VP Deletion and VP-adverbs Reconsidered

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This article presents an analysis of what is called VP Deletion (VPD) in English. Of particular concern is how the behavioral difference of VP-adverbs in a deletion construction can be accounted for and how the target of the rule operation can be specified. Pointing out that there is a syntactic distributional variation among VP-adverbs and this is what is responsible for the deletability difference in a VPD construction, we argue that the operation range of VPD can be fixed on a particular projection. It is also claimed that the present analysis contributes to making unnecessary Sag (1976)'s filter that requires the deletion site to follow AUX.

KEYWORDS: VP Deletion, manner adverbs, *scarcely* adverbs, frequency adverbs

1. Introduction

The present paper is intended as an investigation of the phenomenon known as Verb Phrase Deletion or VP Deletion (henceforth VPD). This particular phenomenon, which has frequently been used for a test in determining syntactic constituency, seems to have been rather ignored and not been given much attention in recent research activities in generative linguistics. However, though it certainly has long been put outside the spectrum of linguistic analysis, it seems valuable now to look at this again closely and examine how the current theory works on it. In doing so, some traditional analyses will have to be modified or re-interpreted so as to fit in the current framework.

The main focus of this article will be narrowed down on two respects: (i) deletability of VP-adverbs and (ii) the target projection of its operation. As for (i), there are cases where while some types of adverbs may or may not antecede VPD, others must be included in the VPD target. Such a behavioral difference of VP-adverbs in terms of deletability fails to be accounted for by the traditional analyses, as will be pointed out below. (ii) is concerned with specifying the level of phrasal projection to which the operation applies. In the traditional analyses of VPD, the target is not only unrestricted to one particular projection but it is considered to apply to a prime-level category, which is, within Chomsky (1986)'s framework, "invisible" to rule operations.

The article is organized as follows. In section 2, two representative previous approaches to VPD are presented as introductory information, and a problematic case involved in them will be pointed out. Section 3 is devoted to offering another syntactic analysis by paying particular attention to the VP-adverbs. In the final section, VPD will be reconsidered from the viewpoint of its operation range and further implications will be given as well.

2. Previous Analyses

Let us begin the discussion by examining two major approaches to VPD, those by Radford (1988) and Imanishi and Asano (1990) (henceforth I & A). A phenomenon relevant to the discussion is seen in the following pair of sentences:

- (1) a. John *often kisses Mary*, and Bill does, too.
b. (?)John *often kisses Mary*, and Bill does sometimes.¹

As indicated by the italics, the whole VP is elided in (1a), whereas the deleted material in (1b) is a part of the VP. A conjecture that readily arises would be that VPD has the option of deleting certain phrasal levels under VP. In order to capture the deletability option of an adverb seen in (1), Radford and I & A assumed, within the traditional framework of X-bar theory, that the VPs in (1a) and (1b) should be given internal structures as (2a) and (2b), respectively.

- (2) a. [_{VP} ADV [_{V'} kiss Mary]]^{2,3}
b. [_{VP} [_{V'} ADV [_{V'} kiss Mary]]]

¹A preferable word order in the right conjunct in (1b) is "... and Bill sometimes does." According to an informant, however, (1b) is not totally unacceptable although there is slight unnaturalness. This issue of adverbial position will be touched on in section 4. Also, concerning the unnaturalness of (1b) and the ungrammaticality of (3b) and (17b), an anonymous reviewer has suggested to me the possibility of accounting for them by "Linear Modification" in Bolinger (1965). However, we will be able to give an appropriate account for them in structural terms which will be presented here and therefore we will not go into Bolinger's argument in this article.

²Following Lasnik (1994)'s argument, let us assume here that verbs are taken from the lexicon bare, contrary to the view of Minimalist

On the assumption of (2a), Radford argues that any phrasal expansion of V (i.e., V' or VP) can undergo VPD. Given this structure, (1a) is obtained if VPD applies to VP and (1b) is rendered if the rule operates on V'. Assuming the structure of (2b), on the other hand, I & A claim that VPD is not a "VP" Deletion but actually is a "V'" Deletion. They maintain that VPD is a rule that may apply to any possible intermediate projections of V, excluding the maximal projection.

Although there is a slight difference in their structural assumptions, both of these analyses seem to be able to describe the VPD phenomena correctly by allowing the variability of the "deletee" or the target structure. However, the following sentences serve as a counterexample to their analyses:

- (3) a. I *carefully counted the money*, and Bill did, too.
 b. *I *carefully counted the money*, but Bill did carelessly.

Since these sentences appear to be structured parallel to those in (1), sharing superficially the identical word order, the same VPD effect is to be expected for (1) and (3) on the basis of the structural assumptions of either (2a) or (2b). Nevertheless, (3b) and (1b) do show a clear contrast with respect to the deletable portion: the adverb in (3) must be included in the antecedent of VPD but not necessarily so in (1). Evidently, (3b) would be wrongly predicted as acceptable under the above two analyses.

Comparing (1) and (3), two critical issues seem to arise: (i) the syntax of adverbs and (ii) the application range of VPD. Concerning (i), it can be immediately noticed that those VP-adverbs, *sometimes* and *carefully*, are of different types. To be more precise, the former belongs to a frequency class and the latter to a manner class. It seems to me that there is a certain syntactic difference among VP-adverbs which is somehow related to their semantic difference, although they have been presumed to be VP-modifiers of the same syntactic function.

A close study on the distribution of English adverbial clauses was made in Nakajima (1982), in which the so-called V⁴ System is proposed. Although it is not necessary for the present discussion to enter into the details of the system itself, his comment on VP-adverbs is worth mentioning for proceeding our discussion.

- (4) Adverbs of time, frequency, manner, instrument, place, etc. are "restrictive adverbs" in the sense that they modify a whole VP and restrict the meaning of the VP. Thus, these kinds of adverbs should belong to one layer above V¹, that is V². (Nakajima (1982: 345))

What he says in this comment is that all the VP-adverbs should appear in a single syntactic position (i.e., a node under V² in his term) *because* they have the same function of modifying VP.

On this point we do not agree with him, however. Given the contrast of (1b) and (3b), it cannot be concluded that VP-adverbs share the identical syntactic distribution simply because they function as VP-modifiers. If Nakajima is correct in treating VP-adverbs syntactically in the same way, contrary to the fact, (3b) should be totally acceptable since both *sometimes* and *carefully* are supposed to behave in the same manner. This necessitates an assumption that VP-adverbs can actually be classified into subgroups in terms not only of their semantic difference (e.g., manner, frequency, etc.) but of syntactic distributions as well. Put another way, there must be a distributional variation among VP-adverbs within a VP projection and, therefore, a close examination of their syntactic behavior is required for each type. An extensive discussion on this matter will be presented in the next section.

The second problem (ii) must lie in the definition of VPD application range. Note that the deletion site is not strictly limited to one specifiable projection either in both Radford or I & A, and that this is exactly what causes the contradictory predictions observed above. If VPD be allowed to have such unfavorable flexibility in selecting its target, (3b) will still be predicted as acceptable even if VP-adverbs of various types are analyzed to behave differently. This means that, instead of selecting a deletee, VPD must be reformulated so as to fix its target on a particular projection, and, contradictory as it may seem, the operation must at the same time be able to deal

Program, in which Chomsky (1993) postulates that all verbs are introduced into syntactic structures fully inflected. Observe the following examples, where it becomes clear that VPD can ignore certain inflectional differences between antecedent verbs and deleted verbs:

- (i) a. John escaped, and Paul will, too.
 b. ?John was suffering from a flashback, and Paul will, too.
 c. John has awoken, and Paul will, too.

Sag (1976) observes that these sentences can be accounted for by ordering VPD before Affix Hopping. If VPD takes place before Affix Hopping, the exact identity of the antecedent and target V holds at the time VPD applies. Some cases are available, however, that conform to the lexicalist view: those of *have* and *be*. Below are some examples.

- (ii) a. *John is here, and Yoko will, too.
 b. ?*The children have been very good here. I wish they would at home.
 c. *John was being obnoxious, and Yoko will, too.

Lasnik's postulation is therefore that English *have* and *be* are fully inflected and all other English verbs are bare in the lexicon. If we take into consideration that strict identity of V is requisite for VPD operation, Lasnik's argument seems quite valid.

³Both Radford and I & A do not take the VP-internal subject hypothesis into account. But it does not affect our discussion throughout this article, since a subject NP will end up being outside the VP at any rate. In what follows, however, a subject NP will be positioned in the VP-internal position in a tree or bracket when the argument is based upon the VP-internal subject hypothesis.

⁴In this paper, we are not concerned with adverbial PPs, and will not discuss sentential adverbs, either. See Nakajima (1982), where they are treated elaborately.

with the contrast observed in (1) and (3).

3. Distributions of VP-Adverbs

As has been suggested in the preceding section, what is necessary most of all for the present analysis to predict the contrast between (1b) and (3b) correctly is to examine the syntactic property of VP-adverbs. In this section, we will concern ourselves with the issue of adverbial syntax by grouping VP-adverbs into three classes to clarify their syntactic properties and distributions: frequency, manner and *scarcely*-type adverbs.⁴

3.1 Manner Adverbs

Let us start with manner adverbs by making use of the following type of considerations. Before we deal with adverbs of this particular class, consider the example sentence given below.

(5) John put a pen on the desk.

In analyzing three-argument verb constructions (as involving *put*), Larson (1988) argues that his ideas for double object constructions apply equally. More specifically, (5) can be analyzed as having a VP-complement structure as (6).⁵

(6)

With this possible way of analysis in mind, let us consider a sentence like (7), which contains an adverb of manner.

(7) John worded his dissertation *elegantly*.

It is well-known that verbs such as *word* or *treat* subcategorize manner adverbs along with the object NPs (**John worded his dissertation*). From this we may say that it is possible to treat verbs like these as three-argument verbs as well as *put*. That is, the VP-structure of (7) can be given as (8), in parallel with (5).

⁵Following Chomsky (1993)'s generalized transformation GT, let us assume that a layered VP structure is built up by V-Raising. Problems that might be involved in V-Raising will be put aside in the present discussion.

(8)

In relation to the point of our discussion, what is to be of particular importance in the structure of (8) is that a subcategorized manner adverb is always analyzed to occur as the innermost complement of VP.

Let us now turn to cases of two argument verbs and see where a non-subcategorized adverb can be positioned in the VP projection. (9) is an instance of two-argument verb modified by a non-subcategorized adverb.

(9) Mary answered the questions *intelligently*.

Permitting VP to have layered multiple complementations under the assumption of iterative V-Raising, Larson argues that his analysis works also for sentences of two-argument verbs. Given a VP-shell structure, a non-subcategorized adverb is also permitted to occupy the innermost complement position of VP as its original site in the same way as a subcategorized one. The derivation of (9) proceeds as in (10).

(10) [_{VP} Mary [_V answer_i [_{VP} the questions [_V V_i intelligently]]]]

In (10), the verb *answer* first combines with the adverb *intelligently* to form the lower VP together with the object NP *the questions*, and subsequent V-Raising carries it on to build up another VP layer. Here the result is the same as the cases of *treat* or *word* in that the adverb is analyzed as an element that occurs in the innermost complement position. A tentative conclusion is that manner adverbs are elements that occupy the innermost complement position of V regardless of whether they are subcategorized or not.⁶

Incidentally, an important addition to be made here is the notion of Thematic Hierarchy. In Larsonian syntax, an object NP does not necessarily occupy the complement position, contrary to the traditional analyses. Concerning this point, Larson claims that the relative subordination of arguments carried out in the working area (i.e., before Spell-Out), that is, the order among arguments chosen by a given verb, is determined by the hierarchy of thematic relations, which is schematized in (11) below.

(11) *Thematic Hierarchy*

AGENT > THEME > GOAL > OBLIQUES (manner, location, time, ...)

(Larson (1988: 382))

Relative structural position of each argument in a given structure is determined by relative position of each theta-role on the Thematic Hierarchy. For instance, the structural position of an object NP is determined not by the notion of "complement of V," but by whether it is thematically higher or lower than other arguments. Given (11), regardless of whether they are subcategorized by a verb or not, the innermost placement of manner adverbs in the cases above is guaranteed by (11).

There are cases, however, where Thematic Hierarchy of (11) turns out to be insufficient to license certain argument subordination and, accordingly, an additional amendment seems necessary. See sentences (12)–(13) given below. It is well-known that certain manner adverbs may appear preverbally as well as postverbally.

(12) a. Bill *roughly* solved the questions.

b. Bill solved the questions *roughly*.

(13) a. John *carefully* put the pen on the desk.

⁶Larson (1988) says that adverbs are not the outermost adjuncts of V but rather innermost complements. In other words, not only subcategorized adverbs but adverbs in general appear as the complement of V. However, his view does not seem to be entirely correct. This point will be made clear in 3.2 and 3.3.

- b. John put the pen on the desk *carefully*.

Let us assume that a preverbal manner adverb is base-generated in [Spec, VP] and the derivation of (12a), for instance, will be represented as follows:

(14)

This derivation would be wrongly ruled out by Thematic Hierarchy in (11) because the preverbal occurrence of *roughly*, an oblique, is higher than the subject NP, the agent. In order to avoid such discrepancy, it is possible to modify Thematic Hierarchy (11) as (15).

(15) *Thematic Hierarchy* (revised)

OBLIQUE > AGENT > THEME > GOAL > OBLIQUES

Under this revised version, sentences containing a preverbal adverb are guaranteed as a legitimate derivation. Descriptive as it may seem, the correctness of this revision is also supported by adverbs of *scarcely* class, which will be discussed in 3.2.

3.2 *Scarcely-type Adverbs*

Another class of adverbs, as is discussed in Emonds (1976), includes the so-called *scarcely* adverbs. Examples of adverbs in this class are given in (16).

(16) *Scarcely* adverbs: scarcely, simply, merely, really, hardly, barely, nearly

Following Emonds (1976), Zagana (1988) points out that, although these are superficially similar to *-ly* manner adverbs, they have to be differentiated from manner adverbs in that they exhibit syntactic behavior distinct from that of manner types in several respects. Firstly, they must necessarily appear preverbally, but cannot appear postverbally.

- (17) a. Bill *merely* paid the bill.
b. *Bill paid the bill *merely*.

Secondly, while manner adverbs can be subcategorized by verbs like *word* or *treat*, *scarcely* adverbs do not satisfy the subcategorization of such verbs.

- (18) a. The prime minister worded the speech draft *carefully*.
b. *The prime minister *hardly* worded the speech draft.

Thirdly, PP paraphrase, which is typical for manner adverbs, is impossible for this class of adverbs.

- (19) a. John speaks *intelligently*/in an *intelligent* manner.
b. John *merely* speaks/*in a *mere* manner.

In view of the fact that the occurrence of a *scarcely* adverb is strictly limited to a preverbal position, assume here that a *scarcely* adverb is base-generated in a certain specifier position as well as a preverbal manner adverb. Put another way, *scarcely* adverbs are “arguments” and occupy an A-position as well as manner adverbs. On this assumption, (20) can be derived by way of (21).

(20) Mary *barely* got a C in Hebrew.

(21) [_{VP} barely [_V get_i [_{VP} Mary [_V V_i a C in Hebrew]]]]

The sentences presented below will serve as an empirical support for our assumption. If both manner and *scarcely* adverbs are A-position elements, they should be unable to co-occur adjacent because the position becomes doubly-filled.

- (22) a. *John *merely intelligently* answered all the questions.
b. *John *intelligently merely* answered all the questions.

Note also the fact that the position of *scarcely* class is limited to a preverbal position. This provides a further support for our revised Thematic Hierarchy (15). The original proposal (11) forces obliques to occupy the lowest position in a given structure. This end up blocking the occurrence of adverbs in this class as well as preverbal manner adverbs, which is a wrong prediction. The revised (15), on the other hand, does not involve such a contradictory prediction, and is preferable to the original version.

3.3 Frequency Adverbs

Finally, let us look at the characteristics of frequency adverbs such as *always*, *sometimes*, etc. Certain frequency adverbs are similar to manner types in that they may appear both postverbally and preverbally.

- (23) a. The lawyers studied the same case *frequently*.
b. The lawyers *frequently* studied the same case.

It might seem at this point that these types also show the same distribution as manner or *scarcely* adverbs. An important difference, however, is seen in the fact that these adverbs, unlike the case of (22), are able to appear with the other two classes side by side, although there is a certain restriction on the order of them.

- (24) a. The lawyers studied the same case *carefully frequently*.
b. *The lawyers studied the same case *frequently carefully*.
(25) a. (?)Mary *sometimes politely* asks a favor of me.
b. *Mary *politely sometimes* asks a favor of me.

As is seen from (24) and (25), a frequency adverb must follow a manner adverb in a postverbal position and a reverse word order restriction obtains in a preverbal position.

Recall that we have assumed in the preceding sections that manner and *scarcely* adverbs are “arguments” which occupy an A-position. As seen in (22), if frequency adverbs also take an A-position as their original site, those a-sentences in (24) and (25) should be ruled out. Then we will be led to assume that frequency adverbs are distinct from the other two types in terms of syntactic function. To be more concrete, the distribution of frequency class seems to be structurally higher than that of manner and *scarcely* classes. A possible assumption is that frequency adverbs are an “adjunct” functioning as an A'-element, unlike the other two “argumental” adverb classes. If we suppose from this that a frequency adverb is an element that is adjoined to VP, the structure of (23) will then be given as follows:

(26)

(* indicates the optional direction of occurrence)

This assumption makes it possible not only to account for the facts (23) appropriately but also is able to explicate the unacceptability of b-sentences in (24) and (25) automatically.

Making a wrap-up summary of this whole section, we have discussed that manner and *scarcely* adverbs are “arguments” and occupy A-positions. As far as a *scarcely* class is concerned, due to its lexical property, its appearance is limited to a preverbal position and therefore it must occupy a Spec position. On the other hand, frequency adverbs are “adjuncts” or A'-elements. Within a VP projection, therefore, this class of adverb appears in a position adjoined to VP. From what has been discussed so far, it may be said that there is syntactic distributional variations among VP-adverbs: frequency adverbs are syntactically higher than manner and *scarcely* adverbs. This makes it possible to give an appropriate explanation for a case like (27), in which all the three types of adverbs are involved.

- (27) John *frequently merely* answered all the questions *intelligently*.

4. VP Deletion Reconsidered

Thus far, we have examined the syntactic distributions of VP-adverbs on the basis of the classification of

three types of modificational function. In this section, we will return our attention to the rule of VPD.

4.1 A Proposal

Let me first point out that there is one conceptual problem in the analyses of Radford (1988) and Imanishi and Asano (1990): the validity of V'-deletion. As has been observed in Section 2, both Radford and I & A permit VPD to apply to V'. However, allowing rules to operate on intermediate projections seems unreasonable in the pursuit of the simplicity of grammar, and in fact there is good reason to eliminate rules that might apply to a prime-level category.

Chomsky (1986) suggests that it is only minimal and maximal projections that are "visible" to the rule Move- α : only X and XP are qualified as the targets of movement. To put it differently, if only minimal and maximal projections are "visible" to movement operations, then intermediate X' is "invisible" and it cannot move.

However, such terms as "Move- α " or "movement" is rather too strict in considering the visibility of X and XP, since rule operations are not necessarily limited to syntactic movement (cf. Lasnik and Saito (1984)). It seems rather plausible to suppose that visibility holds for rule applications in general, including non-movement operations. Therefore, a preferable generalization would be:

(28) Only minimal and maximal projections are visible to rules.

Given that grammatical operations are applicable to non-X' category, eliminating the possibility of deleting V' should be a plausible assumption: VPD is exactly "VP" Deletion, not "V'" Deletion. Hence the definition of its application should be as simple as:

(29) *VP Deletion*

Delete a VP

A possible counter-argument that might arise is that the following sentence might be wrongly generated under (29):

(30) a. *I shot a sheriff to death, and Bill shot, too. (meaning *I shot a sheriff to death, and Bill shot a sheriff to death, too.*)

b. $NP_i [VP\ t_i [V'\ shoot_j [VP\ a\ sheriff [V'\ t_j\ to\ death]]]]$

In (30), the lower VP has undergone deletion and it might be argued that rule (29) does not rule out the possible generation of (30a). Then how can we avoid generating a sentence like this? In Chomsky (1995), a derivational process of language is assumed to follow generalized transformation GT. In other words, a sentence derivation goes in a bottom-to-top direction, and it is not until a head X is realized that a maximal projection XP can be composed. For example, a VP is constructed only when the head V is realized. In a layered VP structure, an upper VP is built up by a V-head that has undergone V-Raising from the lower projection leaving a trace behind.

Furthermore, assume that VPD is a PF operation, and then it is clear that the idea of applying VPD as a phonetic operation to a phonetically null element, a trace, is meaningless. If we take this into account, the implication behind (29) could be stated as in the following manner:

(31) Delete a VP of which the head is phonetically (i.e., lexically) realized.

Given (31), the "VP" of (29) is automatically restricted to a certain type, permitting "deletee" to be reasonably specified. Consequently, VPD can be made to fall under Chomsky's "visibility" stipulation.

Let us now visit VPD sentences with those classes of VP-adverbs examined in Section 3 again. Under our syntactic classification of VP-adverbs together with the current VP analysis, the observed fact that manner and *scarcely* adverbs must be deleted obligatorily while frequency adverbs may be left undeleted will be correctly predicted under the proposed VPD condition. Compare the following pairs of sentences with a manner and *scarcely* adverb first. The italics indicate a deletion trigger.

(32) a. I *carefully counted the money*, and Bill did, too.

b. *I *carefully counted the money*, but Bill did carelessly.

(33) a. John *barely hit the target*, and Paul did, too.

b. *John *barely hit the target*, and Paul did nearly.

The contrast in acceptability among the b-sentences, problematic to those previous analyses, can now be accounted for. For the ease of explanation, see the structures below, where (34a) and (34b) are representations for (32) and (33), respectively.

(34) a. $I_i [VP\ carefully [V'\ count_j [VP\ t_i [V'\ t_j\ the\ money]]]]$

b. $John_i [VP\ barely [V'\ hit_j [VP\ t_i [V'\ t_j\ the\ target]]]]$

We have argued that both manner and *scarcely* adverbs are "arguments" and hence appear in A-positions. Therefore, as in (34), these two classes of adverbs are expected to show the same effect in VPD, sharing the same syntactic distribution. Following the detailed definition in (30), only the topmost VP is qualified as the deleting position, since it is the only VP headed by a phonetically (or lexically) realized V. As seen in (34), the adverb is completely included in the target VP and is obligatorily elided. After all, the fact that both b-sentences in (32) and (33), in which the adverb is left undeleted, cannot be generated is fully explained under our analysis.

Next let us turn to the case of frequency adverbs, which allow themselves to escape from deletion. (1) is repeated here as (35) for convenience.

- (35) a. John *often kisses Mary*, and Bill does, too.
 b. (?)John *often kisses Mary*, and Bill does sometimes.

Since frequency adverbs are analyzed as an “adjunct,” or an A’-element, *always* is an element that has been adjoined to VP, and the structure of the sentence will be illustrated as follows:

- (36) John_i [_{VP1} ADV [_{VP2} t_i [_{V'} kiss Mary]]]

Two VPs are available for deleting operation, i.e., VP₁ and VP₂, both of which are headed by the head *kiss*. If VPD applies to VP₁, then the output will be (35a), whereas deleting VP₂ will yield (35b); both being correctly predicted.

It is worth noting the judgement on (35b) here. As will be touched on later, the sequence of auxiliary-adverb in a VPD construction is not taken as very natural. The slightly reduced acceptability of (35b) is probably due to VPD applying to a segment of VP, that is, VP₂. A close look at the relation between ADV and VP in (36) reveals that ADV is dominated by the topmost VP, but not by the base VP. To put it differently, ADV is not fully included in the projection of V. Below is the proposal formulated by Chomsky (1986) to define the notion of dominance.

- (37) *Dominance*

A is dominated by B only if A is dominated by every segment of B.

(Chomsky (1986: 7)

Informally speaking, (37) states that the maximal projection of V in (36) is the combination of VP₁ and VP₂. It follows that (35b) is an incomplete output of VPD operation in the sense that even though VP₂ is the base maximal projection, it is not the entire maximal projection. It may also be said that the “visibility” of VP₂ is incomplete and the judgement of “?” for (35b) is thus attributable to such operational incompleteness.

4.2 Adverb-Auxiliary Sequence and Phonology

As observed above in (1b = (35b)), the distribution of the frequency adverb *sometimes* in the right conjunct that has undergone VPD is usually taken as unnatural for the reason we have discussed. Normally, the order of “...and Bill *sometimes* does,” where the adverb appears to the left of Infl, is considered natural. This means that there is a recalcitrant problem concerning the difference in word order between the trigger and target. In the antecedent VP the adverb is contained within the VP projection, a normal position, whereas it is outside the VP when VPD applies. So, it seems necessary to examine the distribution of adverbs in a case like this. Consider the following sentences:

- (38) a. John will always love Mary, and Bill will sometimes love Mary.
 b. (?)John will always love Mary, and Bill will sometimes.
 c. John will always love Mary, and Bill sometimes will.

The word order in the right conjunct of (38c) is taken as more natural than the one in (38b), although (38b) is not totally unacceptable. Recall that VP-adverbs are all analyzed as being base-generated in a given position under our present discussion. If VPD applies to *love Mary* in (38a), then the output will be (38b). That is, (38c) cannot have been derived from (38a), and its full-fledged counterpart must be (39) below.

- (39) John will always love Mary, and Bill sometimes will love Mary.

Interestingly, the same sequence of the adverb and auxiliary is not allowed in an independent sentence.

- (40) *John sometimes will love Mary.

The question to ask is why the position of *sometimes* in (39) is permissible but not in (40)?

It seems to me that the acceptability difference between (39) and (40) is attributable to a phonological aspect, rather than a syntactic one. Example (39), in which *sometimes* in the right conjunct precedes the auxiliary, is acceptable only when an emphatic stress is put on it. For ease of exposition, observe (39'), where capital letters indicate the tonic stress.

- (39') John will always love Mary, and Bill **SOMETIMES** will love Mary.

An emphatic stress on *sometimes* under a particular context will make (40) acceptable, too.

- (40') John **SOMETIMES** will love Mary.

That is to say, in a case like (38), an emphatic stress is necessary on *sometimes* in the right conjunct to make a contrast against *always* in the left one, in which case the desirable full-fledged sentence is (39), rather than (38a). Therefore, (38c) with the natural word order is considered to have been derived from (39).

The phonological account holds for *scarcely* adverbs too. (41) is given as an example.

- (41) a. John will barely hit the target, and Paul **NEARLY** will hit the target.
 b. John will barely hit the target, and Paul **NEARLY** will.
 c. *John will barely hit the target, and Paul will nearly.

In this instance also, the acceptability difference between (41b) and (41c) can be explained if we assume that *nearly* is base-generated in the pre-auxiliary position because of the emphasis.

Curiously enough, however, manner adverbs cannot appear in the pre-auxiliary position for unclear reasons even when a tonic stress is given on them. For instance, (42a) is prohibited and (42b) is impossible accordingly.

- (42) a. *John will carefully count the money, but Bill **CARELESSLY** will count the money.

- b. *John will carefully count the money, but Bill CARELESSLY will.

All that we can say about this is that manner adverbs must not “escape” from the VP, but a full characterization of this restriction is beyond our discussion, awaiting future researches.

We have thus far observed that although frequency adverb and *scarcely* adverbs normally appear VP-internally, they may precede auxiliary verbs under a certain circumstance. That is, the adverb-auxiliary sequence is possible on phonological requirements. Our task is to examine the syntactic position of the adverb in such cases. Assume that auxiliary verbs are heads of TP and that the projection of TP allows a Spec position in itself. The structure of (43a) can be given roughly as in (43b).

- (43) a. I will kill you.

- b. I [_{AgS} AgrS [_{TP} Spec [_{T'} will [_{AgO} AgrO [VP kill you]]]]]

Since *scarcely* adverbs and frequency adverbs have been analyzed as A- and A'-elements, respectively, it seems plausible to assume that *scarcely* adverbs with a tonic stress can appear in [Spec, TP], while emphasized frequency adverbs may be adjoined to TP. Example (44a), along with its partial structure (44b), is available as supporting data:

- (44) a. King would sometimes barely get a C, and Queen ALWAYS NEARLY would get a C.

- b.

The pre-auxiliary appearance of these adverbs does follow from the present analysis of VP-adverbs.

4.3 Aspectual *Have* and *Be*

Finally, let us examine how the proposed VPD condition works in sentences containing aspectual *have* and *be*. It is a well-known fact that aspectual *have* and *be* may or may not trigger deletion. The following is a typical example:

- (45) a. Keith must have been hallucinating, and Charlie must have been hallucinating, too.
 b. Keith must have been hallucinating, and Charlie must have been, too.
 c. Keith must have been hallucinating, and Charlie must have, too.
 d. Keith must have been hallucinating, and Charlie must, too.

Aspectual *have* and *be* often appear as auxiliary verbs, whose syntactic behavior is the same as modals. Observe the following examples:

- (46) *Not*-contraction
 a. Charles shouldn't break up with Di.
 b. Charles hasn't broken up with Di.
 c. Charles isn't happy.
 (47) Subject-Aux inversion
 a. Should Charles break up with Di?
 b. Has Charles broken up with Di?
 c. Is Charles happy?

In a case like (45), however, it is hard to consider *have* and *be* to be auxiliaries. They can be better treated if we analyze them as VP elements, because when they follow a modal, *have* and *be* do not show the auxiliary behavior observed in (46) and (47). Consider:

- (48) a. Simpson can't have been racially discriminated against during the trial.
 b. *Simpson can haven't been racially discriminated against during the trial.
 c. *Simpson can have beenn't racially discriminated against during the trial.
 (49) a. Must Simpson have been racially discriminated against during the trial?
 b. *Have Simpson must been racially discriminated against during the trial?
 c. *Been Simpson must have racially discriminated against during the trial?

These sentences provide evidence for the view that *have* and *be*, preceded by a modal, is within VP. Then a

natural question to ask is: where exactly are they positioned in VP? If we follow the discussion that has been made so far, it seems plausible to assume that these *have* and *be* are heads of VP. The following adverb test will provide us with supporting evidence:

- (50) a. The case might have been *roughly* investigated.
 b. The case might have *roughly* been investigated.
 c. The case might *roughly* have been investigated.
- (51) a. The religious sect will have been *hardly* dissolved.
 b. The religious sect will have *hardly* been dissolved.
 c. The religious sect will *hardly* have been dissolved.

Given that *scarcely* adverbs as *roughly* and *hardly* are A-position “arguments” and hence occupy Spec positions, we can say that *have* and *be* are heads of separate VP.

Now that *have* and *be* are both V-heads in (45), the grammaticality of (45b-d) are appropriately explicated by our VPD condition. The partial structure of (45) is presented below.⁷

(52)

This structure clearly shows that there are three phonetically realized V-heads available, of which the maximal projections are thus all eligible for VPD targets. The present VPD analysis makes correct predictions about the deletability of *have* and *be* too.

These examples of VPD analysis have another interesting consequence. Sag (1976) maintains that a deletion site must immediately follow Aux. In fact, counterexamples have already been presented against this condition without mentioning it. First, the deletion site does not immediately follow the auxiliary in (1b), where a segment of VP is deleted. Second, Sag's condition will wrongly rule out (45b) and (45c) as impossible deletion because aspectual *have* and *be* are analyzed as V-heads, not AUXs, under our analysis. Therefore, his adjacency condition will be expendable, being redundant.

Under the present analysis, the issue of adverbial deletability observed in (1) and (3) is no longer problematic. There is a clear hierarchy in the syntactic distribution of VP-adverbs, so the problem of adverbial deletability is due not to selecting optional target of the VPD rule, but actually to the way the adverb should be included in the projection of V. Given the syntactic relation among those three types of VP-adverbs, the rule of VPD has only

⁷Example (45b) in fact acts as a counterexample to Lasnik (1994)'s morphological assumption, as Lasnik himself admits. This ought to involve a stranded *-en* after VPD. This issue will be left open to question, and we will still obey his view that main verbs are taken from the lexicon bare.

In (52), however, we use the *-ing* form in the tree in spite of the assumption. This is done so simply for ease of illustration. Since our discussion is now being narrowed down on distributions of *have* and *be*, this is not a crucial matter.

to operate in a limited range: the maximal projection which has the phonetically realized head. Also, by analyzing aspectual *have* and *be* as V-heads, the deletability of them is also explainable under the present condition of VPD.

Conclusion

Three motives have combined to make a new proposal of VPD condition. Radford (1988)'s analysis of "deleting either VP or V'" or Imanishi and Asano (1990)'s analysis of "deleting any V'" have turned out to be problematic in three respects. First, their treatment of VP-adverbs under which they all originate in one syntactic position within VP does fail to give an adequate explanation for the behavioral difference between frequency and manner/*scarcely* adverbs in a VPD environment. It was argued in Section 3 that there is a hierarchy among three types of VP-adverbs in terms of their syntactic distributions. The results of classification are: (i) manner adverbs and *scarcely* adverbs originate in A-positions: preverbal and postverbal manner adverbs are the specifier and complement of VP, respectively, and *scarcely* adverbs are, due to their lexical properties, limited to a Spec position, and (ii) frequency adverbs are in fact A'-elements and behave as "adjuncts."

Secondly, allowing the optional target selection of VPD, Radford and I & A both failed to account for the obligatory deletion of manner and *scarcely* adverbs.

Thirdly, as a conceptual matter, deletion of V' in those two analyses is rather unreasonable from the notion of "visibility" to rule applications. As Chomsky (1986) postulates, only heads and maximal projections are visible for grammatical operations. We have argued that a plausible target of VPD must be VP.

The last two issues are resolved altogether under the present proposal of VPD condition: VPD is a rule that applies to the maximal projection of V which is phonetically realized. This condition correctly captures selectional deletion of aspectual *have* and *be* as has been observed in 4.3, and also contributes to abolishing the adjacency condition Sag (1976) proposed to the effect that the deletion site must follow Aux. Our approach to the phenomenon of VP Deletion can provide a principled and satisfactory account for otherwise problematic sentences.

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