

# Ellipsis Happens, and Deletion Is How

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## Abstract

I offer an overview of recent literature on ellipsis phenomena in natural language, including the most salient empirical arguments surrounding the classification of ellipsis as a phenomenon of the Phonological Form or of the Logical Form. I show that the majority of evidence supports the view of ellipsis as PF-deletion rather than LF-copying. I then give a theoretical argument that supports this hypothesis under the Minimalist Program.

## Introduction

The phenomenon of missing phrasal constituents (known as “ellipsis”) has been noted from a variety of angles in recent years. It remains difficult to classify, as it appears to involve phonology (due to its similarity to deaccenting), syntax (by virtue of its distribution), semantics (evidenced by its apparent licensing conditions), and pragmatics (because of the cognitive load it imposes). This discussion shows how empirical and theoretical evidence lead to the conclusion that ellipsis is a phenomenon of overt syntax involving deletion. The first section gives an overview of evidence for the nature of ellipsis in current literature. The next section outlines an argument showing how a PF deletion account is necessitated under the Minimalist approach to the generative grammar.

## 1 Empirical Investigation

In recent literature, various approaches have been taken to explain ellipsis phenomena. Such phenomena include VP ellipsis (1), empty IPs (2, 3), and pseudogapping (4).

- (1) George likes winning votes as much as Al does.
- (2) George tried to win the election, and Al also tried.
- (3) Somebody won the election, but we don't know who.
- (4) George will select Dick, and Al will Joe.

Arguments over the derivational conditions underlying these phenomena, assuming that they can be accounted for derivationally, are essentially of two types.<sup>1</sup> Some, e.g., Sag (1976), have argued for a PF deletion account of such phenomena (specifically, VP ellipsis). Under this account, such constructions would have a completed VP in the lower clause, and that VP would be eliminated at PF:

- (5) *PF*: George likes winning votes as much as Al does ~~like winning votes~~.
- (6) *LF*: George likes winning votes as much as Al does like winning votes.

Others who have explored the problem, e.g., Williams (1977), suggest that ellipsis constructions are generated with empty terminal nodes which are then filled in through a copy operation in the logical component. Under this account, (1) would have the following representations given the NP interpretation of “winning votes”:

- (7) *PF*: George likes winning votes as much as Al does [<sub>VP</sub> [<sub>V</sub> Ø] [<sub>NP</sub> [<sub>Adj</sub> Ø] [<sub>N</sub> Ø ] ]].
- (8) *LF*: George likes winning votes as much as Al does like winning votes.

One important fact about the phenomenon in general is that ambiguities in the antecedent phrase do not multiply in the elided phrase. In (1), the phrase “winning votes” could be interpreted as either an NP roughly equivalent to “votes which win (elections)” or the IP “PRO winning votes.” Yet whichever interpretation is given to the antecedent (George) VP, the elided VP will have the same interpretation. This holds as well in data involving pronominals.

The PF-deletion approach, which is currently favored, presents a unique problem. Deletion of a phrase requires a relation between the deleted elements and some antecedent. The nature of this relation is clearly semantic, and therefore it is not apparent how information pertaining to the relation is available to the phonological component.

**1.1 A Similar Phenomenon: Deaccenting** Tancredi (1992) attempts to overcome this difficulty in the VP ellipsis case by drawing a parallel between a phonetically empty VP and a phonetically deaccented VP. VP deletion, he argues, is merely a strong form of deaccenting. He notes the similarity in the distributions

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<sup>1</sup> There are non-derivational accounts given for these phenomena, but the most recent evidence favors the derivational approach. This discussion shall consider one instance where an ellipsis site is argued to be a deep anaphor.

of deaccented phrases and elided phrases and claims that the latter are a subset of the former. In particular, he notes the semantic constraints on pronoun constructions where only strict and sloppy readings are licit (deaccenting is denoted here by *italics* and focus by CAPITALS):

- (9) George said he won as soon as Al did.
- (10) George said he won as soon as AL *said he won*.

The pronoun in the elided VP in each of the above constructions must be bound to “Al” if the pronounced pronoun is bound to “George,” and if the latter is indexed to a third party, so is the former.<sup>2</sup>

Tancredi’s licensing condition for deaccenting (clearly a PF phenomenon) is the instantiation of a “focus-related topic” in the context of the elided VP. A focus-related topic is effectively a clause whose focus-marked elements have been replaced by variables; it is instantiated by a clause exactly like it in which the variables are replaced by elements of the same semantic types. Consider a deaccented version of (1):

- (11) George likes winning votes as much as AL *likes winning votes*.

The focus-related topic of the embedded clause is “*x likes winning votes*.” This is instantiated in the matrix clause (*x* equals “George”) and therefore the production is felicitous. A contrasting case is (12):

- (12) \*George likes Jeb as much as AL *likes winning votes*.

This construction fails because “*x likes winning votes*” is not instantiated in the context of the embedded clause.

According to Tancredi’s analysis, deletion of the VP is licensed exactly when deaccenting is licensed. He appeals to discourse knowledge of English speakers, claiming that there is a pragmatic (i.e., not syntactic) constraint on the elided material: since only a limited amount of antecedent material is available in the matrix clause, the producer must intend for the elided VP to be identical with the antecedent VP, explaining the following data.

- (13) Al called Pat a lunatic, and GEORGE *insulted Pat* (too).

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<sup>2</sup> It is of course possible that the antecedent pronoun be indexed with George (or Al, for that matter), without being bound. That is, the third party to whom the pronouns refer might be anyone, including George or Al. This fact does not affect the insight that the readings available in (9) are a subset of those available in (10).

- (14) \*Al called Pat a lunatic, and GEORGE did ~~insult Pat~~ (too).
- (15) Al called Pat a lunatic, and GEORGE *called Pat a lunatic* (too).
- (16) Al called Pat a lunatic, and GEORGE did ~~call Pat a lunatic~~ (too).

When an individual interprets the phonological form of (14) and (16), he or she must assume that the producer of the sentence intended the VP “call Pat a lunatic,” since there is no other way the listener could guess the intended contents of the ellipsis site.

The argument is as follows: if deaccenting, a PF phenomenon, is contingent upon semantic licensing conditions, there is less reason to suppose that ellipsis cannot be contingent upon semantic licensing conditions. This approach, then, falls most neatly into the PF-deletion account of elliptical constructions.

**1.2 Pseudogapping and Strong Features** Lasnik (1995a) considers a presumably related phenomenon known as pseudogapping. In pseudogapping constructions, a VP is empty except for some remnant, as in (4), repeated here:

- (17) George will select Dick, and Al will Joe.

Lasnik shows how pseudogapping can be explained in two stages. First, the remnant (“Joe” in the above example) moves out of the VP. The VP is then deleted. The movement and deletion are, unlike in Tancredi’s analysis, entirely obligatory and motivated by syntactic requirements in the phonological component. This raises the question of whether deaccenting is optional or related to ellipsis in some way; for example, whether deaccenting could be triggered by a feature or not.

The movement of the remnant is into Spec-Agr<sub>o</sub>, due to an EPP-like feature on the Spec-Agr<sub>o</sub> position. This movement is argued to be overt; in non-elliptical constructions, once the remnant moves out of the VP into Spec-Agr<sub>o</sub>, the V moves to a higher V position (above the Agr<sub>o</sub>P). This movement of the V, Lasnik argues, is driven by a strong  $\theta$ -feature on the verb. If the V does not move, the unchecked  $\theta$ -feature will cause a crash; deleting the lower VP salvages the derivation. Lasnik’s VP structure is based on the general approach of Koizumi (1993).

The non-elliptical version of (17) is shown in (18). The verb (index *j*) begins in the lower VP; it raises to the head of Agr<sub>o</sub>P, then to the head of the higher “shell” VP. The object raises from the complement of the lower VP to Spec-Agr<sub>o</sub>P in order to check the EPP feature residing in Agr<sub>o</sub>.

- (18) George will select Dick, and [<sub>AGR<sub>SP</sub></sub> Al<sub>i</sub> will [<sub>VP</sub> t<sub>i</sub> select<sub>j</sub> [<sub>AGR<sub>OP</sub></sub> Joe<sub>k</sub> t<sub>j</sub> [<sub>VP</sub> t<sub>j</sub> t<sub>k</sub> ]]]]

By contrast, (19) shows the structure of (17). Here, since the verb has not moved, a strong feature remains in the head of the lower VP. Deletion of the VP removes that feature and salvages the derivation.

- (19) ... and [<sub>AGR<sub>SP</sub></sub> Al<sub>i</sub> will [<sub>VP</sub> t<sub>i</sub> [<sub>V</sub> ] [<sub>AGR<sub>OP</sub></sub> Joe<sub>k</sub> [<sub>AGR<sub>OP</sub></sub> ] [<sub>VP</sub> select:<sub>{strong-θ}</sub> t<sub>j</sub> t<sub>k</sub> ]]]]

All of the movement in Lasnik's account is overt. He argues that, if the movement were covert, only the formal features of the remnant would raise to Spec-Agr<sub>o</sub>. This would not create the desired ellipsis licensing configuration in which the remnant is entirely excluded from the VP, allowing the rest of the VP to be deleted as a maximal projection. If the movement is overt, the licensing configuration must occur before the LF/PF split, allowing either a PF-deletion or an LF-interpretation account of the ellipsis. However, the argument that ellipsis takes place to prevent a crash due to unchecked features ultimately favors the PF-deletion account, since unchecked features cause crashes at PF.

Lasnik goes on to show how this explanation can account for remnants which are not NPs and constructions involving multiple complements. In particular, a PP can raise to Spec-Agr<sub>o</sub>:

- (20) ?George spoke to his father and Al did to his boss.

Lasnik also considers multiple complement constructions, which show some interesting asymmetries:

- (21) ?Bill gave Al a lot of money, and Dick will ~~give~~ George ~~a lot of money~~.
- (22) \*Bill gave Al a lot of money, and Dick will ~~give~~ Al a lot of headaches.
- (23) ?Bill gave a lot of money to Al, and Dick will ~~give~~ a lot of headaches ~~to Al~~.
- (24) \*Bill gave a lot of money to Al, and Dick will ~~give a lot of money~~ to George.

The difference between (21) and (22) is explained by relativized minimality. If the first object of "give" begins higher than the second, then there will never be a point where the second object raises above the first, as in (22).

Therefore “give” plus its indirect object never constitute the entirety of a maximal projection. In (23) and (24) the same holds: the first complement (in this case the direct object) may be a remnant, but the second may not.

Multiple remnants are argued to cause PF crashes as well. In, for example, the matrix clause of (21-24), there are actually three VPs, one for each  $\theta$ -feature of the V “give.” Although the deletion of the VP in standard pseudogapping examples (e.g., (17)) leaves a passable construction, there is clearly some degradation in the case of multiple remnants. Lasnik claims that deletion of more than one strong feature (to prevent a PF crash) leaves the construction significantly more degraded, as in the following:

- (25) \*Bill gave Al a lot of advice, and the NRA will ~~give~~ George a lot of money.

To explain the identity of the elided portion of the VP with the corresponding portion of the antecedent VP, one might use Tancredi’s explanation based on pragmatics: instantiation of a focus-related topic in the context of the ellipsis site, which is assumed by an interpreter to be identical to the elided verb. Lasnik, however makes no mention of semantic constraints on deletion.

**1.3. Sluicing and e-GIVENness** Merchant (1999) considers sluicing, in which an IP within a *wh*-CP is elided:

- (26) Somebody won the election, but we don’t know who ~~won the election~~.

Merchant shows how the conditions met by the IPs which are eligible for this sort of construction are semantic, and that a semantic condition (namely e-GIVENness) suffices to describe the distribution of ellipsis phenomenon. As in Tancredi’s proposal, the conditions for deletion include those for deaccenting. He defines GIVENness as follows:  $\alpha$  is GIVEN if there exists an antecedent which entails the F-closure of  $\alpha$ . Deaccenting an XP  $\alpha$  is licit only if  $\alpha$  is or is contained in a constituent that is GIVEN. This condition is quite similar to that of Tancredi (1992).

Merchant, however, moves the additional criterion (Tancredi’s pragmatic limitation), which he dubbed “e-GIVENness,” into the semantic constraint. e-GIVENness is a biconditional:  $\alpha$  is e-GIVEN if there exists an antecedent which entails the F-closure of  $\alpha$  and such that  $\alpha$  entails the F-closure of the antecedent. The “focus condition” on both VP ellipsis and IP ellipsis is that  $\alpha$  can be deleted only if it is e-GIVEN.

This semantic condition replaces structural isomorphism requirements that were otherwise required, which are problematic for a number of reasons. Consider the following:

- (27) Joe was campaigning, but I don't know for which office ~~Joe was campaigning~~ *t*

The structure of the sluice is not isomorphic to the matrix IP, since its V has an object.<sup>3</sup> The antecedent IP in (27) is “Joe was campaigning.” The F-closure of “Joe was campaigning” is simply “ $\exists x.x$  was campaigning.” The elliptical IP is “Joe was campaigning (for some office).” Its F-closure is “ $\exists x, y.x$  was campaigning for  $y$ .” Note that “Joe was campaigning” entails “ $\exists x, y.x$  was campaigning for  $y$ ,” a politician cannot campaign without campaigning for some office. Note also that “Joe was campaigning (for some office)” trivially entails “ $\exists x.x$  was campaigning.” The lack of isomorphism between the antecedent and the elided IP is not problematic if e-GIVENness is the criterion for deletion.

Another problem for isomorphism is that pronouns and R-expressions hold an equivalence relation (coreference) under ellipsis. (Arguably, this equivalence becomes irrelevant if the isomorphic requirement is for non-distinctness of features rather than literal identity.)

- (28) They elected  $A_i$ , though  $he_i$  thought they wouldn't.
- (29) They elected [the guy who lives in the vice presidential mansion] $_i$ , though  $he_i$  thought they wouldn't.

If structural isomorphism exists between the elided VP and the antecedent in (28) and (29), a violation of the Binding Theory, Principle C, occurs in the elided VP:

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<sup>3</sup> Data from Dutch show that in similar constructions, the only “sensible interpretation” comes when the equivalents of the moved elements in the antecedent are also present internal to the deleted IP (Merchant 1999):

- a. \*Nu gaat zij  $t_{nu}$   $t_{gaat}$ , maar ik weet niet waarom ~~zij~~.  
*Now goes she but I know not why she*  
 ‘she’s going now, but I don’t know why’
- b. Nu gaat zij  $t_{nu}$   $t_{gaat}$ , maar ik weet niet waarom ~~zij nu gaat~~.  
*Now goes she but I know not why she now goes*  
 ‘she’s going now, but I don’t know why’

These data support the view that in examples like (27), there is no strict isomorphism between the antecedent and the deleted IP, since the presence of the trace “matters” for well-formedness.

- (30) ... he<sub>i</sub> thought they wouldn't elect Al<sub>i</sub>.
- (31) ... he<sub>i</sub> thought they wouldn't elect [the guy who lives in the vice presidential mansion]<sub>i</sub>.

Merchant claims that there is a syntactic requirement for sluicing. He describes the sluice as an IP which is deleted at PF; the deletion is licensed when, in the CP parent to the IP, COMP contains no non-operator material. By “operator material,” Merchant refers to any syntactic *wh*-XP which moves into COMP from the IP *or* is base-generated in COMP, such as a complementizer.

Merchant cites Germanic data in support of this: raised Vs may not appear in the C governing a sluice, nor may English I or various clitics. This suggests that IP deletion precedes those kinds of reordering. The mechanics of the deletion are explained by a feature, E, which moves from I to C and imposes the ellipsis focus condition of e-GIVENness. Importantly, Merchant notes that this feature-driven account of sluicing fits best at the PF interface and is not, as previously thought, support for an LF interpretive approach to ellipsis. The sluicing occurs before the reordering and licenses the deletion of the IP.

Merchant describes a feature E on I which can only be checked by a [+wh, -pred] head in C. The presence of this feature in C, after having moved to be checked, indicates to the PF system that the following material is not to be pronounced (i.e., it is e-GIVEN). Another possibility is that the feature raises in deaccenting constructions and indicates to the PF system that the following material is to be deaccented; when it fails to raise, it must be deleted to save the derivation from a crash (see the discussion of Lasnik (1995a)).

Merchant also notes that sluicing is observed to respect only certain classes of islands and not others. This asymmetry, says Merchant, is evidence that some island effects are PF phenomena that can be repaired by PF deletion of the IP in which they occur, following movement of the *wh*-phrase into Spec-CP. This explanation is similar to that of Lasnik (1995a) in that PF-deletion is driven by a need to delete structure that crashes at PF.

Further data noted by Merchant support the view that the elided elements in a sluice are lexically present at some point in the derivation include case matching and preposition stranding. He offers the following from German (from Merchant (1999) section 3.14); the verb ‘to flatter’ takes a dative object:

- (32) Er will jemandem schmeicheln, aber sie wissen nicht, wem.  
*he wants someone.DAT flatter but they know not who.DAT*  
 ‘he wants to flatter someone, but they don’t know who’



- (33) \*Er will jemandem schmeicheln, aber sie wissen nicht, wer  
*he wants someone.DAT flatter but they know not who.NOM*  
 ‘he wants to flatter someone, but they don’t know who’
- (34) \*Er will jemandem schmeicheln, aber sie wissen nicht, wen  
*he wants someone.DAT flatter but they know not who.ACC*  
 ‘he wants to flatter someone, but they don’t know who’

In the non-sluced version, the *wh*-form takes the dative case. Furthermore, for other verbs which take objects of different cases, the same matching criterion holds: the sluiced *wh*-phrase must bear the case that its correlate bears (Merchant 1999). Merchant shows similar data for nine additional languages. If the *wh*-phrase did not originate inside the sluice, there is nothing to force it to have the case required by the missing verb.<sup>4</sup>

Another set of data show that a language allows preposition stranding under sluicing if and only if it allows preposition stranding under normal *wh*-movement. Consider English (from Merchant (3.22)):

- (35) George was talking with someone, but I don’t know (with) who.
- (36) Who was he talking with?

This is in contrast with languages like Russian, in which overt preposition stranding is not an option:

- (37) Anja govoriła s kým-to, no ne znaju \*(s) kem.  
*Anja spoke with someone, but not I.know with who*  
 ‘Anja spoke with someone, but I don’t know (with) who’
- (38) \*Kem ona govoriła s?  
 ‘who did she speak with’

Preposition stranding is known to occur universally at LF, even in languages which do not support it overtly, since it is required for correct semantic derivation. Consider the following from English (which allows preposition stranding) and French (which does not):

- (39) With whom did you speak?

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<sup>4</sup> If case is checked at LF, however, this argument fails.

- (40) Who did you speak with?
- (41) Avec qui as-tu parlé?  
*with whom have you spoken*  
 ‘who did you speak with’
- (42) \*Qui as-tu parlé avec?  
*who have you spoken with*  
 ‘who did you speak with’

The LF representation of (39) and (40) is identical, since both *wh*-operators range over persons; “with Al” is an inappropriate response to (39). Similarly, the expected response to (41) is a person, not a prepositional phrase. The LF of (39), (40), and (41), then, is approximately the following, which contains a stranded preposition:

- (43) *LF*: WHO *x* [you did speak with *x*]

Under an LF-interpretation approach to ellipsis, we would expect preposition stranding to be licit under sluicing in all languages, since the reconstruction of the sluice would rely only on the LF representation. Because this is not the case (as shown by the Russian data), these data suggests a PF-deletion account of ellipsis.

**1.4 Syntactic Constraints** That syntactic constraints are required for ellipsis is supported by Lasnik (1995b), which presents English verbal morphology data. French verbs, he argues, are fully inflected in the lexicon, while English verbs are bare in the lexicon. (See Lasnik (1995b) for discussion.) The exception to the latter is that “have” and “be” are fully inflected, like French verbs.

In elliptical constructions involving these two exceptional English verbs, note that, unlike with other verbs, inflectional differences between the antecedent and the elided verb are not licit:

- (44) Bill slept, and George will too
- (45) \*Bill is here, and George will too

These data shows that some structural licensing condition for VP ellipsis exists; ellipsis requires identity of inflectional features of the antecedent and elided verbs when the verbs are inflected.

If, as posited under the LF-interpretation account of ellipsis, copying is involved in generating the LF representation of these examples, then verbal morphology features must be available at LF. This is a non-standard view; morphological features are generally assumed to be checked at PF and unavailable to LF, as they seem to have no effect on interpretation.

Further, if morphological features are present at LF, then English verbs and French verbs cannot be semantically identical, because the inflectional features on the verbs differ. Such a difference is incompatible with the standard view that, at LF, languages are identical (Higginbotham 1985).

**1.5 Null Complement Anaphora** It is possible that all elided XPs may not be treated identically, however. Depiante (in press) discusses a set of restructuring verbs in Spanish and Italian which take empty clausal complements. These complements, she argues, are null complement anaphora (NCA), a type of deep anaphora (i.e., an element with no derivational history). This suggests that some phenomena which could be viewed as ellipsis are actually structurally empty and not derivational phenomena at all. An English example is (2), repeated here:

(46) George tried to win the election, and Al also tried.

Depiante's account is that, in the Spanish and Italian examples, the complement of the embedded "tried" is an NCA, somewhat analogous to the overt:

(47) George tried to win the election, and Al also tried [to do it].

The evidence for this is that, in the Spanish and Italian examples, any kind of extraction out of the empty complement is impossible, though when the complement is explicit, a number of extractions are possible, e.g., clitic raising. An English analog involves the verb "volunteer":

(48) Some Democrat volunteered to visit every neighborhood.

- (49) a. Some Democrat volunteered to visit every neighborhood  
and some Republican also volunteered  $\emptyset$ .  
b. Some Democrat volunteered to visit every neighborhood  
and some Republican did  $\emptyset$ , too.

Grimshaw (1979) showed that this verb takes an NCA complement, since speakers who find (48) ambiguous find (49a) unambiguous; the latter gives only the existential wide scope reading. This contrasts with (49b), which is ambiguous

for such speakers. The difference is that (49a) has no internal structure, while (49b) involves VP ellipsis and therefore does have structure. (50) shows that extraction out of the NCA is impossible, suggesting that it has no internal structure at LF:

- (50) \*Bill knows which neighborhood Al volunteered to visit and Barbara knows which township George volunteered  $\emptyset$ .

Depiante's argument is also based on three tests from Hankamer and Sag (1976) for the presence of surface vs. deep anaphora. (Surface anaphora include the elided constituents in VP ellipsis and sluicing phenomena.) These tests are (a.) if an element can be pragmatically controlled, it is a deep anaphor; (b.) if an element does not require a strict syntactic parallelism with its antecedent, it is a deep anaphor; and (c.) if an element cannot contain an element that serves as an antecedent to a pronoun, it is a deep anaphor.

Based on Merchant's arguments against structural isomorphism constraints on ellipsis, the second of these tests is not valid; there exist constructions which do have internal structure but do not have strict syntactic parallelism with the antecedent (see (27-31)).

In fact, Merchant's syntactic constraint on COMP might carry over to the Spanish/Italian restructuring verbs; if an E feature moves into the position desired by the potentially raised material (C), this might suffice to prevent the material (at least *wh*-elements) from extracting out of the structured ellipsis site, by blocking any further movement to the C position.

**1.6 Superiority Effects** Stjepanović (1999) shows how observable Superiority effects in Serbo-Croatian support the PF deletion account for sluicing. In Serbo-Croatian, short distance null C matrix *wh*-questions involving a sluice show an asymmetry in the ordering of the *wh* elements:

- (51) Neko je udario nekog.  
*somebody is hit someone*  
'somebody hit someone'

- (52) Ko koga?  
*who whom*  
'who hit whom'

- (53) \*Koga ko?  
*whom who*

Stjepanović argues for an Economy of Derivation account of Superiority, which, simply put, states that the higher *wh*-phrase moves into Spec-CP first; then the lower one follows and lands under it. This account predicts the data in (51-53). Further, Stjepanović points out that this approach implies that *wh*-phrases are base-generated in the elided IP. If this is the case, PF deletion has clearly taken place, since the IP contained (at one point in the derivation) non-null material. The LF copying approach to ellipsis would wrongly predict (53) to be well-formed, since there would be nothing to prevent either ordering of the *wh*-phrases if they are base-generated in Spec-CP.

The question of the nature of ellipsis remains largely unsettled, though current research favors a PF deletion account. Tancredi (1992) linked deletion to phonological deaccenting, showing how it is possible for semantic constraints to play a role in PF derivation. Lasnik (1995a) and Merchant (1999) have offered strong feature-driven explanations for those semantic constraints, giving a possible implementation for Tancredi (1992) which is compatible with current theoretical directions. Depiante (in press) suggests that some ellipsis constructions may not be derivational phenomena at all, being unstructured altogether. The unified account of ellipsis phenomena, at present, is that, when the construction is structured, it involves deletion rather than LF-interpretation.

## 2 Theoretical Support

Although empirical evidence supports a PF-deletion story of elliptical effects (e.g., Sag (1976)) over an LF-interpretation story (e.g., Williams (1977)), this conclusion may be similarly reached on theoretical grounds alone, following from the Minimalist Program's bare phrase structure, which subsumes X-bar theory.

X-bar theory revealed the importance of lexical heads in natural language productions. Phrases are shown to be “endocentric,” with the majority of their properties following from properties of their heads. For example, while we may understand that a VP has as a possible structure [<sub>VP</sub> V<sub>0</sub> NP], it is clear that for certain heads, this structure is not grammatical:

(54) \*John [<sub>VP</sub> [V put] [<sub>NP</sub> Mary] ]

The lexical head “put” calls for a VP structure that includes a PP. Under X-bar theory, phrase structure is a syntactic projection of attributes of a head. If the theory includes a set of computations (i.e., context-free rules, e.g., VP → V<sub>0</sub> NP), then the system contains redundancy of structural information. X-bar theory sought to eliminate the phrase structure rules in order to avoid the redundancy of having syntactic attributes reside in both the lexicon and the phrase structure rules (Chomsky 1994).

The strongest possible understanding of the X-bar view of phrase structure, the one which offers the most explanatory power, is that lexical items are the *only* source of phrase structure. Alternately, one might say that phrase structure is built in a top-down manner, with insertion of lexical items following insertion of non-terminal phrase markers. However, given the strong evidence that lexical items select for specific structural templates (i.e., these structural templates are inherent in the lexical items' properties), this would create a redundancy of information. Consider a simplified top-down derivation of (55) in (56-61):

- (55) John saw Mary  
 (56) *start* [S ]  
 (57)  $S \rightarrow NP VP$  [S [NP ] [VP ] ]  
 (58) *insert* <John, NP, ...> [S [NP John ] [VP ] ]  
 (59)  $VP \rightarrow V NP$  [S [NP John ] [VP [V ] [NP ] ] ]  
 (60) *insert* <saw, V, "has NP-comp"> [S [NP John ] [VP [V saw] [NP ] ] ]  
 (61) *insert* <Mary, NP, ...> [S [NP John ] [VP [V saw] [NP Mary] ] ]

The redundancy lies in the derivational rule (59),  $VP \rightarrow V NP$ , and the properties of the lexical element inserted in (60), "saw." The derivational rule asserts that the sister of the V (i.e., the complement) is an NP, but this is asserted in the lexical properties of the verb as well. In short, the Minimalist framework, implementing the core insights of X-bar theory, states that derivations follow in a bottom-up fashion, and the result of (59) follows naturally from the information in the lexical element "saw." A bottom-up merging derivation follows:

- (62) *start*: "saw" "Mary" (choose two elements)  
 (63) *merge*("saw", "Mary") [VP [V saw] [NP Mary]  
 (64) *merge*("John", VP) [S [NP John ] [VP [V saw] [NP Mary] ] ]

Since this kind of derivation makes use of only lexical items, no phrase structure can result if no lexical head is present.

According to the LF-interpretation account of ellipsis, the phrase structure of the ellipsis site is generated at Spell-out, but null (i.e., non-lexical) terminals are inserted. At LF, the appropriate terminal nodes are filled in from the antecedent through some interpretation operation involving (assumedly) structure-matching and lexical copying. Under Bare Phrase Structure, a strong reading of X-bar theory, the generation of the phrase structure will be impossible, since phrase structure is determined by lexical heads, and null terminal nodes are not lexical. Since null heads cannot generate any structure, for they cannot have any idiosyncratic information about structural selection, the possibility of a structured constituent without terminals (a precondition of the interpretive account of

ellipsis) is unavailable under a strong view of X-bar theory. Conversely, should an interpretation theory of ellipsis prove viable, we must return to an earlier view of phrase structure (e.g., a weak version of X-bar theory or encocentricity of phrase structures) in which structure is not exclusively the projection of heads but redundantly coded in both phrase structure rules and lexical items.

### 3 Conclusion

The current theoretical framework favors the PF-deletion account of ellipsis over the LF-interpretation account by making the structural prerequisites of the interpretation account inexpressible. In effect, the theoretically optimal understanding of X-bar theory and Bare Phrase Structure makes PF-deletion the *only* theoretically viable approach to ellipsis phenomena. This, taken with recent empirical observations, leads directly to a conclusion favoring the PF-deletion account of ellipsis.

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