

The Structural Signature of Pronouns\*

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\* This work grew out of joint work with Jeroen van Craenenbroeck several years ago, and I have benefited from numerous discussions with him. I am also indebted to Janet Dean Fodor for a very helpful discussion.

The Structural Signature of Pronouns

I argue for a definition of pro-form that simply defines the structural configuration into which pro-forms enter: a functional head that lacks an overt complement. This definition allows us to explain why full DPs can convert to pronouns without violating Inclusiveness, and why pro-forms and deletion sites are identical. Essentially, the licensing condition on deletion sites just makes them pro-forms. This definition tells us that, as Postal (1969) analyzed pronouns, their analysis is an essential ingredient of their definition; another analysis of pronouns that did not take them to involve deletion would fail to explain how elements could convert to them without violating Inclusiveness. Figuring out the mechanics of pronoun-conversion allows us to view the nature of garden-variety pronouns, which have intrigued philosophers through the centuries, and this work is intended as a window into the nature of symbolic cognitive architecture.

### I. Introduction

Modern linguistics is invested with two truisms. The first truism is that we use the object-language, the language that we are attempting to characterize (English, French, Thai, Ewe, etc.) as an approximation for a meta-language, what Chomsky (1986) calls an I(nternal)-Language. We can't avoid this, any more than mathematicians can avoid trying to discover the language of mathematics.

The second truism is that children learn language effortlessly, without conscious instruction. This truism is related to the first. Our linguistic descriptions are replete with references to pronouns, bound variables, R-expressions, anaphors, c-command, etc., and this is just from the domains of syntax and semantics; the same is true of primitives in phonology, morphology, and phonetics. The child, on the other hand, does not have any idea of what these terms mean, to judge from over thirty years of constructing undergraduate linguistics exams. In other words, we are trying to discover the nature of some sort of cognitive symbolic system that governs what we call I-language.

My task is to apply these two truisms to the task of discovering what the I-language cognate of the object-language term *pronoun* is—in other words, how does I-language represent pronouns?

My answer will be to exploit a proposal made by J.D. Fodor (Fodor(1998)), that language-acquisition crucially involves the construction of a parser, a device for the assignment of structure to the set of terminal strings of a language. Fodor's proposals comport well with the definition of a language made by Chomsky (1986), in which an I-language is defined as a set of structures, and fits comfortably in the day-to-day workings of syntacticians, which deal with phrase-markers and their properties.

Phrase-markers represent a small set of notions (see McCawley (1968)): dominance, immediate dominance, c-command, and precedence. The first three notions are hierarchical notions that deal with grouping, and the last notion deals with linear order.

However, nodes, the points in phrase-markers, are not unanalyzed primitives. Since Chomsky(1965), nodes have been viewed as complexes of features, which are exempt from the requirements of nodes. Features are simultaneous with respect to one another, and hence are not capable of detection by linearization. Chomsky (1995a) calls them "properties", a view with which I am largely in agreement but which obscures the fact that they are currently subject to distinct formal regularities. Among them are:

(1) (a) composition of the features themselves plus values for the features. The features could be viewed as dimensions along which the elements varied, and the values were the particular points along those dimensions that the particular elements inhabited. (example: the feature [ $\pm$ voice]).

(b) a distinction between those features which are specified, and those features in which the specifications are left blank. The former are said to be valued, and the latter are said to be unvalued. Related to this distinction is the distinction between interpretable formal features, which are valued, and uninterpretable formal features, which are unvalued; interpretable formal features, as the term

implies, are those features which have semantic consequences, and uninterpretable formal features are those which play a strictly grammatical, non-semantic role.

The distinction between valued and unvalued features is seen clearly in Kratzer's (2009) study of what she calls "fake indexicals", 1<sup>st</sup> and 2<sup>nd</sup> person pronouns which can be interpreted as bound variables, as in (2):

(2) I<sub>i</sub> am the only one<sub>j</sub> who takes care of my<sub>i</sub> children.

This sentence is ambiguous, asserting either that (a) the speaker is the only one who takes care of the speaker's children; or (b) the speaker is the only one who takes care of their own children. The first reading can be labelled the referential reading of pronouns, and the second reading can be called the bound variable reading. Kratzer observes that it is impossible to straightforwardly derive the bound variable reading from the referential reading. She solves the problem by giving the possessive pronoun two distinct representations: one with the  $\phi$ -features (person, number, and gender) valued as in (3), yielding the referential reading, and one with those features unvalued, with the values being inserted post-semantically, or equivalently at PF, as in (4):

(3) [Person 1 ]  
[Number Pl]  
[Gender Male]

(4) [Person ]  
[Number ]  
[Gender ]

I realize that in this case, the valued-unvalued dichotomy does not exactly track with the interpretable-uninterpretable distinction. Pre-theoretically, it would seem that the features of person, number, and gender on nominals would map into interpretation, and indeed, the notion of a bound variable would be semantic if anything is. An uninterpretable feature would be a Case feature, or the  $\phi$ -features on verbs, which are valued by agreement with interpretable occurrences of these features on nominals.

So both configurations and features are available in structures, and both, I will argue, are necessary and sufficient to encode grammatical concepts. A pronoun is defined as in (5), and a reflexive in (6).

(5) Pro-form : A functional category with a deleted complement.

(6) Anaphor (including reflexive): A category with unvalued  $\phi$ -features.

While I agree with both, my focus in this paper will be (5).

Reinhart & Reuland (1993), p. 658, take "the lack of  $\phi$ -features to be the property responsible for their (i.e., their SE-anaphors, me) anaphoric nature." Note that the two definitions, in (5) and (6), are not mutually exclusive; an element may be both. In fact, when this happens, we have what may be called a "pronominal anaphor", and this is in fact what is meant by a long-distance anaphor. Picá(1987) divided anaphors into simplex and complex anaphors, referring to their morphological composition, and Picá's Generalization was that anaphors that had to be locally bound were morphologically complex, while anaphors that could be bound long-distance were morphologically simplex. Icelandic *sig*, discussed by Thráinsson(1991) is a case in point; it can be bound outside of its clause, as can the

pronoun *hann*, but unlike the pronoun *hann*, it must be bound. In fact, like all long-distance anaphors, it must be bound by a subject:<sup>1</sup>

- (7) (Thráinsson's (15a)) Jón<sub>i</sub> sagði [að ég hefðl svikið sig<sub>i</sub>]

John said that I had betrayed self.

- (8) (Thráinsson's (18)) Jón<sub>i</sub> sagði [að ég hefðl svikið hann<sub>i</sub>]

John said that I had betrayed him.

- (9) (Thráinsson's (19)) \*Ég sagði Joni<sub>i</sub> [að þú hefðir svikið sig<sub>i</sub>]

I told John that you had betrayed self.

We might then say that the “long-distance anaphor” has pronominal characteristics in being a simplex functional head that lacks a complement, and anaphoric in that it is  $\phi$ -defective. The pronominal character will require it to be non-locally bound, if it is bound at all, but the anaphoric character will require it to be bound, rather than simply coreferential with a possibly non-c-commanding antecedent. The need for a subject binder rather than an object-binder can be reflected in Kratzer's (2009) proposal that functional heads, rather than DPs, can value features in lower positions, and perhaps only T can accomplish this goal.

The point is that labeling the relevant elements in the languages that possess them as long-distance anaphors, or even as pronominal anaphors, is simply labeling the problem to be solved, and is not an explanation at all. Taking seriously Chomsky's observation that features are just properties, albeit of a circumscribed nature, we can trace the ways in which the element acts as either a pronoun or an anaphor by its possession of either pronominal or anaphoric properties.

The theoretical shortcomings of an analysis that comes from the postulation of a feature can be seen from the study of ellipsis. Merchant (2001), a study that is deservedly influential in the amount of insight and clarification that it affords us in the nature of unexpressed elements, deals with the fact that elided elements have to be licensed by a higher head by positing a feature [+E]; the content of [+E] is its deletion of what are said to be PF features, and to the semantics to view the complement as being mutually E-given with an antecedent.

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<sup>1</sup> This requires some qualification. Thráinsson notes that *sig* can be bound by an experiencer non-subject. The point is that it is thematically restricted, unlike the case of a pronoun, so that it cannot be bound by e.g. a non-experiencer matrix object.

The feature [+E] is not a property; it is simply an instruction to two grammatical components to treat a phrase that is marked as [+E] in the appropriate way, and thus is nothing more than a stipulation. It basically says “Elide this phrase.”

My treatment of the feature [+pronominal] will be different. I will argue that pronouns have the crucial property of being functional heads that lack complements, and coming to have this property suffices to have the elements classified as pronouns. This property of conversion to pro-forms (the general class of anaphoric elements that includes pronouns) is crucial in the context of a constraint that was posited in Chomsky(1995a) called Inclusiveness, which limits the devices in the course of derivations to those elements that are present at the outset; features and their groupings, subject to species-specific constraints on their natures. From this standpoint, a feature-value pair [+pronominal] violates Inclusiveness. Viewed from an I-language standpoint, in which a feature-value combination is taken not as a property but as a discrete cognitive symbol, the feature-value pair is on a par with all other feature-value pairs.

However, there is a significant strand in the literature that deals with the morpho-syntactic shape of pronouns, beginning with Postal (1969), that takes pronouns to be functional heads with deleted complements. Postal took pronouns to be determiners, but Déchaine & Wiltschko(2002) has shown that pronouns can arise from a variety of categorial sources; I will adopt this view, but without endorsing Postal’s specific view of determiners, I will follow him in taking pronouns to involve deletion.

The standard view of deletion, propounded by Merchant(2001), takes deletion, as I have stated above in discussing the feature +E, to be deletion of PF features(including phonological features, accounting for the silence of elided elements). However, the view that deletion is a PF process is at odds with the data in this paper, and in Baltin(2012), that deletion affects LF. Moreover, as I will show at the end of Section IV, the crucial involvement of PF-deletion in the genesis of pronouns does not distinguish them sufficiently from their input non-pronominal counterparts to provide a rationale for why pronoun-conversion occurs.

This paper precedes as follows: Section II outlines the building blocks of this analysis, aspects of the framework that are crucial to the account; Section III documents cases of pronoun-conversion. Section IV applies the account of how pronouns are created to cases of pronoun-conversion, and discusses the implications of this account for accounts of the genesis of pronouns in general. Section V applies the definition of pro-form to deletion accounts, unifying the account of pronouns in Section

III with the phenomenon of ellipsis. Section VI discusses the treatment of ellipsis-containing antecedents, and Section VII concludes.

## II. Relevant Aspects of the Framework

### A. Lexical Entries

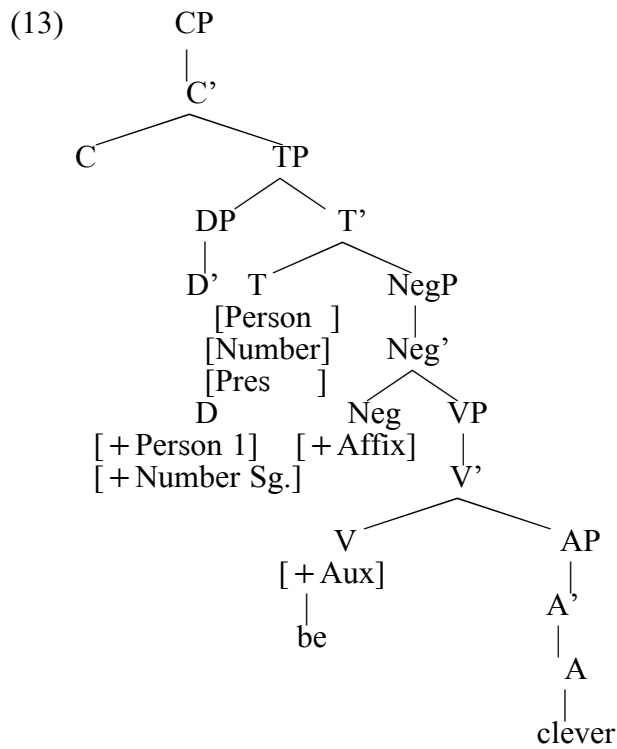
A standard assumption in generative grammar is that lexical items are complexes of features (Chomsky (1965)). These features are of three types: formal, semantic, and phonological. Recently, however, Distributed Morphology (Halle & Marantz(1993)) have taken phonological features to be inserted post-syntactically, at the level of morphological structure. In this way, the phonological shape of a morpheme can be sensitized to the particular structural environment in which the morpheme occurs. Post-syntactic vocabulary insertion has been argued by Embick & Marantz(2008) to be restricted to functional categories; lexical categories (N,V,and A) are spelled out when first merged into the structure. A case in point is the English 1<sup>st</sup> person present copula, which can be attached to the contracted negative *'nt* and inverted, which is spelled out as *aren't* in this environment and only in this environment (Gazdar, Pullum, & Sag(1982)):

(10) Aren't I clever?

(11) \*I aren't clever.

(12) I'm not clever.

A straightforward derivation of (10) would proceed along the following lines, with (13) as an underlying structure:

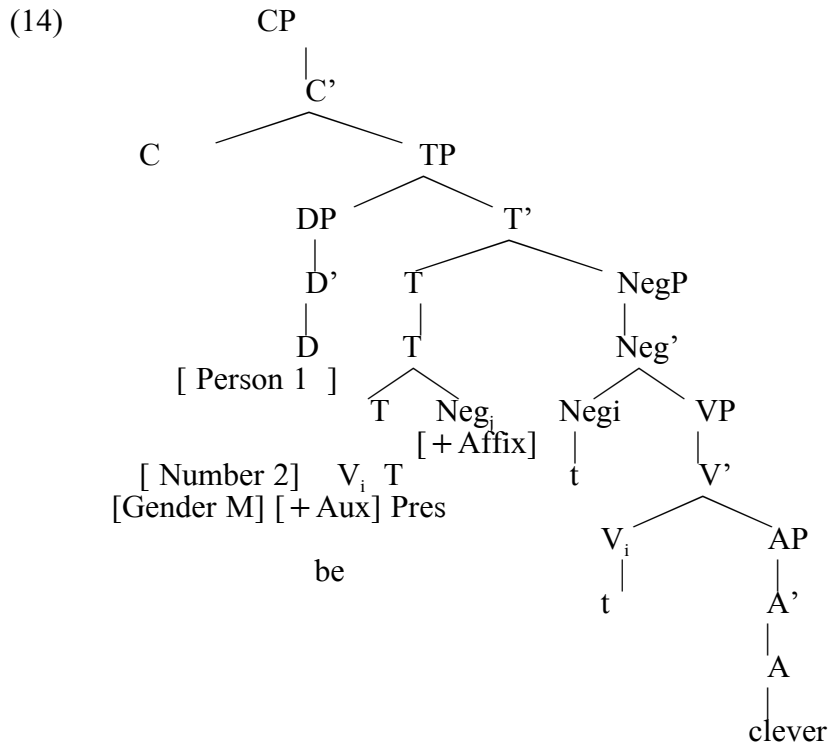


After the copula raises to T, the negative undergoes morphological merger(Bobaljik(1995)) to T<sup>2</sup>, and the structure that results from these processes (assuming that both processes occur in the syntax): is (14):

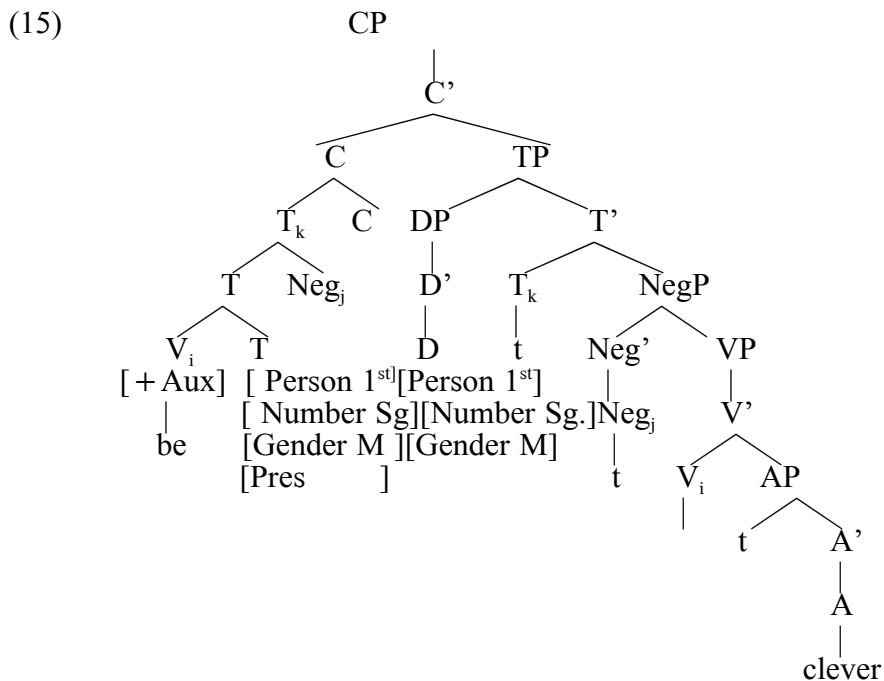
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<sup>2</sup> Because it is not central to my concerns, for expository convenience, I will leave traces of head-movement, but the status of such traces is unclear at best (Mahajan (2000), Koopman(2006)).





Finally, T will move to C, yielding (15):



In short, functional categories are simply feature bundles in the syntax, while lexical categories have phonological shape from the outset. The output of vocabulary insertion is terminal elements for the functional categories as well, and what is noteworthy is the

restriction of particular morpheme shapes to particular environments, called *contextual allomorphy* by Embick(2010). In this case, the T that has moved to C, with its particular feature specification, will be spelled out as *are* when it is attached to Neg in the first person.

This is relevant because Postal(1969), in his original proposal that pronouns are determiners, relied upon the partial overlap in environments of pronouns and determiners, e.g. the fact that just as English allows *we linguists*, *them linguists*, *you linguists*, it allows *we*, *them*, and *you*. However, the key word in the preceding sentence is partial; the singular pronouns cannot appear as determiners, so that we do not have *\*I linguist*, *you linguist* (except as a vocative), etc. A rather brute force way of accounting for the inability of singular pronouns to appear as determiners is to exploit the device of contextual allomorphy<sup>3</sup>. I will nonetheless assume the Distributed Morphology framework in this paper.

#### B. Deletion

Considering that lexical items are feature bundles, consisting of three types of features, formal, phonological, and semantic, and Bare Phrase Structure (Chomsky (1995b) tells us that projections are identical to lexical heads, perhaps with certain uninterpretable features checked. Deletion is deletion of formal features. If functional items delete, the lack of expression would follow from the input to Vocabulary Insertion(i.e. formal features) having been deleted; the non-expression of lexical categories is less straight-forward, since phonological features for lexical categories are present from the outset. One way to allow for phonological as well as formal features to delete would be to simply classify all of the relevant features as formal, making a two-way distinction between formal features and semantic features. At present, I know of no argument for this move.

Semantic type plays a role in the ensuing discussion.

This theory of deletion exploits the idea from Chomsky (1995b) that projections are simply developments of heads, with all of the features present in heads, to derive the

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<sup>3</sup> This obviously is non-explanatory, since the inability of singular pronouns to appear in determiner positions (i.e. before nominal complements) is apparently universal (see, for instance, Noguchi (1997), and Huang, Li, & Li(2009)), and so a deeper explanation is called for. Complicating the situation is the homophony in e.g. the Romance languages between the third person accusative clitics and the determiners, such as French *le livre* and *le*, and *la fille* and *la*. Such an explanation would, unfortunately, take me afield and does not seem germane to this paper.

oft-cited restriction (see, e.g. Lobeck(1995)) that heads do not delete by themselves. For example, consider the ungrammaticality of (16), adapted from Johnson(2004):

(16) \*Although he didn't turn this radio off, he did\_\_\_\_that radio on.

This sentence would have to involve deletion of the verb by itself, leaving the particle behind. The survival of the particle indicates that the deletion cannot be reanalyzed as a remnant movement, in which the deletion would delete a phrasal projection.

In any event, the present theory of deletion captures as a consequence the restriction against deleting heads, and leaving the phrasal projection intact. Bare Phrase Structure says that phrasal nodes simply “are” heads, and so the former simply cannot exist without the latter, their anchors.

Finally, because the deletion occurs in the syntax, opportunities for semantics to be affected by deletion will be available that are predicted to be impossible by the view that deletion occurs at PF; the latter view takes deletion, as a PF operation, to occur on a separate track from LF, and hence would not allow the range of interactions that are documented in this paper.

An essential fact about ellipsis is that ellipsis must be licensed by a particular head. For example, VP-ellipsis is not possible from affirmative subjunctives (Baltin(1992)), or of complements of main verbs (Bresnan(1976):

(17) Although Fred wouldn't prefer that I leave, Bill would prefer that I { \* \_\_\_\_ }.  
{leave}.

(18) \*First fire began pouring out of the building, and then smoke began\_\_\_\_.

In fact, VP-ellipsis seems to require a locally c-commanding Tense. Merchant(2001) accounts for licensing, as I mentioned earlier, by positing an E-feature on the licenser, which would trigger PF-deletion of a lower phrase. Aelbrecht (2009) refines this idea by taking licensing to be an Agree relation(Chomsky (2000)) between a higher probe, a head, with the +E feature and a c-commanded goal, a phrase, also with this head. Taking the +E feature to be an instance of Agree does not remove my earlier objections to the theoretical status of the feature; it is simply a stipulation, an instruction to perform a certain process, and is not a static property. It is therefore necessary, in my view, to find a property that would account for the licensing phenomenon.

One factor that seems relevant is the fact that, in all instances, the elided phrase, were it overt, could be a complement of the licensing head. All heads require a

specification of the necessary properties of the complement<sup>4</sup>, including the categorial properties of the complement, such as the fact that T requires, e.g, a verbal complement. A recurring debate, since Pesetsky(1982), about the nature of selection is whether c-selection, or categorial selection, is necessary, specifying the syntactic category of the complement, or whether c-selection can reduce to s-selection, or semantic selection. In the case of VP-ellipsis, VPs translate into predicates that are eventive in nature, the eventive property distinguishing them from, e.g. adjectival predicates.

In a theory in which syntactic structure maps tightly into semantic representation, it is extremely difficult to directly compare whether selection is c-selection or s-selection, and the distinction may well be meaningless. In any event, I will assume that natural language requires syntactic specification of categories that are ultimately semantic.

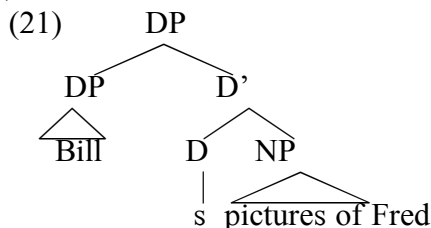
For example, Heim & Kratzer(1998) specify the following lexical entry for the definite article *the* in English(p. 75):

(19) (Heim & Kratzer's 4.4.1(5)):  $[[the]] = \lambda f \in D_{\langle e,t \rangle}$  such that  $f(x) = 1$ . the unique  $y$  such that  $f(y) = 1$ .

The type  $\langle e,t \rangle$  is the set of predicates, a derived type which combines with entities (of type  $e$ ) to form propositions (of type  $t$ ). It is considered to be the semantic value of NPs. Now, NPs are considered to elide in various environments, including the complements of genitives:

(20) Although John's pictures of Fred are expensive, Bill's \_\_\_\_\_ are cheap.

The relevant structure of the main clause genitive in which the NP-complement is (21):

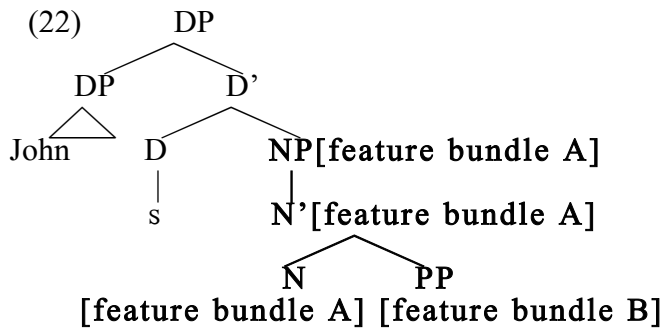


The determiner in (21), 's, would receive Heim & Kratzer's interpretation in (19) as a function, but if its NP complement elides in the syntax, it will be without the argument to which it applies in the semantics, yielding a violation of the Principle of Full Interpretation.

We can now give a fuller representation of the post-NP ellipsis structure, (22):

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<sup>4</sup> In the next subsection, when discussing functional heads in general, I will discuss the need for functional categories to take complements, and why this is so.



One pervasive characteristic of functional categories is their systematic transitivity. All functional categories take complements; we could not envision e.g. a complementizer without a propositional complement, a determiner without a nominal complement, or a Tense head without a predicative complement of some sort. We must consider the factor responsible for this. One possibility, proposed by Fukui & Speas (1986), would posit the constraint as a constraint on phrase-structure, defining transitivity as a constraint on functional heads. This move seems stipulative in the current climate, which eschews particular phrase-structure constraints.

A more interesting move has been suggested by Heim & Kratzer's (1998) treatment of determiners, discussed earlier, which takes determiners to be functions. As such, they need arguments, in order to yield semantic values. Hence, the need for complements is derived from a tight theory of a syntax-semantics correspondence together with a view of functional categories as functions in the mathematical sense.

There are at least two ways in which the need for a complement can be satisfied by a functional head. One way would be to co-generate the complement and the head under a projection of the head, and, in the case of pro-forms, to delete the complement. Another way, proposed by Takahashi & Hulsey(2009), would generate the functional argument as an adjunct, and to adjoin the constituent acting as argument to the functional head. They propose what has come to be known as late merger for NP complements of determiners, but their account is inadequate as a general account of the syntactic generation of functional arguments. Section V will unify the account of pronouns with what is known about deletion, and constructions that are claimed to involve the latter provide evidence for internal structure for the deletion site- in particular, movements out of the deletion site. A well-known generalization about movement is that it only takes place out of complements, enshrined in Government-Binding theory as the Condition on

Extraction Domains (Huang (1982)) and treated within Minimalism by Muller (2010). The CED requires that the unexpressed phrase be a complement, in order to allow extraction from within it.

### C. The Representation of Definiteness

It is clear that ellipsis sites must be interpreted as definite, in that they always require previous mention by an antecedent. For example, as Hankamer & Sag(1976) have noted, they cannot introduce a discourse out of the blue:

(23) (Seeing a man stuffing a basketball through a basketball hoop): \*I can\_\_too.

This is true for pronouns, even the so-called indefinite pronouns, such as English *one*:

(24) (Discourse-initial: Seeing a Lexus): \*I'm looking for one.

Nevertheless, if linguistic antecedents for these anaphoric elements are supplied, they are totally acceptable:

(25) Fred can stuff a basketball through a basketball hoop, and I can\_\_too.

(26) Fred is looking for a Lexus, and I am looking for one\_\_too.

Elbourne(2008) accounts for the definiteness of ellipsis sites by positing, on p. 197, a “....special phonologically null definite determiner THE.” Longobardi (1994) has argued for a phonologically null THE in some instances, and it is instructive to look at the properties of this null determiner.

#### 1. Domain of THE

Longobardi (1994) formulates the null determiner in order to account for the distribution of proper names, such as *Paris*, and discusses evidence primarily from English and Italian. Such evidence from English comes from the fact that the determiner is overt when the proper noun is modified, as in *The Paris of my youth*. In Italian, Longobardi notes (p. 623) that prenominal adjectives, both possessive and non-possessive, can occur between the determiner and the noun, but never before the determiner, with either common or proper nouns:

(27) (Longobardi's (27)) a.\* Mio il Gianni.

My the Gianni.

b. \* vecchio il tavolo.

Old the table.

However, proper nouns have the option of omitting the determiner, and when this option is taken, the noun precedes the possessive adjective:

(28) (Longobardi's (28)) a. Il mio Gianni ha finalmente telefonato.

The my Gianni has finally called.

- b. \* Mio Gianni ha finalmente telefonato.
- c. Gianni mio ha finalmente telefonato.
- d. Il Gianni mio ha finalmente telefonato.

The analysis of this paradigm, assuming that one wishes to relate all of the acceptable strings and fail to generate any of the unacceptable ones, relies on positing a null D with an affixal feature, triggering noun-incorporation to satisfy this feature; this feature would presumably be optional on the overt counterpart of this determiner, *il*, accounting for (d).

This sort of argument is a standard type of evidence for null heads: word order variations in which a head follows a modifier in the presence of an overt element which precedes the modifier, but when the overt element does not appear, the head obligatorily precedes the modifier. Pollock (1989) used this form of argument when he motivated V-to-T raising in French. Crucially, the argument depends on the null head occasionally being overt, to provide a point of contrast between two word orders, as in the contrast between (28)(a) and (28)(c).

Elbourne, by contrast, does not provide any argument that relies on surface string differences, and also posits THE in a different set of environments than does Longobardi, who restricts THE to, in English and Italian, head position in which proper nouns are complements. He posits THE in any environment in which the complement is elided, as a trigger of ellipsis. To be fair, Elbourne explicitly, on p. 195, restricts his attention to NP-ellipsis and VP-ellipsis, and so is silent on the details of any other type of ellipsis. Nevertheless, the considerations that would apparently motivate the postulation of THE in the case of these two types of ellipsis would hold for any other type of ellipsis, such as sluicing, pseudo-gapping, British English *do*, etc. : the definiteness of the ellipsis site, and the triggering aspect of THE, which acts as a sort of licenser for ellipsis. For these reasons, I see no reason to restrict THE to just NP-ellipsis and VP-ellipsis.

Once this is done, it is not even clear that Elbourne's THE is even restricted to common nouns. Take VP-ellipsis, which has been argued to involve the deletion of either VoiceP (Baltin (2012) or vP (Merchant (2007)). The complement of unergative *v* has been argued by Hale & Keyser (2003) to be a nominal root, which incorporates to *v*, but even if this were so, restriction to a noun phrase would predict that only the complement of *v* would be elided. If THE could only introduce NP, ellipsis of the entire vP would be impossible. Elbourne, in his semantics of ellipsis sites, makes clear

that, in the case of VP-ellipsis (taking his term), the elided complement is an event, but he does not propose a syntactic characterization of events which would account for the fact that, e.g., the overt counterpart of THE, *the*, never overtly introduces VPs, his syntactic counterpart of events.

The problem is magnified by an extension to sluicing, as in (29):

(29) John visited somebody, but I wonder who \_\_\_\_.

I realize that this is just guessing, but I suppose that if THE is introducing the sluice, the sluice would be represented at the relevant level by something like a proposition, so that THE is introducing propositions. Analogous to the previous discussion of VP-ellipsis, there are at least two problems: (i) the notion of a proposition is a semantic term, and not a syntactic one, and so the notion of a syntactically-based treatment of ellipsis is illusory; (ii) an overt counterpart to THE is systematically absent in the overt counterpart of the sluicing construction.

Objection (ii) is heightened by the fact that Tancredi (1992) has shown that overt ellipsis has a semantic and pragmatic counterpart in anaphoric destressing, so that, for example, (29) can also be realized as (30) (with destressing represented by italics):

(30) John visited somebody, but I wonder who *John visited*.

However, there is never an overt element that precedes the destressed site, in any language, to my knowledge, and this systematic absence of an overt counterpart to THE remains unexplained.

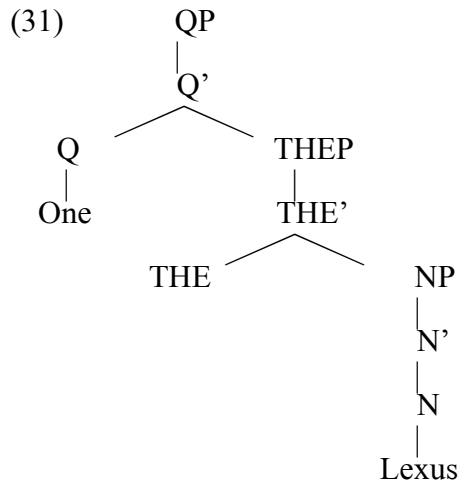
## 2. Introduction of THE

In the context of a cartographic approach to syntax, Giusti (2002) establishes a fixed position for the (presumably) overt determiner, in which it is the highest head in the projection line of a noun. In this vein, consider an analysis of the indefinite pro-form in (26), repeated here:

(26) Fred is looking for a Lexus, and I am looking for one\_\_too.

The pro-form *one* stands for a non-specific indefinite. Following Peretsvaig (2006), let us take one to stand for Q, rather than D, so that the structure of the pro-form would be, in Elbourne's analysis, (31):





However, the null counterpart of the definite determiner would have to occur below Q, rather than above, violating the cartographic placement of this determiner.

Elbourne observes, in footnote #10 of his article, that “The head THE is in some respects analogous to the E feature of Merchant, 2001, to appear.” We can see that THE is intended as a licenser; if we imbue it with a property, we can get around the objection that I posed earlier to features. However, Elbourne is making a stronger claim than is made by the postulation of a feature without properties; he is giving this element all of the semantic properties of the definite article, in line with such authors as Neale (1990) and Russell(1905), such as the latter’s Iota-operator, which denotes uniqueness. However, this predicts, if we are aiming for a general, universal theory of ellipsis, that an overt counterpart of THE would surface somewhere. What would be predicted would be a morpheme that only appears before an ellipsis site, *in addition to* the rest of the elements of the clause. This is necessary, because some languages, such as Chinese (Soh (1998)) and Vietnamese apparently allow a special morpheme to introduce elided VPs. However, these cases could be dealt with by taking the element to be, in effect, a pro-form, one of the other functional categories with either the E feature or with the semantic type of the incorporated complement. Elbourne’s analysis would require this morpheme to be a determiner, possibly of a designated phonological shape.

In short, I see no need, and great problems, for an analysis of ellipsis sites that syntactically marks the sites with a null determiner. The input that I am proposing for deletion sites would simply mark them as elements that are licensed by particular functional heads, and whose content can be reconstructed.

### III. Derived Pronouns

#### A. Movement

Chomsky (1995) notes a plausible basis for the existence of traces by taking an idea about movement from the 1960s in which movement was simply copying followed by deletion of the original, noting that reconstruction could be explained rather than simply stipulated by viewing reconstruction as interpretation of the original.

One source of evidence for viewing movement as copying followed by deletion of the original is the existence of cases in which copying must occur but there is no deletion of the original. One case of this is the predicate cleft construction (Koopman (1983), Aboh & Dyakanova(2006)), in which a verb is focussed by being placed in initial position, possibly in a focus position, but the original remains in place. An example is (32), from Vata:

- (32) (Koopman (1983), Ch. 6, (1b))  
 ngOnU n ka bl ngOnU a?  
 sleep you FUT-ASP now sleep Q  
 'Are you going to SLEEP now?'

Koopman, in the above-cited work, distinguishes the following characteristics of the predicate cleft construction:

- a. When a verb appears in initial position in the clause, an identical twin of the verb must appear in the ``verb's normal clausal position.
- b. The initial verb and its twin can be separated by an apparently unbounded distance in the normal sense, in that the verb may be in the matrix clause and the identical twin may be in an embedded clause.
- c. The relationship between the initial verb and its twin respects syntactic islands, in that the identical twin cannot be within a complex NP that does not contain the initial verb, or within a wh-island that does not contain the initial verb.
- d. The predicate cleft construction is incompatible with wh-questioning, in that the initial verb cannot precede a fronted wh-phrase.

Characteristic (d), which prohibits the dependency between the fronted verb and the verb in its "normal position" (i.e., in the middle field) across island boundaries, is thought to be the most emblematic of movement since Ross(1967), and strongly supports the view of movement as involving copying. In this case, copying is constrained by island boundaries, whatever is responsible for islands (i.e., phase theory (Chomsky (2000, 2001), or something else).

Unfortunately, however, the predicate cleft construction cannot yield insight into the main question of this paper, the question of what the distinctive signal of a pronoun is, because the copy and the original are verbs, which do not have pronominal counterparts. However, DPs, of course, do have pronominal counterparts, and, in the two instances of movement that are documented below, copy-raising and resumption, the originals are realized as pronouns under certain conditions, which I will document.

#### A. Copy-Raising

First brought to light by Rogers(1974) for English, and subsequently documented for other languages by Ura(1994), Deprez(1992), and others, copy-

raising is raising to an A-position out of a tensed clause, as in (33):

(33) The cat looks like it's out of the bag.

A number of authors (Potsdam & Runner (2001), Fujii (2007), Ura (1994), and others) have dispensed with the analysis of this construction as an ordinary pronoun-antecedent pairing by noting that an idiom chunk can antecede a pronoun when the pronoun is the subject of the embedded finite clause, but not when the pronoun is a non-subject, although a non-idiom can antecede the pronoun non-subject:

(34) (Fujii (2007), (11a and b) a. The shit<sub>i</sub> appears as if it<sub>i</sub> is likely to hit the fan very soon.

b. \*The shit<sub>i</sub> appears as if John expects it<sub>i</sub> to hit the fan very soon.

(35) (Postal (1974), p. 268) Ted looks like Jane has been hassling him again.

I will follow these authors in distinguishing the copy-raising construction, which involves movement, from prolepsis, i.e. an antecedent-pronoun construction. While copy-raising has clearly been motivated by numerous authors, nobody, to my knowledge, has answered the following question:

Why is the original a pronoun?

After all, if the process is called “copy-raising”, one would expect the two instances to be literally identical, as they are in the predicate cleft construction. Interestingly enough, there is a construction in many languages in which the original is interpreted as a reflexive, according to Boskovi`c and Nunes. Interestingly enough, however, the original does not have the shape of a reflexive. It is phonologically an exact replica of the copied element:

(36)(San Lucas Quiavinì Zapotec) (Boskovi`c & Nunes (2007), (115a))

R-yu'lààa'z Gye'eihlly<sub>i</sub> Gye'eihlly<sub>i</sub>.

HAB-like Mike Mike.

'Mike likes himself.'

(37) (Hmong) (Boskovi`c & Nunes (2007), (116a))

Pov<sub>i</sub> yeej qhuas Pov<sub>i</sub>.

Pao always praise Pao.

"Pao always praises himself.'

In short, the original can convert to a pronoun, but not a reflexive. Were we to violate Inclusiveness, we would have to explain this discrepancy. From the point of view of, e.g. the feature convention in Chomsky (1982), the pronoun would be [+pronoun], and the anaphor would be [-pronoun]. The conversion would be [-anaphor] [+anaphor]

exactly equal in terms of a simplicity metric that would count features. In fact, we must explain this discrepancy even if we assume Inclusiveness. An analysis of pronoun-conversion can be had that obeys Inclusiveness by assuming a deletion analysis of pronouns along the lines of Postal's original analysis, in which the pronoun is simply the determiner (for personal pronouns), with the complement deleted. As mentioned earlier, assuming plausibly that the determiner maintains its original feature composition, the operation simply involves the deletion of the complement, so that information about the DP is lost; nothing is added. Inclusiveness is therefore satisfied.

On the other hand, assuming that complex reflexives, which are locally bound in

conformity with Picà's Generalization, are composed of a determiner plus noun, do not involve deletion in their creation, they could not be created by an analogous "conversion" process, and hence would violate inclusiveness were they to be created. Therefore, were the original to remain, the only option that it would have would be as literally identical to the copied element in the higher position.<sup>5</sup>

#### B. Resumption

McCloskey (2005) discusses the phenomenon whereby an A-bar gap is instead instantiated by a pronoun known as a "resumptive pronoun". An example is (38):

(38) John is somebody who<sub>i</sub> I wonder whether he<sub>i</sub>'ll enjoy that.

In other words, an A-bar "filler" (to use J.D. Fodor's (1978) term), in this case an interrogative wh-phrase, corresponds to a pronoun, rather than a gap. This phenomenon, while a tendency presumably related to processing considerations in English, is more widespread in languages such as the Semitic languages, Swedish, Vata, and others. Furthermore, and crucially for our purposes, McCloskey notes that no distinction exists cross-linguistically between resumptive pronouns and ordinary, non-resumptive pronouns, highlighting the need to assimilate the treatment of the former to the latter.

McCloskey notes the following characteristics of resumptives:

- (i) Some languages allow resumptives to occur within islands, and other languages don't.
- (ii) Resumptives within islands do not reconstruct, while resumptives outside of islands can.

For example, Irish allows resumptives to occur within wh-islands and Complex NPs:

(39) (McCloskey (2005), ex. 15)

na hamhráin sin nach bhfuil fhios cé a chum iad.

The songs DEMON Neg C is knowledge who C composed them.

'Those songs that we don't know who composed them.'

(40) (McCloskey (2005), ex. 17)

An fánaidhe a n-abradh daoine nár thuig é go rabh sé

The wanderer C would-say people NEG C understood him C was he

éadhtrom sa cheann.

light in-the head.

'The wanderer that people who didn't understand him would say that he was soft in

---

<sup>5</sup> I am finessing the question of why Condition C would not be violated. In this connection, Lasnik (1991) has noted languages which allow violations of Condition C- Vietnamese, Thai, and ( I have discovered independently ) Laotian. This will be discussed more below.

One fact that Boskovi`c and Nunes cite, which I find extremely puzzling and have no explanation for at present, is that the original, while phonologically identical to the copy, behaves as a bound variable, allowing sloppy identity. For this reason, they label the original as a reflexive. Why this doesn't violate compositionality is a question for which I do not have an answer. The syntax must in some way characterize the originals as reflexives, in order to trigger reflexive semantics, and I leave this open.

the head.'

On the other hand, languages like Swedish and Vata do not allow resumptive pronouns to occur within islands. The following Swedish example makes this point:

(41) (McCloskey (2005), ex. (40)) ?\*Vilken bil åt du lunch med någon som

Which car ate you lunch with someone that

körde den?

drove it?

Which car did you have lunch with someone that drove\_\_\_?

The second point, that resumptives in islands do not reconstruct, as opposed to resumptives outside of islands, is illustrated by Lebanese Arabic, in a paper by Aoun, Choueiri, and Hornstein(2001)<sup>6</sup>. A variable that is contained within a filler that binds a resumptive outside of an island can be bound by a quantifier that c-commands the resumptive:

(42) (Aoun, Choueiri, and Hornstein(2001), ex. (51b))

*təlmīiz-[a]<sub>i</sub> l-kəsleen* ma baddna nħabbir [wala mʕallme]<sub>i</sub> ʔanno l-mudiira

student-her the-bad NEG want.1P tell.1P no teacher that the principal.SF

ʕaħatət-o mn l-madrased.

expelled.3SF-him from the-school.

'Her bad student, we don't want to tell any teacher that the principal expelled him from school.'

However, binding of a variable from a non c-commanding operator is impossible if the phrase containing the variable binds a resumptive within an island:

(43) (Aoun, Choueiri, and Hornstein (2001), ex. (52b))

\**təlmīiz-[a]<sub>i</sub> l-kəsleen* ma badda taʕrif [wala mʕallme]<sub>i</sub> lee l-

mudiira

student-her the-bad NEG want.3SGF know.3SGF no teacher why the-teacher

ʕaħatət-o mn l-madrased.

expelled.3SF-him from the-school.

'Her bad student, no teacher wants to know why the principal expelled him from school.'

Aoun, Choueiri, and Hornstein distinguish what they call apparent resumption from true resumption; the former, apparent resumption, occurs out of islands, and is derived by movement, while true resumption, which occurs within islands, is actually a base-generated A-bar dependency between an element in operator position and a pronoun which is then interpreted as a variable. Their view of movement, however, doesn't really rely on copying as a process, but seems to be most comfortably seen as chopping, or actual displacement of the element that shows up as having moved. In particular, they analyze the head of the chain as having moved from the specifier of the clitic, so that the

<sup>6</sup> A remark about their paper is in order. The bulk of the paper is devoted to discussing strong (i.e. non-clitic) pronouns and epithets in resumptive constructions. Their analysis of these two constructions is slightly different from their analysis of weak (i.e. clitic) pronouns in resumptives, and while their analysis of the former is convincing, it introduces complications that are unnecessary. I will hence confine myself to their discussion of weak pronouns as resumptives, which requires a slight modification on my part which I will introduce in the text.

(clitic) pronoun is present from the outset.

I see no reason to posit the pronoun as being underlyingly present, and indeed take this aspect of their otherwise excellent analysis as redundant. The present analysis unites resumptives with other constructions, including predicate clefts and copy-raising constructions in Thai, Vietnamese, and Laotian. These last two constructions, predicate clefts and copy-raising in the above-mentioned languages, are noteworthy because they exhibit properties of movement but do not show pronouns or gaps; rather, the original remains as an exact replica of the copied element, presumably for binding-theoretic reasons. Also, generating the original as a pronoun with the moving element in its specifier position will not generalize to vehicle change, while the analysis in this paper does. For this reason, I view apparent resumption as a case of pronoun-conversion.

This distinction, between movement that occurs out of islands, with the original presumably occurring as a (resumptive), and binding that occurs within islands, immediately explains the second distinction, the reconstruction effects out of islands and the lack of same outside of islands. Chomsky (1993) notes that the copy theory of movement explains reconstruction phenomena by taking the original to be an exact facsimile of the element that is copied into a higher position. For example, (44), in which the *wh*-phrase in [Spec, CP] contains a variable that is not c-commanded by its apparent binder, the quantified subject, will have the representation in (45), in which the subject c-commands, and hence is in a position to bind, the variable.

(44) Which of his<sub>i</sub> pictures did each student<sub>i</sub> choose?

(45) [Which of his<sub>i</sub> pictures] did each student<sub>i</sub> choose [**which of his<sub>i</sub> pictures**]?

For languages like English, the original would delete after interpretation, which would include variable-binding. Languages with overt resumptives which form them by movement, as is the case for Lebanese Arabic and Vata, would not delete the original, presumably for PF-reasons, as argued by Bosković and Nunes. I still need to capture Aoun, Choueiri, & Hornstein's second case, of resumptives which are not formed by movement. I will do this presently.

Ultimately, I would like to reduce the possibility, requirement, or impossibility of pronoun-conversion to the binding theory, or whatever is responsible for it. However, in the case of resumptive pronouns that spell out A-bar chains, a glaring problem with this approach, on the face of it, is that the binding theory concerns itself with A-binding, binding from argument positions, while the ultimate binder of a resumptive is an element in an A-bar position.

Or is it? Nissenbaum (2001) provides evidence for an intermediate trace adjoined to VP on the basis of the requirements of both variable-binding and Condition C; the former requires that a variable be c-commanded by an operator that binds it, and the latter's effects include ruling out a name that is c-commanded by a pronoun. With this in mind, Nissenbaum notes that a matrix subject pronoun cannot be coreferential with a name in a fronted *wh*-phrase that also contains a bound variable, but a pronoun first object can be coreferential with a name in such a fronted phrase:

(46) (Nissenbaum's (18)(b)) \* Which paper that he<sub>j</sub> wrote for Sabine<sub>j</sub>'s seminar did she<sub>i</sub> ask every senator<sub>j</sub> to revise \_\_\_\_?

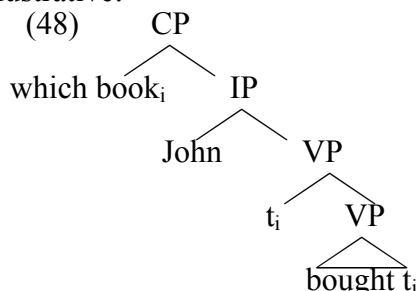
(47) (Nissenbaum's (21)) Which paper that he<sub>i</sub> wrote for Sabine<sub>j</sub>'s seminar did every student<sub>i</sub> give her<sub>j</sub> a revision of \_\_\_\_?

Reconstruction to the original position is impossible in (46), accounting for its

ungrammaticality with the indicated indexing. Variable binding requires reconstruction to a position subordinate to the object, but such reconstruction would cause the name in the relative clause to be bound by the matrix subject, running afoul of Condition C.

However, (24) (Nissenbaum's (21)) shows that reconstruction to the original position would incorrectly rule out (24), because the first object would then bind the name that would be reconstructed within the second object.

Nissenbaum's solution would posit an intermediate trace that is adjoined to the VP, and in this position, it would fail to be c-commanded by the first object, and would hence not trigger Condition C. The structure in (48) (Nissenbaum's (17)) is illustrative:



My modification of this would take the intermediate trace, adjoined to VP, to count as an A-position, in which case it would trigger A-binding, and conversion of the original position is necessary to avoid a Condition C violation.

In fact, this analysis of resumptives that arise from movement as cases of pronoun-conversion predicts an otherwise surprising constraint on resumptives. McCloskey(2005) notes that subject resumptives do not occur when they are locally bound, a restriction that is dubbed by him the Highest Subject Restriction. He exemplifies this restriction for Irish in (49) (his (29)):

- (49) a. \*fear nár fhan sé sa bhaile.  
man C NEG-PAST remained he at home.

‘a man that didn’t stay at home.’

- b. fear nár fhan \_\_\_\_ sa bhaile.

We assume that, for pronouns, the binding domain of a pronoun is the minimal complete functional complex, as can be exemplified in (50) for English:

- (50)(a) \*I consider Fred<sub>i</sub> fond of him<sub>i</sub>.

- (b) Fred<sub>i</sub> considers me fond of him<sub>i</sub>.

Given this, a subject resumptive would be locally A-bound by the intermediate trace, violating Condition B. Hence, the Highest Subject Restriction is a consequence of Condition B, in conjunction with the postulation of an intermediate trace that is adjoined to VP, and need not be stipulated.

### C. Vehicle Change

The final case of conversion to a pronoun was originally brought to light by Wyngaerd & Zwarts(1991), and was dubbed by them as “Vehicle Change”; it consists of converting an R-expression to a pronoun in order to avoid a Principle C violation. An example is given in (51):

- (51) We<sub>i</sub> thought that John<sub>j</sub> would be arrested, but he<sub>j</sub> didn’t (\*think that John<sub>i</sub> would be arrested).

Vehicle change is much-discussed in the literature on ellipsis and anaphora. It would work as follows in this framework.

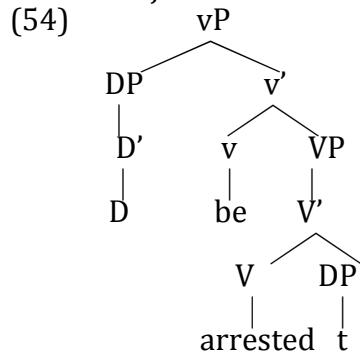
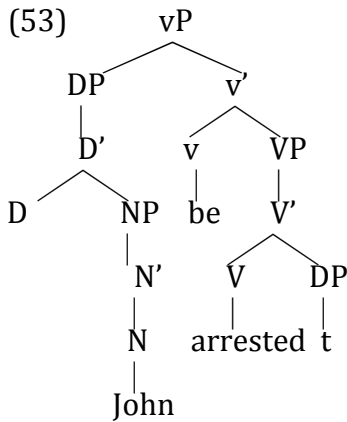
I am assuming that syntactic, semantic, and phonological computation proceeds from the bottom up, and that the units that are constructed are phases (Chomsky (2000), (2001)), in accord with the Phase Impenetrability Condition (Chomsky (2000)):

(52) Phase Impenetrability Condition

Once constructed, a phase is inert with respect to further operations, except for elements at its edge (i.e., its specifier and its head.)

The phases are standardly taken to be CP and vP. Let us assume this, and let us also assume that the binding theory applies at the end of each phase.

Pronoun-creation can be taken to be generally optional, but obligatory when it is the only way of satisfying general principles, such as the binding theory. This means that at the stage at which the embedded vP in the second conjunct is built, pronoun-creation will occur, taking (53) as input and optionally applying NP-ellipsis (for expository convenience, I will assume that terminal nodes have a phonological shape, even though I assume late insertion):



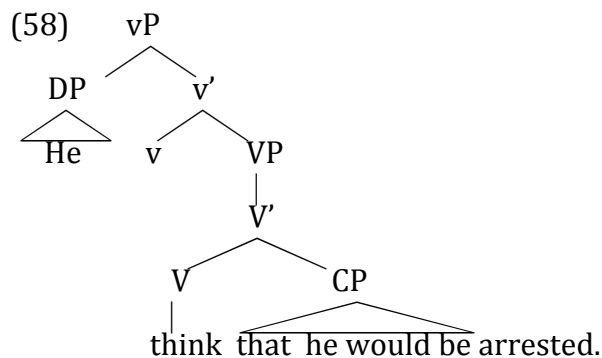
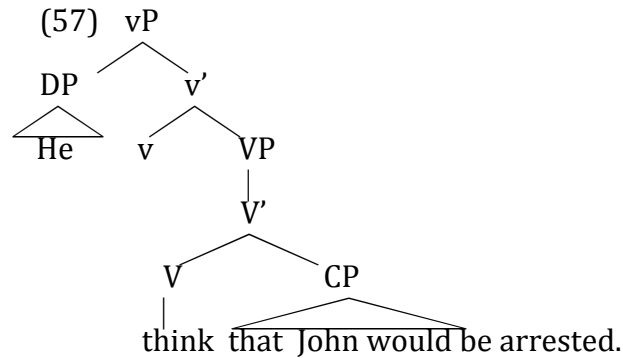
The subject pronoun would, of course, be spelled out as *he* if the D has the 3<sup>rd</sup> person singular masculine  $\phi$ -features. The embedded CP in the second conjunct would be built as (55) if (53) is the internal phase, or (56) if (54) is the internal phase:

(55) that John would be arrested.

(56) that he would be arrested.



The clause-internal phase of the matrix would be constructed with the structures that would correspond to either (55) or (56), so that either (57) or (58) would be built:



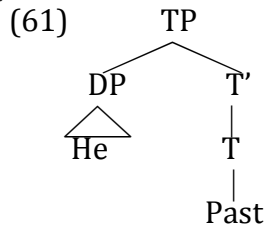
At this point, the binding theory would come into play, choosing (58) over (57) to avoid a Condition C violation. One might object to this analysis on the grounds that it requires either look-ahead or filtering to "force" the embedded subject to convert to a pronoun in order to avoid a Condition C violation, violating Frampton & Guttman's (2001) requirements for a crash-proof syntax, in order to avoid computational complexity. This problem, in fact, though, is no more pronounced in this analysis than it is in any other that requires non-local dependencies that cannot arise through movement. For example, (59) must be ruled out by Condition C, and (60) is a case of non-local variable binding:

(59)\*John<sub>i</sub> thinks that nobody likes John<sub>i</sub>.

(60) Every student<sub>i</sub> thinks that Fred will choose her<sub>i</sub>.

I therefore feel that this problem, though real, can be put aside, and hopefully taken up on another day.

Finally, assuming that VP-ellipsis is really vP-ellipsis, when (59) merges with T, it deletes and vP's Spec is copied to [Spec, TP], yielding (61):



*Do*-support would then apply, yielding *He did*.

In short, vehicle change is simply the optional process of pronoun-conversion. Nothing more need be said.

#### D.Implications For The Analysis of Pronouns

This section has presented three instances of pronoun-conversion, two of movement, and one of deletion: copy-raising, resumption, and vehicle change. The task is to create an analysis of pronouns that is consistent with Inclusiveness, so that we cannot resort to artificial devices such as a feature [+pronominal]. Rather, the copies of the higher elements must be just that- copies, including the structure of the higher elements. They convert to pronouns, but Inclusiveness limits the way that they accomplish this. Furthermore, once they convert, they are indistinguishable from any other type of pronouns. A pronoun that is created as a result of the copy process is treated, presumably, as an ordinary bound pronoun. The null hypothesis would seem to be that the treatment of non-converted pronouns would be the same as the treatment of converted pronouns.

In the case of converted pronouns, in the case of copy-raising and resumption, the original would not have the chance to convert to a pronoun (i.e. by deletion of the complement of the functional head) until it has been copied to the higher position. In the case of vehicle change, deletion of the complement, causing the nominal to become a pronoun, can change when the nominal is first created, and will be filtered out if its antecedent cannot be found, or if it has the wrong type of antecedent. For instance, Déchaine & Wiltschko take  $\Sigma$  pronouns to be capable of functioning as bound variables, but not D pronouns. If a pronoun that can only be a D pronoun, such as their Halkomelem pronouns, were created with a quantificational antecedent, the pronoun would be filtered out at this level. Frampton & Guttman notwithstanding, natural language syntax and semantics is replete with cases of non-local dependencies which violate the Phase Impenetrability Condition, such as *wh-in-situ*, assuming with Cole & Hermon (1994) and Reinhart(1998) that such dependencies need not involve movement. In fact, the identity condition on ellipsis, as noted in the previous section, could not possibly be a filter on an anaphoric process itself.

#### IV. Deletion Sites As Pro-Forms

The commonalities between overt pro-forms, the subject of much of this paper, and ellipsis sites, are particularly salient<sup>7</sup>. For example, both denote a retrieved occurrence of a previously mentioned element, and in this sense, both fall under the rubric of anaphora. Beyond this general commonality, Charlow (2008) explores more specific similarities, such as the capacity to have split antecedents, free and bound occurrences, and many others.

My concern, as can be obvious up to now, is not the semantics of anaphora, but its syntax, although a crucial test of the latter is its ability to capture generalizations about

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<sup>7</sup> see Hankamer & Sag (1976), Charlow(2008), Elbourne(2008), Lobeck(1995), and many others.

the former. In other words, what is the structure of both pronouns and ellipsis sites that accounts for their similarities?

So far, I have concentrated on the form of pro-forms, mainly pro-nouns, and have followed Déchaine & Wiltschko(2002) in taking the distinct forms of pronouns to map onto distinct semantics, and have defined pro-forms as (5), repeated here:

(5) Pro-form : A functional category with a deleted complement.

The definition has been deliberately general, abstracting over the particular functional categories. Indeed, Déchaine & Wiltschko have shown that the distinct functional categories show distinct semantic and syntactic behavior, so that, e.g., D-pronouns are subject to Condition C and cannot act as bound variables, while  $\phi$ -pronouns are not subject to Condition C and can act as bound variables.

The definition in (5), if one requires bound variables to be pro-forms, will prohibit any configuration other than a functional category that is minus its complement from acting as a bound variable. This is fortunate, given the fact that pronominal-looking determiners cannot act as bound variables<sup>8</sup>:

(62) #Every one of us linguists<sub>i</sub> thinks that we linguists<sub>i</sub> will succeed. (No bound variable reading).

vs. (63) Every one of us linguists<sub>i</sub> thinks that we<sub>i</sub> will succeed. (Bound variable reading).

Turning our attention to ellipsis sites, we have seen, in connection with (17) and (18), that ellipsis sites require licensing. A further example is (64):

(64)\* John's having left didn't surprise me, but I WAS surprised at Fred's having\_\_\_\_. Interestingly enough, perfective *have* can immediately precede an ellipsis site when *have* occurs within a tensed clause:

(65) John has left, but Mary has not\_\_\_\_.

In general, a licensor need not immediately precede an ellipsis site, so long as it is present in a suitably local relationship. In this case, VP-ellipsis needs Tense. The facts are identical in the relevant respects to a contrast between negative subjunctives and negative infinitives that was pointed out by Baltin(1992), in that while the former can license VP-ellipsis (in contrast to affirmative subjunctives), the latter cannot:

(66) a. Although John would prefer that I leave, Fred would prefer that I not\_\_\_\_.

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<sup>8</sup> See Déchaine & Wiltschko(2010) for an alternative account of this observation.

b. \* Although John would prefer for me to leave, Fred would prefer for me not\_\_\_\_\_.

Baltin's account relied upon subjunctives having a null Tense node, while infinitives lack this projection; Haegeman (1998)(Haegeman, 1998) argues for West Flemish lacking a dedicated Tense node in infinitives. The negative would adjoin to the null Tense node in subjunctives, but no head that could act as a suitable host in the infinitive would be present.

Similarly, British English *do*, as pointed out in Baltin(2012), does not seem to occur in infinitives:

(67) Although I don't expect Fred to leave, I do expect Bill to {\_\_\_\_\_}.  
{ \*do\_\_\_\_\_}.

Life would be so much easier for a straightforward equation of ellipsis anaphora and pronominal anaphora if only complements elided and the licensing head was adjacent to the complement. The licenser could function as the functional head in the definition of pro-form that has been presented in (5). Indeed, this was Merchant's (2001) original claim in his postulation of an E-feature as the device that he posited to capture licensing. He viewed the E-feature on a higher head as instructing the phonology not to pronounce the head's complement; in order to account for ellipsis repairing certain violations which were considered to be PF-violations, including certain island violations, the offending feature was considered to have been deleted. This view requires ellipsis to take a greater role than simply de-activating the phonology.

However, Aelbrecht(2009) recognizes the need for ellipsis to be licensed at a greater remove than is afforded by the head-complement relation, on the basis of many of the same considerations that have been presented here, and proposes instead that E is a feature on a licensing head that triggers ellipsis of a lower phrase. The E-feature would also be borne by the lower phrase. To account for a head being higher than the head that introduces the elided phrase, Aelbrecht proposes that an Agree relation (Chomsky (2000,2001)) holds between the higher licensing head and the phrase that deletes.

To see how this works, consider a case of ellipsis not being properly licensed, such as ellipsis within gerunds, as in (64), repeated here:

(64)\* John's having left didn't surprise me, but I WAS surprised at Fred's having\_\_ .

A slightly fuller representation of (64) would be (68):

(68) John's having left didn't surprise me, but I WAS surprised at [DP Fred's having [VP +E left]].

The E-feature on the elided VP needs to be checked under an Agree relation, but there is no higher instance of this E-feature to enter into this relation. Therefore, the structure crashes at PF.

However, on closer inspection, it is the E-feature that crashes. Deletion as repair is a well-known function of ellipsis, in which an unchecked feature deletes and rescues a structure, as in Merchant's (2001) account of PF-islands. We must ask why the E feature cannot itself delete, and thereby rescue the larger structure in which it occurs, thereby rendering irrelevant the absence of an E feature on the higher head.

We see, then, that the E feature would have to be different from all other E features, whose deletion would cause them to be absent from the structure. The empirical objection to an E feature converges with its unnatural conceptual status, leading to an alternative account of licensing.

We need some account of the deviance of un-licensed deleted phrases, and one is almost at hand. Recall that deletion is considered to be deletion of uninterpretable features, which are carried up by heads to their projection labels. This means that the interpretable features will remain, but if they remain, a projection that consists of solely interpretable features, but no uninterpretable features (including phonological features), will occur in the result.

This is admittedly speculative, but we might consider a projection that is devoid of uninterpretable features to be the (I-language equivalent of) definition of an affix. In this paper, I have concentrated on the I-language encoding of the notion of a pronoun, but the same problems for mental representation of countless grammatical properties remain. In particular, the notion of an affix poses the same problem for language acquisition that a pronoun does; the child is not explicitly taught what an affix is, and yet we assume that an equivalent of the notion plays a role in linguistic processes and representations. Also, inclusiveness bans the introduction of a feature that encodes this notion after the outset of a derivation.

In short, we are led to ask the same questions about what an affix is that we are led to ask about what a pronoun is, and we are led to the same answer. There is a defining I-language counterpart of the notion of an affix, defined in terms of a property. It may be that the affix's behavior, once defined, has to be stipulated in Universal Grammar. In this case, the fact that an affix must attach to a head may need to be stipulated.

However, another possibility, which I will suggest, is that the property of head movement, or morphological merger (I don't know which), will create a configuration in which the affix is contained within a word-level projection, in which case it will get

the necessary uninterpretable feature(s) from its host, the category to which it is adjoined. In this case, the fact that head-movement is necessary need not occur in the entry for the affix, but rather is predictable by the Principle of Full Interpretation.

However, the property of being able to host an affix will need to be specified on the target of head-movement.

It is clear that affixes need to be bound to a stem, and so classifying a deletion site as an affix will immediately solve the problem of how to compute licensing failures- by taking them to be failures of necessary incorporation. For instance, consider a case in which licensing fails, in which the deletion site is adjacent to an adverb:

(69) \* Although John probably voted for McCain, Bill definitely\_\_\_\_.

For whatever reason, adverbs do not have the features that allow them to host incorporation. Therefore, (69) is ruled out for morphological reasons. However, an intervening adverb in a string of licensors is possible:

(70) Although John would probably have voted for McCain, Bill would definitely have\_\_\_\_.

Because adverbs lack affixal features, they will be ignored by Chomsky (1995)'s algorithm for allowing elements to be skipped that are not relevant to an operation.

However, we must account for Aelbrecht's arguments that licensing of ellipsis by a more distant head is necessary, in order to account for ,e.g. (66(b)) and (67). It is clear that licensing cannot reduce to overt incorporation, even of a null affix into a functional head.

Nevertheless, I believe that it is still possible to account for a higher head's licensing ellipsis if the problem is assimilated to the problem of accounting for successive-cyclicity, as in (71):

(71) John, I think that everyone likes\_\_\_\_\_.

In this case, the embedded object is topicalized. It must move through the embedded Comp and embedded and matrix vPs, assuming for the sake of argument that the relevant phases are vP and CP<sup>9</sup>. This is presumably accomplished by (a) allowing v and C to host movement into their specifiers; and (b) taking a property of the object that is unsatisfied until it reaches the matrix Spec.

Topicalization has another noteworthy property that makes it especially relevant to the current problem. Chomsky(2008)(Chomsky, 2008) notes that the driving force for

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<sup>9</sup> Baltin(2012) argues that VoiceP, distinct from vP, is the clause-internal phase, but since nothing hinges on this, I will assume that vP is the clause-internal phase.

topicalization is not plausibly a feature that is contained on the moving phrase, the object. In other words, the plausible driving force for the movement is semantic in nature, parallel to Quantifier- Movement, which is claimed by Heim & Kratzer(1998) to be driven by a need to resolve a type-mismatch.

In this case, we might similarly resolve on the need for a deleted VP to satisfy its type-driven properties. The type of a VP is most plausibly  $\langle e, t \rangle$ , meaning that it must end up in a configuration in which it combines with an  $e$  (entity) to create a  $t$ (truth-bearing category).

In fact, the syntactic notion of successive-cyclicity finds an analogue in the theory of type-driven translation: the device of functional composition (Jacobson (1990)(Jacobson, 1990)). Functional Composition inputs two functions in which the value of one function is the argument of the other, and a new function is created in which the argument of the first function is the argument of this function and the value of the second function is the value of this function. In slightly more formal terms:

$$(72) \langle A, B \rangle, \langle B, C \rangle \dashrightarrow \langle A, C \rangle$$

In short, functional composition relies on the notion of transitivity to create a compressed function.

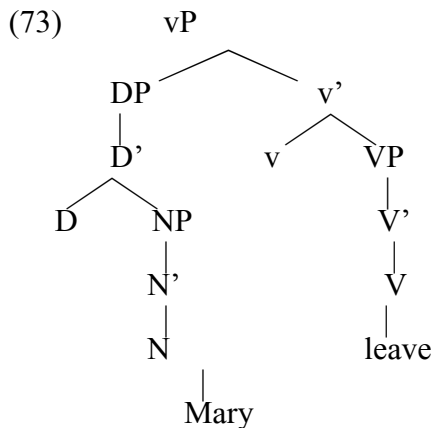
Let us apply these notions to licensing by a higher head, such as would be necessary in (66). The head bears an optional affixal feature, allowing it to host the null affixal VP. However, the VP's type demands a subject in its specifier, which is not satisfied by this movement. The derivation therefore crashes due to the type mismatch. The null VP-affix's type requirements would have been satisfied had there been a head above the first head to which the affix moved, with the following characteristics : (a) an affixal feature, allowing it to host an affix; and (b) a DP in the head's Spec, which maps onto type  $e$  (modulo type-shifting operations as described by Partee (2002)(Partee, 2002)).

A Tense node with an affixal feature that had an EPP feature for the subject would satisfy the null affixal VP's morphological and semantic requirements. Whatever factor is responsible for the subject's occurrence in Spec, TP (i.e., an EPP requirement with a Case feature on the T, checking the DP's Case feature) will provide the null affix with an  $e$  with which to combine, satisfying its type requirements.

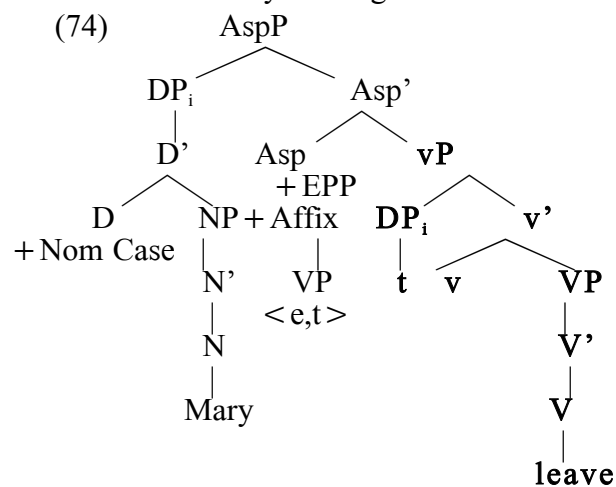
One potential problem for this account is its reliance on excorporation, which should be ruled out in a pure head-movement account<sup>10</sup>. To see this, consider an example of non-local licensing, (65), repeated here:

(65) John has left, but Mary has not \_\_\_\_.

The derivation and structure of the second conjunct would be, in relevant respects, as follows. Consider the vP to have been built:



At this point, the vP merges with *have*, which, being functional (perhaps Asp?), will insert as a feature bundle which includes an affix feature for the null vP affix. The vP will delete (recall that deletion is deletion of formal uninterpretable features, leaving the formal interpretable ones; we do not need to determine whether or not v is functional or formal, the issue in general having ramifications for the status of phonological features and deletion). However, [Spec, vP], *Mary*, will be able to move to [Spec, *have*P], and the null vP affix will incorporate. The relevant result of all this will be (74), with deletion indicated by bolding:



<sup>10</sup> See Roberts(1991)Roberts, Ian. 1991. Excorporation and Minimality. *Linguistic Inquiry* 22:209-218. for relevant discussion.

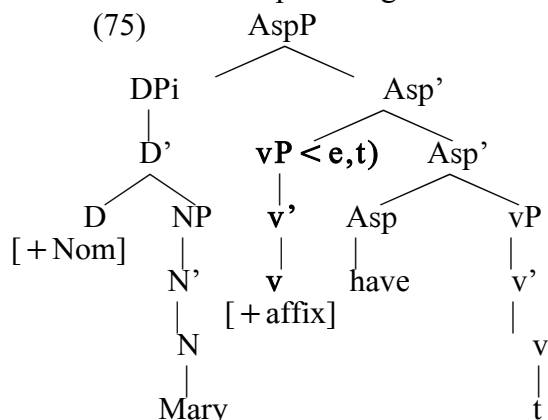


At the next stage, when AspP merges with the negative, all of the above operations repeat. However, the null VP affix is now under Asp, having incorporated there, and should be frozen there, under most accounts which rely on Last Resort or the general opacity of  $X^0$ s (see Roberts(1991)). In fact, Roberts(1991) discusses two cases of what he terms *excorporation*, movement out of an incorporated position. The two cases are clitic-climbing and Dutch verb-raising; the first has been re-analyzed by Kayne(1991)(Kayne, 1991) as XP-movement into a specifier position, but the second seems to still be valid as a case of excorporation.

What is interesting is how to re-analyze Roberts' conclusions in a minimalist perspective. If excorporation should be ruled out on theoretical grounds, how should apparent cases of it be analyzed?

One possible answer, which can apply to the case of the null VP affix, is suggested by Koopman (2006), who analyzed apparent cases of Japanese and Korean head-movement as, in fact, remnant XP-movement to specifier positions, with morphological merger along the lines of Bobaljik(1995) between the head of the moved XP and the head of the projection of which the XP is the specifier.

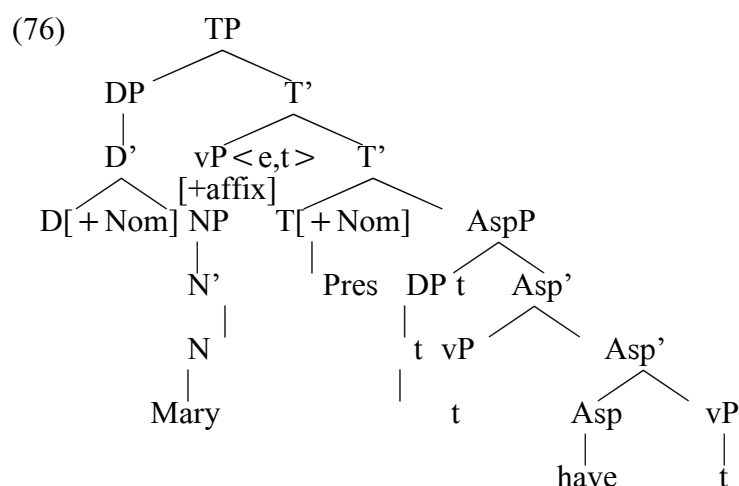
Similarly, a remnant-movement reanalysis of head movement would posit the following derivation for the main clause in (37). The vP would be built as (70), and would be merged with Aspectual *have*. At this point, given the possibility of multiple specifiers (Chomsky (1995b(Chomsky, 1995))), the VP will delete and move as an affix to [Spec, haveP], and the subject will move to [Spec, *have*P] as well. I am including for expository convenience the formative *have*, even though functional items do not have their phonological features until a later stage. (75) would result:



At this point, the vP affix does not form a syntactic unit with the  $X^0$  denoted by *have*, but it is in its Spec. It would not excorporate, and it would have an as-yet unsatisfied

property: the property of being of type  $\langle e, t \rangle$ , meaning that it would need an  $e$  with which to combine in order to form a  $t$ .

Therefore, the null VP affix would still be free to move, as would the DP, but for different reasons; the DP has an unsatisfied Case feature. If we merge (75) with a T with an EPP feature, we will end up with (76):



The nominative Case is checked in [Spec, TP], rendering the DP ineligible for further movement, and the type is satisfied in that position as well, rendering the vP affix ineligible for further movement as well. The properties of the structure are therefore predicted by a model that allows syntactic and semantic requirements to be interleaved; the vP must meet a semantic requirement, the ability to combine with an  $e$  to form a  $t$ , but this requirement is met as a by-product of an operation that is driven by a syntactic requirement, the need to be in a configuration in which nominative Case-checking can occur.

In any event, we see that the lowest functional head that lacks an overt complement in (76), the aspectual *have*, fulfills the requirement of a pro-form, and this pro-form will itself take a complement of specified characteristics, i.e. a vP in this case. The natural question to ask is how the vP satisfies its type requirements if it does not delete. In fact, however, Baltin(2002, 2012) argues that vP always moves to a position in the middle field, probably adjacent to Tense. If the subject moves into [Spec, TP], we may have found a motivating force for this movement. I must leave this at this point, in order not to go far afield.

This unification of pro-forms and ellipsis sites also furnishes an argument for deletion in the genesis of the former, given the evidence for internal structure in the latter. Some ellipsis sites show systematic evidence for internal structure (i.e., wh-traces and inverse scope), and while there are theories that exist, i.e. combinatory categorial grammar, which handle the relevant data without positing internal structure, Minimalism does take wh-dependencies involving object traces and inverse scope as diagnosing full vPs. Therefore, acceptance of these diagnostics commits one to a deletion analysis for at least some pro-forms.

#### V. Ellipsis-Containing Antecedents

An interesting challenge for the view that pronouns reconstruct content is the phenomenon of ellipsis-containing antecedents (henceforth ECA), originally discussed by Schwarz(2000)(Schwarz, 2000) and Hardt(1999). An example is (77):

(77) John cleans because he wants to\_\_\_\_, and he cooks because he does\_\_\_\_\_as well.

Interestingly, the sentence has a reading in which John cleans because he wants to clean, and he cooks because he wants to cook. Under this reading, the first ellipsis, in the first conjunct, cannot be resolved prior to resolving the second ellipsis in the second conjunct. As Schwarz noted, anaphoric destressing, rather than full ellipsis, of the first anaphoric dependency renders this reading impossible. That is, (78) only has the strict reading at the site of the second ellipsis:

(78) John cleans because he wants to clean, and he cooks because he does\_\_\_as well.

Charlow(2011) accounts for the phenomenon of ellipsis-containing antecedents by positing a sort of focus-chain, exploiting a device known as a focus-index that was proposed by Kratzer(1991)(Kratzer, 1991). For example, note that if (79) were pronounced, the elided verbs would all have to be stressed:

(79) John CLEANS because he wants to CLEAN, and he COOKS because he wants to COOK.(Hardt, 1999)

The non-elided counterparts of ECA cases counter-exemplify an interpretation of Tancredi(1992) that views ellipsis as a case of anaphoric de-stressing. The first ellipsis in the full counterpart to an ECA case is stressed, but ellipsis is permitted just in case the embedded VP is identical to the matrix VP, even if both VPs are focussed. In fact, they must be. This phenomenon indicates, in my view, that PF alone is insufficient to account for VP-ellipsis. Rather, it is identity between the matrix VP and the embedded

VP that sanctions the ellipsis, so that the embedded focus is treated as a sort of variable bound to the matrix focus.

Crucially, this account requires that the embedded deletion of the first conjunct is not resolved as to content, but just identity of focus-index between the matrix VP and the embedded VP. Indeed, focussed material has long been exempt from identity requirements on ellipsis (for example, Merchant (2001), Ch. 1, (42), (43)). We must ask why focus has this effect.

In fact, Chomsky(1976)(Chomsky, 1976) has argued for (covert ) focus-movement on the basis of the inducement of weak crossover effects by focus, as in (80)(a), as compared to (80)(b), in which the analogous DP is not focussed and hence no weak crossover violation occurs:

(80)(a) \* His<sub>i</sub> students love JOHN<sub>i</sub>.

(b) His<sub>i</sub> students LOVE John<sub>i</sub>.

Merchant(2004) takes focus-marked elements to move overtly to a focus position, as does Rizzi(1997)(Rizzi, 1997). A movement analysis of focus commits one to the representation of a trace in the original position, leading to the question of exactly what this trace is. If we take traces to be copies, and the copies convert to pronouns, we can take the focus-trace to be a case of pronoun-conversion, with the determiner heads being null at the sites of the traces in order to mark the traces as definite pronouns. In other words, the determiner's restriction would delete, causing the trace to be interpreted as a pronoun. We can interpret the notion of a focus-indexed VP as a VP that undergoes focus-movement in the embedded sentence, so that the relevant fuller representation of the first clause of (77) would be (81):

(81) [ [VP CLEAN] John [CLEAN] because [ CLEAN] he wants to [CLEAN].

Admittedly, it would be necessary to require the third instance of the focussed VP, CLEAN in this case, to be null, but the problem seems no different than the need to do so in Chomsky's (1986) analysis of parasitic gaps as composite chain formation, so that a parasitic gap, as in (82), would in fact require the formation of two chains, with the parasitic gap being a chain that is headed by a null operator that is co-indexed with the wh-operator, leading to the slightly fuller representation in (83):

(82) Which articles<sub>i</sub> did John file t<sub>i</sub> without reading\_\_\_?

(83) Which articles<sub>i</sub> did John file t<sub>i</sub> OP<sub>i</sub> without reading t<sub>i</sub>? <sup>11</sup>

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<sup>11</sup> I am not advocating a literal assimilation of focus-linking to parasitic gaps, of course. There are many differences between the two phenomena that would first have to be taken into account, the chief one being that parasitic gaps seem to be

While we cannot account for the co-indexing between the head of the primary chain and the head of the secondary chain (in this case, CLEAN), we can account for the pronominal nature of the tails of the primary and secondary chains. The VPs are complements of functional categories, T in the case of the primary chain and *to* (presumably M) in the case of the secondary chain.

Ellipsis-containing antecedents can be seen as identical to well-known extractions out of ellipsis sites in which the traces, if viewed as copies, would cause the elided constituent to count as distinct from the antecedent, as in (84):

(84) Bagels, I like, but pistachios I don't.

If the traces were pure copies, (84) would have a slightly fuller representation as in (85), which would cause the first VP to differ from the second:

(85) Bagels, I [VP like [ bagels]], but pistachios, I don't [ VP like [pistachios]]

The fronted objects are focussed, and this observation allows Merchant (2001) to basically restrict identity to non-focussed elements, as in (86):

(86) (Merchant (2001), 1.42) e-GIVENness

An expression E counts as e-GIVEN iff E has a salient antecedent A and, modulo  $\exists$ -type shifting,

- (i) A entails F-clo(E), and
- (ii) E-entails F-clo(A).

Informally, the F-closure of a proposition is the content of the proposition minus focus-marked constituents; with this in mind, an elided proposition is e-GIVEN if and only if it entails and is entailed by (i.e., is logically equivalent to) the F-closure of its antecedent. With this in mind, Merchant enunciates his identity condition on VP-ellipsis as (87) (his 1.43)<sup>12</sup>:

(87) **Focus Condition on VP-ellipsis**

A VP  $\alpha$  can be deleted only if  $\alpha$  is e-GIVEN.

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restricted to cases in which the head of the wh-chain must be D-linked, as noted in Culicover & Postal (2001) Culicover, Peter W., & Paul Postal(eds.). 2001. *Parasitic Gaps*. Cambridge, Mass.: MIT Press.:

(i) \* [How angry]<sub>i</sub> did John seem t<sub>i</sub> while [OP]<sub>i</sub> denying that he was t<sub>i</sub>?

<sup>12</sup> In fairness, Merchant has revised his view of the identity condition in recent years (i.e. Merchant (2007),(2008)), and has moved toward a view of syntactic identity as the governing factor on ellipsis identity, in light of Chung(2005) Chung, Sandra. 2005. Sluicing and the Lexicon: The Point of No Return. In *Berkeley Linguistics Society*. University of California, Berkeley.. I am simply discussing this view of ellipsis identity as a conceivable view, rather than as a reflection of Merchant's current views.

I would ask, however, whether focus plays a role in ellipsis because of the inherent semantic/pragmatic conditions on ellipsis identity, or because focus involves movement, which leaves a trace which can then convert to a pronoun, and pronouns can be distinct. If pronouns can be bound variables, as surely they can be, it is this ability to serve as a sort of “correspondent” that allows a trace, when bound by a distinct binder from some other trace, to be non-identical. This is what presumably occurs in the phenomenon of Ellipsis-Containing Antecedents.

I should note that Elbourne(2008) accounts for Ellipsis-Containing Antecedents by taking each ellipsis site to be a disjunction of the possible antecedents, and so, e.g. (77) is taken to derive from something like (84):

(84) John cooks because he wants to [cook or clean], and he cleans because he does [want to [cook or clean]].<sup>13</sup>

However, a disjunctive source of antecedents for an ellipsis site does not extend to the issue of distinct traces, which are more limited in the availability of these moves. Assuming traces to be copies, they can be literally identical to their antecedents or they can convert to pro-forms; there is no way to supply a second disjunct.

I should say, however, that Elbourne apparently takes the ellipsis site to simply be reconstructed from something that makes sense, rather than a literal copy of an antecedent. This view of ellipsis seems eminently reasonable, in view of the treatment of split antecedents for ellipsis discussed originally by Webber (1978)(Webber, 1978), and treated by Elbourne:

(85) John can swim, and Mary can climb Mt. Kilimanjaro, but Fred can't \_\_\_\_.  
(swim or climb Mt. Kilimanjaro)

or cases of discontinuous antecedents, as in (86), originally noted by Erin Moran:

(86) The man with the GREEN shirt from Boston was taller than the one with the BLUE shirt. (one = man from Boston).

In any event, the phenomenon of ellipsis-containing antecedents has been shown to receive a natural account in this conception of pro-forms.

## VI. Conclusion

This paper has argued for a certain structure for pro-forms: functional heads with deleted complements, and has argued that this structure is enough to define the notion of a pro-form. Aside from the empirical advantages of this approach over an approach

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<sup>13</sup> See Charlow(2011) for critical discussion of Elbourne's views, raising other points of contention.

that states a feature, there are significant conceptual advantages as well, particularly if one takes seriously the idea that we are, as formal linguists, engaging in cognitive modeling. To be sure, there are some features for which their proposers take pains to characterize the properties which the features signify; Chierchia's (1998)(Chierchia, 1998) postulation of the features  $\pm$ argument,  $\pm$ predicative come to mind. However, one must ask what work the features are doing in terms of language users' I-languages. It may be that such features are validated by functioning as elements within a well-defined feature geometry, and that such features have empirical support. My suspicion, however, is that such features are often post hoc cover terms used in linguistic discussions that bear little resemblance to the computational systems that are used by ordinary language users.

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