

# Factivity and the Theory of Barriers

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## 1. Factive Phenomena

The clausal complements of factive predicates are known to behave differently from those of non-factive predicates with respect to some linguistic phenomena.

First, extraction out of non-factive complements is freer than that out of factive complements, as the following English and French sentences from Adams(1985) show:

- (1) a. who<sub>i</sub> do you believe [<sub>t<sub>i</sub></sub> loves Mary]
- b. \*who<sub>i</sub> do you regret [<sub>t<sub>i</sub></sub> loves Mary]
- (2) a. qui<sub>i</sub> crois-tu [qui [<sub>t<sub>i</sub></sub> a fait ce bruit]]<sup>1)</sup>  
      who do-you-believe that made that noise
- b. \*qui<sub>i</sub> regrettes-tu [qui [<sub>t<sub>i</sub></sub> châtie les enfants]]  
      who do-you-regret that punished the children

It is possible to extract the subject out of non-factive complements, whereas it is impossible out of factive complements.

Second, Stylistic Inversion(SI) in French shows a similar factive/non-factive discrepancy; that is, SI is possible in non-factive complements but impossible in factive complements, as shown in the following examples cited from Adams(1985):

- (3) a. le livre [O<sub>i</sub> [que Jean croit [que [Marie aime t<sub>i</sub>]]]]  
      the book that Jean believe that Marie loves
- b. le livre [O<sub>i</sub> [que Jean croit [qu<sub>j</sub> [t<sub>i</sub> aime t<sub>i</sub> Marie<sub>j</sub>]]]]  
      the book that Jean believe that loves Marie
- (4) a. ?le livre [O<sub>i</sub> [que Jean regrette [que [Marie aime t<sub>i</sub>]]]]  
      the book that Jean regrets that Marie loves
- b. \*le livre [O<sub>i</sub> [que Jean regrette [qu' [t<sub>j</sub> aime t<sub>i</sub> Marie<sub>j</sub>]]]]  
      the book that Jean regrets that loves Marie

Third, as pointed out by Zubizarreta(1982), the determiner *el* comes right before a factive complement clause but it does not before a non-factive complement clause in

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1) Notice that [*that-t*] effect is obliterated in French because of the *que/qui* rule.

Spanish, as we see in the following examples cited from Adams(1985):

- (5) a. ?lamento el que Pedro no haya pasado el examen  
 I-regret det. that Pedro not has passed the exam  
 b. \*creo el que Pedro no haya pasado el examen  
 I-believe det. that Pedro not has passed the exam

Now let us turn to another aspect of factive phenomena. Extraction out of factive complement clauses varies in grammaticality depending on the grammatical relations. Subject or adjunct extraction is ungrammatical, whereas object extraction is acceptable, though not fully grammatical:

- (6) a. \*who<sub>i</sub> do you regret [that [t<sub>i</sub> loves John]]  
 b. \*why<sub>i</sub> do you regret [that [Mary loves John t<sub>i</sub>]]<sup>2)</sup>  
 c. ?who<sub>i</sub> do you regret [that [Mary loves t<sub>i</sub>]]

Zubizarreta(1982) notes an interesting contrast between Portuguese and other null subject languages. That is, extraction out of factive complement clauses in Portuguese shows the subject/object asymmetry but not in other null subject languages like Spanish and Italian, as we see in the following Spanish(=(7)) and Portuguese examples(=(8)) from Zubizarreta(1982):

- (7) a. ?quien<sub>i</sub> lamentas [que [t<sub>i</sub> no haya llamado]]  
 who do-you-regret that not has called  
 b. ?a quien<sub>i</sub> lamentas [que [Juan haya llamado t<sub>i</sub>]]  
 who do-you-regret that John has called  
 (8) a. \*que meninos e que<sub>i</sub> tu lamentas [t<sub>i</sub> terem  
 which children do-you regret have(infl. inf. 3rd pers pl)  
 roubado aquela loja]<sup>3)</sup>  
 broken that house  
 b. ?que loja e que<sub>i</sub> tu lamentas [os meninos terem roubado t<sub>i</sub>]  
 which house do-you regret the children have broken

We have seen a few factive/non-factive asymmetries and subject or adjunct/object asymmetries within factive constructions. Recent analyses of factive complements, to which I return in the next section, try to account for these phenomena. It will be, however, shown that each analysis has some problems. So I propose in section 3 a new analysis that accounts for a wider range of facts.

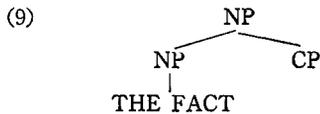
2) Matrix construal of *why* is possible, of course.

3) Zubizarreta(1982) notes that the same restriction holds for the tensed counterpart of (8a).

## 2. Approaches to Factive Constructions

In this section, I examine a few proposals accounting for the factive constructions.

Kiparsky & Kiparsky(1971) analyse the factive complement clause as a Complex Noun Phrase at Deep Structure. The structure will be something like this:



Their analysis covers various phenomena with respect to factive constructions. But it has a serious problem as to extraction out of the complement. It cannot predict the subject/object asymmetry, since the Complex Noun Phrase Constraint (=CNPC) blocks any extraction out of the complement clause regardless of grammatical functions. As (4) and (6) show, however, extractions out of factive complements do show the subject/object asymmetry.

Erteschik(1973) tries to distinguish the factive from non-factive constructions by using a semantic concept of dominance. According to her, extraction is possible only from a semantically dominant part to a semantically subordinate part. She argues that factive complements are semantically subordinate, since they are presupposed. Thus, extraction out of factive complement clauses is blocked. But her approach has the same problem as Kiparsky & Kiparsky's; it cannot predict the subject/object asymmetry in extraction out of factive complements.

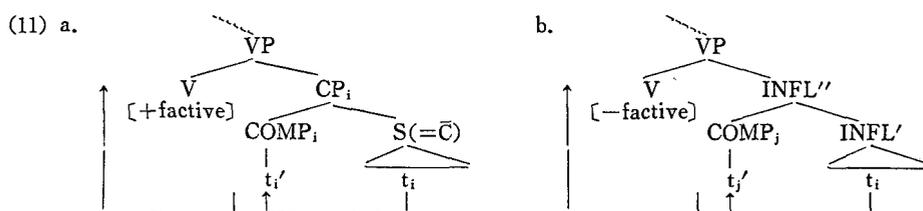
Rouveret(1980) accounts for factive phenomena by excluding movement into the SPEC of CP for which factive verbs subcategorize. The impossibility of subject extraction (or the subject/object asymmetry) then follows from the ECP. Subject traces must be antecedent-governed since no lexical element properly governs the subject position. But in factive constructions no antecedent governor is available, either, since movement into the SPEC of CP is blocked. However, this account, as pointed out by Adams(1985), is purely descriptive, for the exclusion of movement into the SPEC of CP follows from no independent principle.

Kayne(1984) suggests that a factive verb cannot govern across CP. Thus, extraction out of factive complement clauses to their COMP positions is possible but the trace in the COMP can not be properly governed by the factive predicates. Let's take an example:

- (10) a.  $who_i$  do you [<sub>VP</sub>  $t_i'$ ] [<sub>VP</sub> believe [<sub>CP</sub>  $t_i'$  [<sub>IP</sub>  $t_i$  loves Mary]]<sup>4)</sup>  
 b. \* $who_i$  do you [<sub>VP</sub>  $t_i'$ ] [<sub>VP</sub> regret [<sub>CP</sub>  $t_i'$  [<sub>IP</sub>  $t_i$  loves Mary]]

In (10a)  $t_i$  is properly governed by  $t_i'$ , which in turn is properly governed by the non-factive predicate *believe*. In (10b)  $t_i$  is properly governed by  $t_i'$ , but  $t_i'$  is not properly governed, since the factive predicate *regret* may not govern across CP. Kayne's approach also has several problems. First, it is stipulative, for no reason is given for the inability of factive verbs to govern across CP. Second,  $t_i'$  in (10b) may be properly governed by the intermediate  $t_i''$  though not by the factive predicate if there is no special stipulation that the factive complement CP is a barrier. Third, if Lasnik & Saito's (1984) assumption is correct, intermediate traces of an argument need not be properly governed, since they may be deleted by Affect- $\alpha$ . Fourth, though Kayne's ECP predicts the subject/object asymmetry,<sup>5)</sup> it does not account for a little awkwardness of sentences like (6c).

Zubizarreta (1982) attempts a more principled explanation. She proposes that a factive clause be analysed as a projection of complementizer, whereas a non-factive complement clause as a projection of INFL. Under this assumption, the trace in COMP due to extraction out of the factive complement clause bears the same index as CP by the Head-Projection Agreement, resulting in the violation of i-within-i condition:



The success of this theory relies crucially on the assumption that a factive complement clause is a projection of complementizer whereas a non-factive complement clause is a projection of INFL. Yet no reason is given why this difference is induced. Furthermore, the constituent structure of a non-factive complement clause contradicts the basic assumptions of the X-bar schema. That is, X'(INFL' in (11b)) dominates a SPEC, which is not a normal case.

4) Kayne (1984) does not allow VP-adjunction. But this article follows the general framework of Chomsky's (1986) *Barriers*, if no special statement is mentioned.

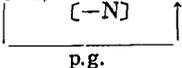
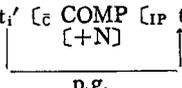
5) For example, compare (10b) with (6c). In (10b), the antecedent  $who_i$  is not within the g-projection of  $t_i$ , whereas in (6c) the antecedent  $who_i$  is within the g-projection of  $t_i$  and c-commands it.



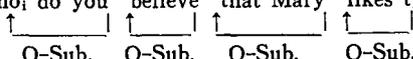
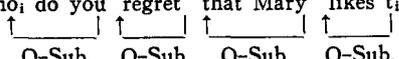
The fact that both types of complement clauses may undergo nominalization further indicates that both types of clauses are nominal in a sense, as the following sentences show;

- (17) a. I regret that the government regulates mass media.  
 b. I regret the government's regulation of mass media.  
 (18) a. I believe that the government regulates mass media.  
 b. I believe the government's regulation of mass media.

Secondly, even though the proper government by [+N] COMP is impossible, the intermediate trace in SPEC of CP antecedent-governs the trace if we follow Chomsky's(1986) framework.<sup>7)</sup> See (19):

- (19) a.  $\text{who}_i \text{ do you believe } [_{CP} t_i' [_{\bar{c}} \text{COMP } [_{IP} t_i \text{ likes this book}]]]$   
  
 b.  $*\text{who}_i \text{ do you regret } [_{CP} t_i' [_{\bar{c}} \text{COMP } [_{IP} t_i \text{ likes this book}]]]$   


Thirdly, in case of object extraction, her theory does not identify the factive/non-factive asymmetry. That is, even when the object moves out of a factive complement clause, the resultant sentence should be fully grammatical just like its non-factive counterpart since each successive movement involves O-subjacency. But this is not the case, as we see in(20b), which is not fully grammatical though acceptable:

- (20) a.  $\text{who}_i \text{ do you believe that Mary likes } t_i$   
  
 b.  $?\text{who}_i \text{ do you regret that Mary likes } t_i$   


### 3. A New Approach to Factive Constructions

In the preceding section, I have shown that there are various approaches to the factive constructions but that each has some empirical and/or theoretical problems. Now I propose an alternative theory.

I need two assumptions to cover the various phenomena related to factive constructions.

7) For Adams's approach to survive, it is necessary to stipulate that only [+N] complementizer induces a minimal barrier.

One is that SPEC of a factive complement CP is non-null i.e., [+factive] at D-structure, whereas SPEC of a non-factive complement CP is null at D-structure. This assumption is not unreasonable. Factive verbs subcategorize for a presupposed argument. We may characterize the presupposition as [+factive]. By Head-projection agreement and SPEC-head agreement, SPEC of a factive complement CP is [+factive]. This process is very similar to [ $\pm$ WH] feature agreement between a verb and SPEC of its complement CP.

My second assumption is that no adjunction is possible to SPEC of CP at S-structure (=SS). A WH-phrase in SPEC of CP does not allow any adjunction to it at SS. In the same manner, the constituent with [+factive] feature does not allow adjunction to it.

If our assumptions are correct, movement into the SPEC of a factive complement CP is blocked while movement into the SPEC of a non-factive complement CP is permitted, as illustrated by (21).<sup>8)</sup> ( $\Delta$  denotes a non-null element.)

- (21) a. ... V [CP  $\Delta$  [IP ...  $\alpha$  ...]]  
           [+factive]           ↑  
                               └─X─┘
- b. ... V [CP [IP ...  $\alpha$  ...]]  
       [-factive]           ↑  
                               └─O─┘

An empirical evidence is available from Spanish. As Zubizarreta(1982) notes, the determiner *el* comes right before a factive complement clause; thus, the determiner can be best assumed to be SPEC of CP. See(5).

The postulation of the [+factive] feature in the SPEC of factive complement CP accounts for why extraction of subject of the CP is impossible, as illustrated in(22):

- (22) a. who<sub>i</sub> do you believe [CP [IP t<sub>i</sub> loves Mary]]  
           ↑           ↑           ↑  
           └─┘   └─┘   └─┘  
           O-Sub. O-Sub. O-Sub.
- b. \*who<sub>i</sub> do you regret [CP  $\Delta$  [IP t<sub>i</sub> loves Mary]]  
           ↑           ↑           ↑  
           └─┘   └─┘   └─X─┘  
           O-Sub.           1-Sub.

8) Some exceptional cases of SS movement into the SPEC of a factive complement clause are found as in (i).

(i) I regret [CP what<sub>i</sub> [IP the speaker said t<sub>i</sub>]]

Tentatively I assume that *regret* in this case subcategorizes for an abstract NP and that CP is not a complement but a relative clause predicate-linked to the head NP. This accounts for the illicitness of (ii) because a human being may not be predicated to an abstract NP.

(ii) \*I regret [CP who<sub>i</sub> [IP t<sub>i</sub> said that]]

In (22a)  $t_i$  is antecedent-governed by the intermediate trace in the SPEC of CP. In (22b), however, movement into the SPEC of CP is blocked. The intermediate trace adjoined to the matrix VP does not antecedent-govern  $t_i$  since CP is a barrier. The CP inherits its barrierhood from IP. As a result,  $t_i$  violates the ECP.

The postulation of the [+factive] feature in the SPEC of factive complement CP accounts for why the SI is impossible in the factive complement clause in French. See (3) and (4). According to Kayne & Pollock (1978), the SI takes place only when SPEC of CP is filled with a WH-phrase or its trace. In case of factive constructions, movement into or through the SPEC of CP is banned due to the [+factive] feature. This explains the contrast between (3b) and (4b), repeated below:

- (3) b. le livre  $O_i$  que Jean croit [<sub>CP</sub>  $t_i'$  [<sub>̄</sub> qu' [<sub>IP</sub>  $t_j$  aime  $t_i$  Marie<sub>j</sub>]]]
- (4) b. \*le livre  $O_i$  que Jean regrette [<sub>CP</sub>  $\Delta$ [<sub>̄</sub> qui [<sub>IP</sub>  $t_j$  aime  $t_i$  Marie<sub>j</sub>]]]
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Our theory also accounts for why (23a) is fully ungrammatical whereas (23b) is not fully grammatical, though not unacceptable:

- (23) a. \*who<sub>i</sub> do you  $t_i'$  regret [<sub>CP</sub>  $\Delta$ [<sub>̄</sub> that [<sub>IP</sub>  $t_i$  loves Mary]]]
- b. ?who<sub>i</sub> do you  $t_i''$  regret [<sub>CP</sub>  $\Delta$ [<sub>̄</sub> that [<sub>IP</sub> Mary  $t_i'$  loves  $t_j$ ]]]

In (23a)  $t_i$  is 1-subjacent to  $t_i'$  since one barrier (=CP) intervenes between them. So the trace  $t_i$  is not properly governed, violating the ECP. In (23b), however, the trace  $t_i$  is antecedent-governed by an intermediate trace  $t_i'$ , satisfying the ECP. Intermediate traces of the sentence may be omitted by Affect- $\alpha$ , exempted from the ECP. A little awkwardness results from the fact that movement from  $t_i'$  to  $t_i''$  involves 1-subjacency.

The postulation of the [+factive] feature in the SPEC of factive complement clauses accounts for why Portuguese shows the subject/object asymmetry, while other null subject languages do not. Zubizarreta (1982) notes that both types of null subject languages allow subject postposing but that the postposed subject is obligatorily focused in Portuguese, whereas not in other null-subject languages. Now consider the examples of (7) and (8), repeated below.

- (7) a. ?quien<sub>i</sub>  $t_i''$  lamentas [<sub>CP</sub>  $\Delta$ [<sub>̄</sub> que [<sub>IP</sub> [<sub>IP</sub>  $t_i$  no haya llamando]  $t_i'$ ]]]
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- b. ?quien<sub>i</sub> t<sub>i</sub>'' lamentas [CP Δ [εque [IP Juan haya t<sub>i</sub>' llamando t<sub>i</sub>]]]
- (8) a. \*que meninos e que<sub>i</sub> tu t<sub>i</sub>'' lamentas [CP Δ [IP [IP t<sub>i</sub> terem roubado aquela loja] t<sub>i</sub>']]
- b. ?que loja e que<sub>i</sub> tu t<sub>i</sub>'' lamentas [CP Δ [IP os meninos terem t<sub>i</sub>' roubado t<sub>i</sub>]]]

Both Spanish sentences like (7b) and Portuguese sentences like (8b) are acceptable just as their English counterpart (20b) is. Now turn to (a) type of sentences. Affect- $\alpha$  may delete intermediate traces but not the focused ones for the appropriate interpretation. Thus, t<sub>i</sub>' of (7a) can be deleted, whereas t<sub>i</sub>' of (8a) cannot.

If we follow the framework of Chomsky (1986) strictly, t<sub>i</sub>' of (8a) is not an offending trace. Since the embedded IP does not dominate the trace, CP does not inherit barrierhood from IP. Consequently, t<sub>i</sub>'' antecedent-governs t<sub>i</sub>', satisfying the ECP. To solve this problem, we may take the position of Zubizarreta (1982). She suggests that the postposed subject is adjoined to VP not to IP. But her solution does not go with a universal principle constraining adjunction to the effect that adjunction is only to a dominating node.<sup>9)</sup>

Raposo (1988) suggests that subject inversion consists in an adjunction to IP as illustrated in (7) and (8) and that null subject languages take the broader version of the Minimality Condition. If we follow Raposo's suggestion, a factive complement CP is a barrier for the intermediate trace adjoined to IP not by inheritance but by the broader version of the Minimality Condition. A non-factive complement CP, however, does not comprise a minimal barrier, because movement into its SPEC position is available.<sup>10)</sup> Thus, barrierhood of factive complement CP (caused by the Minimality Condition) accounts for the discrepancy between Portuguese and other null subject languages.<sup>11)</sup>

Incidentally, as noted by Zubizarreta (1982), subject inversion even in the factive complement clauses is possible in Portuguese. This is because LF movement generally

9) See Chomsky(1986:87) and Raposo(1988).

10) According to Raposo(1988), in the configuration (i),

(i) [CP[ε[IP[IP...]<sub>IP</sub>]<sub>IP</sub>]<sub>IP</sub>]<sub>CP</sub>

movement into the SPEC of CP (and further movement from there, if the CP is L-marked) is possible because no barrier is crossed, whereas direct movement from an IP-internal position to a CP-external position crosses at least one barrier, i.e., CP.

11) Considering a little clumsiness of (7b) and (8b), the Minimality Condition applies to the Subjacency Condition as well as the ECP. The same result obtains through the revised notion of the Minimality Condition of Chomsky(1987).

allows adjunction (in this case to SPEC of CP). Consider an example cited from Zaubizarreta:

(24) a. *lamento muito t<sub>i</sub> terem gasto esse dinheiro AS CRIANCAS<sub>i</sub> (SS)*

I-regret very much have spent that money the children

b.  $\dots V [_{CP} \Delta [_{IP} t_i \dots t_i']] (LF)^{12}$

Our theory also predicts the impossibility of adjunct movement out of factive complement clauses. This movement is banned because each intermediate trace of an adjunct must be properly governed. Therefore, (25) permits only matrix construal of *when*:

(25) *When did you regret that John failed in the exam?*

#### 4. Summary and Conclusion

We have shown that various factive phenomena can be accounted for by postulating the [+factive] feature in the SPEC of factive complement clauses, which blocks movements into or through that position at SS.

First, our theory accounts for the factive/non-factive asymmetry in extraction out of complement clauses. Extraction out of the factive complement clauses is more restricted because movement into or through the SPEC of factive complement clauses is banned due to the fact that the position is already filled with the [+factive] feature.

Secondly, our theory predicts the subject or adjunct/object asymmetry in extraction out of the factive complement clauses. This asymmetry is obliterated in the null subject languages like Spanish and Italian because of the fact that these languages have an escape device, i.e., the subject postposing. The postposed subject antecedent-governs the subject trace, satisfying the ECP, and the intermediate trace in the postposed subject position is deleted by Affect- $\alpha$ . Portuguese, another null subject language, does show the asymmetry because the postposed subject in this language has a focused meaning and therefore the trace in that position is not deleted by Affect- $\alpha$  for the appropriate interpretation, inducing an ECP violation.

Thirdly and finally, our theory predicts that extraction out of the factive complement clauses induces some degree of marginality, which is shown to be due to the fact that extraction out of the factive complement clauses involves at least 1-subjacency.

12) Cf. May(1985). He assumes that focused NPs are adjoined to CP.

All these factive phenomena arise because the factive complement clause, though L-marked, forms a barrier. Barrierhood of the factive complement clause results from the fact that the [+factive] feature makes inactive the SPEC position, which otherwise would be an escape hatch.

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