On the adjacency constraint on Case-assignment

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0. Introduction

It is a fact about English that an adverbial may not intervene between a verb and its direct object (DO) (Keyser 1968:361):

(1) *He gave her immediately the money.

Stowell (1981:113) thus noted the contrast in (2) and (3), and claimed that the grammatical difference relevant here bears on Case theory:

(2) a. Paul quickly walked [to the door].
Jenny quietly talked [to Bill].
b. Paul walked [to the door] quickly.
Jenny talked [to Bill] quietly.
c. Paul walked quickly [to the door].
Jenny talked quietly [to Bill].

(3) a. Paul quickly opened [the door].
Jenny quietly opened [the door].
b. Paul opened [the door] quickly.
Jenny opened [the door] quietly.
c. *Paul opened quickly [the door].
*Jenny opened quietly [the door].

since the category NP that follows the adverbs *quickly* and *quietly* is in need of Case in (2), and the category PP in (3) is not. He proposed that an adjacency constraint be incorporated into the rule of Case assignment, as in (4):

(4) Case Assignment under Government
In the configuration [α β ...] or [... β α], α Case-marks β, where
(i) α governs β and
(ii) α is adjacent to β, and
(iii) α is [–N]

Subsequent work on syntactic theory has widely assumed some version of (4) for Case assignment, especially the adjacency constraint in (4ii). Whenever there is a grammatical contrast between a configuration like that in (5a) where X assigns Case to YP and one like that in (5b), it is taken to be evidence that the presence of YP interferes with Case-assignment from X to YP:

(5) a. X YP
b. *X ZP YP

The relation between the configurations in (5) has also be taken one step further. That is, if YP is an NP that may cooccur with a verbal category X as in (5a) but the two may not be

separated by another category ZP as in (5b), then the category X is taken to be a Case-assigner, even though there might be no firm independent evidence for the Case-assigning property of X. Thus, Lasnik (1992) argued that facts like those in (6) are evidence that the verb *be* assigns partitive Case to the NP *a man* (cf. Belletti 1988) since the two are apparently separated by the adverb *usually*:

(6) a. ?*There will be usually a man here.
There will usually be a man here.
b. *There will be not a man here.
There will not be a man here.
c. *I believe there to be usually a solution.
?I believe there usually to be a solution
d. *I believe there to be not a solution.
I believe there not to be a solution.

Some interesting consequences about Universal Grammar (UG, Chomsky 1957) and language acquisition follow, if it is true that the adjacency constraint holds of Case-assignment and that the verb *be* indeed assigns Case. As the child is not likely to be explicitly instructed that the DO must be adjacent to the verb assigning Case to it, it must be that the adjacency constraint is part and parcel of the rule for Case-assignment that need not be learned but is "hard-wired" into our language faculty. Thus, claims about the property of Case-assignment are not only claims about facts like those in (1)-(3), but also about some very fundamental property of language. It is in this sense that an inquiry into the principles of Case-assignment is an enterprise worth taking. The claim that the verb *be* is a partitive Case-assigner is even more interesting since apart from examples like those in (6) there is little independent evidence for neither partitive Case in English, nor Case-assigning property of the verb *be*.

I would like to re-examine Stowell's (1981) claim that the adjacency effect has to do with Case- assignment. I will consider the issue within the set of assumptions about phrase structure that were assumed at the time, and also in the light of recent work on Case theory. However, I argue that the adjacency effect has no bearing on Case theory, but has to do with the syntax of verbs and adverbs. If my arguments are correct, then facts like those in (6) would be no evidence for the verb *be* as Case-assigner.

The paper is organized as follows. In section 1, I discuss some issues in Case theory and problems for the view that the adjacency constraint is a condition on Case-assignment in constructions where the adjacency effect apparently does not hold. I consider adverb placement in the passive sentences of the verb-particle, double-object and Exceptional Case-marking (ECM) constructions in section 2 to show the irrelevance of the adjacency constraint to Case-assignment. I discuss the syntax of adverbs and the locality constraint on adverb modification in section 3, and conclude the paper in section 4 with an account for the facts in (6) independently of Case.

1. On the adjacency effect and Heavy NP Shift

As is well-known, a complication in the investigation of the position of the DO is the fact that an NP may under some circumstances appear separated from the verb from which it receives Case. As illustrated respectively in (14) and (15), a phonologically heavy NP or an indefinite NP need not occur adjacent to the verb in the Heavy NP Shift (HNPS) (Ross 1967) or Focus

NP Shift (FNPS) constructions (Rochemont 1978) (where #* indicates marginally acceptable as HNPS constructions, from Stowell 1981:106):

(7) a. Paul retrieved [the book] from the trash can.
Neil donated [ten dollars] to the fund.
b. Paul retrieved from the trash can
[the book that his mother gave him when he was 10]
Neil donated to the fund
[the last ten dollars that were left over from his bank account]
c. #*Paul retrieved from the trash can [the book]
#*Neil donated to the fund [ten dollars]

(8) a. Kevin gave [a new book] to his mother
Brian brought back [a priceless treasure] from America
b. Kevin gave to his mother [a new book]
Brian brought back from America [a priceless treasure]

Three questions immediately arise in the examples in (7) and (8). How are the a- and b-examples to be related? and how is the difference between (7a) and (7b) on the one hand, and (7c) on the other to be accounted for? and if the grammar is to provide a syntactic explanation for it, and how can the difference be related to Case theory?

For our discussion here, we can schematically represent the configurations in which the adjacency effect might arise as in (9) where XP is an NP category, and YP any non-NP category like PP and adverbs like *quickly* and *quietly*:

(9) a. ... V XP YP ...
b. ... YP V XP ...
c. *... V YP XP-light...
d. ... V YP XP-heavy/indefinite ...

We will consider the configurations in (9) in various theories of phrase structure and Case, and see that in all these cases the adjacency constraint plays no role in Case-assignment.

1.1. Adverb placement and phrase structure

In theories of phrase structure where a constituent may dominate more than two daughters (Chomsky 1965, Jackendoff 1977), the structures for the configurations in (16) would be like those in (10):

(10) a. ... [$_{VP}$ V DO XP] ...
b. *... [$_{VP}$ V XP DO-light] ...
c. ... [$_{VP}$ V XP DO-heavy/indefinite] ...

To exclude the structure in (10b) with the adjacency constraint on Case-assignment, one must assume that Case cannot be assigned to the light DO, if it is not adjacent to the verb. An issue that immediately arises is that how Case is assigned in (10c) to the heavy DO in the HNPS in (7) and the FNPS constructions in (8). As the configuration is possible, it must be that Case-assignment to the the heavy DO need not obey the adjacency constraint. But why

should the phonological heaviness or the definiteness of an NP be relevant to Case-assignment? The question does not seem to have an obvious answer.

A more plausible explanation for the syntactic difference between heavy and indefinite NPs on the one hand and light as well as definite ones on the other is that the difference is related to their inherent property and the structural positions in the sentence in which they NP occurs. Specifically, heavy and indefinite NPs introducing new information may be interpreted as focus (Rochemont 1978), while light and definite NPs having little new information may not. Now, it is a fact about English that the focus position is at the end of the clause.[1] If this is so, then the fact that a heavy or indefinite NP may appear in the focus position at the end of the clause, but light or definite NP may not, follows from the inherent property of the NPs: only NPs introducing new information may be focused.

From the initial D-structure as in (11a), one can derived a structure for the HNPS/FNPS construction with a heavy or indefinite NP as in (11b) if movement within the same projection is allowed, or as in (11c) if the movement is to an adjoined position:[2]

(11) a. ... $[_{VP}$ V DO XP] ...
b. ... $[_{VP}$ V t_i XP DO_i] ...
c. ... $[_{VP}$ $[_{VP}$ V t_i XP] DO_i] ...

Now, once we have a constraint barring rightward movement of a light or definite NP, there is no need for a special condition on Case-assignment like the adjacency constraint. In fact, if a heavy DO in (11b) and (11c) is assigned Case (under government) either in their derived position or via the position t, then it is difficult to see how a light or definite NP is prevented from being assigned Case the same way.

Furthermore, given that no Case problem arises when an NP undergoes *Wh*-movement (to the left), even when it is light:

(12) a. What$_i$ did you see t_i?
b. What$_i$ did you say t_i was on the shelf?
c. Who$_i$ do you expect t_i to win?

it is not clear why specifically a Case problem arises when a light or definite NP moves to the right. One can of course appeal to the distinction between leftward movement and right movement in that the former is unbound but the latter is clause-bound (cf. Ross's (1967) Right-Roof Constraint), but the bearing of left/right distinction on Case-assignment is unclear. There is the problem of why such a left/right distinction should be irrelevant to a heavy or indefinite NP.

Under some independently motivated assumptions about phrase structure, the adjacency effect can readily be accounted for. The configurations in (9c) and (9d) are automatically excluded under the view that phrase-structure is strictly binary branching (Kayne 1984), and that the complement and the verb are sisters. As shown in (13), the sequence of categories in (9c) and (9d) with an XP intervening between the verb and the DO gives rise to a non-binary-branching structure:

(13) a. ... $[_{VP}$ XP $[_{VP}$ V DO]] ...
b. *... $[_{VP}$ V XP DO]] ...
c. ... $[_{VP}$ $[_{VP}$ V DO] XP]

Given that adjuncts and arguments exhibit different property with respect to extraction (Huang 1982), and that even internal arguments of a verb stand in a certain asymmetric hierarchical relation (Larson 1988), it seems quite plausible that the XP in (13) must not be included within the same bar-level projection of the verb and the DO. Under this conception of arguments and adjuncts, it is simply impossible for the XP to intervene between the verb and the DO.

On this view of phrase structure, then, the HNPS/FNPS construction can only have the structure in (21) where the DO has been moved rightward to an adjoined position (Rochemont and Culicover 1990:118):

(14) ... $[_{XP}\ [_{VP}\ [_{VP}\ V\ t_i\ ]\ XP\ ]\ DO_i\ ]$ ...

The question now is how to exclude the movement in (14) when the DO is light or definite. As already mentioned in discussion of the structures in (10), the movement is barred for interpretive reasons. That is, moving of a light or definite NP to the focus position would require that it introduce new information, a property that it does not have. It is therefore not necessary to add a separate condition like the adjacency constraint on Case-assignment.

To control for the effect of HNPS/FNPS, Stowell (1981:108) suggested to consider the adjacency effect in gerunds. Since gerunds presuppose the propositions they express, they are thus incompatible with focus. He notes the following NP versus PP contrast in gerunds (Stowell 1981:110):

(15) a. The notoriety resulting from [Kathy's exposure in the Washington Post
[of Nixon's war crimes]] led to her new assignment.
The notoriety resulting from [Kathy's exposure [of Nixon's war crimes]
in the Washington Post] led to her new assignment.
b. The notoriety resulting from [Kathy's exposing [Nixon's war crimes]
in the Washington Post] led to her new assignment.
*The notoriety resulting from [Kathy's exposing in the Washington Post
[Nixon's war crimes]] led to her new assignment.

As can be seen from the insertion of a dummy Case-marker *of*, the NP does not receive Case from the derived nominal, and hence need not be adjacent to it. By contrast, the NP complement must be adjacent to the gerundive head in order to receive Case from it.

Even here, evidence for the bearing of the adjacency constraint on Case-assignment is rather weak. There are several problems with the example in (15b). First, the NP is not of the type that can appear non-adjacent to the verb in other contexts, like the HNPS/FNPS construction; it is light and definite. Therefore, the NP would not be able to move, even if it were possible for it to do so. Second, if rightward movement the point here is that gerunds do not allow HNPS/FNPS because of its presupposition property, then the NP would not be able to move in the first place. Third, the questions that one would ask is how the examples in (15b) are to be derived, and why the NP may not be separated from the gerundive head by a PP. If it is correct that an adjunct PP cannot occur in the same bar-level projection with the gerundive head and its complement, then it must be that the constituent *Nixon's war crimes* has moved to a right-adjoined position:

(16) ... [[[exposing t_i] [in the Washing Post]] [Nixon's war crime $]_i$]...

The problem that we saw in connection with the structures in (11) and (14) and the examples in (12) emerges again. Short of stipulation, there is no natural to prevent to moved NP from being assigned Case via its trace.

Fourth, there is also the empirical question of whether gerunds do not allow HNPS/FNPS because of its presupposition property. The examples in (17) and (18) sound quite good, if not perfect:

(17) a. ?Jenny was surprised at Paul's retrieving from the trash can
[the book that his mother gave him when he was 10]
?The chairman was happy about Neil's donating to the fund
[the last ten dollars that were left in his bank account]

(18) a. ?Sue mentioned Kevin's giving to his mother [a new book]
as an indication that he still thinks of her from time to time.
b. ?Everyone was looking forward to
Brian's bringing back from America [a priceless treasure]

Although the ungrammaticality of the example in (15b) needs to be attended to, it is clear that appeal to the adjacency constraint on Case-assignment to account for it is conceptually unwarranted and empirically problematic. It not only would introduce a complication to Case theory that is otherwise unnecessary, but also would incorrectly rule out the examples in (17) and (18) as ungrammatical.

1.2. VP-shell

There are of course other conceivable analyses of the HNPS/FNPS construction. Larson (1989) suggested that the examples in (19b) is to be derived from those in (19a) in the manner shown in (20):

(19) a. Mary gave everything that he demanded to John.
Max put all the boxes of home furnishings in his car.
b. Mary gave to John everything that he demanded.
Max put in his car all the boxes of home furnishings.

(20) Mary $[_{VP}$ [[gave+[to John]]$_i$ [$[_{VP}$ everything that he demanded [t_i]]]]]
Max $[_{VP}$ [[put+[in his car]]$_i$ [$[_{VP}$ all the boxes of home furnishings [t_i]]]]]

That is, the structure of a ditransitive verb is a double VP-shell, with the lower VP containing the verb in the head position, the indirect object (IO) in the complement position, and the DO in the Spec position (cf. Larson 1988). An optional process of V′-reanalysis applies to the verb and the IO to form a complex predicate V°, which subsequently raises to the empty head position of the upper VP.

If V′-reanalysis does not apply, then the verb alone raises, giving the order in (19a), as shown in (21):

(21) Mary $[_{VP}$ [gave$_i$ [$[_{VP}$ everything that he demanded [t_i to John]]]]]
Max $[_{VP}$ [put$_i$ [$[_{VP}$ all the boxes of home furnishings [t_i in his car]]]]

Most relevant to our concern here is the assumption that the DO is assigned Case under government by either the verb itself or the V+IO complex predicate when it raises to the head position of the upper VP shell.

Consider now the examples in (22) when the DO is a light or definite NP:

(22) a. Mary gave ten dollars to John.
Max put the book in his car.
b. *Mary gave to John ten dollars.
*Max put in his car the book.

Given that the DO can be assigned Case under government in the Spec of the lower VP shell, as shown in (23):

(23) Mary [$_{VP}$ [gave$_i$ [[$_{VP}$ ten dollars [t_i to John]]]]]
Max [$_{VP}$ [put$_i$ [[$_{VP}$ the book [t_i in his car]]]]

it is hard to see why the DO should fail to be assigned Case when the V+IO raises to the upper VP shell:

(24) *Mary [$_{VP}$ [[gave+[to John]]$_i$ [[$_{VP}$ ten dollars [t_i]]]]]
*Max [$_{VP}$ [[put+[in his car]]$_i$ [[$_{VP}$ the book [t_i]]]]]

An obvious way to rule out the structures in (24) would be to postulate some constraint that prevents V′-reanalysis from applying when the DO is light or definite. Although it is not entirely clear how a constraint on V′-reanalysis is to be stated to give precisely the right results ruling out the structures in (24), it seems clear that the constraint does not concern the adjacency of the DO to the verb. However one is to render V′-reanalysis inapplicable when the DO is light or definite, the word-order in (22b) would never arise. Again, there is no need to assume the adjacency constraint as a condition on Case-assignment.

1.3. AgrO

Chomsky (1991) suggested that the Case of the DO be assigned or checked in the same manner as that of the subject (S). In particular, the Case-assigning head and the category receiving Case are in the Spec-head relation. Languages vary according as the level of representation where Case is assigned or checked, deriving the different word-orders cross-linguistically (Chomsky and Lasnik 1993). Languages with the surface SOV order would assign or check the Case for the DO in overt syntax, but those with the surface SVO order like English does it at LF:

(25) a. SOV languages
S [$_{AGRP}$ DO$_i$ [[$_{VP}$ V t_i]]] overt syntax
b. SVO languages
S [$_{AGRP}$ [[$_{VP}$ V DO]]] overt syntax
S [$_{AGRP}$ DO$_i$ [[$_{VP}$ V t_i]]] LF

We will see presently that the adjacency effect has no bearing on Case.

Keeping the assumption that phrase structure is binary branching and the DO is a sister of the verb in the VP (cf. section 1.1), then it is simply impossible for a manner adverb like *quickly* and *quietly* to intervene between the verb and the DO inside the VP:

(26) *S [$_{AGRP}$ [[$_{VP}$ V XP DO]]]

Even if the structure in (26) were possible at S-structure or at Spell-out, it does not have anything to do with Case, since the DO would be assigned or check its Case in Spec of AgrO (at LF in English).

Other options for the position of manner adverbs are available. They either adjoin to the left to VP as in (27a) or to the right of VP as in (27b) (cf. section 3):

(27) a. [$_{AGRP}$ [[$_{VP}$ quickly [$_{VP}$ opened the door]]]]
b. [$_{AGRP}$ [[$_{VP}$ [$_{VP}$ opened the door] quickly]]]

Thus, the word-order where the manner adverb intervenes between the verb and the DO can be derived by either moving the verb leftward in structure in (27a), or moving the DO in structure in (27b) rightward. As their precise landing sites are irrelevant, let us assume for concreteness that they respectively move to AgrO and a VP-adjoined position, as in (28a) and (28b):

(28) a. *[$_{AGRP}$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i the door]]]]
b. *[$_{AGRP}$ [[$_{VP}$ [$_{VP}$ [$_{VP}$ opened t_i] quickly] the door$_i$]]]

An issue that we can immediately resolve is that the structures in (28) cannot be excluded for Case reason, since the DO is assigned or checks its Case in the Spec of AgrO, at LF in English:

(29) a. *[$_{AGRP}$ the door$_j$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]]
b. *[$_{AGRP}$ the door$_i$ [[$_{VP}$ [$_{VP}$ [$_{VP}$ opened t_i] quickly]]]]

There is still a further possibility of the position of manner adverbs, namely, they occur left-adjoined to the VP as in (27a), but not right-adjoined as in (27b). On this view, then, when the adverb precedes both the verb and the DO at S-structure, the latter two stay in their base-positions as shown in (29a), and the two raise at LF respectively to AgrO and Spec of AgrO to be in a Spec-head relation for Case-assignment or Case-checking as in (30b) (the verb presumably raises further, not represented here):

(30) a. [$_{AGRP}$ [[$_{VP}$ quickly [$_{VP}$ opened the door]]]] (S-structure)
b. [$_{AGRP}$ the door$_j$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]] (LF)

When the adverb follows both the verb and the DO it must be that both the verb and the DO have moved leftward, as shown in (31a) (cf. Costa 1996 for the adverb *well*). To exclude the structures in (31b) and (31c) that give the impossible surface word-orders, it must be assumed that for some reason the DO may not stay in the base-position when the verb moves out of its base-position, and that the verb may not stay in AgrO when the DO moves to Spec of AgrO.

(31) a. opened$_i$ [$_{AGRP}$ the door$_j$ [t_i [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]]
b. *opened$_i$ [$_{AGRP}$ [t_i [$_{VP}$ quickly [$_{VP}$ t_i the door$_j$]]]]
c. *[$_{AGRP}$ the door$_j$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]]

Although this view of one fixed position for manner adverbs remains to be justified, the same point about Case holds, namely, the intervention of the adverb between the verb and the DO in the structure in (31c) has no bearing on Case, since the DO would be assigned or checks its Case covertly at LF, just like it does in the structure in (30b).

We thus see that in a variety of views on phrase structure and Case, the adjacency effect really has nothing to do with Case, but is a consequence of independently motivated assumptions about what phrase structure should look like, and how Case is assigned or checked. The fact that nothing may occur between a verb and its DO is a reflection of the fact that it may not appear inside the same bar-level projection of the verb and the DO in the first place, or is due to a constraint on HNPS/FNPS, construed either as a process of rightward movement or as the result of raising of a light predicate.

Insofar as it does not follow from any general principle, nor is it related to the rest of the grammar, the adjacency constraint is at best a restatement of the facts. The elimination of the constraint from the grammar as irrelevant to Case-assignment is thus a welcome result.

2. Adverb placement in passives of multiple complement constructions

A syntactic context that bears on Case is the passive construction. It is standardly assumed that Case is absorbed by the passive morphology, and that the DO moves to the subject position to get nominative Case (Jaeggli 1980, Chomsky 1981):

(32) a. The Romans destroyed the city.
b. The city$_i$ was destroyed t_i by the Romans.

In principle, we can test the relevance of the adjacency constraint on Case-assignment by placing in the passive construction an XP between the verb and the position of the trace where an NP receives Case in the active sentence. Since there is no Case assigned to the position of the trace, it should be possible for an XP to intervene between it and the verb:

(33) NP$_i$ V XP t_i

However, as manner adverbs like *completely*, *quickly* and *quietly* may appear on the surface in different positions, either preverbally or sentence-finally, but not between the verb and the DO, as shown in (34):

(34) a. The Romans completely destroyed the city.
John quickly opened the door.
b. *The Romans destroyed completely the city.
*John opened quickly the door.
c. The Romans destroyed the city completely.
John opened the door quickly.

it is not obvious in which post-verbal position the adverb occurs in the passive examples in (35a); it could be in the same position as that in (34b) or that in (34c):

(35) a. The city was destroyed completely by the Romans.
The door was opened quickly by John.
b. The city$_i$ was destroyed completely t_i by the Romans.
The door$_i$ was opened quickly t_i by John.
c. The city$_i$ was destroyed t_i completely by the Romans.
The door$_i$ was opened t_i quickly by John.

The examples in (35c) is unproblematic since the DO moves from a position it can otherwise occur in; the manner adverb in (34c) plausibly appears as a (right) VP-adjunct. The structure for the example in (35b) is also consistent with the idea that nothing may appear between a verb and the DO that it assigns Case to. Since the verb does not assign Case to its DO in passive, an adverb may intervene in a VP-internal position. Thus, when a sole complement of a verb is extracted, it is impossible to tell which post-verbal position the manner adverb appears in.

It is for this reason that we have to consider cases where more than one category follow the verb, and see the intervening effect of adverb placement. That is, in a configuration as in (36a) where both the XP and YP are in the VP and the XP is Case-marked, the adjacency effect that shows up when a ZP intervenes between the verb and the XP as in (36b) should disappear when XP is not assigned Case in its base-position and has to move to the subject position to get Case:

(36) a. V XP YP
b. *V ZP XP YP
c. XP$_i$ V ZP t_i YP

As YP is part of the VP, ZP cannot possibly occurs outside the VP, but in an intervening position between the verb and the trace of XP, ie, the same position as in (36b).

It is therefore the reason for our discussion of the various constructions that have the configuration in (z2a): the double object, the verb-particle, and the ECM constructions. We will see from the interactions between adverb placement and passive that there is no need to incorporate the adjacency constraint on Case-assignment into Case theory.

2.1. The verb-particle construction

Consider the familar variants of the verb-particle constructions exhibited in (37) and (38):

(37) a. Kevin turned [the light] [on]
b. Janice cut [the cabbage] [up]

(38) a. Kevin turned [on] [the light]
b. Janice cut [up] [the cabbage]

Given that the bracketed NPs in (37)-(38) must undergo NP-movement to subject position under passive, it must be that they receive Case from the verb in the active sentence, and not from the particle:

(39) a. The light was turned on by Kevin.
b. The cabbage was cut up by Janice.

If this is correct, then the bracketed NPs in (38) are apparently non-adjacent to the verb *turn* and *cut* respectively, which assign them Case. We thus have an apparent violation of the adjacency constraint on Case assignment.

Stowell (1981:298-301) suggested that the structure of the verb-particle construction be like (40), where the verb forms some sort of a complex predicate with the particle by some sort of word-formation rule, and the whole complex assigns Case to the following NP, observing the adjacency constraint:

(40) $[_V$ V - PRT] NP

On this view, the ungrammaticality of the examples in (41) is entirely expected, since the bracketed NP object is not adjacent to the verbal complex Case-assigner:

(41) a. *Kevin $[_V$ turned - on] quickly [the light]
b. *Janice $[_V$ cut - up] carelessly [the cabbage]

The word-order in (37), however, is derived by incorporating the particle into a verbal complex, which itself has an incorporated NP, as in the structure in (42a):

(42) a. $[_V [_V$ V - NP] PRT]
b. Kevin $[_V [_V$ turned - the light] - on]

In the substructure $[_V$ V - NP], which was also argued to have independent motivation (cf. the section 2.2 below on the double object construction), the NP is said to absorb Case.

However, there are several problems with this analysis of the verb-particle construction. First, although the ungrammaticality of the examples in (43) and (44) follows from the fact that the specific word-formation rules in (40) and (42a) do not sanction the occurrence of an adverb:

(43) a. *Kevin $[_V$ turned - quickly - on] the light.
*Janice $[_V$ cut - carelessly - up] the cabbage.
b. *Kevin $[_V$ turned - on - quickly] the light.
*Janice $[_V$ cut - up - carelessly] the cabbage.

(44) a. *Kevin $[_V [_V$ turned - quickly - $[_{NP}$ the light]] - on]
*Janice $[_V [_V$ cut - carelessly - $[_{NP}$ the cabbage]] - up]
b. *Kevin $[_V [_V$ turned - $[_{NP}$ the light]] - quickly - on]
*Janice $[_V [_V$ cut - $[_{NP}$ the cabbage]] - carelessly - up]

this explanation is unsatisfactory since it does not explain why some otherwise imaginable word-formation rules that allow an adverb inside the verbal complex do not exist, or why there does not seem to be word-formation rules incorporating subjects (Baker 1988). The impossible occurrence of an adverb in the verbal complex further suggests that one cannot maintain like Stowell (1981:306) did that incorporation of the an NP of the sort in (42a) is analogous to incorporation of pronominal clitics in Romance languages, since in these languages locative adjunct clitics may form a syntactic unit with the verb.

Second, the word-structure in (40) largely correctly predicts that the verb-particle complex would pattern like a syntactic unit with respect to gapping. As shown in (45), a verb may be gapped, leaving the DO intact (∅ represents a phonetically empty segment):

(45) a. John kissed Mary, and Sam [∅] Sue.
(=John kisssed Mary, and Sam kissed Sue)
b. Bill wrote a letter, and Fred [∅] a note.
(=Bill wrote a letter, and Fred wrote a note)
c. Jane ate a sandwich, and Robin [∅] a hotdog.
(=Jane ate a sandwich, and Robin ate a hotdog)

In the word-structure in (40), both the verb and the particle may be gapped, while gapping of the verb alone is slightly less good:[3]

(46) a. Kevin [turned on] the light, and Sue [∅ ∅] the radio.
b. Janice [cut up] the cabbage, and Fred [∅ ∅] the cucumber.

(47) a. ??Kevin [turned on] the light, and Sue [∅] off the radio.
b. ??Janice [cut up] the cabbage, and Fred [∅] up the cucumber.

Nevertheless, the expected patterns of gapping for the word-structure in (42a) are not entirely borne out. As illustrated in (48)-(49), while the verb itself may be gapped, the verb-NP complex may not:[4]

(48) a. ?Kevin [turned] the light on, and Bill [∅] the radio off.
b. ?Janice [took] the garbage out, and Mary [∅] the laundry in.

(49) a. *Kevin [turned] [the light] on, and Bill [∅] [∅] off.
b. *Janice [took] [the garbage] out, and Mary [∅] [∅] in.

The ungrammaticality of the examples in (49) can be accounted for on the assumption that the sequence verb-NP is not a syntactic unit, in contrast to the verb-particle sequence in (46).

Suppose the verb in the verb-particle construction takes a PP complement headed by the particle, and the word-order V-particle-NP is derived from the word-order V-NP-particle by syntactically incorporating the particle into the verb, as shown in (50):[5]

(50) a. V $[_{PP}$ NP P]
b. V+P_i $[_{PP}$ NP t_i]

The NP in (50) would receive Case under government[6] either from the verb alone, or from the verb-particle complex. The structure in (50a) accounts for the fact that the V and the NP may not be gapped since they do not form a syntactic constituent, and that in (50b) explains why the verb and the particle forming a syntactic unit may be gapped.

If an adverb were to occur in a position between the matrix verb and the NP in the structures in (50), where could that position be? It could be as sister to both the V and the PP complement as in (51a), or an adjunct to the PP complement as in (51b), or a right-adjunct to the matrix VP and the PP complement appears in a right-adjoined position as in (51c):

(51) a. $[_{VP}$ V adv $[_{PP}$ NP P]]
b. $[_{VP}$ V $[_{PP}$ adv $[_{PP}$ NP P]]]
c. $[_{VP}$ $[_{VP}$ $[_{VP}$ V t_i] adv] $[_{PP}$ NP P $]_i]$

(51a) would be excluded if phrase structure is binary branching, as discussed. We will see in section 3 that an adverb generally may not appear in the indicated position in (51b) for principled reason having nothing to do with Case. (51c) is ruled out because the NP is inside an adjunct, and would fail to be Case-marked, whether or not there is an adverb between the verb and the PP complement. Evidently, there is no need to incorporate a separate adjacency constraint on Case-assignment.

With the structures in (50), we can now proceed to see whether the adjacency constraint on Case-assignment bears on adverb placement in the verb-particle construction under passive. The answer is negative.

If the reason for the ungrammaticality of the examples in (52b) is that the objects *the light* and *the cabbage* fail to be assigned Case because of an intervening adverb:

(52) a. Kevin quickly turned the light on.
Janice carelessly cut the cabbage up
b. *Kevin turned quickly the light on.
*Janice cut carelessly the cabbage up.

then the adjacency effect should disappear when the verb does not assign Case. That is, we should expect the passive examples in (53b) to be grammatical, contrary to fact:

(53) a. The light$_i$ was quickly turned t_i on (by Kevin).
The cabbage$_i$ was carelessly cut t_i up (by Janice).
b. *The light$_i$ was turned quickly t_i on (by Kevin).
*The cabbage$_i$ was cut carelessly t_i up (by Janice).

Adverb placement in both active and passive sentences is the same; therefore, there is no particular reason why the adjacency constraint on Case-assignment should be invoked just to rule out the example in (52b), while the ungrammaticality of the example in (53b) is left unaccounted for.

2.2. The double-object construction

In a V NP NP double-object construction as in (54), the DOs *a telegram* and *a record* are apparently not adjacent to the verb:

(54) a. Wayne sent Robert a telegram.
b. Debbie gave Anne a record.

Stowell (1981:298-301) suggested that verbs that take double objects have the word-structure similar to that in (40), where the verb forms some sort of complex predicate with the IO, and the whole complex assigns Case to the DO, observing the adjacency constraint:

(55) $[_V$ V - NP] NP

More precisely, the IO absorbs the Case features within the verbal complex, just as a clitic in a language such French or Italian (Stowell 1981:304).

The ungrammaticality of the examples in (56b) is to be expected, since the DO is separated from the verb by an adverb, violating the adjacency constraint on Case-assignment:

(56) a. John quickly [$_V$ gave - Mary] the book.
Bill quietly [$_V$ sent Sue] the letter.
b. *John [$_V$ gave Mary] quickly the book.
*Bill [$_V$ sent Sue] quietly the letter.

In addition, since the first NP is part of a verbal complex in the word-structure in (55), one would expect that it may not move away from the complex, leaving the verb behind. The expectation is apparently confirmed in the interrogative. While questioning of the DO is possible, that of the IO is rather marginal in many dialects:

(57) a ?*Who$_i$ did John give t_i the book?
?*Who$_i$ did John send t_i the letter?
b. What$_i$ did John give Mary t_i?
What$_i$ did John send Sue t_i?

The extraction pattern is exactly the reverse in passive, however. As shown in (58), while passivization of the DO is quite possible, that of the DO sounds quite odd:

(58) a. Mary was given the book.
?Sue was sent the letter.
b. ?*The book was given Mary.
?*The letter was sent Sue.

Stowell (1981:305) therefore claimed that in fact the structure of a double object construction is slightly more elaborated than what is expressed in (55). Specifically, the IO in the verbal complex is related to a position in the V′ where a theta-role is assigned, as in (59):

(59) [$_V$ V - IO$_i$] DO- [e]$_i$

That is, while Case of the IO is absorbed in the verbal complex, the theta-role is assigned to the *e* position outside of the complex. Thus, what happens in the passive in (58a) is that the IO moves from the *e* position, not from within the verbal complex. The IO would thus get Case from the subject position, and a theta-role from the *e* position. The marginality of the examples in (58b) is attributed to an arbitrary constraint on word-structure to the effect that an NP may not be incorporated into the participial form of the verb.

As was with the case of the verb-particle construction discussed in section 2.1, there are several problems with this account of the double object construction. First, insofar as there is no principled reason why word-formation rules cannot be otherwise, explanations for syntactic facts based on these rules are not very satisfactory. There is no explanation for why there are no rules that incorporate a subject or an adverb into the verbal complex, or for a rule that having an incorporated DO, and relating it to position in the V′ as in (61):

(60) *John [$_V$ gave - quickly - Mary] the book.
*Bill [$_V$ sent - quietly - Sue] the letter.

(61) [$_V$ V - DO$_i$] [e]$_i$ - IO

Second, although the difficulty of questioning the IO in overt syntax as shown in (57) follows from the assumption that it is part of the verb, it is not clear how multiple-*wh* questions is to be analyzed, if in-situ *wh*-phrases must move at LF (Huang 1982),:

(62) a. Who gave who a book?
b. Who sent who a letter?

The examples in (62) would all end up having the representations in (63):

(63) a. Who$_j$ who$_i$ t_i gave t_j a book?
b. Who$_j$ who$_i$ t_i sent t_j a letter?

One would then have to make the provision that part of a word may not move overtly in syntax, but may do so covertly at LF (cf. Hoeksema 1987 on this issue).

In fact, with verbs that take double NP complements but do not permit a variant with an NP and a PP complement, questioning the IO is quite possible:[7]

(64) a. John gave Mary a headache.
Bill spared Sue the trouble.
Fred asked Jane a question.
Bob envied Rebecca her fortune.
b. *John gave a headache to Mary.
*Bill spared the trouble to Sue.
*Fred asked a question to Jane.
*Bob envied her fortune to Rebecca.

(65) ?Who$_i$ did you say John give t_i a lot of a headache?
?Who$_i$ did Bill claim to have spared t_i the trouble of going throught the red tap?
?Who$_i$ would you never bother to ask t_i any question?
?Who$_i$ did Bob envy t_i her fortune?

If the relative movability of the IO in the (65) indicates that it is not part of the verbal complex, then a problem arises for Case-assignment to the DO, since it is not adjacent to the verb.

Third, the idea that passive morphology absorbs Case may explain why the IO cannot occur in the verbal complex. As the Goal theta-role is assigned to the *e* position in (59), the IO may be generated there, and moves to subject position under passive to get Case. However, it is not clear how the Case for the DO is assigned. The problem is especially acute since the DO is assigned Case structurally by a complex verbal head, just like it is in cases involving non-complex transitive verbs.

Fourth, like in the analysis of the verb-particle construction, gapping facts show that the verb and the IO do not form a syntactic unit in the double object construction. Gapping in a

double object construction can only give rise to a reading where the verb is gapped, to the exclusion of the IO:

(66) a. John gave Mary a book, and [∅] Sam a record.
(=John gave Mary a book, and John gave Sam a record.
≠John gave Mary a book, and Sam gave Mary a record)
b. Bill sent Sue a letter, and [∅] Fred a note.
(=Bill sent Sue a letter, and Bill send Fred a note.
≠Bill sent Sue a letter, and Fred sent Sue a note)

Facts about adverb placement of course hinge on the structure of the double object construction. On the one hand, if tertiary branching phrase structure is allowed, then the VP of a double object construction might have a structure like that in (67a):

(67) a. $[_{VP}$ V IO DO]
b. $[_{VP}$ V (*adv) IO (*adv) DO]

The fact that an adverb may not appear between the verb and the IO, or between the IO and DO follows from the assumption that non-complements may not occur in the same projection of the verb and its complements.

On the other hand, suppose that ditransitive verbs have a double-VP structure, with the V IO DO word-order derived from the V DO P-IO word-order where the IO is the complement of the preposition P as illustrated with the verb *give* in (68) (Larson 1988):

(68) a. give$_i$ $[_{VP}$ the book [t_i $[_{PP}$ to Mary]]]
b. give$_i$ $[_{VP}$ Mary$_j$ $[_{V'}$ $[_{V'}$ t_i t_j] the book]]

The assumption that non-complements cannot occur within the same projection of the verb and its complements would then exclude an intervening adverb. As shown in (69), a manner adverb like *quickly* may appear as a left or right adjunct to the VP, but not within the VP projection (the subject is not represented here):

(69) $[_{VP}$ (quickly) $[_{VP}$ [give$_i$ $[_{VP}$ (*quickly)
$[_{VP}$ Mary$_j$ $[_{V'}$ (*quickly) $[_{V'}$ $[_{V'}$ t_i t_j] the book]]]]] (quickly)]

The impossibility of the examples in (56b) and (60) now follows directly.

If Larson (1988) is correct in that the DO in the double object construction receives Case from the V′ reanalyzed as a verb, then the difficulty of passivize the DO as shown in (58b) might be due to the fact that the passive morphology attaches to the verb, not to the reanalyzed V′. That is, since the passive morphology on the verb absorbs the Case assigned to the IO, the IO in (45a), not the DO which receives Case from the V′, must move to subject position to receive Case. As a result, the ungrammaticality of the examples in (58b) is due to the IO having no Case.

We can now further test the relevance of the adjacency constraint on Case-assignment to adverb placement. If the grammaticality of the examples in (70) is due to the failure of Case-assignment to the IO, then when the IO moves to the subject position under passive, the adjacency effect should disappear:

(70) a. *John gave quickly Mary the book.
b. *Bill sent quietly Sue the letter.

But as shown in (71), the examples remain ungrammatical when the IO undergoes NP-movement to subject position under passive:

(71) a. *Mary$_i$ was given quickly t_i the book (by John).
b. *Sue$_i$ was sent quietly t_i the letter (by Bill).

Since no Case issue is at stake in (71), and given that the grammatical examples in (72) differ from those in (71) only in the position of the manner adverb, it must be that it is the position of the manner adverb that is responsible for the impossibility of the examples in (71):

(72) a. Mary$_i$ was quickly given t_i the book (by John).
b. Sue$_i$ was quietly sent t_i the letter (by Bill).

Similarly, since the examples in (73) are grammatical, which differ from those in (70) only in the position of the manner adverb, it must be, again, that it is the position of the manner adverb is responsible for the impossibility of the examples in (70), quite independently of Case:

(73) a. John quickly gave Mary the book.
b. Bill quietly sent Sue the letter.

If one is to explain the contrast between (70) and (73) by appeal to the adjacency constraint on Case-assignment, then the contrast between (71) and (72) would be left unaccounted for since Case is not at issue in both instances.

2.3. The ECM construction

The ECM construction is also a good testing ground for the interaction between passive and adverb placement. As shown in (74), an adverb may occur before the matrix verb, but not between it and the embedded subject:

(74) a. John (seriously) considered (*seriously) Bill intelligent.
b. The police (finally) let (*finally) John go.
c. Mary (accidentally) found (*accidentally) the house deserted.
d. Fred (quickly) hammered (*quickly) the metal flat.
e. Jane (carefully) painted (*carefully) the house red.
f. Sue (rigorously) proved (*rigorously) the report wrong.

However, the adverb still cannot appear after the matrix verb, even when the embedded subject moves to the matrix subject position under passive:

(75) a. Bill$_i$ was (seriously) considered (*seriously) t_i intelligent (by John).
b. John$_i$ was (finally) let (*finally) t_i go (by the police).
c. The house$_i$ was (accidentally) found (*accidentally) t_i deserted (by Mary).
d. The metal$_i$ was (quickly) hammered (*quickly) t_i flat (by Fred).
e. The house$_i$ was (carefully) painted (*carefully) t_i red (by Jane).

f. The report$_i$ was (rigorously) proved (*rigorously) t_i wrong (by Sue).

There is clearly no issue about Case here, since the trace of the moved embedded subject is not assigned Case. The intervening adverb should not interfere with Case-assignment, if the adjacency constraint is at all relevant.

The structure for an ECM construction is commonly assumed to be something like (76), where the ECM verb takes a small clause complement:

(76) $[_{VP}$ V $[_{SC}$ NP XP]]

Again, if non-complements are assumed to appear outside of the projection of the verb and its complements, then the fact that an adverb may occur before the matrix verb, but not between the verb and the embedded subject is just as expected:

(77) $[_{VP}$ (adv) $[_{VP}$ V (*adv) $[_{SC}$ NP XP]]

The assumption about the position of the adverb not only explains the impossibility of the adverb intervening between the matrix verb and the embedded subject, but also for the exclusion of the post-verbal adverbs in (75). These latter examples involve passive, and thus have nothing to do with Case-assignment.

To conclude this section, I would like to point out that it would be impossible to bring facts about adverb placement to bear on Case-assignment if all Cases are assigned or checked in a Spec-head configuration, covertly at LF for English:[8]

(78) a. $[_{AGRP}$ NP$_i$[$[_{VP}$ [V $[_{PP}$ t_i [P]]]]] (the verb-particle object construction)
b. $[_{AGRP}$ DO$_i$[$[_{AGRP}$ IO$_j$[$[_{VP}$ [V $[_{VP}$ t_i [t_j]]]]] (the double object construction)
c. $[_{AGRP}$ NP$_i$[$[_{VP}$ [V $[_{SC}$ t_i [XP]]]]] (the ECM construction)

The adjacency effect would then have to be accounted for by some principled constraint sanctioning adverbs in some positions but not in others. Since these adverbial positions appearing below the verb at S-structure or Spell-out are nowhere near the Spec positions of agreement projection above the verb where NPs are assigned or checked their Case, it follows that the constraint has no bearing on Case-assignment. We will see what this constraint on adverb positions might be in the next section where we discuss a syntactic analysis of adverbs.

3. On the syntax of adverbs

In this section, we will discuss the syntax of adverbs. I concentrate on two issues: the specific positions for adverbs (section 3.1), and the locality constraint on adverb modification (section 3.2). I argue that these two issues are independent from Case-assignment. I will also discuss some problems of adverb placement with respect to PP-complements (section 3.3).

3.1. Specific positions for adverbs

Let us first consider the positions of the adverbs *just* and *almost* in examples in (79) and the ungrammaticality of the examples in (80):[9]

(79) a. *Just the dog barked.
*Just the demonstrators dispersed.

b. The dog just barked.
The demonstrators just dispersed.
c. *The dog barked just.
*The demonstrators dispersed just.

(80) a. *Almost the building collapsed.
*Almost the child cried.
b. The building almost collapsed.
The child almost cried.
d. *The building collapsed almost.
*The child cried almost.

These examples show clearly that the adverbs *just* and *almost* occur just before the verb, but not elsewhere.

Thus, the fact that a DO may not follow these adverbs as shown in the ungrammatical examples in (81) is not evidence for the adjacency constraint on Case-assignment, but rather is a reflection of the fact that there are specific positions where these adverbs appear:

(81) a. *The dog bit just the cat.
*The demonstrators resisted just the police.
b. *The building lost almost its balance.
*The child grasped almost the icecream.

As shown in the examples in (82) and (83), the distribution of these adverbs is exactly the same as that in (79) and (80):

(82) a. *Just the dog bit the cat.
*Just the demonstrators clashed with the police.
b. The dog just bit the cat.
The demonstrators just clashed with the police.
c. *The dog bit the cat just.
*The demonstrators resisted the police just.

(83) a. *Almost the building lost its balance.
*Almost the child grasped the icecream
b. The building almost lost its balance.
The child almost grasped the icecream
c. *The building lost its balance almost.
*The child grasped the icecream almost.

In fact, the adverbs *just* and *almost* also appear in the same positions in examples where some other categories than an NP follow the verb:

(84) a. *Just John felt tired.
*Amost Mary's face turned blue.
b. John just felt tired.
Mary's face almost turned blue.

c. *John felt tired just.
*Mary's face turned blue almost.

(85) a. *Just Bill returned from the trip.
*Almost Sue went to the office.
b. Bill just returned from the trip.
Sue almost went to the office.
c. *Bill returned just from the trip.
*Sue went almost to the office.
d. *Bill returned from the trip just.
*Sue went to the office almost.

(86) a. *Just Fred got there.
*Almost Jane drove home.
b. Fred just got there.
Jane almost drove home.
c. *Fred got just there.
*Jane drove almost home.
d. *Fred got there just.
*Jane drove home almost.

(87) a. *Just Dick said that Henry was in charge.
*Almost Bob claimed that Jack was incompetent.
b. Dick just said that Henry was in charge.
Bob almost claimed that Jack was incompetent.
c. *Dick said just that Henry was in charge.
*Bob claimed almost that Jack was incompetent.
d. *Dick said that Henry was in charge just.
*Bob claimed that Jack was incompetent almost.

Clearly, there is no point in claiming that the ungrammaticality of the examples in (9) is due to violations of the adjacency constraint on Case-assignment, as it would simply miss all the grammatical facts in (79)-(80) and (82)-(87).

Manner adverbs like *quickly* and *quietly* contrast with the adverbs *just* and *almost* in that they can appear either before or after the main verb:

(88) a. John quickly ran.
Bill quietly wept.
b. John ran quickly.
Bill wept quietly.

The two types of adverbs may co-occur, but the adverbs *just* and *almost* must precede, or more plausibly c-command, manner adverbs:

(89) a. John just quickly left.
Bill almost quietly wept.
b. *John quietly just left.
*Bill quickly almost wept.

c. John just left quickly.
   Bill almost quietly wept.
d. *John quietly left just.
   *Bill quickly wept almost.
e. *John left just quietly.
   *Bill wept almost quickly.
f. *John left quietly just.
   *Bill wept quickly almost.

While it is unsurprising that the examples in (89d), (89e) and (89f) are ungrammatical, given that the adverbs *just* and *almost* may not appear post-verbally, the grammatical contrast between the examples in (89a) and (89c) on the one hand, and those in (89b) on the other hand is revealing. It shows that there are specific positions for particular types of adverbs (Jackendoff 1972). As all the examples in (89) involve intransitive verbs, there is no issue about Case-assignment to a DO.

The distribution of the adverbs remains largely the same when the verb in the sentence is transitive, as shown in (90):

(90) a. Mary just quickly painted the house.
   Jane almost quietly trashed the newspaper.
b. *Mary quickly just painted the house.
   *Jane quietly almost trashed the newspaper.
c. *Mary just painted quickly the house.*
   *Jane almost trashed quietly the newspaper.
d. Mary just painted the house quickly.
   Jane almost trashed the newspaper quietly.
e. *Mary painted just quickly the house.
   *Jane trashed almost quietly the newspaper.
f. *Mary painted quickly just the house.
   *Jane trashed quietly almost the newspaper.
g. *Mary painted the house just quickly.
   *Jane trashed the newspaper almost quietly.
h. *Mary painted the house quickly just.
   *Jane trashed the newspaper quietly almost.

The presence of a DO would give rise to a position between the verb and the DO, which is lacking in the intransitive sentences in (89). Apart from this difference, the distributions of adverbs are exactly the same. We will see in the next subsection that the adjacency effect is a consequence of the locality constraint on adverb modification independently from Case-assignment.

3.2. The locality constraint on adverb modification

The analysis of the syntax of adverbs must explain why the adverb *seriously* modifies the verb *consider* in the examples in (91a), attributing the property of being serious to the consideration, but it modifies the predicate *sick* in (91b), attributing the property of being serious to the degree of sickness:

(91) a. Mary seriously considered Dick sick.
b. Mary considered Dick seriously sick.

Before we tackle this problem of adverb modification, let us consider some examples of intransitive verbs to see which structural position adverbs should be taken to occur in.

On one widely assumed view (Holmberg 1986, Chomsky 1986, Ernst 1994 among others), adverbs are adjoined to VPs they modify. Manner adverbs are thus either left-adjoined to the VP, deriving the order Adv-V-NP or right-adjoined to the VP, deriving the order V-NP-Adv:

(92) a. John [$_{VP}$ often [$_{VP}$ cried]]
Fred [$_{VP}$ rarely [$_{VP}$ speaks]]
b. John [$_{VP}$ [$_{VP}$ cried] often]
Fred [$_{VP}$ [$_{VP}$ speaks] rarely]

If the argument/adjunct distinction is to be captured structurally (Huang 1982) in that arguments occur either in the complement position (for objects) or in the Spec position (for the subjects, or objects cf. Larson 1988) and adjuncts appear in an adjoined position, then the structures in (93) in which the adverb appears in a complement position would be excluded (exception to this view of adverbs is Larson 1988):

(93) a. *John [$_{VP}$ often cried]
*Fred [$_{VP}$ rarely speaks]
b. *John [$_{VP}$ cried often]
*Fred [$_{VP}$ speaks rarely]

Non-strictly subcategorized adverbs thus contrast with strictly subcategorized adverbs, which must appear postverbally (Jackendoff 1972:68), further supporting the view that mobil manner adverbs are as adjuncts:

(94) a. John worded the letter carefully.
The job paid us handsomely.
Steve dresses elegantly.
b. *John carefully worded the letter.
*The job handsomely paid us.
*Steve elegantly dresses.

Suppose the locality constraint on adverb modification is that the adverb must adjoined to the projection of the predicate it modify, then the structures in (93) are excluded since the adverbs are not adjoined to the projection of the verb. In addition, we can account for the interpretation of the examples in (91). In their structures in (95), the adverb *seriously* modifies the verb *consider* in the structure in (95a) since it is adjoined to the VP-projection headed by the verb *consider*, and it modifies the predicate *sick* in the structure in (95b) since it is adjoined to the AP-projection headed by the predicate *sick*:

(95) a. Mary [$_{VP}$ seriously [$_{VP}$ considered [$_{SC}$ Dick sick]]]
b. Mary [$_{VP}$ considered [$_{SC}$ Dick [$_{AP}$ seriously [$_{AP}$ sick]]]]

The adverb *seriously* can modify neither the predicate *sick* in (95a) nor the verb *consider* in (95b) since it is not adjoined to the relevant projection in the respective structures. The adjacency effect that shows up in (96) is due to the fact that the adverb adjoins to the small clause, which has no lexical head:[10]

(96) *Mary [$_{VP}$ considered [$_{SC}$ seriously [$_{SC}$ Dick [$_{AP}$ sick]]]

If it is correct to take adjunction to the projection of a predicate as the locality condition on adverb modification, then we would expect the adverb to follow the complements of a transitive verb, since it would be left- or right-adjoined to the VP. The expectation is borne out:[11]

(97) a. John [$_{VP}$ often [$_{VP}$ reads newspapers]]
Fred [$_{VP}$ rarely [$_{VP}$ watches television]]
b. John [$_{VP}$ [$_{VP}$ reads newspapers] often]
Fred [$_{VP}$ [$_{VP}$ watches television] rarely]

(98) a. Mary [$_{VP}$ often [$_{VP}$ gives John a book]]
Sue [$_{VP}$ rarely [$_{VP}$ sends Bob a letter]]
b. Mary [$_{VP}$ [$_{VP}$ gives John a book] often]
Sue [$_{VP}$ [$_{VP}$ sends Bob a letter] rarely]

Now, the impossible word-orders where the adverb intervenes between the verb and the DO or the IO, or between the IO and DO are automatically excluded since the adverbs are not adjoined to the projection of the predicate it modifies:

(99) a. *John [$_{VP}$ reads often newspapers]
*Fred [$_{VP}$ watches rarely television]

(100) a. *Mary [$_{VP}$ gives often John a book]
*Sue [$_{VP}$ sends rarely Bob a letter]
b. *Mary [$_{VP}$ gives John often a book]
*Sue [$_{VP}$ sends Bob rarely a letter]

The ungrammaticality of the examples thus has the same explanation as that for those in (93) in which there is no issue about Case. The intervening effect of adverbs is but a reflection of the fact that they occur in a non-adjoined position.

In the same vein, we can account for adverb placement in the verb-particle and double object constructions. On the one hand, if the verb and the adjacent particle in the verb-particle construction is a syntactic unit (ie a complex verb), then the adverb may adjoin to the VP headed by the complex verb, but there would be no XP-adjunction site within the complex for the adverb to occur:

(101) a. Kevin [$_{VP}$ quickly [$_{VP}$ [$_{V}$ turned on] the light]]
Janice [$_{VP}$ carelessly [$_{VP}$ [$_{V}$ cut up] the cabbage]]
b. *Kevin [$_{V}$ turned quickly on] the light.
*Janice [$_{V}$ cut carelessly up] the cabbage.

c. *Kevin [$_V$ turned on quickly] the light.
*Janice [$_V$ cut up carelessly] the cabbage.
d. Kevin [$_{VP}$ [$_{VP}$ [$_V$ turned on] the light] quickly]
Janice [$_{VP}$ [$_{VP}$ [$_V$ cut up] the cabbage] carelessly]

On the other hand, in the structure where the verb takes a PP-complement headed by the particle, the adverb has to adjoin to the PP-complement in order to intervene between the verb and the NP:

(102) a. Kevin [$_{VP}$ quickly [$_{VP}$ turned [$_{PP}$ the light [on]]]]
Janice [$_{VP}$ carelessly [$_{VP}$ cut [$_{PP}$ the cabbage [up]]]]
b. *Kevin turned [$_{PP}$ quickly [$_{PP}$ the light [on]]]
*Janice cut [$_{PP}$ carelessly [$_{PP}$ the cabbage [up]]]
c. *Kevin turned [$_{PP}$ quickly [$_{PP}$ the light [on]]]
*Janice cut [$_{PP}$ carelessly [$_{PP}$ the cabbage up]]]
d. Kevin [$_{VP}$ [$_{VP}$ turned [$_{PP}$ the light [on]]] quickly]
Janice [$_{VP}$ [$_{VP}$ cut [$_{PP}$ the cabbage [up]]] carelessly]

Although the adjunction of the adverb to the PP-complement itself conforms to the locality constraint on modification, the examples in (102) are impossible on semantic grounds, the same way the examples in (s11) are:[12]

(103) a. The light was (*quickly) on.
b. *The cabbage is (carelessly) up.

The same explanation can also be given to account for the ungrammaticality of the examples in (104), even if adjunction to P′ were possible:

(104) a. *Kevin turned [$_{PP}$ the light [$_{P'}$ quickly [$_{P'}$ on]]]
*Janice cut [$_{PP}$ the cabbage [$_{P'}$ carelessly [$_{P'}$ up]]]
b. *Kevin turned [$_{PP}$ the light [$_{P'}$ quickly [$_{P'}$ on]]]
*Janice cut [$_{PP}$ the cabbage [$_{P'}$ carelessly [$_{P'}$ up]]]

The distribution of adverbs in the ECM construction falls entirely under the same account. As shown in (105), the intervention of an adverb between the matrix verb and the embedded subject is ruled out since the adverb would be adjoined to the small clause, which lacks a lexical head for it to modify:

(105) a. John ([$_{VP}$ seriously) [$_{VP}$ considered (*[$_{SC}$ seriously) [$_{SC}$ Bill intelligent]]
b. Mary ([$_{VP}$ accidentally) [$_{VP}$ found (*[$_{SC}$ accidentally) [$_{SC}$ the house deserted]]
c. Fred ([$_{VP}$ quickly) [$_{VP}$ hammered (*[$_{SC}$ quickly) [$_{SC}$ the metal flat]]
d. Jane ([$_{VP}$ carefully) [$_{VP}$ painted (*[$_{SC}$ carefully) [$_{SC}$ the house red]]
e. Sue ([$_{VP}$ rigorously) [$_{VP}$ proved (*[$_{SC}$ rigorously) [$_{SC}$ the report wrong]]

As we saw in section 2, the fact that the adjacency effect induced by the intervention of an adverb between a verb and its DO has no bearing on Case-assignment is most evidenced in passive. Adverb placement in passive now has a straightforward account in terms of the locality constraint on adverb modification. As shown in (106)-(107), the distribution of

adverbs in passives of the verb-particle, double object and ECM constructions is the same as that in active sentences:

(106) a. The light$_i$ was [$_{VP}$ quickly [$_{VP}$ turned [$_{PP}$ t_i [on]]]
The cabbage$_i$ was [$_{VP}$ carelessly [$_{VP}$ cut [$_{PP}$ t_i [up]]]
b. *The light$_i$ was turned [$_{PP}$ quickly [$_{PP}$ t_i [on]]]
*The cabbage$_i$ was cut [$_{PP}$ carelessly [$_{PP}$ t_i [up]]]
c. *The light$_i$ was turned [$_{PP}$ t_i [$_{P'}$ quickly [$_{P'}$ on]]]
*The cabbage$_i$ was cut [$_{PP}$ t_i [$_{P'}$ carelessly [$_{P'}$ up]]]
d. The light$_i$ was [$_{VP}$ [$_{VP}$ turned [$_{PP}$ t_i [on]]] quickly]
The cabbage$_i$ was [$_{VP}$ [$_{VP}$ cut [$_{PP}$ t_i [up]]] carelessly]

(107) a. Mary$_i$ was [$_{VP}$ quickly [$_{VP}$ given t_i the book]] (by John).
Sue$_i$ was [$_{VP}$ quietly [$_{VP}$ sent t_i the letter]] (by Bill).
b. *Mary$_i$ was [$_{VP}$ given quickly t_i the book]] (by John).
*Sue$_i$ was [$_{VP}$ sent quietly t_i the letter]] (by Bill).
c. *Mary$_i$ was [$_{VP}$ given t_i quickly the book] (by John).
*Sue$_i$ was [$_{VP}$ sent t_i quietly the letter] (by Bill).
d. Mary$_i$ was [$_{VP}$ [$_{VP}$ given t_i the book] quickly] (by John).
Sue$_i$ was [$_{VP}$ [$_{VP}$ sent t_i the letter] quietly] (by Bill).

(108) a. Bill$_i$ was ([$_{VP}$ seriously) [$_{VP}$ considered (*[$_{SC}$seriously) [$_{SC}$ t_i intelligent (by John)]]
b. The house$_i$ was ([$_{VP}$ accidentally)
[$_{VP}$ found (*[$_{SC}$ accidentally) [$_{SC}$ t_i deserted (by Mary)]]
c. The metal$_i$ was ([$_{VP}$ quickly) [$_{VP}$ hammered (*[$_{SC}$ quickly) [$_{SC}$ t_i flat (by Fred)]]
d. The house$_i$ was ([$_{VP}$ carefully) [$_{VP}$ painted (*[$_{SC}$ carefully) [$_{SC}$ t_i red (by Jane)]]
e. The report$_i$ was ([$_{VP}$ rigorously) [$_{VP}$ proved (*[$_{SC}$ rigorously) [$_{SC}$ t_i wrong (by Sue)]]

The adverbs in these examples would conform to the locality constraint on modification if they are adjoined to the small clause predicate as shown in (109), but they are deviant on semantic grounds, the same way that the corresponding examples in (110) are:

(109) a. Bill$_i$ was [$_{VP}$ considered [$_{SC}$ t_i [$_{AP}$ seriously [$_{AP}$ intelligent]]] (by John)]
b. The house$_i$ was [$_{VP}$ found [$_{SC}$ t_i [$_{AP}$ accidentally [$_{AP}$ deserted]]] (by Mary)]
c. The metal$_i$ was [$_{VP}$ hammered [$_{SC}$ t_i [$_{AP}$ quickly [$_{AP}$ flat]]] (by Fred)]
d. The house$_i$ was [$_{VP}$ painted [$_{SC}$ t_i [$_{AP}$ carefully [$_{AP}$ red]]] (by Jane)]
e. The report$_i$ was [$_{VP}$ proved [$_{SC}$ t_i [$_{AP}$ rigorously [$_{AP}$ wrong]]] (by Sue)]

(110) a. Bill was seriously intelligent.
b. The house was accidentally deserted.
c. The metal was quickly flat.
d. The house was carefully red.
e. The report was rigorously wrong.

We thus see clearly that the adjacency effect induced by the intervention of an adverb between a verb and an NP to which it assigns Case in fact has no bearing on Case-assignment. One notable exception to the adjacency effect is the case of PP-complements, which we will consider in the next section.

3.3. Adverb placement and PP-complements

As the examples in (111) show, a PP-complement may be separated from the verb that selects it, as is well-known:

(111) a. John quietly talked to Mary.
Fred recently met with Sue.
b. John talked quietly to Mary.
Fred met recently with Sue.
c. John talked to Mary quietly.
Fred met with Sue recently.

Given that extraction out of adjuncts is barred by Huang's (1982) Condition on Extraction Domain (CED):

(112) a. *Which city$_i$ did Mary visit John [before t_i]?
*What$_i$ did Bob buy books [more often than Bill read t_i]?
b. *What$_i$ did Jane see the man [who bought t_i]?
*Who did Fred read the review [that criticized t_i]?
c. *Who$_i$ did Jack see Sue [before Al talked to t_i]?
*Which book$_i$ did Robin speak to Max [after reading t_i]?

the fact that the NP in the PP-complement may be extracted even when it is separated from the verb by an adverb seems to show that the PP is not in an adjoined position but is in argument position:

(113) a. Who$_i$ did John quietly talk to t_i?
Who$_i$ did Fred recently met with t_i?
b. Who$_i$ did John talk quietly to t_i?
Who$_i$ did Fred met recently with t_i?
c. Who$_i$ did John talk to t_i quietly?
Who$_i$ did Fred met with t_i recently?

It was precisely the NP/PP distinction with respect to adverb placement that led to the conclusion that the adjacency effect has to do with Case: PPs needing no Case, in contrast with NPs, they therefore need not be adjacent to the verb. We will discuss in this section the various issues that arise in some analyses of extraction out of PP-complements.

3.3.1. Adverbs as complements

Larson (1988:345, footnote 11 and 384, footnote 49) suggested that adverbs are on a par with other verbal complements in that they are base-generated in complements positions, as in (114):

(114) a. John [$_{V'}$ put$_i$ [$_{VP}$ a fly [$_{V'}$ t_i in the soup]]]
b. John [$_{V'}$ talked$_i$ [$_{VP}$ to Felix [$_{V'}$ t_i about Mary]]]
c. John [$_{V'}$ saw$_i$ [$_{VP}$ Mary [$_{V'}$ t_i recently]]]
d. John [$_{V'}$ sent$_i$ [$_{VP}$ a note [$_{V'}$ t_i [$_{VP}$ to Max [$_{V'}$ t_i on Tuesday]]]]]

Along these lines, the word-order in (113b) may be derived by raising the verb alone as in (115a), and the word-order in (113c) by first reanalyzing the V′ as a complex verb, and then raising the complex to the empty head position of the upper VP-shell as in (115b):

(115) a. $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary $[_{V'}$ t_i quietly]]
$[_{VP}$ [met$_i$ $[_{VP}$ with Sue $[_{V'}$ t_i recently]]
b. $[_{VP}$ [$[_{V}$ talked+quietly]$_i$ $[_{VP}$ to Mary t_i]]
$[_{VP}$ [$[_{V}$ met+recently]$_i$ $[_{VP}$ with Sue t_i]]

In these structures, the PP is not in an adjoined position, but in argument position, from which the object of the preposition may be freely extracted.

There are at least two problems with this analysis. The first problem is that some additional assumption must be made in order to derive the preverbal position of the adverb in the examples in (113a). One possibility is that the preverbal adverb is adjoined to the upper VP-shell. Depending on whether the complement PP is always in [Spec, VP] or may sometimes be complement position, we will get the structures in (1116a) or (116b) (in the latter case, there may not even be a double-VP structure):

(116) a. $[_{VP}$ quietly $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary [t_i]]]]
$[_{VP}$ recently $[_{VP}$ [met$_i$ $[_{VP}$ with Sue [t_i]]]]
b. $[_{VP}$ quietly $[_{VP}$ [talked to Mary]]
$[_{VP}$ recently $[_{VP}$ [met with Sue]]]

Alternatively, if there is no particular ordering imposed on the position of the adverb in the complement position, then the adverb may appear to the left of the verb and forms with the verb a complex predicate when the process of V′-reanalysis applies. Raising of the complex verb would then give rise to the order where the adverb occurs preverbally:

(117) a. $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary $[_{V'}$ quietly t_i]]
$[_{VP}$ [met$_i$ $[_{VP}$ with Sue $[_{V'}$ recently t_i]]
b. $[_{VP}$ [$[_{V}$ quietly+talked]$_i$ $[_{VP}$ to Mary t_i]]
$[_{VP}$ [$[_{V}$ recently+met]$_i$ $[_{VP}$ with Sue t_i]]

Various issues arise, however. If one is to assume the option in (116), then one must isolate a specific property of adverb that allows them to appear in complement positions or adjoined positions, but other categories lacking that property may not. It is not clear what this property might be. If one is to assume the suggestion in (117), then one has to explain why adverbs like *yesterday* or *afterward* must appear to the right of the verb in the complement position, as an incorrect word-order would arise when the complex verb consisting of the verb and the adverb is reanalyzed and raised to the empty head position of the upper VP-shell:

(118) a. $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary $[_{V'}$ yesterday t_i]]
$[_{VP}$ [met$_i$ $[_{VP}$ with Sue $[_{V'}$ before t_i]]
b. *$[_{VP}$ [$[_{V}$ yesterday+talked]$_i$ $[_{VP}$ to Mary t_i]]
*$[_{VP}$ [$[_{V}$ before+met]$_i$ $[_{VP}$ with Sue t_i]]

The second problem with Larson's analysis is that there does not appear to be a natural way to make NP/PP distinction with respect to adverb placement. Specifically, if in the

HNPS/FNPS construction, the DO receives Case in [Spec, VP] from the verb+PP complex reanalyzed as a complex verb as shown in (20), repeated here as (119):

(119) Mary [$_{VP}$ [[$_{V}$ gave+[to John]]$_i$ [[$_{VP}$ everything that he demanded [t_i]]]]]
Max [$_{VP}$ [[$_{V}$ put+[in his car]]$_i$ [[$_{VP}$ all the boxes of home furnishings [t_i]]]]]

then there is no reason why the reanalyzed complex verb consisting of a V and an adverb should not be able to assign Case to the NP in SpecVP (cf. the structures in (105)):[13]

(120) a. John [$_{VP}$ [read$_i$ [$_{VP}$ the book [t_i carefully]]]]
Fred [$_{VP}$ [met$_i$ [$_{VP}$ Sue [t_i recently]]]]
b. *John [$_{VP}$ [[read+carefully]$_i$ [$_{VP}$ the book [t_i]]]]
*Fred [$_{VP}$ [[met+recently]$_i$ [$_{VP}$ Sue [t_i]]]]

3.3.2. Verb movement to μP

Johnson (1991:584-585) proposed that the English verb in fact always moves out its own projection to a functional category μ, and the PP is in complement position. Adverbs are assumed to be left- or right-adjoined to V′:

(121) a. [$_{\mu P}$ talked$_i$ [$_{VP}$ [$_{V'}$ slowly [$_{V'}$ t_i to Gary]]]]
b. [$_{\mu P}$ talked$_i$ [$_{VP}$ [$_{V'}$ [$_{V'}$ t_i to Gary] slowly]]]

As in Larson's analysis, the PPs in the structures in (n8) are in complement position. The object of preposition can thus be freely extracted.

Case-assignment to the DO is suggested be to [Spec, VP] under government by the verb in the head position of μP, accounting for why the DO always occurs to the left of the adverb:

(122) [$_{\mu P}$ [hit$_i$ [$_{VP}$ the dog$_j$ [$_{V'}$ quickly [$_{V'}$ t_i t_j]]]]

Despite its merits of being able to account for facts about extraction out of complement PPs, many issues remain. For instrance, it is not clear whether one can show that the functional category μ has independent motivation, as Johnson noted. Moreover, in order to allow for the adverb to occur preverbally, one must assume that besides the two V′-positions in (121), the adverb may also be adjoined to a position at least as high as μ′:

(123) a. [$_{\mu P}$ [$_{\mu'}$ slowly [$_{\mu'}$ talked$_i$ [$_{VP}$ [t_i to Gary]]]]]
b. [$_{\mu P}$ [$_{\mu'}$ quickly [$_{\mu'}$ hit$_i$ [$_{VP}$ the dog$_j$ [t_i t_j]]]]

Crucially, adjunction to VP must be excluded; otherwise, an incorrect word-order would arise. Thus, apart from the motivation of deriving the correct word-order, there appears to be no principled reason why adverbs may sometimes be adjoined to V′, sometimes as high as to μ′, but not to VP.

3.3.3. Revising the CED

The analysis of adverbs as VP-adjuncts in the structures in (92) has no problem in accounting for the preverbal and sentence-final positions of the adverb. However, the occurrence of the PP after the adverb as in (111b) must be taken to be an instance of moving of the PP to the right past the adverb:

(124) a. $[_{VP}\ [_{VP}$ talked $t_i\ ]$ quietly $]\ [_{PP}$ to Mary $]_i]$
b. $[_{VP}\ [_{VP}$ met $t_i\ ]$ recently $]\ [_{PP}$ with Sue $]_i]$

To reconcile the structures in (124) with the extraction facts, one might contemplate the possibility that the CED is not entirely based on the structural position where the extraction domain is located, but rather on the complementation relationship with a lexical head. That is, while the standard cases of CED violation clearly involve domains that are adjuncts from both the syntactic and the semantic perspectives, PP-complements remain semantic arguments, even though they might syntactically be in an adjunct position.

Extraction of the object in the instrumental and accompaniment PPs seems to support this view of PP-complements:

(125) a. Which knife$_i$ did you cut the salami [with t_i]?
What$_i$ can you see the stars [with t_i]?
b. Who$_i$ did you go to the movie [with t_i]?
Who$_i$ did you see Bill [with t_i]?

These PPs appear to be semantic arguments in that they introduce a participant in the event expressed by the main verb, but are syntactic adjuncts in that they need not be present syntactically.

From this perspective of PP-complements, the problem of adverb placement that bears on the NP/PP distinction is now reduced to the question of why (light/indefinite) NPs may not be moved to an adjoined position the way that PPs may. The distinction might have to do with constraint on the landing site. Specifically, if a category may only move to a position where the same category can be independently generated as suggested by Emonds (1976), then the NP/PP distinction with respect to adjunction to VP follows. PPs can be independently generated as adjoined positions, but NPs may not.[14]

Admittedly, this view of PP-complements needs to be worked out in more detail in light of the many facts that Larson brought up to argue for adverbs being in complement positions, eg coordination. In spite of its speculative nature, this alternative view of PP complements seem to hold out some promise that a compromise might be possible, reconciling the CED and extraction out of PP complements in adjoined positions.

4. Conclusion

In the foregoing sections, we see ample evidence that there is no reason to suppose that adjacency effect has anything to do with Case-assignment. In a variety views of phrase structure and Case, the effect is but a reflection of the syntax of adverbs quite independently of Case theory. If this is so, then the adjacency constraint on Case-assignment plays no role in the grammar.

With in absence of the adjacency constraint on Case-assignment, the adjacency effect that shows up in the existential *there* construction in (6), repeated in (126), is by itself no evidence for Case-assignment by the verb *be*:

(126) a. ?*There will be usually a man here.
There will usually be a man here.
b. *There will be not a man here.
There will not be a man here.

c. *I believe there to be usually a solution.
?I believe there usually to be a solution
d. *I believe there to be not a solution.
I believe there not to be a solution.

In fact, the grammatical contrasts in (126) bear resemblance to those in (127), where there is no question about Case since the examples do not involve a nominal category:

(127) a. ?*John will be usually around at five.
?John will usually be around at five.
b. ?*Fred will be not mad.
Fred will not be mad.
c. ?*I believe John to be usually available for consultation.
?I believe John usually to be available for consultation.
d. ?*I believe John to be not stupid.
I believe John not to be stupid.

The two sets of examples can be accounted for by the assumption that auxiliary and modal verbs appear in the INFL-head position of the IP projection, while other verbs and all non-finite verbs are in the V-head position of the VP (Emonds 1978, Pollock 1989). The presence of an auxiliary or modal verb in INFL would block movement of the verb *be* in (126a), (126b), (127a) and (127b), and non-movement of the non-finite verb *be* to INFL explains why it must occur after the adverb:

(128) a. $[_{IP}$ [auxiliary/modal $[_{VP}$ adv $[_{VP}$ $V/V_{non\text{-}finite}$ XP]]]
b. $[_{IP}$ [auxiliary/modal $[_{VP}$ adv $[_{VP}$ *be* XP]]]
↑ ——— * ———┘

Although the adjacency effect has no bearing on Case-assignment and hence the effect as exhibited by the verb *be* does not show that the verb *be* is a Case-assigner, we have yet found proof that the verb *be* is not a Case-assigner. Nevertheless, unless there is evidence for it, we have no reason to suppose that the verb *be* is a Case-assigner.

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Notes
[1] How to syntactically define the focus position and link it up with the semantics of focus is an interesting question. One can assume an abstract focus projection with some syntactic features driving movement of the focused constituent. These features would then be interpreted as focus by some interpretive rules. Alternatively, one can do away with the abstract projection and the syntactic features by defining a specific position, eg a VP-adjoined position (cf. the structure in (14) below), and give a semantic rule interpreting that position as focus. It would not affect our discussion here how the syntax and semantics of focus is properly defined.
[2] An alternative derivation of the V XP DO order would be to move the XP leftward. The D-Structure V XP DO is also logically possible. The order V DO XP would be derived by moving either the DO leftward or the XP

rightward. The question raised with respect to the bearing of the heaviness or the definiteness of the NP on the various movement and Case-assignment still holds.

[3] The less than perfect status of the examples in (47) might be due to the parsing expectation that the whole verbal+particle complex would be gapped in the second conjunct.

[4] The examples in (49) are of course grammatical on the readings where Bill is the NP between the verb and the particle, respectively meaning *Kevin turned the light on, and he turned Bill off* and *Janice took the garbage in, and she took Mary in.*

[5] den Dikken (1992:87) gave two arguments against syntactic incorporation of the particle into the verb. First, the verb+particle would fail to observe Williams' (1981) Right-hand Head Rule according to which the head of a X°-complex is the right member of the complex, which contributes the categorial features of the whole complex. Since the right-hand member of the verb+particle complex is the particle, not the verb, the verbal feature of the whole complex would thus not be accounted for. Second, the verb+particle complex exhibits neither compound stress nor the stressless ending typical of English inflection. The two arguments do not hold, however. To the extent that the Right-hand Head Rule is correct, it is for compounds formed by lexical word-formation rules. If the particle incorporates syntactically into the verb by head-adjunction, then the category of the whole verb+particle complex would be verbal. Although the direction of adjunction is irrelevant to the category of the complex, it must be explained, apart from word-order, why the adjunction must be to the right. The lack of compound stress in nouns and the end-stress observed in the verb+particle complex is just as expected of the verbal category (cf. the nouns *tránsfer*, *pérmit* and *rérun* versus the verbs *transfér*, *permít*, *rerún*). The stress pattern of the verb+particle combinations thus constrasts with their nominalized counterparts: *turn ón,hand óut, break úp* versus *túrn-on*, *hánd-out*, *bréak-up*. As there is no reason to suppose that the particle is an inflectional element on a par with *-s* or *-ed*, it is therefore not expected that the particle should lack stress.

[6] Cf. section 1.3 for the possibility that the NP receives Case in the Spec of AgrO, and the implications for the adjacency constraint on Case-assignment.

[7] The examples in (i) seem less good than those in (65):

(i) a. ??Who did John give a lot of headache?
b. ??Who$_i$ has Bill spared t_i the trouble of going throught the red tap?
c. ??Who$_i$ would you never ask t_i any question?
d. ??Who$_i$ did Bob envy t_i her fortune?

I have no explanation for why there should be a difference between (65) and (i).

[8] The Agr-projections in (78b) are assumed here for presentation purposes. Their exact positions do not matter to our concerns here.

[9] The adverb *just* is here intended to be the temporal one, not the one that has a close meaning to*only*. Thus, the example in (79a) is grammatical if it is taken to mean that only the dog barked, and not that the dog barked a few seconds ago.

[10] The adjunction to the small clause in (96) might also be excluded if adjunction to arguments is not allowed (Chomsky 1986).

[11] If the double object construction has a VP-shell structure, then we must take adjunction of an adverb to the projection of a predicate to mean adjunction to the whole double VP-shell structure, ie the upper VP. We will return to the problem of adverb placement with respect to PP-complements in section 3.3 below.

[12] The impossibility of the example in (103b) with or without a modifying adverb is probably due to the aspectual particle *up* lacking thematic property. Apart from a few cases of idiiomatic use as in*your time is up*, the particle *up* needs the presence of a thematic predicate to which it can aspectually modify.

[13] The structures in (109) are not without problems. If the PP and the verb forms a complex predicate V°, then one would expect that the object of the preposition not to be able to move. The expectation is not borne out, as shown in (i):

(i) a. Who$_i$ did Mary gave to t_i everything that he demanded?
b. Which car$_i$ did Mary put in t_i all the boxes of home furnishings?

In addition, structures with multiple adverbs are also problematic. Where should the first adverb be located if the second one is a complement:

(ii) a. John often carefully read the book.
b. Mary rarely sloppily did her homework.

One possibility is to assume that the first adverb is adjoined to the upper VP-shell in (110). But this would have weaken the claim that adverbs appear in complement position.

[14] This view is obviously incompatible with the analysis of HNPS/FNPS as involving rightward movement of an NP, adjoining it to VP. An alternative is to assume that HNPS/FNPS moves an NP to a position focus position where an NP can be independently generated, cf. footnote 1. The difficulty that immediate arises is how one is to go about showing that an NP may be independently generated in the focus position

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