“Missing Prepositions” and the Analysis of English Free Relative Clauses

In this article I consider a number of relative clause–like constructions exhibiting “missing” adverbial elements in the subordinate clause. I argue that these structures all uniformly involve antecedent-contained deletion, a phenomenon typically associated with VP ellipsis constructions. In section 1 I discuss antecedent-contained deletion as it applies to headed relatives, and in section 2 I extend the account to free relative clauses. I argue that, despite what has been assumed in the literature, the variety of free relative categories in English actually reduces to just two: NP and AP. In section 3 I draw some consequences of this result, proposing that so-called AP-headed free relatives are in reality free comparatives and suggesting an analysis of why there are no free relative clauses of reason—no free relatives headed by why.

1. A Puzzle

In Larson (1985) it is observed that headed relative clauses containing a trace in adjunct position, but neither a relative adverb nor a stranded preposition, typically are well-formed only if their head belongs to the class of bare-NP adverbs, NPs that can function adverbially without an accompanying preposition:

(1) a. i. The \{way
   *fashion\} (that) I spoke to him (was rude).
   ii. I spoke to him [the same \{way
       *fashion\}].

b. i. Every \{place
    *city\} (that) John has lived (was ugly).
   ii. I will have lived [every \{place
        *city\} that John has lived].

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c. i. That \{ \text{day} \} \text{ (that) Max arrived e (was remarkable).} 
ii. Max arrived [that \{ \text{day} \} \text{].}

As (1a) shows, the NP *the same way* can function as an adverbial without an accompanying preposition, and it can also head a "non-wh" adverbial relative in which no preposition appears. On the other hand, *the same fashion* cannot appear as a bare-NP adverb, nor can it head an adverbial relative without a stranded P. The remaining examples are analogous.

In Larson (1985) this pattern is given a Government-Binding analysis employing concepts of Case theory. Setting aside the details of that account, let us consider an apparent set of counterexamples to the general correlation itself. These involve sentences of the following kind:¹

(2) a. We parted in \[ \text{NP the same cordial fashion} [\text{S'} that we had met e]].
b. By 1999, I will have lived in \[ \{ \text{every} \} \text{ city} [\text{S'} that John has lived e]].
c. Max arrived on \[ \text{NP the (same) occasion} [\text{S'} that Bill arrived e]].

For many speakers (2a–c) are fully well-formed. Note, however, that the NPs heading these relatives cannot appear as bare-NP adverbs (compare the (ii) examples of (1a–c)). (2a–c) thus seem to violate the correlation between bare-NP adverb status and ability to head a non-wh adverbial relative with a "missing preposition" in the subordinate S.

The only difference between the two sets of examples in (1) and (2) is an apparently minor, interpretive one: namely, in (2a–c) the "missing" P must be understood as identical with the overt P in the main S. Thus, (2a) must be read as 'we parted in the fashion that we met in', and similarly for (2b–c). In (1a–c), however, this is not so. The natural reading of I will have lived near \{every place that John has lived\}—a variant of (1bii)—is (roughly) 'I will have lived near every place that John has lived at' and not 'I will have lived near every place that John has lived near'. This apart, however, (1a–c) and (2a–c) appear quite parallel.

1.1. Antecedent-Containing Deletion in PP

I wish to propose that the interpretive difference noted in the previous paragraphs is actually quite significant and reflects a very different syntax underlying (1a–c) and (2a–c), despite surface appearances. More specifically, I want to suggest that the latter should be analyzed as instances of what has been called *antecedent-contained deletion*. Examples (3a–c) are canonical cases of this phenomenon:

(3) a. John [\text{VP suspected everyone that Mary did}].

¹ (2a) was pointed out to me by Johan van der Auwera and is due to Jespersen (1927, 162).
b. Max [_{VP} saw the same person that Fritz did].
c. Eunice would [_{VP} believe anyone that Hank would].

In such sentences we observe, in effect, a "missing" subordinate VP whose content is understood as identical to VP in the main S.

Following work by Sag (1976), May (1985) proposes that antecedent-contained deletion be analyzed as involving reconstruction of the missing VP at a level of Logical Form (LF) where the scope of quantified NPs is syntactically represented. (3a), for example, starts with the S-Structure form in (4a). Since it is a quantified NP, the object of suspect raises at LF and adjoins to S, as shown in (4b). Replacing [_{VP} e] with the VP in the main S now yields (4c), which represents the desired interpretation of this example:

(4)

a. [s John Past [_{VP} suspect [_{NP} everyone that Mary Past [_{VP} e]]]]
b. [s_{NP}, everyone that Mary Past [_{VP} e] [s John Past [_{VP} suspect [_{NP}, e]]]]
c. [s_{NP}, everyone that Mary Past [_{VP} suspect [_{NP}, e]]] [s John Past [_{VP} suspect [_{NP}, e]]]

As May notes, well-formed reconstruction can take place only if the NP containing [_{VP} e] moves out of the VP serving as the reconstruction source. Otherwise, an infinite regress occurs.² Accordingly, well-formed antecedent-contained deletion will only be possible with relatives headed by quantified NPs, since only these will undergo movement. This correctly predicts that nonrestrictive relatives, which take nonquantified heads but are (presumably) otherwise identical in structure, will reject antecedent-contained deletion:

(5) *John [_{VP} suspected [_{NP} Fritz, who Max did [_{VP} e]]].

Since the indicated NP does not raise at LF, no suitable reconstruction source will be available for [_{VP} e]; hence, the example is ill-formed.

Suppose we analyze (2a–c) analogously to (3a). Assume that at S-Structure (2b), for example, has the structure in (6a), where the subordinate S' contains an empty PP element [_{PP} e]. At LF its structure is then (6b), where the object of in has now been raised and adjoined to S. In parallel with (4c), the content of the empty PP can now be supplied from the PP in the main S, as shown in (6c), which yields the correct interpretation:

(6)

a. by 1999 I will have lived [_{PP} in [_{NP} every city [s' that John has lived [_{PP} e]]]]
b. [s_{NP}, every city [s' that John has lived [_{PP} e]]] [s by 1999 I will have lived [_{PP} in [_{NP}, e]]]

² Thus, in (4a) reconstruction of the empty VP at S-Structure would result in (i), where the empty VP has not been eliminated:

(i) [s John Past [_{VP} suspect [_{NP} everyone that Mary Past [_{VP} suspect [_{NP} everyone that Mary Past [_{VP} e]]]]]

(i) would then be subject to S-Structure reconstruction once again, and so on.
c.  \([S_{NP}, \text{every city } [S \text{ John has lived } [PP \text{ in } [NP, e]]]] [S \text{ by 1999 I will have lived } [PP \text{ in } [NP, e]]]\]

This analysis explains very directly the earlier observation that in (2a–c) the implicit P in the subordinate clause must be understood as identical to the explicit P in the main clause: the former is literally reconstructed from the latter. The account also removes examples like (2a–c) as counterinstances to the correlation between bare-NP adverbs and relative clause heads in (1a–c). As analyzed in Larson (1985), the latter simply do not involve antecedent-contained deletion at all.

It may be observed that the NPs in (2a–c) show the expected quantificational character. This is particularly interesting in the case of the definite heads in (2a,c). Guéron and May (1984) note that definite NPs do not uniformly undergo Quantifier Raising (QR), and hence relatives headed by definite NPs (like (2a,c)) are “ambiguous” with respect to quantificational status. However, Carlson (1985) has argued that NPs involving same (and different) must be treated quantificationally and assigned S scope. If Carlson is correct, this would explain very neatly why the acceptability of examples like (2a,c) seems to be enhanced by the presence of same: same would, in effect, “disambiguate” the status of the definite NPs and force them to be analyzed as undergoing QR.

1.2. Variability in VP and PP Deletion

A possible objection might be made to the proposed account of (2a–c) on the grounds that such examples show a great deal more variation in acceptability and have a generally more marginal status than examples of antecedent-contained VP deletion. The point is that many speakers find (7a) considerably more acceptable than (7b):

\[
(7) \quad \text{I want to live in}\begin{cases} 
\text{a. [the same city that you do] } \\
\text{b. [the same city that you live]} 
\end{cases}.
\]

Why should this be, if the same processes are at work in both?

Although the proposal is tentative, I suggest that the differences between (7a) and (7b) reflect a difference in the accessibility of empty VP and PP nodes. The analysis of antecedent-contained deletion adopted here requires an empty node in underlying representation. In the case of VP this requirement presents no problem: VPs are obligatory clause constituents whose presence in null form can be inferred directly from local syntactic context, for example, from the presence of an Infl (represented by do, to, or a modal). Empty PPs of the sort demanded in (2a–c) and (7b) are another matter, however. Since they are not obligatory constituents, and since they have no surface antecedent phrase, such empty PPs are inferable neither from lexical properties nor from structural context. Consequently, to be able to derive examples like (2a–c) and (7b), speakers must have recourse to a null element that is licensed by no observable features of its clause.

It seems reasonable to expect variation in individual grammars on this point. Idealizing considerably, we might expect speakers who simply do not represent the relevant
empty categories at all and so reject constructions like (2a–c) and (7b) uniformly. There are indeed such individuals. Conversely, we might expect speakers who represent such empty PPs quite freely. Again, this expectation is fulfilled. There are speakers who accept examples containing “missing prepositions” of all kinds: agentive, instrumental, comitative, and so forth. In these dialects sentences like the following are fully well-formed:3

(8) a. I want to be hired by [the same person that Bill is hired].
   b. I’ll dig with [the same shovel that Bill digs].
   c. I spoke with [the same people that Bill spoke].

Finally, we might expect speakers whose judgment varies depending on what “indirect evidence” they can bring to bear. This seems to represent what is going on in the majority dialect. Many speakers do not judge constructions like (2a–c) uniformly but rather accept them only with a restricted class of prepositional phrases—specifically, with PPs of location, direction, time, and manner. As noted in Bresnan and Grimshaw (1978), this is exactly the class of PPs that have lexicalized proforms in English: there, then, and (rather marginally) so. In light of the above, we can view this result as follows: in the majority dialect the availability of appropriate adverbial anaphora supplies indirect evidence for the possibility of an underlying empty PP. This proposal seems reasonable given the close connection recognized between empty and anaphoric elements in current syntactic theory, and it correctly predicts that agentive, instrumental, and comitative constructions like (8a–c) will be rejected given the lack of corresponding anaphora.4

3 Examples similar to (8a–c), but involving free relatives, were pointed out to me by Pauline Jacobson:
   (i) a. I want to be hired by whoever Bill is hired.
   b. I’ll dig with whatever shovel Bill digs.
   c. I spoke with whoever Bill spoke.

The judgments concerning (8a–c) and (ia–c) seem to me quite parallel; in section 3.1 I propose an account of the latter analogous to that of the former.

4 Verb-preposition restructurings appears to introduce an additional source of complexity. Note that “missing P” constructions involving talk about, talk to, think of, and so forth, are decidedly poor:

   (i) a. *?John thought of \{the same thing you thought\}.
   b. *?I talked about \{the same topic that you talked\}.

This result seems to follow from the familiar quasi-constituent status of the relevant verb-preposition pairs. Observe that if think of has the status of a constituent at LF, this will block reconstruction of the PP:

(ii)
2. The Categorial Variety of Free Relatives

The analysis of “missing prepositions” in terms of antecedent-contained deletion allows us to dispose of some otherwise troublesome counterexamples to the proposed generalization about relatives and bare-NP adverbs. This general approach also has relevance, I believe, for a simple but rather interesting question of free relative clause syntax, namely: how many kinds of free relative clause are there in English? Bresnan and Grimshaw (1978) suggest that English exhibits free or “headless” relative clauses in a number of categories, including NP, PP, AP, and AdvP. They cite data of the following kind in support of their view:

(9) a. I’ll buy [\textit{NP} \text{what(ever) you want to sell}].
    b. John will leave [\textit{PP when(ever) Mary leaves}].
    c. I’ll put my books [\textit{PP where(ever) you put yours}].
    d. I will live [\textit{PP in whatever town you live}].
    e. I’ll word my letter [\textit{AdvP however carefully you word yours}].
    f. John will grow [\textit{AP however tall his father grew}].

The verb \textit{buy} is subcategorized for an NP object; hence, the bracketed string in (9a) is analyzed as NP. The verbs \textit{put} and \textit{word} select for adverbial complements (locative and manner adverbs, respectively) and are analyzed in (9c,e) as taking PP and AdvP free relatives. (9f) is analyzed in parallel with a sentence like \textit{John will grow tall}, where \textit{tall} is an AP complement. And so on for the remaining examples.

Bresnan and Grimshaw’s analysis of (9a–f) is plausible at first blush; and the view has interesting consequences with respect to one of the central proposals in their article, namely, that English shows a “matching effect” between the category of a free relative clause and the category of the \textit{wh}-phrase that introduces it. Nonetheless, on closer inspection, the claim that free relatives come in a variety of categories can be seen to involve some problems. For one thing, Bresnan and Grimshaw’s view is largely under-determined by the data they cite. The positions occupied by the free relatives in (9b–f) are not positions where PP, AdvP, and AP (respectively) exclusively occur; in fact, they are sites admitting a broad spectrum of categories whose semantics is appropriately locative, temporal, manner adverbial, and so forth:

(10) a. John will leave \\[
\{\textit{AdvP subsequently}\} \quad \{\textit{PP on Thursday}\} \quad \{\textit{NP the day that Max arrives}\}.
\]

b. I’ll put my books \\[
\{\textit{AdvP locally}\} \quad \{\textit{PP in the sink}\} \quad \{\textit{NP the same place I put them yesterday}\}.
\]

c. I bought a house \\[
\{\textit{AdvP in the country}\} \quad \{\textit{PP in the sink}\} \quad \{\textit{NP someplace near the T}\}.
\]
d. I worded my letter
   \[
   \begin{aligned}
   \{ & \text{AdvP carefully} \\
   & \{ \text{PP in a careful manner} \\
   & \{ \text{NP the way that you told me to} \}
   \}.
   \end{aligned}
   \]

e. This tree will grow
   \[
   \begin{aligned}
   \{ & \text{AP tall} \\
   & \{ \text{PP to a considerable height} \}
   \}.
   \end{aligned}
   \]

Accordingly, facts like (9b–f) do not argue for the particular categorial assignments Bresnan and Grimshaw make but are merely (weakly) compatible with them.\(^5\)

Furthermore, and even more serious, Bresnan and Grimshaw’s analysis entails an important difference between free and full relative clause structures. According to the authors, free relatives have the structures in (11a) and hence occur in a broad range of categories. However, full relative clauses have only the structure in (11b), where the category of the construction and its head is uniquely NP:

\[
\begin{aligned}
(11) \ a. & \quad \text{XP} & \text{b.} & \quad \text{NP} \\
& \quad \text{XP} & \text{S} & \text{NP} & \text{S'}
\end{aligned}
\]

(where \( \text{X} = \text{N, P, A, Adv} \))

Bresnan and Grimshaw’s analysis thus involves a puzzling, unexpected asymmetry between full and free relatives that is not easy to account for given the apparently minor structural differences separating (11a) and (11b).

2.1. "PP-Headed" Free Structures Are NP-Headed

In view of these points, it seems worthwhile to look at the issue of free relative category more closely. Consider the case of free relatives putatively introduced by \( [+ \text{wh}] \) PPs. These include (9b–d), which are assumed to have the structure in (12a–c):

\[
\begin{aligned}
(12) \ a. & \quad \text{PP[PP when(ever)] [S Mary leaves [PP e]]} \\
& \quad \text{b.} \quad \text{PP[PP where(ever)] [S you put yours [PP e]]} \\
& \quad \text{c.} \quad \text{PP[PP in whatever town] [S you live [PP e]]}
\end{aligned}
\]

First of all, even within Bresnan and Grimshaw’s assumptions, free relatives involving \textit{when(ever)} and \textit{where(ever)} may be analyzed as NPs containing \textit{wh}-NPs. As the authors themselves point out, because they analyze \textit{when} and \textit{where} as “headless prepositional phrases” with the structure in (13),

\[\text{Note: The point is one familiar from the literature. The free relatives in (9b–f) are adjuncts, but adjunct status is not to be equated with membership in some specific set of categories such as PP or AdvP. Since “adjunct” is a functional or semantic notion, and not a syntactic one, examples like (9b–f) really show very little about the category of the indicated element.}\]
every putative instance of the structure in (14a) will have the alternative analysis in (14b):

(14) a. PP
    | NP
    | {when
    | {where

It follows that, even granting Bresnan and Grimshaw’s analysis, it is possible to discard (14a) with no loss of empirical coverage.

Consider now example (9d) (repeated as (15a)). Bresnan and Grimshaw discuss this sentence in some detail and conclude that it contains the PP-headed structure in (15b) as opposed to the NP-headed structure in (15c):

(15) a. I will live in whatever town you live.
    b. PP
    | NP
    | {in
    | {whatever
town

    c. PP
    | NP
    | {in
    | {whatever
town

    | e

Their reasoning involves the same general correlation noted in section 1 for headed relatives; that is, only NPs that can occur as bare-NP adverbs can appear as the heads of adverbial free relatives without preposition stranding. Accordingly, since *whatever town* is not the sort of NP that can occur as a bare-NP locative adverb, (15c) cannot be a correct analysis of (15a).

As further support for their conclusion Bresnan and Grimshaw observe that under the structure in (15b), the string in *whatever town you live* is a constituent, whereas *whatever town you live* is not. This correctly predicts that only the former will be able to undergo movement:


No such prediction is made by (15c), in which both of the preposed strings are constituents.

Under an antecedent-contained deletion account parallel to that given earlier for (2a–c), we can accept Bresnan and Grimshaw’s rejection of (15c) without being committed to (15b). Rather, (15a) can be taken to involve the underlying structure (17a),\(^6\) which contains an empty PP element in the subordinate S'. LF movement of the free relative yields (17b). The content of the empty PP in the raised NP can now be supplied as [PP in e\(_i\)], as shown in (17c), which is the desired result:

(17) a.
\[
\text{PP} \\
\text{P} \\
\text{in} \\
\text{NP} \\
\text{NP} \\
\text{whatever town} \\
\text{S} \\
\text{you live PP} \\
\]

b. \([s[\text{NP}, \text{whatever town [you live [PP e\(_i\)]]}]] \quad [s \text{ I will live [PP in e\(_i\)]]}

c. \([s[\text{NP}, \text{whatever town [you live [PP in e\(_i\)]]}]] \quad [s \text{ I will live [PP in e\(_i\)]]}

The contrast in (16) can also be accommodated under this approach. First of all, note that examples parallel to (16b), but involving antecedent-contained VP deletion, are also unacceptable:

\(^6\) Halk (1985) argues independently for an analysis of missing prepositions in French free relatives that involves antecedent-contained deletion.
(18) a. *Everyone that Mary did [VP e], John suspected e.  
    b. *Whoever Eunice did [VP e], Bill saw e.

Thus, if (16b) is evidence in favor of a PP-headed analysis of (15a), then it seems that (18a–b) are evidence in favor of a VP-headed analysis of their nonpreposed counterparts:

(19) a.  
    VP  
    /   
   /   
VP   S'  
/   / 
/   /  
suspect  
everyone  
/ 
that Mary did VP  

b.  
    VP  
    /  
   /  
S  
/  
/  
/  
saw  
whoever  
/  
Eunice did VP  

But these structures appear quite dubious. Note, in particular, that since only [+wh] phrases can head free relatives, (19b) requires us to postulate [+wh] VPs in English (such as saw whoever). This would then lead us to expect pied-piping with [+wh] VPs, in parallel with [+wh] PPs and APs. As is well known, however, VPs containing a wh-phrase do not pied-pipe (*Suspect who did John?).

An alternative account of (16b) and (18a–b) is possible with a more refined view of movement and antecedent-contained deletion. Let us assume (following proposals by Chomsky (1986)) that all movement to operator positions (dee-movement) involves cyclical adjunction to intervening maximal projections. Under this assumption, well-formed examples of antecedent-contained deletion like John saw everyone that Mary did and I will live in whichever town you live will involve intermediate LF structures in which the quantified NP has been adjoined to VP and PP (respectively):

(20) a.  
    VP  
    /   
   /   
VP   NP'  
/    
/      
V     everyone that Mary did VP  
/      
/  
see  e  

b.  
    PP  
    /   
   /   
PP   NP'  
/    
/      
P     whichever town you live PP  
/      
/  
in  e  

7 An anonymous LI reviewer suggests that (16b) and (18a–b) are not in fact parallel and that the ill-formedness of the latter follows from independent constraints on backward anaphora for null VPs:
Let us now also suppose, departing from what has been assumed to this point, that antecedent-contained deletion copying is a strictly *local operation*, possible only when the reconstruction source c-commands, but does not contain, the empty category whose content is to be supplied. In (20a–b) NP, is adjoined to, c-commanded by, but not contained within the source phrase (see ei and in ei, respectively). Accordingly, the empty VP or PP within NP, can undergo copying in the intermediate site. The NPs can then be moved up to their S-adjointed positions in the usual way, resulting in well-formed LFs in which all VP or PP positions are fully specified.

In contrast, examples (16b) and (18a–b) will now be correctly ruled out. Each of these sentences involves an S-Structure form in which the empty VP or PP has failed to undergo copying in the relevant local adjunction site and in which the quantified NP has been moved out of the c-command domain of the reconstruction source. Under the assumption of strict locality for antecedent-contained deletion copying, it will be impossible to supply the content of VP or PP at LF; hence, the structure will be excluded, as desired.

It is once again revealing to note that those free relatives exhibiting "missing prepositions" are also those involving the form *wh-ever:

(21) I will live in \[ \left\{ \begin{array}{l} \text{whatever} \\ \ast \text{what} \end{array} \right\} \text{ town you live.} \]

Free relatives with *wh-ever (for example, I stole whatever he found) are semantically equivalent to universally quantified NPs (compare I stole everything that he found). In contrast, free relatives with a *wh-*phrase not suffixed by -ever (for example, I saw what I saw) are typically equivalent to definite NPs (compare I saw the thing that I saw) and are understood as referring expressions (that is, as nonquantificational). Given this fact, the analysis proposed here correctly predicts that "missing prepositions" will occur only with the former, since it is just these free relatives that will undergo QR and permit LF reconstruction.

2.2. "AdvP-Headed" Free Structures Are AP-Headed

Let us now turn to free relatives purportedly introduced by [+wh] AdvPs and APs. Unless we introduce various ad hoc assumptions, it does not appear possible to analyze

(i) *Mary did [VP e]. Then John [VP ate the apple].

The response is straightforward: if backward anaphora rules out (18a–b), then in order for this to constitute a defense of Bresnan and Grimshaw's analysis it must be shown that the very same constraint cannot be extended to rule out (16b). Otherwise, the suggestion simply undermines the very argument Bresnan and Grimshaw are trying to make, namely, that (16b) bears on constituency. Under the view pursued here, null PPs are not genuine anaphors but are simply empty positions whose content is later supplied; hence, I will propose an analysis of the ungrammaticality of (16b) and (18a–b) that makes no appeal to conditions on anaphora.

2 I assume the definition of c-command given in Aoun and Sportiche (1983), whereby a c-commands b if any maximal projection dominating the former dominates the latter.

3 Some qualifications are necessary here, for if the main and subordinate clauses are placed in the future tense, the universal reading returns even with -ever absent. Thus, I'll visit who you visit seems to be synonymous with I'll visit whoever you visit.
examples like (9f), or the wh-phrase occurring in them, as being of any category other than AP. Hence, I will accept that there are genuine free structures dominated by AP and introduced by a wh-AP. On the other hand, putative AdvPs like how(ever) and however carefully can be uniformly reanalyzed by a somewhat novel analysis of the syntax of AdvP, together with an extension of the antecedent-contained deletion account.\(^\text{10}\)

2.2.1. Case, AP, and AdvP. The proposal that I wish to pursue regarding AdvP involves seeing this category as more closely related to PP than has been generally recognized. In particular, I wish to suggest that AdvP is related to AP essentially as PP is related to NP, with the following parallel structures:

\[(22) \quad \begin{array}{ll}
  \text{a.} & \text{PP} \\
  & \text{b. \hspace{1cm} AdvP} \\
  & \text{P} \hspace{1cm} \text{Adv} \\
  & \text{NP} \hspace{1cm} \text{AP} \\
  & \hspace{1cm} -ly
\end{array} \]

So just as combination of NP with a preposition produces an “adverbial” of category PP, combination of an AP with the formative -ly produces an adverb of category AdvP.

Although I cannot defend the proposal in detail here, I suggest that this parallelism follows largely from the principles of Case theory, as these apply to [+N] categories functioning as adverbials. In general, NPs are licensed to appear as adverbials only by an accompanying preposition. This is a simple consequence of Case theory: a preposition is typically the only means for an NP to receive Case in adjunct positions, and NPs that fail to obtain Case will violate the Case Filter, as discussed in Chomsky (1981):

\[(23) \quad \begin{array}{ll}
  \text{a.} & \text{John arrived *during} \{\text{that period}\}. \\
  \text{b.} & \text{Eunice lives *at} \{\text{some location nearby}\}. \\
  \text{c.} & \text{Max always talks *in} \{\text{this fashion}\}. \\
\end{array} \]

As it turns out, a certain lexically restricted class of NPs does have the capacity to appear as adverbials, even without an overt P:

\[(24) \quad \begin{array}{ll}
  \text{a.} & \text{John arrived [that day].} \\
  \text{b.} & \text{Eunice lives [someplace nearby].} \\
  \text{c.} & \text{Max always talks [this way].} \\
\end{array} \]

Such “bare-NP adverbs” are analyzed in Larson (1985) as bearing a special feature [+F]

\(^{10}\) Proposals in this section are related to those in Chierchia (1984; 1985). In particular, I believe, the P-Adv correspondence advocated here represents a natural “syntacticization” of certain of Chierchia’s views. I might also note that if the “no-functor anaphora” constraint defended in Chierchia (1984; 1985) is to be upheld in its strongest form, then something very like the analysis of free AdvP structures presented here will be required.
(inherited through their heads) that assigns the required Oblique Case:

(25)  

\[
\begin{align*}
&\text{NP} \quad \text{Case} \\
&[+F] \\
&D\text{et} \quad N \quad [+F] \\
&\{\text{that}\} \quad \{\text{this}\} \\
&\{\text{day}\} \quad \{\text{way}\} \\
&\{\text{yesterday}\} \quad \{\text{tomorrow}\}
\end{align*}
\]

Thus, bare-NP adverbs are, in a sense, intrinsically Case-marked.

Adjectives too are case-inflected elements, as is familiar from traditional grammar. Suppose that they too fall under the Case Filter—that is, suppose that all \([+N]\) categories must receive Case. We may assume that adjectives typically receive their Case "indirectly" through some nominal element to which Case is directly assigned—for example, by concord with a noun when they appear prenominally (as in (26a)) or by agreement with an NP when they appear in predicative constructions (as in (26b)): \(^{11}\)

(26) a.  

\[
\begin{align*}
&\text{NP} \\
&D\text{et} \quad \text{AP} \quad N \quad [+F] \\
&\text{the} \quad \text{red} \quad \text{barn} \\
&\text{Case}
\end{align*}
\]

b.  

\[
\begin{align*}
&S \\
&\text{NP} \quad \text{VP} \\
&\text{John} \quad \text{V} \quad \text{NP} \quad \text{AP} \\
&\text{the barn} \quad \text{painted} \quad \text{red} \\
&\text{Case} \quad \text{Predication}
\end{align*}
\]

Adjectives are thus typically "parasitic" upon a nominal in satisfying their Case requirements.

Now when As appear in adjunct positions, but are not predicated of any Case-bearing element, they will lack a means of receiving Case. This, I suggest, is precisely the function of the \(-ly\) morpheme: it is fundamentally a Case-marking element that allows a Case-dependent category (AP) to appear in an adjunct site:

\(^{11}\) This is, of course, uncontroversial for languages that show overt case morphology; I am suggesting simply that such concord and agreement phenomena hold of "abstract" Case as well.
b. Eunice placed candidates local *(ly).
c. Max always talks careless *(ly).

And just as there are bare-NP adverbials that have the capacity to receive Case inherently, through the lexical properties of their own heads, so there are “bare-AP adverbs” as well. These comprise a highly restricted set of forms including fast, hard, long, early, late, and tall (examples drawn from Huddleston (1984)):

(28) a. It rained [early/late].
b. In those days Eunice worked [very hard].
c. Max always walks [that fast].

Such items can be analyzed in parallel with their nominal counterparts—that is, as bearing the special feature [+F] that allows them to receive Case, even in the absence of an overt Case assigner:

\[\text{(29)}\]

Such APs are intrinsically Case-marked.

2.2.2. Antecedent-Contained Deletion in AdvP. Adopting this general picture of AdvP and AP syntax, consider now purported AdvP-headed free relatives like (9e) (repeated as (30a)). In parallel with the earlier discussion of putative PP-headed examples, let us assign to the bracketed string the S-Structure representation in (30b). Adopting the revised view of antecedent-contained deletion copying, at LF the quantified AP raises and adjoins to AdvP; the result is a structure containing, in effect, a “stranded” *(ly) adverb formative, as shown in (30c). The empty adverbial phrase in the moved AP can now be reconstructed from the c-commanding AdvP; substitution of the relevant item yields (30d). The fully specified AP is then adjoined to S, as shown in (30e), which provides the correct LF representation for the example:
(30) a. I'll word my letter [however carefully you word yours].

b. 

```
  AdvP
    /
   /\...
  e
```

c. \[ S [ S I'll word my letter [AdvP [AdvP -ly [AP, e]] [AP, however careful you word yours [AdvP e]]]] \]

d. \[ S [S I'll word my letter [AdvP [AdvP -ly [AP, e]] [AP, however careful you word yours [AdvP -ly [AP, e]]]] \]

e. \[ S [S [AP, however careful you word yours [AdvP -ly [AP, e]]] [S I'll word my letter [AdvP -ly [AP, e]]]] \]

In parallel with the reduction of “PP-headed” free relatives to NP-headed ones, we thus can uniformly reduce “AdvP-headed” structures to AP-headed ones.

2.2.3. The Composition and Modification of Adverbs. The analysis just given appeals to a “decomposition” of -ly adverbs into roughly “prepositional” and adjectival components, and this raises an interesting question of morphosyntax. Jackendoff (1972) observes that the semantical relations between adjectives and their associated adverbs are often idiosyncratic and not predictable in terms of some regular contribution by the -ly morpheme taken together with the adjective meaning. On the basis of this, he concludes that the relation between adjectives and their adverb counterparts should be stated in the lexicon. If Jackendoff’s view is correct, then it seems that the structure in (22b) should be analyzed as lexical and not syntactic; hence, configurations like (30b) should be unavailable, since they involve a conflation of lexical and syntactic structure.

As it turns out, when they are examined carefully, the facts of AP meaning and distribution do not jeopardize the proposed analysis. So far as I am able to determine, all adverbs appearing in free “AdvP-headed” structures do in fact have a fully compositional meaning—roughly, in as A a manner as’. Moreover, those -ly adverbs whose meanings are noncompositional simply cannot occur in the free construction. To illus-
trate, consider the forms *individually, readily, completely, finally, absolutely, handsomely,* and *actually.* Jackendoff (1972) cites these as noncompositional adverbs: adverbs having an associated adjective, but where the latter cannot be used to form an effective paraphrase of the former. All of these forms resist the free structure:

(31) a. *The men left [however individually the women did].
b. (??)Ira will accept the offer [however readily Bill does].
c. ??This job will pay [however handsomely that one does].
d. *Stanley ate his Wheaties [however completely Bill did].
e. *Tom will refuse [however absolutely Bill does].
f. *Irving was rejected [however finally Max was].
g. *Bill will arrive [however previously/subsequently John does].

Furthermore, to the extent that such adverbs are acceptable in the "free AdvP" construction, they have the expected compositional meaning.

This result seems to be perfectly general and is consistent with the claim that the -ly structure in adverbs occurring in the free construction is syntactic, and hence semantically transparent. Accordingly, it seems plausible to conclude that there are in fact two -ly affixal morphemes in the grammar of English. One of these is lexical and appears in forms like readily and absolutely—those with idiomatic meaning. Since this adverbial structure is lexical, such forms cannot interact with antecedent-contained deletion in the way required for the formation of free AdvP structures; hence, examples like those in (31) are ruled out. The other -ly morpheme is syntactic and appears in the "regular" forms—those with fully compositional meaning. Their adverbial structure is available to antecedent-contained deletion, permitting them to occur in the free construction.12,13

Under the present account, the relation between compositionality and ability to

12 The situation in which a bound morpheme attaches both in the lexicon and in the syntax is not unprecedented in world languages. Baker (1985) describes prepositional infixes in Chichewa that incorporate into verbal complexes both in the syntax and in the lexicon; and this difference of attachment level is manifested in the availability of compositional versus idiomatic meanings. Thus, when the benefactive -ir- 'for' affixes in the syntax to unergative verbs, it has fully predictable meaning:

(i) Atsikana a-na-win-ir-a mfumu.
girls SP-past-dance-for-asp chief
'The girls danced for the chief.'

However, when it affixes in the lexicon, an idiomatic meaning results:

(ii) Mkango u-ku-yend-er anyani.
lion SP-pres-walk-for baboons
'The lion inspected the baboons.'

(Examples (i) and (ii) are from Baker (1985, 386–387, 516.) I am informed that similar facts can be observed in the formation of causatives (Mark Baker, personal communication).

13 The discrepancy between lexical and syntactic structure that arises here is reminiscent of that found in so-called bracketing paradoxes. The form ungrammaticality provides the most familiar example of this phenomenon. The requirement that un- combine with an adjective appears to impose the structure in (i); however, the stratum-ordering of phonological processes seems to demand the structure in (b):

(i) a. [[ungrammatical]-ity]
b. [un-[grammaticality]]
occur in the free construction actually follows as part of a more general (and, I believe, correct) claim about the modifiability of adverbs and adjectives. Structures like (30b) assume, in effect, that *wh*-degree modification of a *-ly* adverb is always, underlyingly, degree modification of the associated AP. This predicts that adverbs will be excluded from the free construction in at least two different circumstances: (i) the case just discussed, where AP-*ly* structure is lexical—that is, syntactically "opaque"—and hence the AP is inaccessible to modification; and (ii) the case where the underlying adjective is not gradeable, and hence not degree modifiable even if accessible. The latter case is illustrated by adverbs like *previously*, *utterly*, *virtually*, *hardly*, and *scarcely*. The relevant adjectives all strongly resist degree modification and *wh*-degree extraction:

(32) a. *John is that utter/mere a fool. (cf. John is that tall/smart a boy.)
   b. *That offense was (*very/rather) subsequent/previous to this one.
   c. *How (mere a boy) is John? (cf. How tall a boy is John?)
   d. *How previous was that offense to this one?

And the associated adverbs all strongly reject the free construction:

(33) a. *[However
       merely"
       virtually"
       hardly"
       scarcely"
       simply"
       ] Bill smiled. (cf. John merely/virtually/
       hardly/etc. smiled.)

   b. *[However utterly Carthage was defeated] Rome was defeated. (cf. Rome
       was defeated utterly.)

The expected correlation between occurrence in the free construction and possibility of degree modification is thus observed.

3. Consequences

3.1. AP-Headed "Free Relatives" Are Free Comparatives

The reduction of free relative categories has important implications for the asymmetry discussed in section 2. Consider the situation as it now stands:

In a similar way, the syntactic requirements of antecedent-contained deletion appear to require the structure for (30b) in (iiia), whereas the lexical integrity of the adverb seems to demand (iib):

(iiia) a. "[however careful]-ly"
   b. "[however [careful-ly]]"

Kitagawa (1986) has discussed a bracketing paradox arising in certain nominal forms in Japanese. These involve, essentially, an adjectival element appearing inside an NP that is interpreted as if it were an adverb attached outside NP. The parallels between the Japanese cases and those examined here are quite suggestive.

14 I am indebted to an anonymous LI reviewer for discussion on this point.
At first blush, it seems an asymmetry is still with us. However, although it is true that full, headed relatives in English come only in the category NP, there is a class of full, headed constructions of category AP—namely, comparatives. These have exactly the structure of the missing item ‘‘?’’:

This suggests the following simple possibility: standard terminology notwithstanding, so-called AP-headed “free relatives” are not actually relatives at all, they are comparatives. That is, what we really have here are two classes of clausal adjunct structures: relative clauses and comparative clauses, either of which may be full or free.¹⁵

The correctness of this view of AP structures is strongly supported by intuitions about the meanings of examples like the following:

(36) a. John will grow [however tall his father did].
   b. I’ll word my letter [however carefully you word yours].

These sentences can be paraphrased exactly by means of explicit comparatives in as:

John will grow as tall as his father did and I’ll word my letter as carefully as you word yours.

Furthermore, the “free comparative” view can be integrated with proposals in formal semantics. Klein (1980) presents a formal analysis of comparative morphemes in which the element as is interpreted as involving universal quantification. In this account, a sentence like John is as tall as Max receives the logical translation shown in (37),

¹⁵ The semantic distinction of comparative versus relative is not, of course, strictly mirrored in the syntactic distinction of AP-headed versus NP-headed, since there are apparent NP-headed comparatives, for example, I have more books than Bill has. (I am grateful to Robert May for reminding me of this point.)
(37) $\forall N[N(tall')(m) \rightarrow N(tall')(j)]$

where $N$ is a variable over degree modifier meanings—the kind of thing denoted by specifiers like very, relatively, five feet, and so on. The idea is, roughly, that John is as tall as Max if any degree-modified instance of tall applying to Max (very tall, five feet tall, and so on) also applies to John.

This result allows a very natural characterization of the meaning of the particle -ever, which intuitively is a universal quantifier. Specifically, we can think of -ever as something like a "sortally-indeterminate" specifier formative, whose combination with a stem such as what, which, or how yields a "sortally-determinate" specifier. Thus, combination of -ever with what or which produces a specifier expressing universal quantification over individuals, and combination of -ever with how produces a specifier expressing universal quantification over degree modifiers. This would give free structures containing whatever or whichever the semantics of a relative headed by a universal NP. And it would give free structures containing however the semantics of a comparative headed by an AP of the form "as-A-as." These are, of course, just the observed readings.

3.1.1. Free Comparatives and "Comparative Ellipsis." Free AP structures evidently show strong affinities with comparatives, both in structure and in interpretation, but they also depart from full comparatives in an interesting way. The latter permit so-called comparative ellipsis in their complements, whereas the former do not (see (38a–b)). In this respect free AP structures behave much more like free relatives, which also do not permit comparative ellipsis (see (38c)):

(38) a. John grew \{as tall as \} his father (did).  
    b. John grew [however tall his father *(did)].  
    c. John saw [whoevers his father *(did)].

This distribution raises a simple question for the proposed analysis: if AP structures are indeed free comparatives, and not free relatives, then why do they pattern like the relatives with respect to comparative ellipsis?

To answer this, let me first make a brief digression. I would like to suggest that talk of "comparative ellipsis" really just gives a special name to one instance of a by-now familiar process. I suggest that comparative ellipsis as in (38a) is in fact nothing more than antecedent-contained I' deletion. To see this, assume that the fully elided version of (38a) has the underlying structure in (39), where the subordinate S contains an empty I' (= predicate phrase) position:

16 The I' $\rightarrow$ Spec' I' structure in (39) has not been invoked in earlier discussion; however, nothing is affected by assuming it throughout.

17 See Hankamer (1973) for arguments that examples like (38a) do in fact involve ellipsis of clausal material.
Recall now that, on the semantics given by Klein (1980), comparatives in as involve an underlying universal quantification over degree modifiers. That is, headed comparatives, like their free counterparts in however, are quantificational. In view of this, the AP as tall as his father e will move and adjoin to S at LF, yielding the structure in (40a). The empty I' in the preposed phrase can then be reconstructed from the overt I' in the main S analogously to earlier examples, as shown in (40b):\textsuperscript{18}

(40) a. \[ [S_{\text{AP}} \text{ as tall } [S_{\text{NP}} \text{ as his father } [I' \text{ e}]]] [S \text{ John } [I' \text{ Past } [VP \text{ grow } [AP, e]]]] \]

b. \[ [S_{\text{AP}} \text{ as tall } [S_{\text{NP}} \text{ as his father } [I' \text{ Past } [VP \text{ grow } [AP, e]]]]] [S \text{ John } [I' \text{ Past } [VP \text{ grow } [AP, e]]]] \]

And this is just the desired LF structure for the sentence.

On this view of "comparative ellipsis," the question raised earlier changes its character in a significant way. If comparative ellipsis of the kind illustrated in (38) is in fact just antecedent-contained I' deletion, then the issue is no longer simply why (41a) is permitted while (41b) is not. We are now faced with the question of why (41c) and (41d) are ruled out as well:

\textsuperscript{18} Since I' shares all maximal projections with any phrase that is adjoined to S (= IP), it c-commands any such phrase. Hence, I' c-commands the adjoined AP in (40c), as required by the strictly local view of antecedent-contained deletion copying. The same considerations apply to the cases of PP movement discussed in (47).
Nothing discussed so far would lead us to expect ill-formedness of such NP-headed structures. Our initial question thus assumes a more general form: What is it that licenses the empty I' structure in (41a) but not in (41b–d)?

The answer I wish to propose is a simple one and turns on the presence of the comparative morphemes _as_ and _than_ in (41a). Following Chomsky (1981), let us suppose that the Case Filter applies at S-Structure. Furthermore, suppose that the English comparative complementizers _than_ and _as_ are underlyingly prepositions, analogous to the preposition _for_ that appears as a complementizer in infinitive constructions. Now note that in view of the empty I' in (41a–d), all of these structures are threatened by the Case Filter. Since no tensed Infl is present, the embedded subject (_his father_) has no apparent means of receiving Case.

I suggest that what distinguishes (41a) from (41b–d) is exactly the availability of Case—that _than_ and _as_ "rescue" (41a) from ill-formedness by virtue of their status as prepositions and hence Case assigners. Briefly, we may suppose that in the special circumstance where its Infl is absent, a clause becomes "transparent" to government
from the complementizer position, analogously to the transparency of nonfinite clauses under for. This permits the prepositional complementizers than and as to assign Case to an NP in embedded subject position, which in turn allows structures like (41a) to pass the Case Filter:

(42) \( [AP_{\text{as tall}} [S' \text{ as [I' his father [I e]]}]] \)

In the case of (41b–d) the elements potentially governing into the lower S are all non–Case assigners—wh-words or nonprepositional complementizers. Hence, there is no means of providing Case marking to the lower subject in (41b–d), and these structures are excluded by the Case Filter.19

3.1.2. Comparative Ellipsis in Temporal Adverbials. An account of comparative ellipsis in terms of Case and antecedent-contained deletion is supported by facts involving temporal connectives. Geis (1970b) observes that constructions involving before and after behave much like the explicit comparatives earlier than and later than in allowing comparative ellipsis, as illustrated in (43a–b).20 He points out, however, that constructions involving when, which might be expected to pattern like as early as, do not allow com-

19 Assignment of Case to the embedded NP in antecedent-contained deletion structures may be more involved than I have indicated. Note that alongside examples like (ia), many speakers accept (ib):

(i) John is taller than \( \{ \begin{array}{l} \text{a. me} \\ \text{b. I} \end{array} \} \).

Here the Case of the embedded NP is Nominative, the Case it would receive from its reconstructed tensed Infl, and not Objective, the Case it would receive from than. In view of this fact, we may actually want to say that than and as license the embedded subject with respect to S-Structure application of the Case Filter but do not (or, at any rate, need not) assign Case themselves. This proposal is compatible with a view of the Case Filter wherein nominal categories are obliged to be governed by a Case assigner at S-Structure but are not required to receive Case from it. In examples like (ib) I would be Case-licensed by than at S-Structure but would not actually receive Case until LF, when its tensed Infl is present. Note that after reconstruction of I', IP will no longer be transparent to government from without.

20 The elliptical status of certain complements to before and after is directly observable in a language like Spanish, where the presence of the complementizer que distinguishes between clausal and phrasal variants of these prepositions:

(i) a. antes/después de ese día (phrasal)
    before/after that day
    b. i. antes (de) que llegara María (clausal)
       before arrived María
       ‘before Mary arrived’
    ii. después (de) que llegó María (clausal)
       after arrived María
       ‘after Mary arrived’

Now observe the following well-formed example:

(ii) Juan llegó después que María.
    ‘John arrived after Mary.’

The presence of the clausal form of ‘after’ in (ii) shows that its complement is genuinely a clause fragment and not simply a bare nominal. Such examples are in fact intuited as elliptical by Spanish speakers. (I am grateful to James Harris for discussion of these examples.)
parative ellipsis; this is illustrated in (43c):

(43) a. John arrived \{earlier than \}
     \{later than \}
     Max arrived/did/\$ 

   b. John arrived \{before \}
      \{after \}
      Max arrived/did/\$ 

   c. John arrived \{as early as Max arrived/did/\$ \}
      \{when Max arrived/did/*\$ \}.

\textit{Before, after, and when} share a number of important properties. As observed in Geis (1970a), all three show \textquote{long-distance} temporal dependencies. Thus, (44a) is ambiguous according to whether \textit{when} is construed with the time of John\’s saying or the time of Mary\’s leaving. These readings correspond to structures in which the \textit{wh}-phrase originates in the upper (44bi) or the lower (44bii) clause, respectively:

(44) a. I saw Mary [when John said [that she left]].
   
   b. i. I saw Mary [when [John said [that she left] e]].
       ii. I saw Mary [when [John said [that she left e]].

Similarly, (45a) is ambiguous according to whether the temporal element is construed with the upper or the lower clause. The sentence can be understood as asserting that I saw Mary before (after) the time at which John uttered certain words, or that I saw Mary before (after) the time \(t\) such that John said Mary left at \(t\). As argued in Geis (1970a) and Larson (1984), these readings also correspond to structures in which a covert adverbial element (here identified as a PP) moves from the upper (45bi) or the lower (45bii) clause:

(45) a. I saw Mary in New York \{before \}
    \{after \}
    John said that she left.

   b. I saw Mary in New York

   i. [PP \{before \}
      \{after \} [S\' O, [John said [that she left] [PP, e]]].
   
   ii. [PP \{before \}
      \{after \} [S\' O, [John said [that she left [PP, e]]].

Now despite these similarities there remains a major difference among the three \"temporal connectives,\" a difference quite important for present concerns: \textit{before} and \textit{after} are prepositions, which head a PP and take either an NP object or a clausal complement, as in (46a). \textit{When}, on the other hand, is a \textit{wh}-NP—a bare-NP adverb—and in constructions like (44a) and (46b) it heads a free relative clause:

(46) a. I saw John [PP \{before \}
    \{after \} \{[NP that day] \}
    \{[S\' Max arrived] \}].

   b. I saw John [NP when [S Max arrived e]].
Suppose now that John arrived before Max is derived by antecedent-contained I’ deletion parallel to earlier examples. The sentence begins with the S-Structure form in (47a). Again assuming the transparency of an “Infl-less” I” (and its dominating S’), the preposition will be able to Case-mark the embedded subject Max, allowing it to satisfy the Case Filter. PP may then move and adjoin at LF in the familiar way, as shown in (47b),21 whereupon reconstruction yields (47c), the desired LF structure:22

\[\text{(47) a.}\quad [\_S\text{ John } [\_I' \text{ Past arrive } [\_PP\text{ before } [\_S' \text{ Max } [\_I' \text{ e}]]]]] \]

\[\text{Case}\]

b. \[\_S[\_PP, \text{ before } [\_S' \text{ Max } [\_I' \text{ e}]]] [\_S\text{ John } [\_I' \text{ Past arrive } [\_PP, \text{ e}]]]]\]

c. \[\_S[\_PP, \text{ before } [\_S' \text{ Max } [\_I' \text{ Past arrive } [\_PP, \text{ e}]]]] [\_S\text{ John } [\_I' \text{ Past arrive } [\_PP, \text{ e}]]]]\]

No such derivation will be available for when, however. An S-Structure form analogous to (47a), but involving when, will violate the Case Filter:

\[\text{(48) John arrived } [\_\text{NP when } [\_I' \text{ Max } [\_I' \text{ e}]]]\]

Given when’s status as an NP—a non–Case assigner—there is no way for Max to receive Case in (48), the transparency of I’ notwithstanding. Hence, the proposed account correctly predicts examples like John arrived when Max to be ill-formed.

These results support the view that the possibility of “comparative ellipsis” in a given structure really has nothing to do with status as a comparative per se. Rather, it follows from the interaction of Case and government theory with the properties of certain antecedent-contained deletion structures—those lacking an I’. We see that what excludes “comparative ellipsis” in relatives, free structures, and clausal adjuncts involving when is simply that the relevant Comp elements are not Case assigners. In headed comparatives

21 The scopal character of temporal PPs can be observed in certain familiar ambiguities. As is well known, comparatives like (i) have two readings according to whether the comparative AP is understood inside or outside the scope of the intensional verb believe:

\[(i)\quad \text{John believes Max is } [\text{smarter than than he is}].\]

On the former reading, John believes an impossible situation to hold. On the latter, John is simply mistaken about Max’s intelligence. These readings correspond to two different LF representations for the sentence; respectively:

\[(ii)\quad a. \quad \text{John believes } [\text{[smarter than than he is] Max is e}]\]
\[b. \quad \text{[smarter than than he is] John believes [Max is e]}\]

Temporal phrases involving before, after, and when show analogous ambiguities:

\[(iii)\quad a. \quad \text{John believes Max arrived } [\{\text{before}\} \text{ he did}].\]
\[b. \quad \text{John doesn’t believe Max got home } [\text{when he did}].\]

These facts thus suggest that temporal PPs and NPs are likewise scopal.

22 Unlike than and as, before and after seem to uniformly impose Objective Case upon their objects. Observe the contrast in (i):

\[(i)\quad a. \quad \text{John arrived earlier/later than I/me.}\]
\[b. \quad \text{John arrived before/after } *\text{I/me.}\]

I have no account of this difference in Case properties.
and certain clausal PPs, such Case-assigning elements are available, with the result that ellipsis is possible.

3.2. *Free Structures: Headed or Headless?*

Bresnan and Grimshaw (1978) argue that the *wh*-phrase in a free construction is the head of that structure. In favor of this view they cite the fact that the category of the *wh*-phrase "matches" the category of the free relative itself. If the antecedent-contained deletion analysis given here is correct, it provides additional evidence in favor of Bresnan and Grimshaw's position. For not only does *wh* determine the category of its free relative, it determines its quantificational status as well. As observed earlier, it is free relatives with *-ever*—the universally quantified *wh*-form—that raise at LF and permit PP or AdvP reconstruction. This is predicted on a head analysis, which thus achieves a unified account of the categorial and quantificational properties of free constructions.

On an alternative account proposed by Groos and Van Riemsdijk (1979), free relatives are assigned the structure in (49),

(49)  

```
       NP
       /\   
      NP  S'
     /   
    α   Comp
   /     
  S      
 /       
XP₁     . . . XPᵢ . . .
```

where α is empty, and where *wh* occupies its normal position in Comp. Under this approach, the categorial "matching effect" can be achieved by letting Comp be accessible to higher predicates, which can thus satisfy their subcategorization properties through XP. But it is difficult to see how such a principle could predict that *wh* will determine the quantificational character of a free relative. Status as a quantifier or referring expression is an "absolute" property, independent of higher predicates. It thus seems that some additional stipulations will be necessary to capture these facts.

3.3. *The Nonexistence of Free Relatives of Reason*

Unlike *when*, *where*, *how carefully*, and other *wh*-adverbs, the *wh*-phrase *why* cannot appear in free constructions:
(50) a. I'm sure John went \{where \{when \} (ever) Mary did\}. 

b. *I'm sure John committed the crime \{why(ever) Bill did\}.

This result is quite general. Although languages with adverbial free relatives may lack one or another relative adverb, there is to my knowledge no language that freely permits free relatives of reason equivalent to (50b). Given an analysis in which free structures come in a variety of "adverbial categories," the behavior of adverbial why is rather mysterious. Why should this wh-adverb in particular fail to occur in free relatives?

Taking the present results together with those in Larson (1985), I believe we can go some way toward explaining this rather odd fact. Under the revised scheme I have proposed, there are two possibilities for a potential free structure of reason: it could be a free relative or a free comparative. It seems clear that the semantics of a potential free reason structure would not be that of a comparative—no degrees of anything would be evaluated on the intended meaning of (50b), for example. Hence, if such a structure were to be possible, it would clearly have to be a free relative, analogous to constructions with when and where.

In Larson (1985) when and where are analyzed as bare-NP adverbs; they are taken to be marked in the lexicon as bearing Oblique Case, and their special distributional properties are accounted for in terms of this inherent Case marking. One way to think of this is the following: NPs typically occur as adverbials in concert with a preposition. In the case of when and where, however, the preposition—or, more accurately, the Case that such a P would provide—has been "incorporated." Intuitively, then, when has "incorporated" the Case of a temporal preposition (for example, at); where has incorporated the Case of a locative preposition; and so on.

Consider now the wh-word why. On analogy with the proposal for when and where, in order to derive why as a bare-NP adverb, this element would have to incorporate the Case of a reason preposition. Significantly, however, reason connectives do not seem to be Case assigners. Consider the basic English preposition of reason because. Although this connective freely admits clausal complements, it can appear with an NP object only if the dummy Case assigner of is provided:

\[
(51) \text{John left because} \begin{cases}
\text{Mary kissed Phil} \\
*(of) \text{that fact}
\end{cases}.
\]

Intuitively, the source of this "Case-less" status for reason prepositions seems clear: it follows from their semantics—from their fundamental status as propositional connectives.²⁴

²³ Chierchia (1985) also proposes a fundamental connection between the meanings of why and because.

²⁴ Reason prepositions are thus analogous to verbs like wonder and inquire, which (presumably in view of their semantics) assign no Case and hence take clausal complements but not NP objects:

\[
(i) \text{John } \begin{cases}
\text{wondered} \\
\text{enquired}
\end{cases} \begin{cases}
\text{what the time was} \\
*\text{the time}
\end{cases}.
\]
Given this result, we now can explain the odd status of *why*: since reason prepositions are fundamentally *S*’ complement-taking elements, there is, in effect, no Case associated with them, and therefore no Case for *why* to absorb. Accordingly, *why* cannot achieve the Case-independent NP status of *when* and *where*. And since it cannot be a bare-NP adverb, it cannot introduce a free relative of reason.25,26,27

References


Carlson, G. (1985) “*Same* and *Different*: Some Consequences for Syntax and Semantics,” ms., University of Iowa, Iowa City.


25 This line of thinking actually predicts a stronger result, namely, that there will be no bare-NP adverbs of reason of any kind, *wh-* or non-*wh*. This prediction is in fact correct, as discussed in Larson (1983).

26 A question might be raised here regarding *for* as a possible reason preposition that does assign Case: Why couldn’t the Case of *for* be incorporated by *why*? The answer is simply that *for* is not a preposition of reason. Rather, it is a preposition of purpose, related to constructions involving (*in* *order* to) (see Bach (1982)). Direct evidence for this comes from observing the parallels between (i–a–b) and (iia–b) (pointed out to me by Sylvain Bromberger):

(i) The boat sank {a. because it was old and rotten b. *in order to collect the insurance*}

(ii) the reason {a. *why* b. *for which*} the boat sank

Intuitively, the ill-formedness of the (b) examples arises from the same source: both *for* and (*in* order) to seem to presuppose agency or purpose on the part of an inanimate object—the boat. *Why*, like *because*, carries no such presupposition.

27 These remarks of course raise the question of the categorial status of *why*. The most plausible analysis appears to me to be that *why* is a basic PP—[*PP why*]—synonymous with *because of which*. If this is correct, then the account of “*PP-headed*” free relatives given earlier will still disallow “*whenever constructions*,” although Bresnan and Grimshaw’s analysis would not.


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