extraction is impossible, as in (22b):

- (22) a. ??What do you wonder if John bought t?
 b. *Why do you wonder if John bought the car t?

Let us return to the abstract representation in (21). In (21), the empty operator, which is intrinsically assigned the feature [+WH], is in a Spec-Head configuration with the C° *if* marked [+WH]. The reverse is also true; the C° *if* marked [+WH] is in a Spec-Head configuration with the empty operator specified as [+WH]. Hence we can conclude that even in the case of *if*-clauses as in (20), the Wh-Criterion can be

satisfied.

Before proceeding to the detailed discussion of factive complements, let us consider the possible representations of embedded clauses which the *Wh*-Criterion rules in (*OP* represents empty operators):¹³

- (23) a. wonder [_{CP} whether [_C C⁰ [_{+WH}]]]
 b. wonder [_{CP} OP [_{+WH}] [_C if [_{+WH}]]]
 c. *wonder [_{CP} OP [_{+WH}] [_C C⁰]]
 d. *wonder [_{CP} OP [_C C⁰ [_{+WH}]]]
 e. *wonder [_{CP} OP [_{+WH}] [_C C⁰ [_{+WH}]]]

As we have seen above, the representations in (23a) and (23b) are not problematic. In (23a), the head C⁰ is selected by *wonder* and an empty element specified as [_{+WH}] is in the head of CP. On the other hand, in (23b), the head C⁰ is lexically filled by *if* marked [_{+WH}] and the empty operator in the Spec of CP is intrinsically specified as [_{+WH}]. Of course, the representations in (23c) and (23d) raise no problems, since the head C⁰ in (23c) and the empty operator in (23d) are not specified as [_{+WH}], yielding the violation of the *Wh*-Criterion as predicted. However, as (23e) illustrates, even if both the OP and the head C⁰ are marked [_{+WH}], the representation is also excluded. Thus, in addition to the *Wh*-Criterion, we need the following descriptive generalization, which states that the representation where either the Spec position or the head C⁰ is lexically filled is ruled in, while the representation where neither the Spec position nor the head of CP is lexically filled is ruled out.

- (24) In a Spec-Head configuration, either the Spec position or the head position must be lexically realized as [_{+WH}].

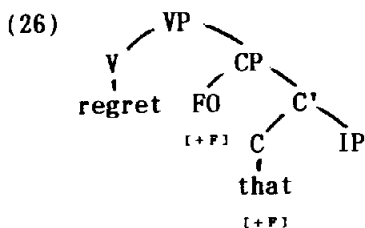
Now let us turn to the case of factive complements. Recall that we have assumed that the FO exists in the Spec of the factive CP on the basis of the semantics of factivity. Given the existence of the FO in the Spec of CP, we must discuss how factivity can be represented syntactically as in the case of embedded questions.

The CP selected by a factive verb denotes not simple propositions but propositions with speaker's attitude (i.e. presupposed propositions). This situation is analogous to embedded questions, which have a specific meaning distinct from the meaning that non-interrogative complements have. Thus, we assume that some similar mechanism to the *Wh*-Criterion can apply to factive complements. That is, clausal complements selected by factive verbs have a specific meaning that non-factive complements do not. Therefore, we propose the following licensing mechanism, called "the Factive Criterion":

(25) *The Factive Criterion:*

- a. A Factive Operator $_{[+Factive]}$ must be in a Spec-Head configuration with an $X^0_{[+Factive]}$.
- b. An $X^0_{[+Factive]}$ must be in a Spec-Head configuration with a Factive Operator $_{[+Factive]}$.

We can say that the configuration of factive complements can be represented as follows, where the FO specified as $[+Factive]$ is base-generated in the Spec of CP and the complementizer *that*, which is lexically spelled out, is marked $[+Factive]$ (henceforth $[+F]$):



In (26), the FO specified as $[+F]$ is in a Spec-Head configuration with the C^0 *that* marked as $[+F]$. The reverse is also true. That is, the C^0 specified as $[+F]$ is in a Spec-Head configuration with the FO. Hence, configuration (26) satisfies the Factive Criterion and factive complements are well-formed as predicted.

As a consequence, we can account for the ungrammaticality of the following sentence lacking the complementizer *that* on the basis of the

argument developed so far:¹⁴

- (27) *John regretted we went to see *Gone with the Wind*.¹⁵
(Authier (1992))

When (27) has the representation as in (23c) or (23d), the sentence is ruled out by the Factive Criterion, since either the FO or the empty element in the head of CP lacks [+F].

Next, we must think of the representation where both the Spec position and the head C⁰ bearing [+F] are empty as in (23e). Notice that the sentence in (27) is parallel to the sentences (28a,b) below, where the complementizer *if* is deleted in the question, resulting in the violation of the Wh-Criterion and the descriptive generalization in (24).

- (28) a. I wonder [_{CP}OP_[+WH] [_{C'} if [_{IP} John goes to the movie]]]
b. *I wonder [_{CP}OP_[+WH] [_{C'} ϕ [_{IP} John goes to the movie]]]

On the other hand, (27) contrasts with non-factive complements selected by *think*, where complementizer (*that*) deletion is fully acceptable because no Spec-Head configuration with an empty operator is involved in non-factive complement of *think*:

- (29) I think (that) John goes to the movie.

Thus, we can extend the descriptive generalization in (24) to the case of the factive CP and revise (24) as in (30):

- (30) In a Spec-Head configuration, either the Spec position or the head position must be lexically realized as [+WH] or [+F].

Given the descriptive generalization in (30), the representation where both the Spec position and the head C⁰ are empty is excluded even if they are specified as [+F]. Thus, we can nicely exclude the representation of (27) where both the Spec of CP and the head C⁰ specified as

[+F] are empty.

Therefore, we can conclude that "the Factive Criterion" determines the well-formedness of factive complements, and sentences like (27) can be correctly ruled out by the conspiracy of the Factive Criterion and the descriptive generalization in (30).

In this section, we have argued that the F0 exists in the Spec of CP in factive complements, which blocks *wh*-extraction out of factive complements.¹⁶ Our argument for the F0 is based on the semantic motivation, and we have claimed that the Factive Criterion stated as in (25) determines the well-formedness of the factive CP. Consequently, we have seen that, as with the case of *if*, the complementizer *that* in the factive CP cannot be deleted, which follows from the Factive Criterion and the descriptive generalization in (30).

2. The Syntactic Position of *That*-Clauses of Factive Verbs

In this section, we will argue against Cinque's (1990) analysis and discuss the position of *that*-clauses of factive verbs along the line of X'-Theory.

2.1. On Cinque's (1990) Treatment of Factive Complements

Cinque (1990) suggests that factive complements should not be L-marked on the basis of the fact that they exhibit weak island effects, assuming that L-marking is defined as direct θ -marking by a lexical head.¹⁷ He further argues that factive complements are the same as those of manner-of-speaking verbs such as *mutter*, *sigh*, *whisper*, *groan*, in that they are not dominated by V'. Consider the following sentences involving manner-of-speaking verbs, where the complementizer *that* is deleted and the sentences are ungrammatical. The data is discussed by Stowell (1981) (cf. Zwicky (1971)):

- (31) a. *Bill muttered [[e] [Denny was playing too much poker]].
- b. *Ben sighed [[e] [he was sick of not getting fed]].
- c. *Francine whispered [[e] [we should turn down the stereo]].

If *that* is present, the above sentences become fully grammatical:

- (32) a. Bill ~~uttered~~ that Denny was playing too much poker.
 b. Ben sighed that he was sick of not getting fed.
 c. Francine whispered that we should turn down the stereo.

Stowell (1981) attributes the ungrammaticality of (31) to an ECP violation, assuming that empty categories left by *that*-deletion are subject to the ECP.^{18, 19} In (31), since *that*-clauses of manner-of-speaking verbs are in an adjoined position, the empty category [\emptyset] cannot be properly governed by the matrix verb, resulting in an ECP violation. Kayne (1981:fn.23) also presents evidence that *that*-clauses of manner-of-speaking verbs are not governed by the matrix verb. Consider the following sentences:


- (33) a. Bill sighed/groaned to the effect that John was a fool.
 b. *Bill said to the effect that John was a fool.

The attachability of the phrase *to the effect that* in (33a) suggests that *that*-clauses may be regarded as adjuncts, while (33b) is ill-formed since the *that*-clause is a complement of the verb *say*.

Furthermore, let us consider the following sentences:

- (34) a. *Who_i did you say t_k to t_i [that John was a fool]_k?
 b. Who_i did you yell to t_i [that John was a fool]?
 (cf. Hegarty (1991))

Sentence (34a) is excluded by a general constraint, namely, the crossing constraint or the Path Containment Condition (PCC) proposed by Pesetsky (1982).²⁰ The crossing relation in (34a) is represented as follows:

- (35) *Who_i did you say t_k to t_i [that John was a fool]_k?


On the other hand, judging from the grammaticality of (34b), it is plausible to say that no crossing relation is involved, which indicates that *that*-clauses of manner-of-speaking verbs like (34b) are base-generated in a higher position than the position of the prepositional phrase.

Let us now return to the case of *that*-clauses of factive verbs. If Cinque's suggestion were correct, that is, if the assumption that factive clauses have the same syntactic status as those of manner-of-speaking verbs were correct, factive clauses without complementizer *that* would be also ruled out by the ECP (cf. Stowell (1981)). This implies that the Factive Criterion and the descriptive generalization in (30) stated in subsection 1.2. would not be effective in ruling out sentences lacking *that* in factive clauses, if Stowell's ECP is adopted. Thus, sentence (36a), where *that* is deleted, would be ruled out independently of the Factive Criterion and the descriptive generalization in (30).

- (36) a. *John regretted [[e] [Mary got married to Bill]].
 b. John regretted that Mary got married to Bill.

However, in the next subsection, we will argue that Cinque's suggestion is not correct, and propose an alternative. This implies that the ungrammaticality of sentences like (36a) should follow from the Factive Criterion and the descriptive generalization in (30).

2.2. The Position of *That*-Clauses of Factive Verbs

In this subsection, we will propose that *that*-clauses of factive complements are dominated by V' and they receive a "factive" θ -role directly from factive verbs. This proposal means that factive complements are governed by matrix verbs and thus it follows that Cinque's treatment of factive complements is not plausible.

First of all, consider the following sentences:

- (37) a. John muttered to the effect that Mary got married to Bill.

- b. *John regretted to the effect that Mary got married to Bill.

If *that*-clauses selected by factive verbs were adjuncts in nature like those of manner-of-speaking verbs, we would expect sentence (37b) to be fully grammatical as (37a), but in fact, it is ungrammatical. The above contrast indicates that the syntactic status of factive complements differs from that of *that*-clauses of manner-of-speaking verbs.

Second, consider the following sentences noted by Hegarty (1991):

- (38) a. Who did you yell to *t* that Mary got married to Bill?
 b.?*Who did you mention to *t* that Bill was here?

If factive complements behaved like *that*-clauses of manner-of-speaking verbs, we would expect that (38b) exhibits no crossing effects like (38a), which is a wrong expectation.²¹ On the contrary, the unacceptability of (37b) suggests that factive complements behave like *that*-clauses selected by *say* in (34a). Thus, it follows that factive complements are real "complements" selected by verbs; hence they are governed by factive verbs.

Finally, consider the following sentences involving topicalization of *that*-clauses of manner-of-speaking verbs. The data is discussed by Stowell (1981):

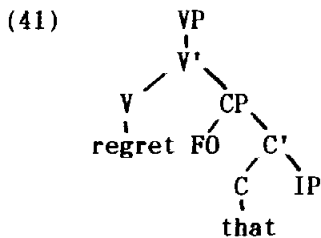
- (39) a. *[That Denny was playing too much poker], Bill muttered *t*.
 b. *[That he was sick of not getting fed], I think that
 Ben sighed *t*.

The ungrammaticality of (39) indicates that the traces left by topicalization are not properly governed by manner-of-speaking verbs. If factive complements were similar to *that*-clauses of manner-of-speaking verbs with respect to their syntactic position, we could predict that topicalization of the factive complement is ruled out as in (39). However, this prediction cannot be borne out, as (40) illustrates:

- (40) [That Mary was a fool], I think that John regretted *t*.

The grammaticality of (40) suggests that unlike (39), the trace left by topicalization should be properly governed by the factive verb *regret*. Therefore, it is natural to conclude that the status of factive complements differs from *that*-clauses of manner-of-speaking verbs and that they are governed directly by factive verbs. This conclusion shows that Cinque's analysis of factive complements is untenable.

Thus, we can conclude that the CP selected by factive verbs is a sister of V:



In (41), the verb *regret* θ -governs the CP dominated by V' and thus the CP receives a "factive" θ -role.

In this section we have argued that the position of factive complements is dominated by V' and a factive θ -role is assigned to them directly by the matrix verb within V'. This indicates that Cinque's (1990) claim that factive complements are not L-marked is not correct and that sentences as in (36a) should be ruled out by the Factive Criterion and the descriptive generalization in (30).

3. Independent Evidence

In this section we will provide independent evidence for the existence of a FO in factive complements. We will deal with so-called "Stylistic Inversion" (Styl-Inv) in French extensively discussed by Kayne and Pollock (1978) (henceforth K&P).²² Our hypothesis that the FO is in the Spec of CP in factive complements is supported by data concerning Styl-Inv in French.

the man with whom has left Marie is named Jacques
'The man who Marie has left with is named Jacques.'
(K&P (1978:595-596))

If there is no preposed *wh*-word in embedded complements, Styl-Inv is not applicable:

- (45) a Marie pense que Pierre a crié.
Marie thinks that Pierre has yelled
b. *Marie pense qu'a crié Pierre.
- (46) a. Elle dit que son ami partira.
she says that her friends will leave
b. *Elle dit que partira son ami.
- (K&P (1978:597))

Thus, according to K&P, the environment for triggering Styl-Inv is roughly represented schematically as follows:

(47) [_{CP} Wh_i [_{IP} _____ V . . . t_i . . . Subj]]

(47) indicates that Styl-Inv is triggered by a *wh*-word in clause-initial position. Keeping the above generalization in mind, consider the following sentences:

- (48) a. Avec qui croit-elle qu'a soupé Marie?
with whom does she think that has dined Marie
'Who does she think that Marie has dined with?'
- b. L'homme avec lequel je crois qu'a soupé Marie
the man with whom I think that has dined Marie
s'appelle Georges.
is named Georges.
'The man who I think that Marie has dined with is named
George.'
- (K&P (1978:599))

In (48a), Styl-Inv applies to the embedded clause and the embedded subject *Marie* is postposed, even though the *wh*-word *Avec qui* 'With whom' is not in the clause-initial position of the embedded sentence. This is also true of (48b). The subject of the most deeply embedded clause in (48b), *Marie*, is postposed in spite of the fact that the embedded clause of *croire* 'think' contains no *wh*-word triggering Styl-Inv. In order to account for the grammaticality of (48), K&P claim that *wh*-movement applies successive cyclically and that Styl-Inv is licensed by the trace in the embedded clause left by *wh*-movement as well as a *wh*-word itself. The abstract representation of (48) is as follows:

(49) [_{CP} Wh_i [.....[_{CP} t'_i [_{IP} ____ V...t_i...Subj]]]]

K&P propose the following filter to capture the facts we have considered:

(50) Mark as ungrammatical any sentence containing an empty subject position not immediately preceded by the trigger '*wh* (que)'^{23, 24}

(K&P (1978:617))

In the next subsection, we will consider the possibility of Styl-Inv in factive complements on the basis of filter (50).

3.2. Stylistic-Inversion and Factive Complements

Let us now consider the following sentences noted by Zubizarreta (1982:88):

- (51) a. Voici le livre que Pierre croit que [les élèves de 1ère année] ont lu.
'This is the book that Peter thinks that [the 1st year students] read.'
- b. Voici le livre que Pierre regrette que [les élèves de 1ère année] aient lu.

'This is the book that Peter regrets that [the 1st year students] read.'

Sentence (51b) involves the factive verb *regretter* 'regret'. Recall that we have hypothesized that the FO is in the Spec of CP in factive complements, suggesting that the configuration of clausal factive complements is invariable across languages. Then, if our hypothesis is correct, we can predict that Styl-Inv is not applicable in (51b) due to the presence of the FO in the Spec of CP. This prediction is borne out. Consider the following sentences, where the embedded subject *les élèves de 1ère année* 'the 1st year students' is postposed:

- (52) a. Voici le livre que Pierre croit qu'ont lu [les élèves de 1ère année].
 b. *Voici le livre que Pierre regrette qu'aient lu [les élèves de 1ère année].

(Zubizarreta (1982:88))

In (52a), Styl-Inv is applicable since *wh*-movement occurs successive cyclically and the trace in the Spec of CP left by the movement licenses Styl-Inv. On the other hand, in (52b), since the FO is in the Spec of CP in the embedded clauses selected by *regretter*, successive cyclic movement is not available. The abstract configuration of (52b) is represented as follows:

- (53)le livre_i [_{CP} *Wh*-OP_i que [_{1P} Pierre [_{VP} regrette
 [_{CP} FO [_{1P} qu'aient lu *t*_i les élèves de 1ère année]]]]]

The ungrammaticality of (52b) indicates that there is no *wh*-morpheme to trigger Styl-Inv in the Spec of the embedded CP. This result follows from our hypothesis that the FO exists in the Spec of CP in factive complements.²⁵

4. Conclusion

In this paper we have argued that a FO exists in the Spec of CP in factive complements. Our argument for the FO is based on the motivation of semantics, and we have claimed that the Factive Criterion determines the well-formedness of factive complements. Consequently, the fact that the complementizer *that* cannot be deleted in factive complements is accounted for by the Factive Criterion and the descriptive generalization in (30). Furthermore, we have seen that *wh*-island phenomena and the inapplicability of Styl-Inv in French in embedded complements of factive verbs can be straightforwardly accounted for by postulating the FO in the Spec of CP in factive complements.

Notes

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¹ We may assume that other factive verbs like *announce*, *notice*, *recall*, *recognize*, *resent*, etc. have much the same syntactic status as typical factive verbs like *regret* and *mention* in the text. For the detailed discussion as to classification of factive predicates, see Kiparsky and Kiparsky (1971), Hooper and Thompson (1973), Cattell (1978), and Hegarty (1991). Furthermore, in the text, we will restrict our discussion to factive verbs and will not deal with factive adjectives.

² In Japanese, only NPs can be selected as complements of factive verbs. For example, consider the following sentences involving Japanese factive verbs like *koukaisu* 'regret', which subcategorize only NPs as complements:

- (i) a. John-wa [Tom-ga Mary-to kekkonsi-ta koto]-o
 -TOP -NOM -with marry -PAST fact -ACC
 koukaisi-ta.
 regret-PAST
 'John regretted the fact that Tom got married to Mary.'
- b. *John-wa [Tom-ga Mary-to kekkonsi-ta to] koukaisi-ta.
 -TOP -NOM -with marry -PAST COMP regret -PAST
 'John regretted that Tom got married to Mary.'

On the other hand, factive verbs in English and European Portuguese (cf. Raposo (1988)) select both types of complements, namely, NP and CP complements:

- (ii) a. I regret [_{NP} John's being ill].
 b. I regret [_{CP} that John is ill].
- (iii) a. Eu lamento [_{NP} o assalto do banco pelos meninos].
 I regret [_{NP} the robbery of the bank by the children].
 b. Eu lamento [_{CP} que os meninos tenham assaltado o banco].
 I regret [_{CP} that the children have robbed the bank].
- (Raposo (1988))

Kiparsky and Kiparsky (1971) propose that the factive complement is a complex NP of the form [_{NP} the fact [_S that ...]] and thus becomes an island to *wh*-extraction. We will not go into details of their proposal and will not discuss the NP complements selected by factive verbs. See Kiparsky and Kiparsky (1971) for the detailed discussion as to factive nominal complements.

³ We assume that factive complements are real "complements", not "adjuncts" in the sense that they are selected by factive verbs. The extraction out of adjuncts exhibits CED (Condition on Extraction Domain) effects (cf. Huang (1982)), yielding more degraded grammaticality than *wh*-islands effects, as in (i) and (ii) below. On the other hand, CED effects are not seen in the extraction out of factive complements in (2).

- (i) ?*Which woman_i did John say t_i yesterday [that Tom saw t_i]_i?
- (ii) ?*Which woman_i did John visit New York [after he met t_i]_i?

Thus we may say that a factive complement itself is not a barrier for extraction. Later I will try to give a more precise account of the status of *that*-complements selected by factive verbs. See section 2 below.

⁴ For the analysis in terms of semantics (i.e. specificity or presupposition), see Fiengo and Higginbotham (1981) and Diesing (1990).

⁵ The same point is made in Rizzi (1990).

⁶ Kayne (1991) argues that *whether* is not a lexical complementizer, but a *wh*-phrase in the Spec of CP on the basis of the following contrast:

- (i) He doesn't know [whether PRO to go to the movies].
- (ii) *He doesn't know [if PRO to go to the movies].

He explains the above contrast in terms of the PRO Theorem, assuming that a lexically filled C⁰ *if* counts as a governor for PRO, but that a non lexical C⁰ position does not. Thus, sentence (ii) is ungrammatical due to the violation of the PRO Theorem: PRO is governed by the lexical complementizer *if*. The grammaticality of (i) is parallel to sentence (iii), where the *wh*-phrase *when* obviously occupies the Spec of CP:

- (iii) He doesn't know when to go to the movies.

On the other hand, Chomsky (1986a:50) suggests that *whether* is base-generated as the head of CP and then it will move at LF to the Spec of CP for scopal reasons. For further discussion, see Chomsky (1986a) and Kayne (1991).

Incidentally, *wh*-island effects are found in extraction out of *if*-clauses:

- (iv) ??What do you wonder if John bought t?

(v) *Why do you wonder if John bought the car t?

The slightly deviant grammaticality of (iv) and the severe ungrammaticality of (v) suggest that there is no "escape hatch" for *wh*-movement in *if*-clauses, namely, the Spec of CP is not available for *wh*-movement, irrespective of the fact that the complementizer *if* is in the head C^0 , not in the Spec position. This implies that an empty operator specified as [+WH] exists in the Spec of CP in *if*-clauses and that it blocks *wh*-movement. This situation is similar to the structure of CP in factive complements which we assume in the text. We will see the detailed analysis of *if*-clauses in subsection 1.2.

⁷ *M-command* is defined as follows:

α *m-commands* β iff α does not dominate β and every γ (γ is restricted to maximal projections) that dominates α dominates β .

⁸ For further details of the definition of government and barriers, see Chomsky (1986a). We omit the notion of "exclusion" from the definition, which is irrelevant to our discussion here.

⁹ As Rizzi (1990) argues, if manner adverbials are base-generated within VP, it follows that they are lexically governed by V, and the first clause of (10) should refer to Theta-government. The fact that manner adverbials are within VP is shown by the following sentence which undergoes VP-preposing:

(i)and speak in this way he did.

However, in the text, we assume the classical formulation of the ECP, which does not affect our argument.

¹⁰ For details, see Hegarty (1991).

¹¹ For detailed discussion on the specification [+WH] in a verbal inflection, see Rizzi (1991) and references cited there.

¹² As Rizzi (1991) notes, in French, an inflected verb need not be moved to the head C^0 in the case of matrix questions:

- (i) [_{CP} Qui [elle a rencontré t]]
 Who she has met
- (ii) [_{CP} Qui [a-t [elle t rencontré t]]]
 Who has she met

Rizzi proposes the following agreement process in order to capture the fact shown in (i):

- (iii) Wh-OP $X^0 \Rightarrow$ Wh-OP $X^0_{\{+WH\}}$

For further discussion, see Rizzi (1991)

¹³ This argument is due to Kazue Takeda (personal communication). Of course, Rizzi (1991) does not mention the cases in (26).

¹⁴ We assume that *that* in factive complements cannot be deleted at LF, since, unlike *that* in non-factive complements, it is not semantically empty. If *that* in factive complements were deletable at LF, it might suggest that the FO does not exist in the Spec of CP at LF and we would predict that the extraction of adjuncts like *why* out of factive complements is grammatical, contrary to the fact, assuming that the trace of adjuncts is subject to the ECP (γ -marking) not at S-Structure but at LF (Lasnik and Saito (1984, 1992)).

¹⁵ However, it seems that *that* in factive complements can be deleted if, for example, the factive verb *regret* is used communicatively as *regret to say that*. This is irrelevant to our argument here. See Bolinger (1972) for the discussion about the possibility of *that*-deletion.

¹⁶ Takano (1989) suggests that his revised DP-hypothesis might be extended to cover the cases concerning extraction out of factive complements, following Zubizarreta's observation that the CP in factive complements may be preceded by an overt determiner in Spanish and Portuguese. He argues that the factive CP is Spec-less and that the way the factive CP blocks extraction is exactly the same as the way DP does. For the detailed discussion, see Takano (1989). We will not concern ourselves here with the issue of what is the difference of an empirical coverage between Takano's analysis and ours, and will leave

this issue to further investigation. I am grateful to Masaharu Shimada and Kazue Takeda (personal communication) for bringing this matter to my attention.

- ¹⁷ The notion of "direct θ -marking is defined as follows:
(Chomsky (1986a:14))

α directly θ -marks β only if α and β are sisters.

- ¹⁸ Stowell (1981) defines the ECP as follows:

ECP: A nonpronominal empty category must be properly governed:

α properly governs β iff

- (i) α governs β , and
- (ii) α is a lexical, and
- (iii) α is co-indexed with β .

He assumes that θ -role assignment creates a configuration in which the verb is coindexed with any complement to which it assigns a θ -role. For further discussion, see Stowell (1981).

¹⁹ See also Aoun, et.al. (1987). They claim that the empty category left by deletion of the complementizer *that* must be properly governed at PF.

²⁰ Pesetsky's (1982) Path Containment Condition (PCC) is defined as follows:

Path Containment Condition:

When two paths overlap, one must contain the other.

²¹ However, in the case where so called expletive *it* appears, we can say that *that*-clauses of factive complements are adjoined to VP in base-generation. Consider the following sentence involving an expletive element *it*, where crossing effects are not observed as Hegarty

(1991) notes:

- (i) Who_i do you mention it to t_i [that Bill was here]?

The grammaticality of (i) indicates that the *that*-clause is base-generated higher than the position of the prepositional phrase.

Authier (1991) argues that the expletive *it* and the CP-complement in (i) do not form a CHAIN (cf. Chomsky (1986b)). See Authier (1991) and Postal and Pullum (1988) for the detailed discussion of the status of the expletive *it*.

²² For the alternative analysis of Styl-Inv, see Kayne (1981) and Obenauer (1984).

²³ There is another environment triggering Styl-Inv, that is, the subjunctive (K&P (1978:602)):

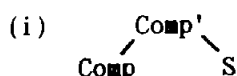
- (i) Je veux que parte Paul.
I want that leave Paul
'I want Paul to leave.'
- (ii) J'exige que soit éliminée cette solution.
I require that be eliminated this solution
'I require that this solution be eliminated.'
- (iii) Il faut que parte Marie.
it must that go Marie
'Marie must go.'

For further discussion, see K&P (1971).

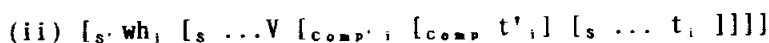
²⁴ However, as Rizzi (1990) notes, if unmoved operators like *si* 'whether' is in the Spec of the embedded CP, Styl-Inv is excluded:

- (i) *Je ne sais pas si a parlé Jean
'I don't know whether spoke Jean'

²⁵ Zubizarreta (1982) attempts to explain the contrast shown in (52), assuming that factive clausal complements are to be analyzed as the projection of Comp as in (i):



She assumes that if a *wh*-phrase is extracted out of factive complements, the *wh*-phrase passes through the *Comp* and the *wh* and its trace will be coindexed with *Comp'*, as illustrated in (ii):



She claims that the configuration in (ii) violates *i*-within-*i* condition proposed by Chomsky (1981):

(iii) *i*-within-*i* Condition

* [...*β*...], where *γ* and *β* bear the same index

However, since the configuration in (i) is not along the line of X' Theory and the CP hypothesis discussed by Chomsky (1986a), we might say that her explanation of the contrast in (52) is untenable in terms of the recent principles-and-parameters approach. For the detailed discussion, see Zubizarreta (1982).

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