EXTRACTION AND MULTIPLE SELECTION IN PP

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1 INTRODUCTION

It is a simple fact about the grammar of English that predicate expressions select a number of different complement types. The verb believe, for example, may take an NP object (1a), or a clausal complement (1b):

(1) a. John believes [nothing that you tell him]
    b. John believes [that the world is round]

Under most theories, the fact that a certain lexical item selects two or more categories of complements is not assumed to have any consequences with respect to any single derivation in which the item appears. Thus the fact that believe selects a clause is taken to play no part in, and hence to be irrelevant to the derivation underlying (1a). In this note I examine facts concerning clausally complemented PPs in English which suggest that, contrary to this view, multiple subcategorization may indeed play a substantive role in derivations. In particular, I examine movement effects in certain PPs that appear to depend on the combined subcategorization properties of their prepositional heads. I argue that this observation can be accounted for by allowing “multiple selection”, whereby a lexical item Case- and Θ-marks different complements at different levels of representation in a single derivation. I suggest that this proposal follows under one plausible reading of the Projection Principle of Chomsky (1981, 1986a).

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1 Pesetsky's (1982) account of Russian QPs, in which predicates permit different categories (NP vs. QP) at different levels of representation, is very close in spirit to the basic proposal adopted here. Also relevant is Grimshaw (1979), which argues that the combined syntactic and semantic properties of predicates must be appealed to in accounting for the distribution of complement types (interrogatives, concealed questions, etc.).
2 AMBIGUITY AND MOVEMENT IN CLAUSAL PPS

Geis (1970) notes a number of interesting facts concerning the interpretation of clausal PPs in English that are headed by the temporal prepositions before, after, since, and until. Consider (2a-d):

(2)  
   a. I saw Mary in New York [PP before [CP₁ she claimed [CP₂ that she would arrive]]]  
   b. I encountered Alice [PP after [CP₁ she swore [CP₂ that she had left]]]  
   c. I can't leave [PP until [CP₁ John said [CP₂ I could leave]]]  
   d. I haven't been there [PP since [CP₁ I told you [CP₂ I was there]]]

Each of these sentences shows a PP containing a tensed complement, whose category I take to be CP, in conformity with the usual distribution of clausal complements. As Geis observes, sentences like (2a-d) are ambiguous between two readings of the temporal PP. Thus (2a) can mean that I saw Mary in NY before she made a certain claim, viz., that she would arrive (sometime). But it can also mean that I saw Mary in NY prior to some time t that she alleged would be the time of her arrival. Similarly (2b) can mean that I encountered Alice subsequent to her swearing that a certain proposition was true, viz., that she had left (sometime). And it can mean that I saw her after some time t that she swore would be the time of her arrival. And so on.

If we think of temporal prepositions like before and after as determining a two-place relation R(t₁,t₂) between a time t₁ established in the main clause and a time t₂ established in the complement clause, then we can summarize the situation in (2a-d) by saying that in each case the PP has a reading where t₂ is established in CP₁, and a reading where it is established in CP₂.

The ambiguities in (2) are analogous to ones observable in adverbial clauses involving when. Like (2a,b), (3) has two readings according to whether the wh-adverb is construed with the least embedded or the most embedded complement clause. On the former reading, I saw Mary when she uttered certain words; on the latter, I saw her at her alleged arrival time:

(3) I saw Mary in New York  
    [CP₁ when [ CP₂ she would arrive]]

In the case of when-clauses, such ambiguities have standardly been analyzed as arising through movement. That is, the two readings correspond to two distinct underlying representations for (3): one in which when has moved to its S-structure position from outside CP₂ (4a), and one in which it has moved from inside CP₂ (4b):
Extraction and multiple selection in PP

(4)  a. \(\text{[CP}_1 \text{ when \{she claimed [CP}_2 \text{ she would arrive \}} \text{ t \}}\]
    b. \(\text{[CP}_1 \text{ when \{she claimed [CP}_2 \text{ she would arrive t \}}\]]\)

The similarity in interpretive possibilities for (2) and (3) suggests that the former, like the latter, might also involve movement. And in fact there is further evidence pointing toward this conclusion. Just as the relation induced by \textit{wh}-movement can extend over an in-principle unbound distance, so can the relation between \textit{before} and its semantically associated complement clause. Thus (5) below is three ways ambiguous according to whether the preposition is construed with time-of-John’s-saying, time-of-Mary’s-claiming, or time-of-Mary’s-being-in-NY.

(5)  I saw Mary in NY before
    [John said \{that she claimed [PRO to be in the city]\}]

There is no fixed depth to which the preposition can “reach down” into its complement in establishing the value of \textit{t2}. As the number of embedded clause increases, so does the number of available readings.

Furthermore, as noted by Geis, the relation between temporal prepositions like \textit{before}, \textit{since}, etc. and an embedded complement clause appears to observe familiar constraints on movement (i.e. Subjacency):

(6)  a. I saw Mary in New York
    \([PP \text{ before [she made [NP the claim [that she had arrived]]]}]\)
    b. I haven’t been in Paris
    \([PP \text{ since [I told you [NP the story [that I was there]]]}]\)

In (6a,b) it is not possible for the preposition to be construed with the clause occurring inside the complex noun phrase. Thus (6a) has no reading where \textit{before} is understood as picking out times prior to Mary’s arriving, but only a reading where it picks out times prior to her making the claim in question. (6b) is analogous.

Finally, the availability of “long distance” readings for \textit{before}, \textit{after}, etc. in languages closely related to English shows a correlation with the possibility of overt unbounded syntactic movement. For example, in most dialects of German only clause-bounded syntactic movement is permitted:

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2 Chomsky (1986b) attributes the ill-formedness of examples like (6a,b) to an ECP violation, observing the strong inaccessibility of a «downstairs» reading for \textit{before} and \textit{since}. This assessment does not affect the basic point at issue here, however, viz., that the unavailable readings in (6) would involve illicit movement.
(7) a. wer hat gesagt [CP dass Georg ihn gesehen hat] 
   who said that George saw him
b. *wen hat Hans gesagt [CP dass Georg ihn gesehen hat] 
   who did Hans say that George saw?
c. ein Mann der mir gesagt [CP dass Georg ihn gesehen hat] 
   a man who told me that George saw him
d. *ein Mann den Hans mir gesagt [CP dass Georg ihn gesehen hat] 
   a man who Hans told me that George saw

Correspondingly, sentence embedding temporal prepositions in German strongly resist the embedded clause readings permitted in English. Consider (8a-c) involving bevor ‘before’ and nachdem ‘after’:

(8) a. ich sah ihn schon lange 
   [bevor Paul sagte [dass er ankommen sollte]] 
   ‘I saw him long before Paul said that he was supposed to arrive.’

b. ich hörte die Lokomotive schon fünf minuten 
   [bevor der Fahrplan angegeben [dass der Zug ankommen sollte]] 
   ‘I heard the locomotive at least five minutes before the timetable indicated that it was supposed to arrive.’

c. Paul wurde von seinen Nachbarn noch gesehen 
   [nachdem der Angeklagte behauptete [dass er ihm umgebracht hatte]] 
   ‘Paul was seen by his neighbors after the accused maintained that he had killed him.’

Native German speakers share a consensus that the embedded readings in (8) are quite marginal, if not totally unavailable. Despite the greater naturalness of the “lower reading” for P, the “higher reading” is strongly preferred. Thus in (8a), the PP picks out times before Paul’s saying, not before his arriving. In (8b), PP refers to a time at which the timetable indicated that the train would arrive, and not to the arrival time itself.

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3 The examples in (8a-c) are due to Hans Uszkoreit.
4 Hans Uszkoreit reports that the sentence leads one to think of some sort of electronic timetable that could actively indicate an arrival at a given moment, etc.
Thus parallel to the fact that German allows only clause bounded movement, it allows only clause bounded temporal dependencies.

The situation in German contrasts with that in Swedish. Like English, the latter permits syntactic movement out of tensed clauses. Correlatively, long-distance temporal dependencies of the sort noted in (1) are also possible in Swedish:\(^5\)

\[(9) \quad \text{Kalle såg Lisa i Goteborg [innan hon sagt [att hon skulle vara där]]} \quad \text{‘Kalle saw Lisa in Goteborg [before she said that she would be there.’} \]

The examples in (9) show the same ambiguities as their English counterparts. Hence once again the availability of long-distance temporal readings patterns with the availability of long-distance movement.

3 NON-AMBIGUOUS CLAUSAL PPS

The facts cited above show that PPs headed by before, after, since, and until display ambiguities suggestive of underlying movement. However, other English clausal PPs, e.g., ones headed by although, because, in case and unless, are not ambiguous in this way:\(^6\)

\[(10) \quad \text{a. I still respect John} \quad \text{[PP although [he claims [that he killed his mother]]]} \]
\[(10) \quad \text{b. I visited New York} \quad \text{[PP because [Mary dreamed [that Max was there]]]} \]
\[(10) \quad \text{c. I won’t visit New York} \quad \text{[PP unless [Bill promises [Mary will be there]]]} \]
\[(10) \quad \text{d. I won’t visit New York} \quad \text{[PP in case [Bill says [Mary is there]]]} \]

Consider (10a), for instance. On analogy with (2a-d), we might expect two readings according to whether concession were being made for John’s claiming (the “higher” reading for although), or for his killing his mother (the “lower” reading). These two readings of PP would be paraphrased as follows: (i) “despite John’s claiming that he killed his mother”, and (ii) “despite what John claims, viz., that he killed his mother”. On the first reading of (10a), I would be asserting that I still respect John despite his extravagant claims about matricide. On the second reading, I would be asserting that I still respect John despite the

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\(^5\) The examples in (9) are due to Elisabet Engdahl.

\(^6\) I assume, following Emonds (1976), that all of these items are to be analyzed as Ps.
act that he committed and that he now publicly proclaims. It seems that
in (10a) only the first (rather strange) reading is available: concession
can only be understood as being made for John’s claim.

Similar remarks apply to (10b). Higher and lower readings for because
would be paraphrased (respectively) as follows: (i) “because of Mary’s
dreaming that Max was in New York” and (ii) “because of what Mary
dreamed, viz., that Max was in New York”. On the former, (10b) would
entail that the cause of my visit was Mary’s act of dreaming. (Perhaps
I believe her dreams to have symbolic significance that in this case
indicates that a trip to NY is in order.) On the latter reading, (10b)
would entail that the cause of my visit is the content of what Mary
dreamed, quite apart for any connection with her having dreamed it. It
seems clear that a reading like the latter is simply not available for
(10b). The causal responsibility for my trip-taking must be Mary’s
dreaming, and not the situation or proposition that she stands in the
dream-relation to. Here again only a highest attachment for P is
possible.

It is tempting to try to attribute the lack of ambiguity in the PPs
(10a-d) vs. those in (2a-d) to the fact that the latter are temporal
prepositions while the former are not. Such an hypothesis would be
mistaken however. As noted by Geis (1970) and Stump (1985), the
clausal preposition while resists long-distance readings, despite its clearly
temporal meaning:

(11)  a. I didn’t see Mary in New York
     [PP while [CP1 she said [CP2 she was there]]]
     b. I will be in Boston
     [PP while [CP1 I promised [CP2 I would be there]]]

Thus (11a) appears to have only the odd reading in which I didn’t see
Mary during the time she was uttering certain words to the effect that
she was in New York. And (11b) has only the impossible reading where
I will be in Boston at some future time t1 included in some past time
t2 such that I promised I would be in Boston at t2. Thus the simple
observation seems to be that while cannot be construed with an
embedded clause. As in (10), only a “highest attachment” is possible.

4 AMBIGUITY AND COMPLEMENT SELECTION

The divergence between before, after, since, until and the other English
clause-embedding prepositions is puzzling. Why should such apparently
similar elements differ with respect to “long-distance readings”? The
expressions in question are all of identical category: P. Moreover the
difference in behavior is not easily attributed to differences in meaning.
All of the Ps seem to pick out two-place relations on some set of
objects, and in view of the behavior of *while*, the distinction does not correspond to whether these objects are times, propositions, etc. Furthermore, as we have seen, it is by no means impossible to state what the long-distance readings for *while*, *although*, etc. would be if the grammar of English were to permit them. The absent readings are thus not in any way “conceptually inaccessible”.

It seems clear that the availability of long-distance readings cannot be a primitive lexical property - *P* - that prepositions either possess or lack. Language learners do not plausibly receive instruction on facts like (2), (10) and (11). Evidently then the relevant differences among English clause-embedding Ps must be deducible from some other distinctions among them. When we examine the sentence-embedding prepositions more closely, we find that there is in fact one more respect in which *before*, *after*, *since* and *until* differ from their fellow prepositions: while these four take both NP objects and clausal complements, *while*, *although*, *because*, *unless*, and *in case* accept only the latter:

(12) a. \[
\begin{array}{l}
\text{before}\\ \\
\text{after}\\ \\
\text{since}\\ \\
\text{until}
\end{array}
\] \\
John arrived\text{that day}

b. while \text{John slept}\
\text{*that day}

c. \[
\begin{array}{l}
\text{although}\\ \\
\text{because}\\ \\
\text{unless}\\ \\
\text{in case}
\end{array}
\] \\
Mary walked out on Max\text{that fact/reason/eventuality}

This “gap” in the paradigm of complements for the prepositions in (12b,c) is matched by the existence of a parallel set of forms in English with identical semantics, but complementary selectional properties. Thus alongside *although* and *while* there are the prepositions *despite* and *during*, respectively. *Despite*, like *although*, expresses the notion of concession, and selects NP objects but not clauses (13a). Similarly, *during*, like *while*, expresses temporal inclusion, and selects NP but not CP (13b):

(13) a. despite \text{*Mary walked out on Max}\
\text{that fact/reason/eventuality}

b. during \text{*John slept}\
\text{that day}
With *because* and *in case* the situation is slightly different. Neither of these prepositions has a synonymous counterpart that is complementary with respect to subcategorization and wholly distinct morphologically. Rather, the counterparts for *because* and *in case* seem to derive directly from them by affixation of the preposition of:

\[(13) \quad \{ \text{because of} \} \{ \text{*Mary walked out on Max} \]  
\[\text{in case of} \]  
[that fact/reason/eventuality]

Thus in parallel with *because CP* and *in case CP* we have *because of NP* and *in case of NP*.\(^7\)

Taking our observations together, then, the following pattern emerges: *before, after, since and until* all exhibit long-distance interpretive possibilities; and they also select both NP and CP. *While, although, because, unless, and in case* show no long-distance readings with respect to time, causation, concession, conditionality, etc., and they select CP alone. The notions associated with the second set of Ps seem to be distributed in the grammar of English between pairs of forms - *while/during, although/despite, because/because of, in case/in case of* - of which the first member takes a clause and the second an NP. The selection possibilities of these pairs thus “add up” to that of a single preposition like *before or until*.\(^8\)

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\(^7\) The prepositions *because* and *in case* derive historically from complex forms with internal nominal structure, viz.:

\[(i) \quad \begin{align*} a. & \quad \text{by [N cause]} \\ b. & \quad \text{in [N case]} \end{align*} \]

In view of this it seems plausible to take the *of* in (13c) as the pure Case-assigning *of* that appears after [+N] elements in examples like *destruction of the city or proud of John*. Since it is unclear that *because* and *in case* are to be analyzed synchronically as in (i), I take no position on whether *because of* and *in case of* are «actively» derived in modern English, or are «frozen forms» entered in the lexicon as such. In any event, note that because *although* and *while* never contained internal nominal structure, and because of their current [-N] status, we neither expect nor find *of*-insertion counterparts:

\[(ii) \quad \begin{align*} a. & \quad \text{*although of that fact} \\ b. & \quad \text{*while of that day} \end{align*} \]

\(^8\) This statement is not precisely accurate given that *since* and *until* also take PP and AdvP complements:

\[(i) \quad \begin{align*} a. & \quad \text{I had lived there \{ since [before your time],} \\ & \quad \text{until [(quite) recently].} \\ b. & \quad \text{I won’t need the hammer until [after you are done with it].} \end{align*} \]

For present purposes I ignore these additional possibilities.
5 A MOVEMENT ANALYSIS

The correlation between long-distance interpretation and selection can actually be captured under plausible assumptions. Recall first the basic configuration for clausal PPs:

(14)

\[
\begin{array}{c}
\text{PP} \\
\text{CP} \\
\text{Spec} \\
C' \\
P \\
\end{array}
\]

As noted above, a CP analysis of the clausal complement is in accord with the general distribution of tensed clausal complements in English.\(^9\) The presence of Spec\(C'\) in (14) has a number of “automatic consequences”. In particular, it will permit movements of the following kind, where \(O\) is an operator phrase and \(t_i\) is its trace.

(15)

\[
\begin{array}{c}
\text{PP} \\
\text{CP} \\
\text{Spec}C' \\
C' \\
P \\
\end{array}
\]

A number of requirements hold of this structure. Most importantly for our purposes, the empty category \(t_i\) must bear Case in order to be interpreted as a variable bound by \(O\). Without such a variable, \(O\) binds nothing and the structure violates a quite general principle forbidding

\(^9\) Surface complementizers are not permitted in clausal PP constructions; thus we do not get *[I left before] because that Mary had left, etc. This appears to be a largely superficial fact, and we might account for it with a P' filter:

*[P CP], where the head of CP has phonological content

Such a filter would rule out ill-formed P-that examples, moreover it will also correctly exclude certain other cases. Chomsky (1981) notes that the double occurrence of for in pseudo-cleft constructions such as What John hopes for is for Bill to win suggests that hope for is a phrasal verb embedding an infinitive complement. If this is correct, then we clearly need some principle to exclude examples containing two occurrences of for, e.g., *John hopes for for Bill to win. The «P-COMP» filter correctly rules out such sentences. Although the complementizer that cannot occur following P in modern English, according to Jespersen (1909-49) it did in fact appear in clausal PP constructions as recently as Middle English. Thus one gets ME examples involving before that S, while that S, because that S, etc. These facts show that in Middle English the category of clausal complements to before, while, etc. is indisputably CP.
vacuous quantification in natural language (Chomsky 1982, Koopman and Sportiche 1982).

Suppose we now assume the following:

i. SpecC' falls within the selection domain of P in (15).
ii. Lexical items are free to express selectional properties whenever these may be expressed (i.e., whenever the structural conditions for their expression are met).

These two simple assumptions will account for the differential availability of long-distance readings in clausal PPs in English. To illustrate, consider a concrete example: the PP in (2a) on its “lower attachment” reading. We may take the D-structure to be as in (16), where O is an empty operator of category NP generated in the adjunct position occupied by the bare-NP adverb when (recall (4)) (see Larson 1985 for the NP status of when):

(16)  a. [PP before [CP1 she claimed [CP2 that she would arrive O ]] ]

In (16a), O occurs in the most deeply embedded complement of before, however after Move Alpha applies, O may occupy the highest COMP:

(16)  b. [PP before [CP1 O i she claimed [CP2 t i that she would arrive t i ]] ]

Observe that since t i is, by assumptions in adjunct position, t i will fail to receive Case from any element in CP2. It follows that unless t i has some other means of receiving Case, this structure will violate the prohibition on vacuous quantification since t i will not be a variable.

From the facts cited in (12) we know that before may select an NP object. Furthermore, by (i) above we may take O to be within the government domain of before, and hence within the Case- and Θ-marking domain of this element. Finally, by (ii) we assume that before may exercise any relevant Case- and Θ-marking properties in (16b), despite its selection of a clause at D-structure. It follows that before can Case-and Θ-mark O in (16b):

(17) [PP before [CP1 O i ... t i ... ]] 

The effect of the former is that O i receives Case, which we assume to be transmitted to t i. The latter is thus a proper variable and the
structure escapes violation of the "vacuous quantification" constraint, despite the adjunct position of $e$.\textsuperscript{10}

I assume the effect of $\Theta$-marking of $O$ by $before$ is analogous to the $\Theta$-marking of $then$ in a PP like (18):

(18) Mary arrived $[_{PP} \ before \ then]$

That is, $O$ is construed as the object of $before$. Recalling earlier remarks, this means that $O$ will specify the $t_2$ coordinate of the relation $BEFORE(t_1, t_2)$, just as $then$ does in (18). In view of the fact that $O$ has been extracted from the clause CP2, its temporal reference is identical to that of CP2 (compare the temporal reference of $then$ in: $She \ claimed \ that \ she \ would \ arrive \ then$). It follows that the PP in (2a) will establish the $BEFORE$-relation between some time $t$ specified in the main clause and a time established in CP2. This is the long-distance reading of (2a).

The situation with $before$ contrasts with that of $while$. Since this item takes a CP complement, it presumably also occurs in configurations analogous to (16b):

(19) $[_{PP} \ while \ [_{CP1} \ O_i \ she \ said \ [_{CP2} \ t_i \ that \ she \ was \ there \ t_i \ ]]]$

But because $while$ selects only clausal complements and not NPs (these lexical properties having been “appropriated” by the preposition $during$), it will not be able to Case-mark $O$ in (19). This structure will therefore involve vacuous quantification, and hence will be excluded. Analogous remarks apply to $although$, $because$, etc.\textsuperscript{11}

\textsuperscript{10} The Case conditions holding for clausal PPs are roughly analogous to those holding in adverbial relative clauses like (1a,b):

(i) \quad \begin{align*}
(a) & \quad [NP \ the \ day \ [CP \ O_i \ [I \ left \ t_i \ ]]] \\
(b) & \quad [NP \ the \ way \ [CP \ O_i \ [he \ spoke \ t_i \ ]]]
\end{align*}

Here too we have operators moved from adjunct positions, and accordingly the question again arises as to how the trace $t_i$ receives Case in (i). Larson (1985) proposes that in well-formed adverbial relatives, Case is obtained from the relative clause head by percolation of a Case-assigning feature $[+F]$, schematically:

(ii) \quad $[NP \ NP \ [CP \ O_{i \ldots} \ t_i]]$

The $[+F]$ feature is then inherited by $t_i$, which receives Case from it.

\textsuperscript{11} Note that it is also true that $while$’s sister preposition $during$ won’t be able to occur with a clausal complement exhibiting a long-distance dependency, for although it could Case-and theta-mark the operator (at S-structure or LF) since it selects NP, it cannot license the complement clause at D-structure since it does not select CP.
Presumably, prepositions like \textit{while}, \textit{although} and \textit{because} must combine semantically with their complements in a way that does not involve variable binding of any sort. With temporal \textit{while}, a plausible general view is that \textsc{while}/\textsc{during}(t_1,t_2) obtains its $t_2$ coordinate value through the adjacent C node. This idea might be implemented through the suggestion of Pesetsky (1982) that \textsc{comp} is linked to \textsc{infl} by a syntactic path, and hence to \textsc{tense}. Alternatively, \textsc{p} might gain access to the \textsc{tense} of its complement through \textsc{lf} raising of \textsc{v} to \textsc{infl} to \textsc{c}, as has been suggested, e.g. by Chomsky (1986b). On either of these views, it follows straightforwardly that \textit{while} can pick up only the temporal reference of the highest \textsc{cp} in its complement. This is the only \textsc{tense} to which \textit{while} will have access.\footnote{Stump (1985) presents a Montague Grammar analysis of \textit{while} that comes very close to this proposal. In his account, \textit{while} is introduced in conjunction with the \textsc{tense} of its complement clause. This insures that what I have called the $t_2$ coordinate of the relation \textsc{while}/\textsc{during}(t_1,t_2) is associated with the temporal reference of the highest clause of its complement. Stump's analysis of the other prepositions differs from the one advanced here in that under his approach \textit{before} and \textit{after} directly bind (the equivalent of) a trace in an embedded clause. On the present account, this binding relation is mediated by a moved element in \textsc{comp}. The difference is crucial, of course: it is precisely the latter assumption that allows us to explain why \textit{before} and \textit{after} show long-distance readings but \textit{while} does not. This distinction comes out as an accident under Stump's account - indeed the rule for combining \textit{before} and \textit{after} with a clause must specifically mention \textit{while} in order to prevent it from combining in the same way (see Stump 1985:377, rule S67).}

6 MULTIPLE SELECTION AND THE PROJECTION PRINCIPLE

The two assumptions invoked above allow a simple account of the correlation between movement, long distance readings, and the selectional properties of certain prepositions. They are also plausible on general grounds, I believe. The notion that SpecC\textsuperscript{c} falls within the government and L-marking domain of P when CP is a complement of P is straightforward under current views (Chomsky 1986b).

Likewise the central proposal of "multiple selection" also has plausibility when viewed with respect to wider issues of principle. In Chomsky (1981) it is suggested that the properties of linguistic representations are largely determined by the properties of lexical items. This hypothesis is advanced in the form of the Projection Principle, which states that representations at each syntactic level (D-structure, S-structure, LF) must respect the selectional properties of their constituent lexical items. This proposal is a compelling one, and has powerful consequences for a theory of grammar that incorporates it. However the Projection Principle also runs into an obvious difficulty with lexical items that select more than a single complement type. The English verb \textit{know} is an example. The latter selects both \textsc{np} and clausal complements,
where each category may be associated with an interrogative (20a,c) or non- interrogative (20b,d) thematic role:

(20)  a. John knows the answer
       b. a joke
       c. who stole the kishka
       d. that Dr. Who is an alien

Taken in its most literal form, the Projection Principle would seem to require that any representation involving *know* must satisfy both the subcategorization features [+__NP] and [+__CP] as a condition of well-formedness. Such a requirement is evidently too strong, however. The representations underlying (20b), for example, provide no clausal complement to *know* at any level and yet the example is well-formed.

Facts like those in (20) leave us two basic options vis-a-vis the Projection Principle. On the one hand, we might retain the principle in its original version and “split” lexical items like *know* into homophonaous forms with unique selectional properties. Under this view there would be at least two *knows*, and since only one would occur in a given derivation, the Projection Principle would be respected. On the other hand, we might leave multiple-specified lexical items like *know* intact, and modify the Projection Principle so as to apply to them in the appropriate way. There are at least two different possibilities here: we might require that representations meet the selectional demands of their constituent lexical items “minimally”, with such properties satisfied exactly once. Alternatively, the selectional demands might be met “at least once” and possibly more often.

When the matter is considered in a general way, it seems that the second option under its “at least once” interpretation fails most closely within the spirit of the Projection Principle as originally formulated. In effect, this option says that representations express the properties of the lexical items that they contain *to the fullest possible extent*, i.e., to the extent that such expression does not contradict other principles of grammar. The evidence we have examined concerning the interpretation of clausal PPs can be seen as arguing for this strong view of the Projection Principle. The fact that the interpretation of these constructions depends crucially on the combined lexical properties of their prepositional heads argues both that multiple-subcategorized items should not be “split”, and that such items are indeed able to exercise their lexical properties in a very full way. Viewed in this way, “multiple selection” dissolves as a distinct proposal for handling PP constructions, and simply follows from the Projection Principle.
REFERENCES