Affective Inversion and Subject Traces

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I. Introduction

The sentences in (1) contain that-t violations and are ungrammatical.

1) a. * Leslie is the person who I said that t would run for any public office.
    b. * Lee forgot which dishes you said that t should be served to Robin.
    c. * It is Leslie who I believe that t cared about the result.
    d. * Robin met the man Leslie said that t was the mayor of the city.
    e. * This is the tree that I said that t had resisted my shovel.
    f. * I asked what Leslie said that t had made Robin give a book to Lee.

Culicover (1992a,b) discussed a peculiar set of cases where a fronted adverbial in the lower clause mitigates the that-t violation. He calls this the Adverb Effect (AE):  

2) a. Leslie is the person who I said that at no time would run for any public office.
    b. Lee forgot which dishes you said that under no circumstances should be served to Robin.
    c. It is Leslie who I believe that not even for one moment had cared about the result.
    d. Robin met the man Leslie said that for all intents and purposes was the mayor of the city.
    e. This is the tree that I said that just yesterday had resisted my shovel.
    f. I asked what Leslie said that in her opinion had made Robin give a book to Lee.

In (2) as in (1) the embedded subject is extracted and the closest complementizer is overt. The AE presents a serious problem for the ECP, (3), which is the core element in a structure-based approach to trace licensing.

3) ECP: A non-pronominal empty category must be properly governed.

While the pre-subject adverbials in (2a-c) appear to be in the specifier of some phrasal projection, it is widely assumed that those in (2d-f) are adjoined to IP. It is difficult to see how adjunction to IP could save an ECP violation.

Culicover (1992a,b) argued that the AE was evidence for the existence of a functional category called Pol(arity), located between the complementizer and inflection. In later work (1992c) he points out some problems with the analysis in his earlier papers, essentially repudiates the PoP analysis, and concludes that, given the existence of the AE, the Chomsky and Lasnik (1977) that-t filter is empirically more adequate than the ECP.
4) That- \( t \) Filter (Chomsky & Lasnik, 1977):

\[ \star \ldots \text{that } \ell_3 t \ldots \]

In this paper I will outline the PolP analysis and some of the problems with that analysis presented by Culicover (1992c). I will then present an alternative analysis of the AE that involves CP recursion in the lower clauses of sentences like those in (2), drawing on some of the ideas from the minimalist program as laid out in Chomsky (1992). Though the focus of this paper is the AE, I will also be pursuing the idea that it is reasonable to treat embedded topicalization as CP recursion.

2. The Adverb Effect

Culicover (1992a,b) assigns the structure in (5b) to embedded affective inversion, as in (2a-c).

5) a. I thought that at no time had Leslie left the room.
   b. \[ \ell_\text{CP} \ell_\text{C} \text{ that } \ell_\text{XP} \text{ at no time } \ell_\text{CP} \text{ had, } \ell_\text{C} \text{ Leslie } \ell_\text{C} \ell_\text{t} \ell_\text{CP} \ldots \]

‘Affective’ elements must reside in the specifier of Pol, realized here as having the feature [+neg]. Inversion is required to support this feature. Other non-affective pre-subject adverbials (e.g., in (2d-f)) are adjoined to PolP.

Culicover adopts Rizzi’s (1990) account of the licensing of subject traces: trace must be governed by C=AGR coinindexed with a trace in the specifier of CP. A sentence involving extraction of an embedded subject has the structure in (6b).

6) a. Who do you think will arrive on time?
   b. \[ \ell_\text{CP} \ell_\text{C} \text{ AGR } \ell_\text{C} \ell_\text{t} \ldots \]

According to Culicover, the PolP projection provides an additional head which can license a subject trace. Taking a sentence such as (2d) as an example, the adverb phrase for all intents and purposes is adjoined to PolP since it is not affective. \( \ell_4 \) represents the relative operator which originates in the most embedded subject position.

7) a. Robin met the man Leslie said that for all intents and purposes was the mayor of the city.
   b. \[ \ell_\text{CP} \ell_\text{O} \ell_\text{C} \text{ Leslie said } \ell_\text{CP} \ell_\text{t} \ldots \ell_\text{C} \text{ that } \ell_\text{XP} \text{ Adv } \ell_\text{CP} \ell_\text{t} \ell_\text{C} \ell_\text{C} \ell_\text{t} \ell_\text{C} \ldots \]

Moving from its original position, \( \ell_1 \), the operator \( \ell_4 \) passes through the specifier of PolP and the specifier of the embedded CP before reaching its final position. Though the overt complementizer that cannot take on the index of the moved subject, Culicover suggests that the empty head Pol can, via spec-head agreement, and can license the subject trace as a result.

Culicover (1992c) points out several problems with this analysis, two of which will concern us here. The first, which I will call the Vacuous Structure Problem, is how to rule out a structure similar to that illustrated in (7b) in the absence of an intervening adverb. A non-affective adverbial is, by hypothesis, not in spec of PolP. Therefore, Culicover must take the position that PolP can be freely generated, even when its specifier is unfulfilled. This means that the sentence in (8a) could have the structure in (8b).
8) a. * Who do you think that will arrive on time?
b. who, ... [cr, t, ] [c that [n, t, ] [n that [n, t, ] ... 

In (8b) the subject trace is licensed by the head Pol, which agrees with it as a result of spec-head agreement with the trace in the specifier of PoIP. The sentence is incorrectly predicted to be grammatical.

The second and more interesting problem is that affective adverbials also trigger AE. (This of course was one of the motivating observations behind the PoIP proposal.) Affective adverbials differ from non-affective adverbials in that they trigger inversion of the auxiliary, or more technically, movement of Infl to C. The relevant portion of the structure of a sentence like (9a) is given in (9b).

9) a. Leslie is the person who I said that at no time would run for any public office.
b. ... who, I said [cr, t, ] [c that [n, t, ] [n that [n, t, ] ... 

However, we know from examples such as (10), taken from Rizzi (1990), that inverted auxiliaries do not license subject traces.

10) a. * who, did, [n, t, sleep ]
b. * [are, [n, t, intelligent ]] [all the students who can solve this problem].

Under the assumption that the inverted modals in the sentences in (2a-c) are indeed in the head Pol, which is one of the core assumptions of the PoIP analysis, the prediction is that (2a-c) should be ungrammatical in contrast to (2d-f). I will refer to this as the Inversion Problem.

3. A CP Recursion Analysis

If we do not adopt the PoIP proposal, the AE poses the following question: assuming the that-t effect has a structural explanation, how does the intervention of an adverb phrase allow a form of structural licensing that was previously disallowed? This can be broken down into two separate problems. For concreteness, assume that a subject trace must be licensed by an agreeing complementizer which governs the trace within its own immediate projection (Rizzi (1990)). In the case of the non-affective adverb phrases it is widely assumed that such modifiers are adjoined to IP. Why should the adjunction of an adverb phrase to IP allow a formerly non-agreeing complementizer to agree? The problem is made even more complex by the fact that topics which are arguments do not mitigate that-t effects.

11) Leslie is the person who I said that, this book, gave to Bill.

The problem with affective adverbials is essentially that presented at the end of the preceding section: if the affective adverbial is in the specifier of a functional category of some sort, how can the inverted auxiliary license the subject trace when no other inverted auxiliaries do so?

To begin with, I want to suggest that the AE involves embedded CP recursion and that an adverbial phrase, whether affective or not, resides in the spec of CP. Since the analysis of AE cases involving affective operators involves the additional complication of inversion, I
will first exemplify my proposals using cases with non-affective adverbial phrases. The
relevant portion of the structure I propose for a sentence such as (2d), repeated below, is
given in (12). $AdvP$ stands for “for all intents and purposes”.

2) d. Robin met the man Leslie said that for all intents and purposes was
the mayor of the city.

12) ...$O_c$, $t_c^*$ that $t_p$, $e_c$, $t_c^*$ $AdvP$ $e_c$, $t_p$, $t_c$ was the
mayor...

The lower clause has been generated with two CP levels. The lower CP level is headed
by an empty C, the type of complementizer that can agree in English, and has an adverb
phrase in its specifier. The subject of the lower clause, O, passes through the specifier of
the higher CP level, headed by that, on its way to the specifier of the relative clause CP.
My proposal is that the two complementizers of the lower CPs form a chain, $<$that,$e>$.
Although the head of this chain, that, cannot itself agree, the tail of the chain can. While
the tail of the chain is not in a spec-head relation with a member of the subject chain, the
head of the chain is. I propose that the empty complementizer is able to agree with the
subject trace because it is a member of a chain which participates in an agreement relation
with $t_c^*$. This is a situation comparable to that found in passive structures, where an
argument which is not in a theta-position is nevertheless licensed with respect to the Theta
Criterion because a member of its chain is in a theta-position.

This is the basic analysis in outline. I will now discuss the two problems that the AE
presents which I mentioned earlier. The Vacuous Structure Problem confronts the CP
recursion analysis as well, though it is not as lethal as it is for the PoP analysis. The
problem for the CP recursion analysis is how to prevent the generation of a structure such
as (13b) for a sentence such as (13a).

13) a. *Who do you think that left?
b. who, ..., think $t_c^*$ $e_c$, $t_c^*$ $e_c$, $t_c$ ...

A solution to the problem is available within the framework of proposals set out in
Chomsky (1992), (1994), commonly referred to as the minimalist program. Two proposals
which will be essential here are the following: (A) structure is formed via a binary
substitution operation (a generalized transformation); (B) chains that were previously
categorized as the result of successive cyclic movement are formed via one application of
“Form chain”. The approach to phrase structure in (A) means that a structure such as (14)
can be built in two ways: (i) the item $X$ is selected from the lexicon and combined with the
previously constructed phrase YP forming $X'$; (ii) the item $X$ is selected from within the
previously constructed phrase YP and attached to YP to form $X'$.

14) $X'$

$X$ $YP$

Projection of XP nodes proceeds in a similar manner.

Watanabe (1992) argues that CP recursion structures are derived by movement of the
overt complementizer head, which attaches to the existing CP node and projects another
CP level from that position. Assume that the complementizer chain in (12) is formed in this
manner. The derivation of (12) would proceed as in (15). (15a) shows the point in the derivation where the lower CP, with an overt complementizer and an adverbial in the specifier of CP, has been fully formed. (For clarity I have represented the trace of the moved complementizer that as e rather than t.)

15) a. \[ \langle cp \rangle \mathrm{AdvP} \langle c \rangle \mathrm{that} \langle cp \rangle \mathrm{O} \text{ was the mayor...} \]
b. \[ \langle cp \rangle \langle c \rangle \text{that} \langle cp \rangle \mathrm{AdvP} \langle c \rangle \mathrm{e} \langle ip \rangle \mathrm{O} \text{ was the mayor...} \]
c. \[ \langle cp \rangle \langle c \rangle \text{that} \langle ip \rangle \text{Leslie said} \langle cp \rangle \langle c \rangle \text{that} \langle cp \rangle \mathrm{AdvP} \langle c \rangle \mathrm{e} \langle ip \rangle \mathrm{O} \text{ was the mayor...} \]
d. \[ \langle ip \rangle \mathrm{O}, \langle c \rangle \text{that} \langle ip \rangle \text{Leslie said} \langle cp \rangle \langle c \rangle \text{that} \langle cp \rangle \mathrm{AdvP} \langle c \rangle \mathrm{e} \langle ip \rangle \mathrm{t} \text{ was the mayor...} \]

In (15b) we see the result of moving the complementizer out of its CP: it becomes the sister of that CP and projects a new CP level. In (15c) the remaining structure of the relative clause has been built. Movement of the subject O then takes place yielding (15d).

Chomsky (1992) proposes that Move α is constrained by a principle of “Greedy: self-serving Last Resort[.]” which requires that “Move α applies to an element α only if morphological properties of α itself are not otherwise satisfied.” Watanabe (1992), following Cheng (1991), motivates the complementizer movement which derives CP recursion on the basis of clause typing: according to Cheng, the difference between a +wh complement clause and a -wh complement clause is that the former has a wh-phrase in its specifier while the latter has no specifier at all. If a -wh clause has, at some point in the derivation, a filled specifier (e.g., filled with an adverbial), then the complementizer must move to create another level of CP structure without a specifier. In (15) the verb said selects for a declarative complement, a CP with an empty specifier. Therefore, movement of the complementizer is necessary because of the adverbial in the specifier of the CP shown in (15a).

Returning to the Vacuous Structure Problem, the structure in (13b), repeated below, would be derived as in (16) given the minimalist proposals so far outlined.

13) a. *Who do you think that left?
   b. who, ... think \[ \langle cp \rangle \mathrm{t}, \langle c \rangle \text{that} \langle cp \rangle \mathrm{t}, \langle c \rangle \mathrm{e} \langle ip \rangle \mathrm{t} \ldots \]
16) a. \[ \langle cp \rangle \langle c \rangle \text{that} \langle cp \rangle \mathrm{who, left} ]\]
b. \[ \langle cp \rangle \langle c \rangle \text{that} \langle cp \rangle \mathrm{e} \langle ip \rangle \mathrm{who, left} ]\]
c. \[ \langle cp \rangle \langle c \rangle \mathrm{do} \langle ip \rangle \text{you think} \langle cp \rangle \langle c \rangle \text{that} \langle cp \rangle \mathrm{e} \langle ip \rangle \mathrm{who, left} ]\]
d. \[ \langle cp \rangle \mathrm{who}, \langle c \rangle \mathrm{do} \langle ip \rangle \text{you think} \langle cp \rangle \langle c \rangle \mathrm{t}, \langle c \rangle \text{that} \langle cp \rangle \mathrm{t}, \langle c \rangle \mathrm{e} \langle ip \rangle \mathrm{t, left} ]\]

In (16), the movement of the complementizer shown in (16b) is not required to satisfy clause typing requirements: the CP in (16a) is already identifiable as a -wh clause. Complementizer movement would therefore be altruistic rather than Greedy in that it would be motivated solely by the requirements of the subject trace. Therefore, vacuous CP recursion cannot arise and we still have an account of the that-t violation.

4. Affective Inversion and the AE

Coming back to affective inversion, let us begin by reviewing the PolP analysis and the Inversion Problem. The relevant AE data are in (17).
17) a. Leslie is the person who I said that at no time would run for any public office.
   b. Robin met the man who Leslie said that only then had seen anything moving.
   c. It is Leslie who I believe that not even for one moment had given a damn about the budget.

Culicover’s initial analysis proposed the structure in (18) for the cases in (17).

18) ... who, \[ t \] \[ C \] \[ c \] \[ C \] \[ c \] \[ t \] \[ t \] \[ t \] ... 

In the CP recursion analysis the head which receives the modal \textit{would} is the trace of the complementizer \textit{that}. Within the minimalist framework substitution is possible only into positions which are radically empty; traces are not radically empty. Therefore, the only possible way to derive a structure similar to (18) would be by adjoining \textit{would} to the complementizer trace, as in (19):

19) ... who, \[ t \] \[ C \] \[ c \] \[ C \] \[ c \] \[ t \] \[ t \] \[ t \] ...

Given the failure of inverted auxiliaries to license subject traces in other constructions (see (10) above), it is unclear why either (18) or (19) should be well-formed structures. However, there is some very good evidence that inversion is not taking place at all in the AE sentences with affective adverb phrases.

First, observe that in cases where the negative adverbial is embedded and there is no extraction of the subject, inversion is required.

20) a. Robin was convinced that at no time would Leslie run for public office.
    a'. * Robin was convinced that at no time Leslie would run for public office.
    b. Lee thought that only then did Leslie see anything moving.
    b'. * Lee thought that only then Leslie saw anything moving.
    c. Robin knew that not even for one moment had Leslie given a damn about the budget.
    c'. * Robin knew that not even for one moment Leslie had given a damn about the budget.

Next, consider that in cases involving both inversion of a modal or auxiliary and subject extraction, it is impossible to tell whether inversion has taken place or not on the basis of the string. As illustrated by the structures in (21), the word order in sentences such as (22a) is compatible with both inverted and non-inverted structures.

21) a. Leslie is the person who I said that at no time would run for any public office.
   21) b. ... said \[ t \] \[ C \] \[ c \] \[ C \] \[ c \] \[ t \] \[ t \] \[ t \] ...

In order to show that inversion is in fact taking place in these cases, it is necessary to use examples involving \textit{do}, rather than modals or auxiliaries. The assumption here is that \textit{do} will not appear unless inversion has taken place.
22) a. Leslie is the person who I said that at no time considered running for public office.
   a'. * Leslie is the person who I said that at no time did consider running for public office.
   b. Robin met the man who Leslie said that only then saw anything moving.
   b'. * Robin met the man who Leslie said that only then did see anything moving.
   c. It is Leslie who I believe that not even for one moment gave a damn about the budget.
   c'. * It is Leslie who I believe that not even for one moment did give a damn about the budget.

The judgments are very clear: do is not possible in these constructions.

It might appear that adjacency could be responsible for the lack of do-insertion in the grammatical examples of (22). Say Infl does move to C—one difference between, for example, (22a) and (20b) is that Infl in C would not be separated from V by any overt lexical items in (22a). Structures for (22a) and (20b) without Infl to C movement are shown below. (To help clarify the structures I have marked the traces as follows: t = subject trace; t' = intermediate trace of moved subject; e = complementizer trace.)

20) b. Lee thought that only then did Leslie see anything moving.
    \[ \ldots t_c t_c t_c t_c t_c e \ldots \]
    22) a. Leslie is the person who I said that at no time considered running for public office.
    \[ \ldots t_c t_c t_c t_c = t_c e \ldots \]

If affix-hopping requires only adjacency between Infl and V, then it could be argued that do need not be inserted in (22a) since Infl and V are adjacent. However, as Rizzi (1990) points out, these examples from Pollock (1989) indicate that affix-hopping does not require simple string-adjacency.

23) a. * John completely has lost his mind.
   b. John has completely lost his mind.
   c. John completely lost his mind.

(23a) shows that the adverb completely cannot precede Infl; therefore, the adverb in (23c) must intervene between Infl and the verb, just as it does in (23b). Nevertheless, do-insertion does not apply to (23c).

When there is inversion, why does Infl move to C? Perhaps, in the spirit of Laka (1990), Infl must govern the element in the specifier of C. One goal of Chomsky's (1992) proposals is to eliminate the government relation from the grammar, replacing it with concepts defined strictly in *X*-theoretic terms, for example, domain, defined in (24).

24) a. For a head α, MAX(α) is the least full category maximal projection dominating α.
   b. The domain of a head α is the set of nodes contained in MAX(α) that are distinct from and do not contain α. (from Chomsky (1992), pp. 15-16)
What then is the result of adjoining Infl to C in these terms? Prior to movement, the domain of Infl in (25a) is \{DP, VP\} and the nodes they dominate. The domain of C is \{XP, IP\} and the nodes they dominate. The domain of C includes the domain of Infl.

25) a. \[ l_{cr} XP \{e, C, l_{r} DP, l, VP \} ]\[ b. \[ l_{cr} XP \{e, l_{r} C, l_{r} + C, l_{r} DP, l, VP \} ]\]

After movement of Infl to C, the domain of the chain (l, t) is \{XP, DP, VP\} and the nodes they dominate. As a result of movement, Infl has the adverbial in its domain (i.e., governs it). If the domain of a head is its scope\(^4\), then Infl has the adverbial in its scope as a result of movement.\(^5\)

Returning to the cases where inversion does not appear to have taken place, e.g., (22a), recall that under the CP recursion analysis the complementizer chain and the subject chain agree. This means that the complementizer chain also agrees with Infl. If we take agreement to be commensurate with coindexation, then the subject chain, the complementizer chain, and Infl are all coindexed. The structure for (22a) is repeated as (26) with indexing relations shown.

26) \[ \ldots l_{cr} t_{cr} C \{e, \text{that} \}, l_{cr} \text{at no time} \{l_{c}, e, l_{r}, t, \text{Infl}, \text{considered} \ldots \} \]

This indexing is forced by a series of substantive relations: that and t are in the spec-head relation; that and e are members of the same chain; t and t are members of the same chain; t and Infl are in the spec-head relation. I propose that there is no inversion in these cases because the indexing pattern allows chain formation to incorporate Infl into the complementizer chain without movement. Infl will therefore be a member of a chain whose domain includes (among other categories) the CP specifier where the adverbial resides. The requirement which motivates movement of Infl to C in other structures is satisfied without Infl to C movement when and only when the subject is extracted in a CP recursion structure of this type. Economy rules out a derivation where Infl moves to C in spite of the indexing since this derivation would involve two instances of chain formation (forming the complementizer chain and then forming the Infl chain) to achieve the results that can be achieved by one instance of chain formation.

These proposals have obvious consequences for other cases where inversion does not take place, for example, (27a).

27) a. Who left?
   b. What did Lee buy?

If inversion in questions and inversion with negative adverbials is motivated for similar reasons (i.e., Infl must have the element in the specifier of CP in its domain), then the structures for (27) would be those in (28). Like most previous researchers, I must assume that [+wh] C is inherently able to bear an index, unlike the overt complementizer.

28) a. \[ l_{cr} \text{who} \{e, C, l_{r} t, l_{vp} \ldots \} \]
   b. \[ l_{cr} \text{what} \{e, l_{r} C, l_{r} + C, l_{r} \text{Lee}, l_{r} t, l_{vp} \ldots \} \]

Assuming that the indexation pattern allows a chain consisting of C and Infl to be formed, inversion is not permitted in (28a) because the requirement that the wh-phrase be in the scope of Infl (i.e., in the domain of the chain of which Infl is a member) is met
without movement. The absence of inversion in embedded contexts, e.g., (29), might be explained by the fact that the embedded wh-phrase is in the domain of the matrix Infl.

29) I wonder what Lee bought.

Finally, what about the difference between embedded wh-clauses such as (29), where there is no inversion, and the sentences in (21), which indicate that inversion is required with embedded negative adverbials? Given the proposals I have made so far, the difference would have to reside in the nature of the scope requirement. In the wh-movement case the requirement would seem to be that the wh-phrase or [+wh] C must be in the scope of some Infl. In the case of the negative inversion cases it would appear that the negative adverbial (or the negative C, if C takes on the negative properties of its specifier) must be in the scope of the Infl heading its complement. I have no explanation for this difference at present.

5. English Topicalization

English topicalization is particularly relevant since Watanabe (1992) and Authier (1992) place embedded argument topics in precisely the same structural location that I place adverbials which trigger the AE. As is evident from (30) and (31), the two do not behave the same with respect to the Subjacency Condition: argument topics create islands while fronted adverbials do not. The relevant portion of the structure for the sentences in both (30) and (31) is (32).

30) a. * Who did Leslie think that, this present, Kim gave to?
   b. * To whom did Lee think that, this present, Robin gave?
   c. * Who did Robin say that, this present, gave Lee?
   d. * What did Lee insist that, for Kim, Robin should buy?

31) a. Who did Leslie say that, for all intents and purposes, was the mayor of the city?
   b. What did Lee insist that, under normal circumstances, Robin would give us?

32) ... Op, ... [IP t] that [IP, NP/AdvP [IP ... t] ... ]

In the Chomsky (1986), hereafter Barriers, system standard wh-island violations have the structure in (33b).

33) a. * What did you wonder how Leslie fixed?
   b. [IP, what [IP, you [IP wonder [IP how [IP, Leslie fixed t, t] ... ]]

(I have not given an example involving subject extraction since what I am interested in here is the absence of a Subjacency Condition violation, not the absence of an ECP violation.) According to the Barriers system, CP1 is a barrier for t, by virtue of dominating a Blocking Category (BC), IP1. Since IP1 is tensed, it constitutes an additional barrier in English. The members of the chain link (what, t) are separated by two barriers and therefore the Subjacency Condition is violated. In (32) t’ and t are also separated by a tensed IP and a CP and yet the Subjacency Condition is not violated.
The derivational analysis of CP recursion may offer some insight into the fact that sentences with fronted adverbials, including those which show the Adverb Effect, do not constitute violations of the Subjacency Condition. In Chomsky (1986) it was argued that adjunction obviates the barrierhood of a category as follows. In a structure such as (34), the category XP neither fully dominates nor completely fails to dominate the category α.

\[
\ldots [\text{XP} [\ldots [\ldots t \ldots] \alpha \ldots]]
\]

Although segments of XP both dominate and fail to dominate α, only full categories count as barriers. Therefore, the potential barrier XP does not separate α from its trace. The important point here is that what appear to be two distinct maximal projections in the representation only count as a category when taken together and crossing only one does not constitute crossing the category as a whole. If CP recursion structures are derived by movement of the overt complementizer and projection of an additional CP, then it seems reasonable to construe the two CP nodes as related in such a manner that crossing one alone does not constitute crossing the full category CP. Therefore the chain link \((t', t')\) in (32) is only separated by the BC IP and a segment of the category CP: the Subjacency Condition is not violated. For an explanation as to why topicalization of an argument does result in the creation of an island for movement and further discussion of issues concerning Subjacency and the ECP in relation to the proposals above, see Browning (1995).

6. Conclusion

In this paper I have offered an alternative analysis of the Adverb Effect which has several advantages over Culicover’s PoP analysis. First, we can dispense with the category PoP and rely on CP recursion structures, which are argued to be necessary for a number of unrelated phenomena. Second, the Vacuous Structure Problem has been solved by appealing to the principle of Greed (Chomsky (1991), (1992)) and the clause-typing approach to complement clause structure (Cheng (1991)), both of which have substantial independent motivation. Third, I presented new data which showed that there is, in fact, no affective inversion in AE sentences. I then demonstrated that the CP recursion analysis predicted that this should be the case and that inversion should be impossible when and only when subject extraction takes place. Finally, I discussed briefly the fact that AE sentences do not create Subjacency islands while embedded argument topics do, attributing the absence of Subjacency effects in the former to the derivational connection between the adjacent CPs of the recursion structure. The analysis I have presented above leaves several important issues untouched; see Browning (1995) for a more in-depth treatment of these and related issues. Nevertheless, it should be clear from these arguments that the structure-based approach to trace-licensing need not be abandoned on the basis of the Adverb Effect.

Notes

1 Culicover regards the sentences in (2) as fully grammatical, though some people disagree. My feeling is that, while some AE examples are somewhat marginal, all AE cases are markedly better than the corresponding sentences without the adverbials.
Presumably intermediate wh-traces, which must reside in the specifiers of -wh clauses in many sorts of constructions, do not "count" for this constraint. The specifier elements which prohibit a CP from being identified as a -wh complement clause are topics, fronted adverbials, and all sorts of operators, null or overt.

Strictly speaking, it does not seem to me that the movement of the complementizer occurs to satisfy some morphological property of the complementizer itself. However, if the CP cannot be properly identified unless it fits either the definition of a +wh clause, a -wh clause or a relative clause, then the complementizer would be moving for the sake of the licensing of its projection. This seems to be at least in the spirit of Greed.

This is similar to the basic idea in Williams (1992).

To be consistent with Greed, the movement of Infl to C must be motivated by some property of Infl and not some property of C or the C projection.

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