The Adjunction Prohibition and Extraction from Non-Factive CPs

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1. Introduction

In their classic paper, “Fact”, Kiparsky & Kiparsky (1970) (K&K) explore the syntax-semantics interface in the English complement system. They note that there are two classes of predicates, those that presuppose the truth of their sentential complements (factives) and those that don’t (non-factives).

**Factives:** regret, resent, hate, comprehend, grasp, make clear, like…

**Non-factives:** believe, claim, say, assert, is possible, conjecture…

These classes of predicates differ in both their syntax and semantics. A syntactic difference that has been frequently noted is that complements to factive verbs are weak islands for extraction. Adjuncts like *how* are not able to move out of the embedded clause, as shown in (1a). There is no such restriction on extraction from under non-factives, as the grammaticality of (1b) shows.

1. (a) *How do you regret that you behaved t?*
   (b) How do you think that you behaved t?

Semantically, factives and non-factives differ in whether or not the truth of their complement clauses is presupposed. In (2a), the truth of the sentential complement under factive *regret* is presupposed, while under non-factive *believe* in (2b), the same sentential complement need not be evaluated as true. This remains the case if the matrix clause is negated, as in (3).

2. (a) I regret [that it is raining]
    (b) I believe [that it is raining]

3. (a) I don’t regret [that it is raining]
    (b) I don’t believe [that it is raining]

In other words, (2b) and (3b) can be true statements regardless of whether or not it is actually raining, while in (2a) and (3a), *that it is raining* must be true in order for the whole sentence to be true.

To account for syntactic and semantic asymmetries in the data in (1-3), I propose that there is an extra layer of syntactic structure (*cP*) in the CP-field selected by non-factive predicates, as in (4), but not selected by factive predicates, as in (5). The *cP* level is projected by a semantic operator [OP]. Syntactically, the *cP* projection opens up an escape hatch for adjunct extraction (1b), in a manner to be discussed in Section 4. The lack of a *cP* projection under factives leaves adjuncts stranded (1a).

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In the semantics, the proposed [OP] is a variable over contexts\(^1\), allowing the <speaker> value of a sentence to change from the default <+current speaker> value to a different value, removing the utterer of the sentence from responsibility for the truth content of the embedded clause. The presence of the [OP] in (4) allows for the non-presupposition of truth under non-factives like (2b), while the lack of an [OP] in (5) forces the presupposition of truth in factive contexts like (2a). The proposed structures in (4) and (5) follow the idea that non-factives project more structure than factives (contra K&K), first presented in de Cuba & Ürögdi (2001), and developed further in de Cuba (2002, to appear)\(^2\).

The paper will be organized as follows. The analysis presented here follows McCloskey (2005), so sections 2-3 briefly summarize the main arguments of that paper, setting up the following sections. Section 2 presents data on Irish English Subject Auxiliary Inversion (SAI) and adjunction in Standard English, and McCloskey’s “Adjunction Prohibition” is introduced. Section 3 makes the connection between the SAI facts and the Adjunction Prohibition, and McCloskey’s unified analysis of embedded SAI and adjunction is presented. In Section 4, I combine McCloskey’s analysis with the account of factive/non-factive sentential complementation in de Cuba (2002, to appear) to provide a solution for the factive island puzzle. Section 5 provides details on the semantic contribution of the proposed operator, and Section 6 is a summary.

2. Subject Auxiliary Inversion and The Adjunction Prohibition

McCloskey (2005) shows that unlike in Standard English, Subject Auxiliary Inversion (SAI) is possible in Irish English polar questions (6) and WH questions (7). However, as the examples in (8) show, SAI is not available under factive predicates\(^3\).

(6) (a) I wondered was he illiterate. (IE)
    (b) I asked Jack was she in his class.

(7) (a) I wonder what is he like at all. (IE)
    (b) I asked him from what source could the reprisals come.

\(^1\) As in Schlenker (1999), where contexts are identified as tuples of the form <author, (hearer), time of speech/thought, world of speech/thought>. I refer to these variables as <speaker, (hearer), time, world>. The <hearer> variable is in parentheses in case what is reported is a thought-act as opposed to a speech-act. There will be more discussion of the semantics of the operator in Section 5.

\(^2\) de Cuba (2002) exploits the extra structure to account for embedded verb second facts in Mainland Scandinavian, while de Cuba (to appear) argues that non-local NPI licensing under non-factives is mediated by the operator.

\(^3\) Examples (6) through (19) in this section are from McCloskey (2005). Irish English examples are marked (IE), Standard English (SE).
Examples (6) through (8) show that T-to-C movement is possible under wonder and ask type predicates, but ruled out under factive predicates. It is also worth noting that there is no presupposition of truth for the sentences embedded under wonder/ask, so in this way they pattern semantically with non-factives. Another interesting case is observed with temporal adverbial adjunction. Jackendoff (1972) provides a classification of typically TP-adjointed temporal adverbs (in general, most of the time, half the time, usually, next Christmas, every day, tomorrow, yesterday, in a few days, etc.). This TP-adjunction is illustrated in (9). In addition, some (though not all) of these adverbs can adjoin to VP, as in (10).

(9) \[ TP \text{Usually/most of the time } [TP \text{ I understand what he's talking about}] \] (SE)

(10) (a) I would [VP usually [VP go to Bundoran for my holidays]]
(b) *I will [VP next Christmas [VP go to Bundoran for my holidays]]

In embedded contexts like (11), the fact that the adverb appears to the right of the complementizer provides evidence that it is adjoined to TP. Adverbial clauses also appear between the complementizer and the subject, as in (12), suggesting adjunction to TP as well.

(11) (a) It is probable that [TP in general/most of the time [TP he understands what is going on.]
(b) That [TP in general [TP he understands what is going on seems fairly clear] (SE)

(12) (a) He promised that [TP when he got home [TP he would cook dinner for the children.]
(b) She swore that [TP after she finished her thesis [TP she would move to Paris. (SE)

In contrast, adverbs & adverbial clauses positioned to the left of the complementizer are cannot be easily construed with material in the embedded CP, as in (13) and (14).

(13) (a) *It is probable [CP in general/most of the time [CP that he understands what is going on.]
(b) *[CP In general [CP that he understands what is going on seems fairly clear. (SE)

(14) (a) *He promised [CP when he got home [CP that he would cook dinner for the children.
(b) *She swore [CP after she finished her thesis [CP that she would move to Paris.

These data show that adjunction to CP is not allowed\(^4\).

The pattern in (15) through (17) emerges from the adjunction data in this section. Adjunction to the VP-complement of T and to the TP-complement of C are possible, while adjunction to the CP-complement of a lexical head is impossible, as indicated by the star on the structure in (17).

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\(^4\) McCloskey (2005:8) notes that this may overstate the matter. For many speakers, it is not impossible to construe the adverbial with the lower clause. There will be more to say on this point once more of the proposal has been argued. See footnote 9 for further discussion.
Given this pattern, McCloskey (2005), following the work of Chomsky (1986), formulates the Adjunction Prohibition, given in (18).

(18) The Adjunction Prohibition: Adjunction to a phrase which is s-selected by a lexical (open class) head is ungrammatical.

It is clearly not the case that CP-adjunction in general is ruled out. Adjunction is still possible when the CP is not selected by a lexical (open class) head. The adjuncts in (19) are all adjoined to what are clearly root CPs.

(19) (a) [CP When you get home, [CP what do you want to do? (SE)
(b) [CP When you get home, [CP will you cook dinner for the kids?
(c) [CP Next Christmas [CP whose parents should we go to?
(d) [CP Most of the time [CP do you understand what’s going on?
(e) [CP Next Christmas, [CP under no circumstances will I be willing to cook dinner.
(f) [CP Most of the time, [CP when she is working on a paper, [CP only rarely does she leave her office.

However, since these CPs are not lexically selected, they are not subject to the Adjunction Prohibition. I will have more to say about the role selection plays in Section 3.

3. Adjunction and Inversion – McCloskey's Connection

McCloskey (2005) makes a connection between the adjunction data and the inversion data presented in Section 2. First, he notes that apparent problems for the Adjunction Prohibition arise when we observe the relative well-formedness of the examples in (20)\(^5\). In these cases, adjunction to CP seems to be fine\(^6\).

(20) (a) ?He asked me [CP when I got home [CP if I would cook dinner. (SE)
(b) ?I wonder [CP when we get home [CP what we should do.

These sentences appear to be in direct violation of the Adjunction Prohibition, with adjunction to a lexically selected CP. However, the pattern in (20) is only possible in the complements of certain predicates. CP-adjunction is completely impossible under factive predicates, as in (21).

(21) (a) *It was amazing [CP while they were out [CP who had got in to their house. (SE)
(b) *The police established [CP while we were out [CP who had broken in to our apartment.

Second, he notes that the contrast between (20) and (21) mirrors exactly the contrast observed earlier between the predicates which allow embedded T-to-C in polar and WH- questions (wonder/ask), as in (6) and (7), and those which do not (factives), as in (8)\(^7\).

(6) (a) I wondered was he illiterate.
(b) I asked Jack was she in his class.

(7) (a) I wonder what is he like at all.
(b) I asked him from what source could the reprisals come.

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\(^5\) The judgements in (20) are from McCloskey; I find both sentences to be completely grammatical. Examples (20) through (27) in this section are taken from McCloskey (2005).

\(^6\) Judgements on (20) and (21) are with the lower construal of the adverbial.

\(^7\) Examples (6), (7) and (8) are repeated from Section 2.
(8)  (a) *I found out how did they get into the building. (IE)
(b) *The police discovered who had they beaten up.
(c) *I remember clearly how many people did they arrest

Corresponding to the instances of embedded T-to-C in (6) and (7), we find instances of adjunction of adverbials to CP. For the wonder/ask class of matrix predicates, the results are either good or only marginally unacceptable in Standard English, as in (22). For the varieties that allow embedded T-to-C, the corresponding examples are completely grammatical, as in (23).

(22)  (a) ?Ask your father [CP when he gets home [CP if he wants his dinner. (SE)
(b) ?I was wondering [CP next Christmas [CP if he would come home.

(23)  (a) Ask your father [CP when he gets home [CP does he want his dinner. (IE)
(b) I was wondering [CP next Christmas [CP would he come home.

However, factive predicates, which completely disallow the option of adjunction of an adverbial phrase to their CP-complement, also completely disallow the option of embedded T-to-C.

(24)  (a) *It was amazing [CP who did they invite. (SE),(IE)
(b) *The police established [CP who had they beaten up.

The contrast between the factive predicates in (24) and the wonder/ask predicates in (22) is very robust for those speakers who allow embedded T-to-C, and is also clearly detectable for speakers of the ‘standard’ variety.

The examples presented so far in this section show that there is a clear pattern between adjunction on the one hand, and SAI on the other. Under wonder/ask predicates, both CP-adjunction and SAI are allowed, while under factive predicates both CP-adjunction and SAI are prohibited. Given this pattern, an explanation for why adjunction to an embedded CP is possible (and by analogy, why embedded SAI is possible) is needed if we are to maintain the Adjunction Prohibition as a generalization.

To solve the problem of the apparent cases of adjunction to a lexically selected CP, McCloskey proposes that both head movement to C and adjunction to CP affect selection. In other words, selection is context sensitive. In the case where a lexical head (the verb in the cases we have been looking at) directly selects a CP, adjunction to that CP or head movement of a lower verb to the head of that CP will change its nature, so the selecting verb will not recognize the CP and selection will fail.

(25)  I wonder what should we do. (IE)

Following the Adjunction Prohibition, which allows adjunction to a non-lexically selected phrase, the grammaticality of (20), (22) and (23) is now explained. In all these cases, the structure of the wonder/ask predicate is as in (25), leaving the lower CP open to adjunction. The grammatical examples of SAI in (6), (7) and (23) receive a similar analysis, to be spelled out below.

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In the adjunction cases, adjunction of A to B, where B has the label K, creates a syntactic object whose label consists of the ordered pair \(<K, K>\), as in (26).

\[(26) \quad \{<K, K>, \{A, B\}\}\]

For example, adjunction of an AP to a CP headed by *that* will, on this view, create the syntactic object in (27).

\[(27) \quad \{<\text{that}, \text{that}>, \{\text{AP, CP}\}\}\]

The label in such cases is a pair rather than a singleton, and is therefore not what the lexical head is subcategorized to select. Thus, the syntactic object formed in (27) does not satisfy the L-selectional feature borne by the selecting lexical head.

The examples with SAI receive a similar analysis. If particular verbs, adjectives or nouns L-select particular complementizers, then head movement into those C-positions will give rise to violations of L-selectional requirements. In other words, head movement changes the nature of the element being selected. In the ungrammatical examples under factive predicates in (8) and (24), T-to-C movement changes the CP into something the selecting predicate does not recognize, so the derivation crashes. However, in the grammatical examples of SAI in (6), (7) and (23), the embedded CP is selected by the functional head C1 and CP1 is legitimately selected by the lexical verb. This analysis follows from the structure in (25) versus the factive structure in (5), repeated here from Section 1.

\[(5) \quad \begin{array}{c}
\text{VP} \\
\text{factive verb} \\
\text{CP} \\
\text{TP}
\end{array}\]

At this point, similarities between McCloskey’s structure for *wonder/ask* predicates in (25) and my proposed structure for non-factive predicates in (4), also repeated here from Section 1, should be immediately apparent\(^8\).

\[(4) \quad \begin{array}{c}
\text{VP} \\
\text{non-factive verb} \\
\text{cP} \\
\text{[OP]} \\
\text{CP} \\
\text{TP}
\end{array}\]

In both cases a CP is selected by a functional head (C1 or c), as opposed to a lexical head (factive verb). From this point I will assume the McCloskey structure for *wonder/ask* predicates like (25) to be subsumed under my non-factive structure in (4). Evidence for the similarity of *wonder/ask* predicates and non-factive predicates comes from another variety of English. McCloskey (2005:40, citing Henry, 1995) presents data from Belfast English (BE), where T-to-C appears to take place in the complement of a non-factive, triggered by WH movement, as in (28).

\[(28) \quad \begin{array}{c}
\text{(a) They wouldn’t say which candidate they thought } [\text{CP should we hire. (BE)}] \\
\text{(b) I’m not sure which one I think } [\text{CP should we buy.]
\end{array}\]

\(^8\) Anticipating the discussion of semantics in Section 5, note that the sentence in (25) is one that Progovac (1994) would analyze as having an operator in CP that is licensed by ‘non-fixed truth-values’. I argue that a similar kind of operator projects the cP structure in (4). I will have more to say about the nature of this operator in Section 5.
Here we see SAI taking place under non-factive think, just as we have seen it under wonder/ask predicates in the Irish English examples in (6), (7) and (23). The Belfast English data in (28) is reminiscent of restrictions on Embedded Verb Second (EV2) in Mainland Scandinavian, where EV2 (which is optional) is allowed under non-factive predicates, but not under factives, as illustrated in (29).

(29)  (a) *Rickard ångrade att han var inte hemma
       Rickard regretted that he was not home
(b) Rickard sa att han var inte hemma
       Rickard said that he was not home
   ‘Rickard regretted/said that he was not home.’

EV2 in Mainland Scandinavian has also been analyzed as involving CP-recursion (see Vikner 1995, Holmberg & Platzack 1995, Iatridou & Kroch 1992, and de Cuba 2002, among others). The two CP layers are needed to account for EV2 movement (widely analyzed as involving verb movement to the C head, and XP movement to Spec CP) in the presence of an overt complementizer (analyzed as residing in the head of the higher CP in the recursive structure).

4. Factive Islands and the Adjunction Prohibition

Given the background of the Adjunction Prohibition provided in sections 2 and 3, we can now return to the main topic of the paper, factive islands. (30) shows that argument extraction is fine under both factives & non-factives, while I repeat (1) from Section 1 to remind the reader of the adjunct extraction asymmetry between factives and non-factives. I also repeat the basic structures I have proposed for non-factives (4) versus factives (5).

(30)  (a) Who do you regret that John saw \( t \)?
(b) Who do you think that John saw \( t \)?

(1)   (a) *How do you regret that you behaved \( t \)?
(b) How do you think that you behaved \( t \)?

(4)    VP
         \( V' \)
  non-factive verb \( cP \)
  [OP] \( CP \)
          \( TP \)

(5)    VP
         \( V' \)
  factive verb \( CP \)
          \( TP \)

Examples (28) and (29) give strong evidence that non-factives pattern with questions in allowing CP-recursion, as in (4)\(^{10}\). This points to a solution for the factive island problem, namely a way to have a

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\(^{9}\) Returning to the discussion in footnote 4, the fact that some speakers accept the lower construal of the adverbials in (13) and (14) may be due to the fact that the CPs in these examples are associated with non-factive predicates (none of the CPs are presupposed), which allow CP-adjunction. If this is the case, then the degraded status of these examples for many speakers must arise for independent reasons.
difference between argument extraction and adjunct extraction. I propose that adjuncts and arguments move through different positions.

(31)  
(a) *Arguments*: proceed up the tree through Spec CP
(b) *Adjuncts*: proceed up the tree by adjunction to CP

Given the assumptions in (31), the proposed structures in (4) and (5) give us a solution to the factive island problem. In the argument extraction examples in (30), both sentences are good because Spec CP is an available landing site in both non-factive (4) and factive (5) contexts. However, adjunction to CP is impossible in the factive structure in (5), given the Adjunction Prohibition. The adjunct in (1a) is left with no escape hatch from the embedded clause (due to the Adjunction Prohibition). In (1b) however, the lower CP is not lexically selected (see (4)), leaving it open for adjunction of how to CP, and thus an escape hatch for further movement.

5. Semantics of the Operator

Assuming vampires are fictional characters, (32a) is a false statement, and (32c) is therefore also strange. However, (32b) is fine, regardless of whether or not the speaker believes in vampires.

(32)  
(a) #Vampires walk the earth
(b) Anne believes that vampires walk the earth.
(c) #Anne resents that vampires walk the earth.

I argue that the operator I proposed in the head of cP in (4) is responsible for the felicity of (32b). The [OP] serves to remove the speaker from responsibility for the truth of the lower clause. The idea of an operator associated with non-fixed truth values is not new. Progovac (1994) argues for an operator in the head of CP. This operator is licensed in a clause whose truth-value is not set positively. In her analysis, the operator is needed to license a Negative Polarity Items (NPI) in a non-negative contexts, as in (33) (Progovac, 1994:67).

(33)  
(a) I doubt [CP [C that OP [IP anyone has come.]]] (negative verb)
(b) [CP [C Has OP [IP anyone come?!]]] (Yes/no question)
(c) [CP [C If OP [IP anyone comes]], let me know. (Conditional)
(d) [SP Every man [CP who [C has OP [IP read anything by Chomsky]]] will attend the lecture. (Universal Quantifier)
(e) [CP Had OP [IP anyone misbehaved], we would have left.] (Counterfactual Conditional)

Nichols (2001) also proposes the existence of an operator associated with non-factive verbs. She argues for the special status of non-factive predicates as opposed to factive predicates in that there is an ‘assertive operator’ associated with non-factives that is not present under factives. The contribution of Nichols’ assertive operator is summarized briefly in (34).

(34)  
(a) CPs have associated context variable sets C <speaker, (hearer), time, world> needed for interpretation (Schlenker 1999).
(b) With the value <+current speaker>, the actual world is necessarily included in the evaluation set (main clauses).
(c) Factivs do not supply a <speaker> value to the context variable set, so the default value is specified <+current speaker>.
(d) Non-factives are associated with an ‘assertive’ operator, which may supply a different value for <speaker>.

10 McCloskey (2005:23) provides sentences like (i), which have two instances of that, as more evidence for CP-recursion in embedded clauses.
(i) He thinks that if you are in a bilingual classroom that you will not be encouraged to learn English.
I follow Schlenker’s (1999) analysis that attitude operators like the one I am proposing are quantifiers over contexts. For me, the operator is needed when there is a change of the <speaker> value away from the default <+current speaker> value. Whoever replaces the <+current speaker> becomes ‘responsible' for the truth-value of the sentence. Thought of in a ‘possible worlds’ framework, this means that the sentence no longer is necessarily true in the speaker's (actual) world, but can be true in some possible world (someone else's, or a hypothetical world).

6. Summary

I have argued for an extra projection in the CP field (cP) selected by non-factive predicates. The presence of the extra projection allows for adjunction to CP under non-factive and wonder/ask predicates, while the Adjunction Prohibition disallows adjunction to CP under factive predicates, which lexically select CP. Subject Auxiliary Inversion cases in Irish English are also covered by the cP analysis. The cP projection is further exploited to account for adjunct extraction from non-factive complements. I have proposed that adjuncts and arguments move up the tree through different positions (adjoined to CP vs. in Spec CP). The Adjunction Prohibition is not violated in non-factive adjunct extraction, as CP is selected by c, a functional head. However, adjuncts are trapped under factives, as they cannot adjoin to a lexically selected CP, and therefore lack an escape hatch for movement.

I have also proposed that cP is headed by an operator that separates the speaker of the sentence from responsibility for the truth content of the embedded sentence. Progovac (1994) and Nichols (2001) have proposed similar operators associated with unfixed truth-values, but I part ways with them in proposing that the operator projects a syntactic position. Following Schlenker (1999), the operator is a quantifier over contexts, changing the <speaker> value from <+ current speaker>, removing the need for the speaker’s actual world to be part of the evaluation set.

References

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