



## Functional Heads as Proper Governors

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## Functional Heads as Proper Governors\*

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In this paper I present an analysis of the syntactic constraints on the distribution of a type of empty category not typically addressed in current versions of government-binding theory, namely, the empty category which arises from ellipsis.

Some examples of the type of ellipted category I will discuss are given in (1-3).

- (1) Although John's friends were late to the rally,  
[Mary's [e]] came on time.  
NP
- (2) Mary knew someone was speaking at the rally, but she  
didn't know [who [e]].  
S'
- (3) Because Mary might [e], John will attend the rally.  
VP

(1) is an example of ellipsis in NP, and (2) illustrates ellipsis in S, or VP Ellipsis. (3) exemplifies ellipsis in S', or what Ross (1969) refers to as 'Sluicing.'

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Hankamer and Sag (1976), Jackendoff (1971) and Williams (1977) all present arguments which suggest that the ellipses in (1-3) form a natural class, either with respect to their interpretation or their syntax. In a more current theoretical analysis, Zagana (1988) argues that ellipted VPs are subject to Chomsky's (1981) Empty Category Principle, or ECP, given below, and that INFL, analyzed as a non-lexical, X<sup>0</sup> head, properly governs VP. In this same vein, Chao (1987:4.5.1) argues that the ellipted categories in VP Ellipsis and Sluicing constructions are subject to the ECP along lines suggested by Rizzi (1986).

(4) **The Empty Category Principle** (ECP) (Chomsky, 1981)

[e] must be properly governed

I argue here that Chao's and Zagana's arguments that certain ellipted categories are subject to the ECP is correct, and can be extended even further to include the ellipted categories in all of NP, S and S'. Moreover, I show that a unified approach to explaining the distribution of ellipted categories is possible only by adopting a specific version of X' theory. My analysis captures several important generalizations, generalizations which are missed in alternative approaches that do not incorporate such a view of phrase structure. The analysis I propose here preserves the generalization that the ellipses in (1-3) form a natural class, and supports the view that the scope of the ECP is significantly broader than was previously supposed. Specifically, I propose that ellipses of the type in (1-3) are uniformly analyzable as the complements of functional heads, DET, COMP and INFL, respectively. To explain their distribution I propose that functional heads properly govern their complements when specified for the appropriate features, a claim expressed in (5):<sup>1</sup>

(5) functional heads specified for appropriate features properly govern their ellipted complements

First, I present data illustrating the descriptive generalizations which can be made concerning the syntactic constraints on ellipsis across categories. Then I present a formal analysis of these data in terms of proper government and a theory of functional categories.

Consider first (6), involving ellipsis in NP.

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- (6) a. [John's [e]] was short, but Mary's talk was way  
NP  
too long.
- b. Few people attended the rally because [many [e]]  
NP  
decided to watch the event on TV.
- c. Although she might buy [these [e]], Mary said she  
NP  
wouldn't buy those books on art history.

The sentences in (6) contrast with the ungrammatical ones in (7), where in (7), the complement of N is not included in the ellipsis.

- (7) a. \*[John's [e] on disarmament] was short, but Mary's  
NP  
talk on foreign policy was way too long.
- b. \*Few residents of the city attended the rally, but  
[many [e] of the neighboring village] showed up.  
NP
- c. \*Although she might buy [these [e] about physics],  
NP  
Mary said she wouldn't buy those books about art  
history.

The contrast between the sentences in (6) and those in (7) suggests that ellipsis in NP must include the head N and its complements, a requirement first observed by Jackendoff (1971, 1977:Ch.5.3.4). He argues that ellipsis in NP operates on a constituent, an intermediate projection of N, N'.

An additional syntactic constraint on ellipsis is: what Jackendoff (1977) and others analyze as a specifier of N must remain outside the ellipted category. This requirement is illustrated by the ungrammaticality of the sentences in (6) when the specifiers John's, many, and these respectively, are omitted.

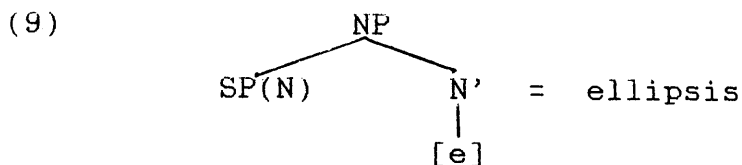
Yet another constraint on ellipsis in NP, which often goes unobserved, is that only certain, but not other, specifiers of N can introduce an ellipted category. For example, while the sentences in (6) illustrate that possessive NPs, quantifiers and plural

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demonstratives in SP(N) can introduce ellipses, (8) shows that neither definite nor indefinite articles, singular demonstratives, nor prenominal adjectives, all of which Jackendoff argues are specifiers of N, can do so.

- (8) a. \*A single protester attended the rally because  
       [the [e]] apparently felt it was important.  
       NP
- b. \*Sue toyed with the idea of buying a windsurfer,  
       then decided she didn't want [a [e]] after all.  
       NP
- c. \*Although John doesn't like [this [e]], he likes  
       NP  
       that brand of frozen pizza.
- d. \*Because she might buy [these [bestselling [e]],  
       NP  
       Mary won't purchase those other paperbacks.

The evidence in (6-8) suggests that, assuming a standard X' Theory analysis of the structure of NP such as (9), where N' dominates N and its complements, and where specifiers occur outside N', the descriptive generalizations in (10) hold of ellipsis in that category.

(10) **Ellipsis in NP**

the ellipited constituent is an intermediate projection

the ellipited constituent must be introduced by a filled specifier (SP(N) = Poss, Q, plural det/  
 \*singular det, AP)

I turn now to data from ellipsis in S, or VP Ellipsis, in order to determine whether the constraints on ellipsis in that category are parallel to those on ellipsis in NP. This is what we would expect given the independent arguments that these two phenomena form a natural class.

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Jackendoff (1971) observes that, as in NP, the ellipted constituent in S must include an intermediate projection, V', the level dominating V and its complements (see also Sag, 1976: Ch. 1 and Lobeck (1987: Ch. 1). This requirement is illustrated by the contrasts in (11).

- (11) a. Because she shouldn't  $\underset{VP}{[[e] (*cigars)]}$ , Mary  
doesn't smoke them.
- b. Dennis rarely plays his violin, but Susan  
often does  $\underset{VP}{[[e] (*her\ guitar)]}$ .
- c. Though John is  $\underset{VP}{[[e] (*in\ the\ election)]}$ , his  
friend won't vote in it.

(12) illustrates the well-known restriction on ellipsis in S that an ellipted projection of V must be introduced by INFL filled with either an auxiliary verb, a modal, or some form of pleonastic do.

- (12) a. Because she \*(shouldn't)  $\underset{VP}{[e]}$ , Mary doesn't smoke.
- b. Dennis rarely plays the piano, but Susan often  
\*(does)  $\underset{VP}{[e]}$ .
- c. Though John \*(is)  $\underset{VP}{[e]}$ , his friend won't vote in  
the election.

(11-12) suggest that ellipsis in S is constrained by at least two syntactic conditions: the ellipted constituent must include (at least) an intermediate projection, V', and the ellipsis must be introduced by a filled INFL node.

There is an additional constraint on ellipsis in S, one which often goes unobserved. This restriction is illustrated by the contrasts in (13-15) first noticed by Zwicky (1981).

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- (13) a. Mary doesn't smoke because it's dangerous  
           [PRO to [e]].  
           S'          VP
- b. \*Mary doesn't smoke because [PRO to [e]] is  
           dangerous.  
                                   S'          VP
- (14) a. It's possible that Mary smokes, but it's certain  
           [that John does [e]].  
           S'                          VP
- b. It's possible that Mary smokes, but  
           [that John does [e]] is certain.  
           S'                          VP
- (15) a. \*John took off work to go on vacation and Bill  
           also left his job [PRO to [e]].  
                                   S'          VP
- b. John took off work so that he could go on  
           vacation, and Bill also left his job  
           [so that he could [e]].  
           S'                          VP

The contrasts in (13-15) illustrate that ellipsis in infinitives is grammatical only under certain conditions. For example, in the grammatical sentences in (13a), ellipsis is wellformed in an infinitival complement. In (13bb), on the other hand, ellipsis is illformed in an infinitival subject, and in (15a) in an infinitival adjunct, in this case, a rationale clause. Comparable examples with tensed auxiliaries, on the other hand, show that in tensed clauses no such asymmetry exists. The grammaticality of (14a) illustrates that ellipsis in tensed complements, as in infinitival complements, is wellformed. That (14b) is also grammatical, however, shows that in contrast to the infinitival subject in (13b), ellipsis in a tensed clausal subject is allowed. In (15b), ellipsis is wellformed in a tensed adjunct, and thus contrasts with (15a). These differences in distribution of ellipted categories suggest that ellipsis in infinitives, but not in tensed clauses, reflects a subject-adjunct vs. object asymmetry.

I have argued elsewhere (Lobeck, 1987: Ch. 4, 1986) that this asymmetrical distribution derives from the failure of untensed INFL to properly govern its VP complement, an argument also advanced by Zagana (1988) based on somewhat different assumptions. I propose that

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untensed INFL can only transmit proper government from the matrix predicate to its VP complement, and that proper government transmission is possible only in post-verbal infinitival arguments. It is excluded in infinitival subjects and adjuncts, accounting for subject-adjunct vs. object asymmetry. Tensed INFL, on the other hand, properly governs its VP complement, and an ellipted VP in a tensed clause is therefore not dependent on proper government transmission from a higher predicate. As a result, ellipsis in tensed clauses is allowed regardless of the status of the clause as a complement, a subject, or an adjunct, as long as INFL is filled.

Given the above analysis of ellipsis in S, the constraints on that phenomenon appear to be those in (16), illustrated in (17):

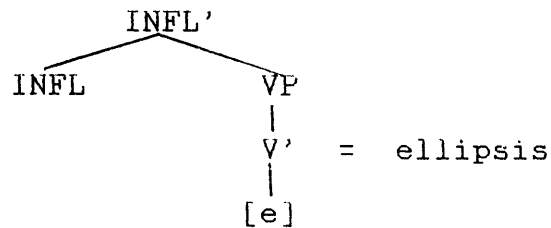
(16) **Ellipsis in S**

the ellipted constituent is an intermediate projection (V')

the ellipted constituent must be introduced by a filled X-0 head

(X-0 = tensed INFL/\*untensed INFL)

(17)



Having considered the constraints on ellipsis in NP and S, it remains to consider the syntactic restrictions on ellipsis in S', or 'Sluicing.'

The ellipted constituent in S' can be introduced by a Wh-phrase, as illustrated by the typical examples of Sluicing in (18):



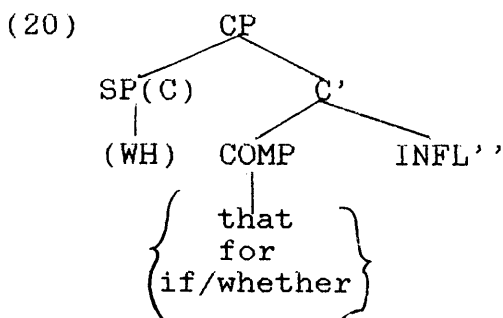
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- (18) a. We want to invite someone, but we don't  
           know [who [e]].  
               S'      S
- b. Though he doesn't know exactly [how [e]],  
   S'      S  
       John will answer questions raised by his talk.

The ellipsis cannot, however, be introduced by a lexical complementizer that, for, whether or if, as the ungrammaticality of the sentences in (19) suggests:

- (19) a. \*Even though she hoped [that [e]], Mary doubted  
   S'      S  
           that the bus would be on time.
- b. \*Although [for [e]] would be exciting, Mary  
   S'      S  
           doesn't want Bill to win.
- c. \*We thought Sue wanted to be invited, but we  
           weren't sure [whether/if [e]].  
   S'      S

In formulating the syntactic constraints on ellipsis in S', adopting Chomsky's (1986) analysis of S' as CP, a projection of COMP as illustrated in (20), we make the appropriate distinction between elements which do, and those which do not, introduce ellipsed constituents.



He argues that Wh-movement is to the specifier of COMP position in (20), and that lexical complementizers such as that and for are generated in COMP. Adopting his analysis, the constraints on ellipsis in S', or CP, can be formulated as (21):

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(21) **Ellipsis in CP**

the ellipited constituent is an intermediate projection (C')

the ellipited constituent must be introduced by a filled specifier (SP(C) = WH-phrase)

As formulated in (21), the constraints on ellipsis in CP are parallel to those on ellipsis in NP in (10): ellipsis involves an intermediate projection introduced by a filled specifier. The constraints on ellipsis in S in (16), on the other hand, crucially differ: INFL, an X-0 head rather than a specifier, introduces an ellipited intermediate projection. This result suggests that VP Ellipsis, Sluicing, and ellipsis in NP do not in fact form a natural syntactic class, a surprising result given the independent evidence that these phenomena are in other ways syntactically parallel.

Moreover, problems arise with the analysis presented so far when when we attempt to derive the syntactic constraints on ellipsis from independent principles. For example, if we try to derive (10), (16) and (21) from the ECP, we are forced to posit a principle something like (22):

(22) ellipited intermediate projections are properly governed by INFL, a non-lexical head, and by SP(N) and SP(C).

(22) misses several important generalizations. First, it requires including not only non-phrasal specifiers, but phrasal ones as well (possessive NPs in SP(N), and WH-phrases in SP(C)) in the class of what is typically considered the class of X-0, or 'head' governors. Second, we must assume that intermediate projections must be properly governed, an assumption which is otherwise unmotivated, though extensive evidence exists that both heads and maximal projections are subject to the ECP (see in particular, Travis (1984:Ch.2) and Speas (in press) for discussion). Finally, (23) fails to explain why only certain, but not other, specifiers and non-lexical heads are proper governors.

In fact, an alternative analysis of the data is available if we adopt the independently motivated version of X' Theory proposed by Fukui and Speas (1986). They argue that maximal projections are projected by either

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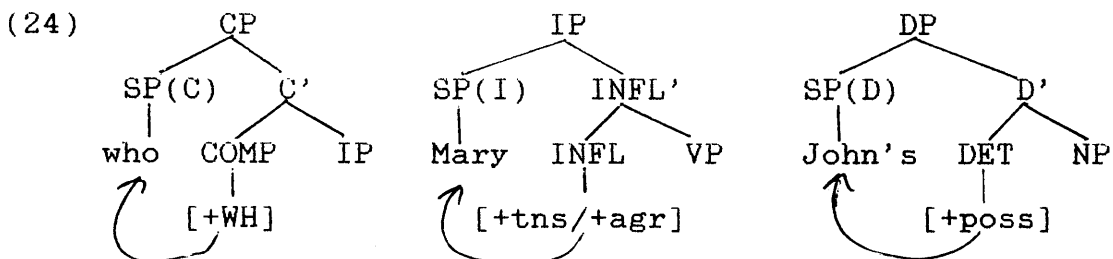
lexical, or by what they refer to as 'functional' heads, a class including DET, COMP and INFL. Functional heads are distinguished from lexical heads in that at least one member of each functional category licenses a single specifier to its left by assigning function features, or Kase, to that specifier. Kase includes not only case assignment in the traditional sense, including, for example, nominative case assigned by tensed INFL, and genitive case assigned by ['s], (represented henceforth as [+poss]), but Kase is also assigned to a specifier by COMP specified as [+WH].

(23) illustrates the type of Kase assigned by each functional category, and (24) expresses the specifiers licensed by this Kase assignment.

(23)

	CP	IP	DP
Kase assigner	[+WH]	[+tns/+agr]	[+poss]
non-Kase assigner	that	to	the

(Fukui and Speas, 1986)



(Fukui and Speas, 1986)

At least two things about the list in (23) are striking. First, the list of non-Kase-assigners corresponds exactly to those elements which fail to introduce ellipses in categories which are now analyzable as CP, IP and DP, namely, lexical complementizers, infinitival to, and singular determiners, respectively.<sup>2</sup> Second, the list of Kase-assigning functional heads exactly parallels the list of elements which do introduce ellipses in those categories, namely, [+WH] COMP, tensed INFL, and DET dominating the feature [+poss].

This distinction is explained straightforwardly by proposing that functional heads which assign Kase properly govern their complements, allowing that

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complement to be ellipted. Non-Kase assigning functional heads, on the other hand, are not proper governors, and their ellipted complements are correctly predicted to be ruled out by the ECP.

The proposal I advance here has several desirable results. First, analyzing functional heads as proper governors of their ellipted complements entails that the set of (non-antecedent) proper governors includes only the class of X-0 heads and excludes specifiers. Second, ellipses are analyzed as maximal, rather than intermediate, projections; therefore, the class of categories which can be empty and subject to the ECP remains defined as including only X-0 heads and maximal projections, and excluding intermediate projections. Finally, an analysis in terms of functional heads provides a principled distinction between those elements which do and those which do not introduce ellipses, avoiding the ad hoc stipulations that would be required in an alternative account.

The correct descriptive generalizations concerning constraints on ellipsis are now expressible as in (25), and are derived from the ECP by positing (26):

**(25) Constraints on Ellipsis: A Functional Category Account**

the ellipted constituent is a maximal projection

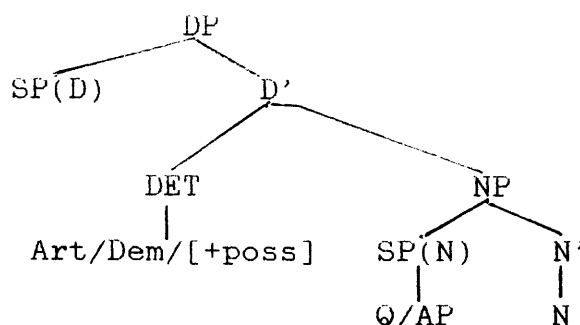
the ellipted constituent must be introduced by a functional head

**(26) only functional heads which assign Kase properly govern their ellipted complements**

Though (26) explains the ellipsis data in a way which avoids the basic objections raised in a theory that does not incorporate functional heads, this principle must be further refined. An analysis where only Kase-assigning functional heads properly govern their complements fails to explain why in DP, plural determiners and quantifiers, neither of which assign Kase in Fukui and Speas' terms, can introduce ellipses. In their theory, both singular and plural demonstratives are dominated by DET, while adjectives and quantifiers are analyzed as specifiers of N, as illustrated in (27).

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(27)

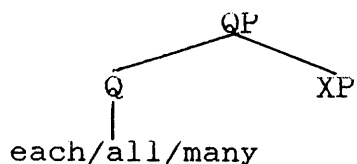


We can include plural demonstratives and quantifiers in the class of functional heads which properly govern by adopting Contreras' (1989) analysis, proposed independently, which accounts for certain asymmetries involving ellipsis in NP.

Based on contrastive evidence from English and Spanish, Contreras argues that in order to properly govern an ellippted category, DET must be sufficiently morphologically 'rich,' (where I take 'rich' to be loosely defined as specified for the appropriate features). He suggests that DET dominating either the feature [+poss] or a plural determiner in English is sufficiently rich to properly govern its NP complement. DET filled with a singular determiner or demonstrative, on the other hand, is not. He thus derives the correct result that while the plural demonstratives these and those properly govern their ellippted complements in English, neither singular a nor the, nor the singular demonstrative this, can do so.

With respect to quantifiers, Contreras argues that those quantifiers which introduce ellipses are in fact not specifiers of N, but rather are functional categories which head a maximal projection, QP, as illustrated in (28):

(28)



(28) syntactically distinguishes quantifiers from prenominal adjectives; the former are functional heads, and the latter specifiers of N. It follows from this account that prenominal adjectives fail to properly govern ellipses, since they are excluded from the class

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of potential head governors. The functional head Q in (28), on the other hand, like DET specified for either the feature [+poss] or [+plural] in (27), can properly govern its ellipted complement. Contreras advances that such evidence suggests that English Q, like certain members of DET in that language, is a functional head sufficiently morphologically 'rich' to properly govern its ellipted complement.<sup>3</sup>

Incorporating the basics of Contreras' analysis into the present account, the correct generalization about which functional heads do and do not properly govern ellipted complements across categories seems to be then, not that they must assign Kase, but rather that they must be specified for the appropriate features. This broader specification includes, but is not limited to, Kase-assignment; functional heads specified as [+plural], [+Q], or [+Kase] in English properly govern their ellipted complements.

(26) must therefore be revised as (29):<sup>4</sup>

(29) functional heads which are specified for the features [+plural], [+Kase], or [+Q] properly govern their ellipted complements in English.

In conclusion, I have argued that the distribution of ellipted categories in NP, S and S' is explained by analyzing those categories as the functional categories DP, IP and CP, and by proposing that functional heads potentially properly govern their complements. My analysis supports the generalization that the ellipses in (1-3) form a natural syntactic class, and suggests that the scope of the ECP is significantly broader than previously supposed, constraining not only the distribution of traces, but of ellipted categories as well.

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## Notes

\*I thank Peggy Speas and Heles Contreras for their helpful comments and suggestions. All errors are of course my own.

1. I will not address ellipsis in AP, PP or VP here, but I do so in Lobeck (1987:Ch.1 and in progress).

2. Fukui and Speas (1986) do not specifically claim that the singular indefinite a is dominated by DET, though they do argue that this is the case for the definite determiner the. Abney (1987: Ch.4) does make this assumption, and I assume it here for exposition. Also, for Fukui and Speas the maximal projection of lexical categories is X' rather than X'', (e.g., VP = V' for them), as in (24). I use the more standard notation here for exposition.

3. Not all quantifiers can introduce ellipses, a fact also observed by Contreras (1989) for both Spanish and English.

(i) John met all the politicians, and  
each/all/many/\*every [e] made the same campaign  
promises.

Contreras argues that every (like Spanish cada, 'each') differs syntactically from each/all/many in occurring in SP(N), rather than as the head of QP. In this way, he makes the correct prediction that every, as a specifier rather than a head, fails to properly govern an ellipited category. I adopt this analysis here.

4. (29) is reminiscent of Rizzi's (1986) theory of pro, an empty category licensed by a head specified for certain features. This is consistent with and supported by Chao's (1987:Ch 4) arguments that certain ellipses are instances of pro, licensed and identified by a version of the principles Rizzi proposes. I pursue Chao's general claim in work in progress, although my account crucially differs from hers in that hers is not developed within a framework incorporating functional heads, and does not include discussion of ellipsis in NP (cf: Contreras, 1989). I explicitly connect the properties of functional heads to the licensing and identification of ellipited categories.

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