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BEYOND DEEP AND SURFACE: EXPLORATIONS IN THE TYPOLOGY OF ANAPHORA

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Andrea Thompson

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The Dissertation of Andrea Thompson is approved:

Professor Jorge Hankamer, chair

Professor James McCloskey

Associate Professor Pranav Anand

Tyrus Miller
Vice Provost and Dean of Graduate Studies

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Abstract

Beyond Deep and Surface: Explorations in the Typology of Anaphora

by

Andrea Thompson

The dissertation takes as its subject the typology of *anaphora*, that class of expressions which in some intuitive sense 'refer back' to previously mentioned material. Although anaphora have been fairly well-studied, there has been little in the way of work on the typology of anaphora since landmark work in the 1970s and 1980s. The ultimate goal of this dissertation is to examine that typology, and to show that the typology as it currently stands is too coarse to account for the many subtle variations that we see in anaphoric expressions; it must be made more fine-grained. I take as my focus the category of *surface anaphors*, which are anaphors that must look to the linguistic discourse for their interpretation. Using several case studies from Germanic languages, I show that the traditional category of surface anaphora should be divided into several sub-categories, based on the type of internal structure which the anaphor contains; in particular, I divide surface anaphora into the traditional *ellipses*, which have internal syntax, and what I term *mixed anaphora*, which behave as if they have no internal structure in the narrow syntax. I go on to show that the wide variety of behavior we see can be accounted for if natural language allows both deletion and copying as possible strategies for deriving anaphors.

To Mary Jane and Dave Thompson,

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Whenever we think of a dissertator, we always seem to conjure up the image of a lonely student, sitting silently in the recesses of some dusty library. This image has always seemed to me to be abjectly wrong. The actual act of putting words on paper may be solitary, but the process of creating a dissertation is fundamentally social; dissertations are shaped by the care and efforts of numerous individuals. My dissertation is certainly not exceptional, and it owes its existence to years of interactions with many, many people.

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Chapter 1

Introduction

This dissertation takes as its subject the typology of anaphora. By *anaphora* I do not mean reflexives and reciprocals, but rather the much broader range of expressions which in some intuitive sense 'refer back' to previously mentioned material. These include pronouns of the familiar sort, but also expressions such as *do so*, or what are often termed 'narrative devices', such as verb phrase ellipsis (VPE). This typology has been relatively well-studied in generative grammar since the 1960s and 1970s, particularly since landmark work done by Hankamer and Sag (1976) and Sag and Hankamer (1984).

The traditional typology contains two categories. The first is the category of *deep* anaphors, which have no internal syntactic structure and which look to the discourse model for their interpretation. The second is the category of *surface* anaphors, which have internal syntactic structure and which look to the linguistic discourse record for their interpretation. This typology inherently links two independent factors, namely the internal syntax (or lack thereof) of an anaphor and the way in which an anaphor finds its antecedent. The purpose of the work

done here is to show that a typology with categories this broad cannot account for the vast array of anaphora which occur in natural language. Instead, these two factors – the presence/lack of internal syntax and the method of interpretation – must be divorced; there must be at least four basic classes of anaphors. I focus primarily on one of these basic classes, which I will call the mixed anaphors; these anaphors have typically been lumped in with traditional ellipses, such as VPE. I show that they must be treated as a distinct class, and furthermore that there are at least two sub-classes of mixed anaphors. I go on to provide an analysis which will generate both subclasses of mixed anaphors.

Chapter 1 provides extensive background on the typology of anaphora. It first introduces the distinction between *model-interpretive* and *record-interpretive* anaphors, and the tests for method of interpretation (and the consequences that they bear for the analysis of model- and record-interpretive anaphora). It shows that traditional deep anaphors are model-interpretive, and that traditional surface anaphors are record-interpretive. It then moves on to discuss the tests for the internal structure of anaphors, all of which involve movement or morphological dependencies. It then examines the consequences of the presence or absence of structure; deep anaphors lack internal structure, while surface anaphors have it.

Chapter 1 goes on to provide a conundrum: Not all anaphors can be clearly classed as *deep* or *surface*. In particular, two English anaphors, *do so* and British *do*, are shown to be record-interpretive anaphors that lack the type of internal syntactic structure seen for other record-interpretive, such as VPE. I show that this class is in fact expected if method of interpretation and internal syntax are

divorced: Anaphors such as *do so* and British *do* are mixed anaphors; they are anaphors which have an LF structure and which must be interpreted relative to the record, but which lack any sort of structure in the narrow syntax. British *do* allows covert A-bar extractions out of the anaphor site and A rebinding, and so is called an extracting mixed anaphor; *do so*, on the other hand, allows no covert A-bar extractions out of the anaphor site, only A rebinding. It is therefore called a non-extracting mixed anaphor. I provide some basic data arguing for these classes, and show that an LF-copying analysis can deal with these basic data.

Chapter 2 has two primary purposes. Its first purpose is to introduce British *do* and *do so* in more detail, and to also introduce Dutch modal complement anaphora (MCA) and Swedish predicative *det* anaphora. The second purpose is to provide a thorough discussion of A phenomena and their relation to anaphoric structure. The chapter opens with a discussion of A phenomena, and in particular a discussion of the interaction of A movement and predicate anaphora. In particular, it shows that the presence of A movement in the antecedent tells us nothing about the availability of A movement out of the anaphor; the anaphor must itself show signs of genuine A movement in order for us to use A phenomena as an argument for internal structure.

Following the discussion of A phenomena in general, each mixed anaphor is discussed individually. There is first a general discussion of the anaphor, and in particular its internal syntax and any relevant confounds; following these, each anaphor is shown to be either a non-extracting mixed anaphors or a extracting mixed anaphor. The discussion of each anaphor concludes with an in-depth analysis of the interaction of the anaphor with A phenomena. Each anaphor is

shown to lack any sort of overt A dependencies out of the anaphor site; rather, the only types of A dependencies that are available are those that can be constructed through rebinding at LF.

Chapter 3 moves on to discuss A-bar phenomena. It begins with a recap of the data introduced in Chapter 2, and then provides brief summary of the patterns seen for non-extracting mixed anaphors and extracting mixed anaphors. It goes on to show that these patterns can be analyzed as LF copying if the copying algorithm can make reference to different stages of the derivation. Extracting mixed anaphors can be accounted for if they copy the initial stage of LF, right after spell-out; this stage contains active operators and can support movement. Non-extracting mixed anaphors can be accounted for if they copy the final LF stage, right before transference to the conceptual interface; this stage contains no active operators and therefore does not support A-bar movement. I then move on to discuss several consequences of this analysis, including assumptions regarding the nature of copies and existential closure, and then analyze each anaphor.

The Conclusion does so.

Chapter 2

The Typology of Anaphora

This chapter focuses on the structural typology of anaphora. I will begin with a discussion of the typology as it is standardly conceived of in the literature, an understanding beginning with work by Hankamer and Sag (1976) and Sag and Hankamer (1984). Under this typology, there exist deep anaphors, which have no internal syntactic structure, and surface anaphors, which do have internal syntactic structure. I will shortly present the evidence commonly used to differentiate the two types of anaphora; I use *do it* as an illustrative deep anaphor, and verb phrase ellipsis (VPE) and sluicing as illustrative surface anaphors. This evidence is also commonly referred to as *the tests* for anaphoric status; the behavior of an anaphor with respect to various phenomena is indicative of its status. After introducing these two basic classes, I will then introduce the analyses commonly used to account for these differences. In almost all cases, deep anaphors are treated as simple heads in the syntax; semantically, they are variables which ultimately find constants (i.e., discourse referents) as their interpretation. There is a much broader range of analyses proposed for surface anaphors. I will primar-

ily discuss two types of approaches. In the first, null ellipses like VPE are treated as null lexical items; in the second, a full structure is generated and there is some failure to pronounce the phonology with that structure.

After this, I will raise the question of how, exactly, these tests show us what the internal linguistic structure of an anaphor is. The tests are often used in the literature without any discussion of why exactly they are useful in discerning an anaphor's structure. I propose that the typology can actually be broken down, with the anaphors falling into two natural groups. I frame the discussion as two-fold, one of *syntactic complexity* and of *method of interpretation*; the tests allow us to discern whether an anaphor must be complex at the syntactic level and what method of interpretation it requires. I show that tests from overt A, A-bar, and head movement allow us to see whether an anaphor is complex in the narrow syntax. If an anaphor can host a movement chain for overt movement, then that anaphor must have internal structure in the narrow syntax. Similarly, if a controller for overt agreement, case, or other morphology appears to sit inside the anaphor site, we have evidence that the anaphor has internal structure. There are also tests for LF structure: If an anaphor without overt internal syntactic structure can host a covert dependency, then we have evidence that the anaphor must have enough internal semantic structure to be able to host that dependency.

Other tests indicate a need for a certain method of interpretation, and therefore again the presence of a stage where 'hidden' semantic structure appears. With respect to method of interpretation, we find that there are two types of anaphors: The first are anaphors that must be interpreted relative to the model (i.e., which find constants in the model for their referents); these are called *model-*

interpretive anaphors. The second are anaphors that must be interpreted relative to the linguistic discourse record (i.e. which find chunks of linguistic structure for their referents); these are called *record-interpretive* anaphors. Method of interpretation is tested for using what we might think of as discourse tests, which manipulate the type of antecedents that are suitable for different anaphors on a very broad level. The test from linguistic control indicates the presence or absence of structure, based on whether the anaphor must be 'matched' against a previously used linguistic structure. Although this test is less straightforwardly related to the presence of structure, the hypothesis that anaphors with an internal semantic structure must copy or somehow check that structure against the structure of an antecedent is a plausible one. Meanwhile, the test from missing antecedents indicates whether an anaphor contains an indefinite expression inside the anaphor site; if the anaphor does contain an indefinite, it will be able to easily introduce a referent into the discourse.

The discussion of the tests will accomplish two things. First, it provides some background reasoning as to why the tests are considered useful; although these tests are fundamental to the discussion of ellipsis and anaphora, the reasons they are so fundamental are rarely discussed in any sort of thorough manner. Second, and more germane to the rest of the dissertation, is that it shows there is a gap in the typology of anaphora. It is typically assumed in the literature that deep anaphors must be syntactically simplex and model-interpretive, while surface anaphors must be syntactically complex and record-interpretive. When viewed under the lens provided here, in which syntactic complexity and method of interpretation are two independent factors, it becomes clear that there are two

categories which are frequently left out of the discussion. The first class are model interpretive anaphors with an internal syntax, a class not clearly described by the literature on ellipsis and anaphora. I believe that this class is instantiated by definite descriptions, at the very least. Definite descriptions are typically model-interpretive, and they are certainly syntactically complex.[1] The other category is syntactically simplex anaphors which are also record-interpretive, a type of anaphor which is not typically discussed in the literature. The typology is shown graphically in Table 2.1.

Table 2.1: *The typology of anaphora*

	complex syntax	*simplex syntax*
record-interpretive	(VPE)	**mixed anaphors**
model-interpretive	**definite descriptions**	(*do it*)

The primary claim of the dissertation is that this class does exist; it is the class that I term *mixed anaphors*. This class contains both predicate and argumental anaphors from numerous languages, and itself divides into two classes based on the availability of certain A-bar dependencies. In this chapter, I provide some brief introductory data to the anaphors, showing that there do seem to be anaphors which instantiate this class.

After showing that there are indeed anaphors in this class, I will show that there are no sufficient analyses in the literature to account for the data. In particular, two analyses which endeavor to account for some of the mixed anaphors, Aelbrecht 2010 and Baltin 2012, cannot actually account both for mixed anaphors and ellipses like VPE. These analyses are *derivational* theories of ellipsis. They

[1]Not all definite descriptions are model-interpretive; in particular, I will have more to say about *the former* and *the latter* at a later point.

claim that genuine ellipses like VPE and mixed anaphors of the type this dissertation focuses on are in fact the same thing. The empirical differences between genuine ellipses and mixed anaphors are taken to be differences in derivational timing, largely in the timing of Spell-out to PF. I show that Spell-out theories of this type face extreme difficulties in accounting for the wide variety of record-interpretive anaphors. I claim that this is often true for analyses which attempt to account for all the record-interpretive anaphors with one mechanism: Any mechanism constrained enough to yield mixed anaphora will inevitably underpredict movement out of ellipses like VPE. I instead claim that natural language takes ample advantage of the many possible ways of reaching reference, and I take at face value the lack of evidence for syntactic structure in mixed anaphora: I claim that mixed anaphors are heads in the syntax. Nevertheless, they require interpretation via the discourse record, which is achieved via copying of an LF. Ellipses, on the other hand, are fully generated structures which undergo some sort of non-pronunciation process (i.e., they are derived via PF-deletion type processes).

2.1 The accepted typology

The purpose of this section is to provide a quick discussion of the different types of anaphora. I'll start here by giving a quick review of what it means to be record-interpretive. I'll then demonstrate what a mixed anaphor—i.e. a record-interpretive anaphor that does not allow a full range of expected dependencies—looks like, and proceed to show that there are two types. First, there are record-interpretive anaphors that allow some A-bar dependencies; second, there are

record-interpretive anaphors that allow no dependencies. Interestingly, there will be a non-strict correlation between pronunciation and anaphor type: mixed anaphors that allow dependencies are all silent; anaphors that are interpreted via the record, without any such dependencies, are almost all pronounced.

2.1.1 The record

Here, I will discuss what it means to be a record-interpretive anaphor. First, I will define *the record*; I will then move on to discuss how anaphors interact with the record. I claim that surface anaphors as a class are defined by the fact that they must look to the linguistic record—i.e. linguistic structure—for their antecedents.[2]

I take discourse to be a fairly complex formal object, with which anaphors can interact in many ways. We have a conception of the *model*, which is all of the entities, relations between those entities, propositions, attitudes, etc that we are individually aware of; we may not share knowledge of all these entities and relations. These objects are linguistically represented as logical constants, which may come in a multiplicity of semantic types (i.e. things of type e, type e,t, type s,t, and so on and so forth). These constants are the set of discourse referents, or *d-refs*. Some of these objects may correspond to something that has quite a complex meaning. For example, if I utter the sentence *All I want to do right now is drive to Vancouver and go hiking in the forest*, I introduce a relation (in particular, a one-place predicate) into the discourse, namely *drive to Vancouver*

[2]This property of looking to the linguistic record can, I believe, be extended to many other familiar phenomena—for example, phrases like *the former* and *the latter*, which seem to need linguistic antecedents, polarity particles which depend upon the syntactically-represented polarity of their antecedent (Krifka 2013), and many others.

and go hiking in the forest. My interlocutor can then respond *That'd be fun*, using the anaphor *that* to refer to the relation—i.e., the discourse referent, represented by a constant—that I have introduced.

In addition to the model, and the constants it contains, we also have variables, which are again multi-sorted. Additionally, we have an assignment function ranging over those variables.[3] This assignment function lets us keep track of the use of variables, and the referents they point to, in the discourse context. These variables, and the constants which these variables will eventually be assigned to, are syntactically atomic: There is no internal structure to a variable or a constant.

I hold the discourse context to be roughly that of Farkas and Bruce 2010, in which the context keeps track not only of material that is traditionally thought to be in the common ground, but also things like speaker commitments, to-do lists, and information that is currently 'on the table'. It is the notion of being *on the table* that I wish to discuss right now. Under Farkas and Bruce's terms, *the table* is a discourse component roughly equivalent to the Questions Under Discussion (Groenendijk and Stokhof 1984, among many others); the items on it are syntactic objects paired with their denotations. Farkas and Bruce note explicitly that such a representation is necessary to account for cross-turn conversation and ellipsis. They further assume that the items on the table form a stack; the table records what is at issue in the conversation. When the table isn't empty, the goal of the conversation is to empty the Table—i.e. to settle whatever is at issue.[4] Having

[3]For simplicity's sake I'll assume a static model; however, I fully admit the possibility of a dynamic model in which the assignment function ranges over other objects, such as updates to the context.

[4]This is a simplified view of conversation; however, since the discourse record encompasses more than at-issue material, the exact definition of the Table will not concern us here.

a stack allows one to capture the connections between initiating and responding to conversational moves, as well as to account for which states can and cannot be the natural end points of a discourse. Certainly a discourse component like this is necessary: We need to account for at-issue content in the conversation, and for the ways in which conversations deal with that content. However, the domain of the table needs to be expanded beyond at-issue content in order to deal with phenomena such as ellipsis. In addition to the things that are strictly on the table in the sense of being at-issue, we also find that ellipsis—and anaphora in general—can find antecedents that are, for example, presupposed, and not at-issue (though they are highly salient):

(1) a. I'm aware that Jane danced a waltz with Bingley. I don't think Lizzie did, though.

b. She knew that her father was in debt, even though he shouldn't be; he'd inherited such a fortune.

c. They were upset that he'd brought a loaded gun into the house, since doing so was incredibly irresponsible with young kids around.

All three main clause verbs in (1) are factive verbs that presuppose their complements; all three subsequent verbal anaphors find the verb phrase in the factive complement as their antecedent. Although the utterance containing the antecedent is at issue, the antecedent itself is not. The domain of the table therefore cannot just contain those things that are at-issue; it must be expanded to include material that is strictly presupposed, or is in other ways not at-issue material. I will call this expanded table *the discourse record*. The discourse record

stores pairs of syntactic objects and their denotations from the recent discourse. A subset of these pairs are on the table, i.e. material which must be addressed and which results in certain discourse moves. It is this part of the discourse—the record—to which ellipses and mixed anaphors look for their interpretation.

2.1.2 The record, reference, and mixed anaphors

Given that we have a view of discourse as a complex object, where concepts may be represented in multiple components, we should expect to see reference interact with this complex object in myriad ways. There are, of course, many interactions based on salience (which is at least partially encoded in the notion of the stack on the table). However, we see even further interactions. The first distinction is the distinction between model-interpretive anaphora and what I will call *record-interpretive* anaphora; these are the deep and surface anaphors of Hankamer and Sag 1976; Sag and Hankamer 1984. The antecedent for a model-interpretive anaphor is a discourse referent, i.e. a logical constant. The antecedent for a record-interpretive anaphor, on the other hand, is some syntactico-semantic pair located in the discourse record. The fact that we can, essentially, refer both to things in the world and to recent parts of conversation should not be particularly surprising; both are important to a discourse.

I hold to a fairly classical interpretation of deep anaphors: Deep anaphors are syntactically either heads or phrases (witness *that*, *the same thing*, and *the cat in the hat*). Semantically, they are variables with some number of restrictions on the eventual denotation of the variable, depending on the specific anaphor (e.g. *the cat in the hat* requires the referent to be feline and to bear some spa-

tiotemporal relationship to a particular hat). Through the assignment function, this variable is manipulated such that it points to a particular discourse referent. This is not a particularly new or exciting view on deep anaphora.

Record-interpretive anaphora will be the subject of this dissertation. Perhaps one of the most interesting things about record-interpretive anaphora is that, once we allow the availability of a record-interpretive anaphor, there are several ways to derive the anaphor's interpretation—and I will claim that at least three ways are instantiated in natural language. The first analytical split I make is between *deletion* and *copying* analyses, which are both fairly traditional analyses for anaphora. I will then make a further split in the copying anaphors, dependent on the time of copying. In the next subsection, I will discuss the tests for anaphoric status; I will start with a discussion of how one may test for the method of interpretation, i.e., whether an anaphor is model-interpretive or record-interpretive.

2.1.3 The tests

This section discusses the tests for anaphoric status. I will discuss a totality of three types of tests. I will begin with the tests for method of interpretation, and will then move on to tests for internal syntax and for LF structure.

2.1.4 Method of interpretation

Here I discuss the tests for method of interpretation, which settle whether an anaphor must be record-interpretive or whether it is model-interpretive. There are two such tests: linguistic control and missing antecedent phenomena (MAP).

The first test, linguistic control, is based on felicity requirements for the use of an anaphor. It has been known for a long time that antecedents of pronouns and demonstratives do not require a spoken antecedent; rather, all that they need is the presence of a contextually salient referent. For example, pretend that we are talking in my office. Suddenly, a goat walks in, and begins to nibble on the wastebasket; we both stare at it. It is perfectly licit for you to ask me, "How did that get in here?" using *that* to refer to our new goat companion. This means that *that* allows a pragmatic antecedent. This is possible because *that* finds a d-ref for its antecedent, and d-refs do not need to be introduced linguistically.

Not all anaphors can be freely used with a pragmatic antecedent; some anaphors require a linguistic antecedent of some type. This can be illustrated in a comparison between the predicate anaphors *do that* and VPE. *Do that*, a deep anaphor, allows a pragmatic antecedent. VPE, on the other hand, is infelicitous with a pragmatic antecedent:

(2) *Context: Matthew and Isobel are walking down a country lane, and pass by a man who is whitewashing his fence. Isobel says to Matthew:*

a. We should do that, too.

b. #We should, too.

This is expected, given the difference in method of interpretation between the two anaphors. The anaphoric component of *do that*—i.e. the variable ensconced in *that*—only requires an appropriately salient d-ref (here a predicate-sized referent). This d-ref could be introduced linguistically or pragmatically; here it is introduced pragmatically. However, VPE must find some linguistic structure in

the record for its antecedent. Such a structure is not available in the context in (37): It has not been introduced linguistically, and cannot be supplied pragmatically.

Before we move on to the missing antecedent phenomenon, it is worth considering instances in which the antecedent for VPE seems to be supplied pragmatically. Schachter 1977 gives examples in which such antecedents seem available:

(3) a. *John tries to kiss Mary. She says:*
John, you mustn't. Schachter 1977, 764:3

b. *John pours another martini for Mary. She says:*
I shouldn't. Schachter 1977, 764:4

c. *John hands Mary an expensive present that he has bought her. She says:*
Oh, John, you shouldn't have. Schachter 1977, 764:6

d. *John comes to a table where Mary is sitting, makes as if to take one of the spare chairs there, and says*:
May I?
Mary responds: Please do.

Schachter claims that these are fairly straightforward counterexamples to the necessity of a linguistic antecedent with VPE; he attributes the fact that VPE often does need linguistic control to the fact that predicate anaphors can pick up a wide variety of possible relations, thereby making identity of the correct relation difficult. The observed differences between VPE and *do it* come from the fact that *do it*, but not VPE, requires an agent, thereby limiting the available references.

However, the examples Schachter cites—and the analysis he proposes—are more complicated than they appear at first glance (see Hankamer 1978 and Pullum 2000 for additional discussion of this topic).

First, some of the cases in (3) are in some sense frozen expressions; this is true for both (3-c) and (3-d). In the case of (3-c), *shouldn't have* is in fact no longer compositional; the phrase does not actually mean *You should not have done X*. Rather, it expresses appreciation for some action, often a heartfelt gesture. This is made quite clear by examples like the following (p.c. Jorge Hankamer):

(4) *Jorge pours a bucket of warm shit over Taylor's head. Taylor says:*
#You shouldn't have!

In this example, Jorge really should not have poured the bucket over Taylor; Taylor's admonition is completely compositional. It is also infelicitous. The only way that (4) becomes felicitous is if Taylor actually appreciates the action (highly unlikely in the context), thereby using the frozen, non-compositional meaning of *you shouldn't have*.

Furthermore, Schachter confuses needing a linguistic antecedent with needing linguistic control. He claims that because pragmatic control is sometimes possible, then no linguistic antecedent is necessary; VPE is model-interpretive, but the antecedents for VPE are most clear if they are introduced by the use of language. The claim I make is the opposite. VPE always needs a linguistic antecedent. The most common way to introduce a linguistic antecedent is through a speech act. However, this is not the only way. Speakers are notoriously accommodating; they will strive to understand each other. I believe that some of this

behavior is at least partially grammaticized. I claim that in certain contexts, a piece of linguistic structure may be made extraordinarily salient, and treated as if it is part of the discourse record by cooperative speakers. These contexts are rare, and often bear a charged illocutionary force (see Hankamer 1978). Take examples like the following:

(5) a. *A parent and child are at an animal shelter. The child has become enamored of a dog there and is playing with it. The child, arms around the dog, turns to the parent and says:*

Oh, can we? Please?

b. *Hankamer advances on Sag, brandishing a cleaver. Sag says:*

Don't! My God, please don't! Hankamer and Sag 1976

c. *Hero, John Wayne or somebody, clamping grip on bad guy just about to commit some misdeed, says:*

Oh no you don't, fella. Hankamer 1978

In each case we have a situation which makes a very particular action quite salient—adopting the dog in (5-a), assaulting Sag with a cleaver in (5-b), or committing some atrocious action in (5-c). There is also a marked illocutionary force in each example—a request question in (5-a), or imperatives in (5-b) and (5-c). As Hankamer notes, the marked illocutionary force is necessary; simple questions and statements, for example, do not license VPE in the very same contexts:

(6) a. *A parent and a child are at an animal shelter. The child has become enamored of a dog there and is playing with it. The parent says:*

#Don't worry, sweetie, we will.

b. *Hankamer advances on Sag, brandishing a cleaver. Sag says:*
#He never does.

c. *Hero, John Wayne or somebody, clamping grip on bad guy just about to commit some misdeed, says:*
#You shouldn't.

It is important that examples like (5) are in some sense marginal—they are rare, they bear marked illocutionary force, and they are not available in all contexts. Furthermore, speakers still sometimes have the sense that the utterance of these sentences is in some sense abrupt (as if an internal monologue has been made overt). This is expected if VPE requires a linguistic antecedent, and if linguistic antecedents are almost always introduced through the use of language. Since the canonical way of introducing linguistic structures is speech, any anaphor which is record-interpretive will canonically need linguistic control. However, interlocutors can and do supply structure in certain ritualized or highly salient and charged instances. This means that the test for linguistic control will suffice in the vast majority of cases; what is needed is a broad enough range of examples to show that the generalization is real.

The second test is sometimes called the test from missing antecedents, or the *missing antecedent phenomenon* (MAP) (see Grinder and Postal 1971; Bresnan 1971 for an early discussion). Antecedents for anaphors, particularly the highly salient antecedents necessary for use of 3P personal pronouns in most languages, typically need to be introduced into the conversation before the anaphor can be used. This may happen through linguistic means. It may also happen

when the interlocutors both pragmatically acknowledge a d-ref, as in the earlier example with the wastebasket-eating goat. D-refs can generally be inferred fairly easily; however, just because they have been inferred does not mean that they are salient. Take the following examples from Heim 1982:

(7) a. I dropped ten marbles and found all of them, except for one. It is probably under the sofa.

b. I dropped ten marbles and found only nine of them. #It is probably under the sofa.

In the first example, the tenth marble is explicitly introduced by use of the proform *one*, and made highly salient. In this case, *it*—which needs an extremely salient referent—can be used felicitously. In the second example, no such proform can be used. Since the speaker here claims that there are ten marbles, and that s/he has found nine, we infer that there is a tenth marble still missing. We can refer to it with a definite description, such as *the last marble* or *the tenth marble*. We cannot refer to said marble with a pronoun. The marble has not been established as a sufficiently salient referent for the pronoun, and therefore the use of the pronoun is infelicitous.[5]

This saliency requirement interacts with the use of predicate anaphors in an interesting way. In certain circumstances, a predicate surface anaphor can be used to introduce an individual referent that is salient enough to license a

[5]This brings up an important question for cross-linguistic work on missing antecedents and anaphora. In order to use the missing antecedent phenomenon cross-linguistically, the appropriate equivalent to *it* must be found for that language—a non-demonstrative anaphor which needs a highly salient referent. This requires extensive knowledge of the reference system for the language, and may be a difficult task depending on the system.

following pronoun—but the use of a predicate deep anaphor cannot. This can be shown quite easily. First, let us establish that existential a under negation does not introduce a referent into the discourse:

(8) a. Bates has never stolen a snuffbox. #It was blue.

b. Thomas has stolen a snuffbox. It was blue.

In the absence of a given context, referents must be introduced linguistically. In (8-a), the indefinite is under negation, and does not establish a referent. Therefore, the use of *it*—which requires a highly salient, already established referent—is not possible. However, in (8-b), the indefinite is not under negation, establishes a referent, and licenses the use of *it*.

We can now examine a curious difference between VPE and *do it*. Surface anaphors can establish a referent in the discourse when no such referent has been previously established, thereby licensing the use of a following pronoun. Deep anaphors, on the other hand, do not have this ability. Witness the difference in (9).

(9) a. Bates has never stolen a snuffbox, but Thomas has. It was blue.

b. Bates has never stolen a snuffbox, but Thomas has done it. #It was blue.

The relation between this test and LF complexity is relatively straightforward. Deep anaphors are variables whose ultimate interpretation will be a d-ref—i.e., a logical constant. Variables do not contain internal structure; neither do the logical constants that they refer to. This means that any d-refs established

through the use of a predicate must be established through inference. As we have seen, referents established through inference are not reliably salient enough for the use of a personal pronoun like *it*. In cases like (9-b), the d-ref is not adequately salient. Although we certainly can infer the existence of a snuffbox (and therefore a d-ref) which stands in some relation to Thomas, the snuffbox is simply not highly salient. Rather, another referring expression which needs a less salient d-ref must be used—for example, a definite description like *the damned thing*. VPE, on the other hand, has a complex LF structure—a structure which, in (9-a), contains an existential. This means that the snuffbox referent in (9-a) is not established by inference, but through the use of linguistic material. This is identical to the use of an overt existential noun phrase; the only difference is that the existential is not pronounced in (9-a). The referent that is established is therefore highly salient.

The discussion presented above may cast into doubt the usefulness of MAP as a test for anaphoric status—after all, it implies quite clearly that if a deep anaphor introduces a salient enough antecedent, the usage of a pronoun like *it* will be possible. This does seem to be the case in an example like (10), in which the use of *do it* licenses the following *it*:

(10) My uncle didn't buy me anything for Christmas, so my aunt did it for him. It was very expensive.

In this case, *it* refers to *the present my aunt bought me for Christmas in lieu of my uncle*. Notably, there is quite a bit of information available regarding this referent: it is a present, it was bought by a specific person, someone else should have

bought it but didn't, and so on. This is indeed a very salient and easily identified referent. This should be compared to a similar case, in which the referent that *do it* introduces is not nearly as salient:

(11) My uncle didn't buy anything, so my aunt did it. #It was very expensive.

Here, the referent that we infer from the use of *do it* has very little information; it is some item or another, and it was bought by a specific person. However, there is not enough information to make the referent appropriately salient for the use of *it*. This, I claim, is the crucial difference between VPE and *do it*. VPE reliably establishes salient antecedents, and does not need the presence of a great deal of information in order to establish the referent properly; this is true of record-interpretive anaphora in general. *Do it*, on the other hand, does not reliably establish salient referents; although it may in some cases, it will not do so in many others. In order to guard against instances where *do it* can in fact establish a salient enough referent, the antecedent relation for *do it* should not contain a great deal of information; this is what distinguishes (10) and (11). If such precautions are followed, and enough data is collected, MAP will still prove to be a useful test.

2.1.5 Testing for syntactic complexity

So far, we have seen evidence that surface anaphors are interpreted via the discourse record, whereas deep anaphors are model-interpretive. In this section, I begin to investigate the syntactic complexity of each type of anaphor. As previously mentioned, model-interpretive anaphors may be either atomic or complex;

for predicate anaphors, we see this in the contrast between *do it*, containing the syntactically atomic *it*, and *do something very different*, in which *something very different* is overtly complex—even though both are interpreted relative to the model, and not relative to the discourse record.

Here, we will compare the syntactic structure of surface anaphors to the syntactic structure of deep anaphors. As previously mentioned, deep anaphors may be either complex or simple in the syntax; I will here focus on a proform deep anaphor, in order to create a better contrast. Again, we will find that surface anaphors seem to have internal structure, while deep anaphors do not require such structure. I will once more focus on VPE and *do it*; however, we will also see some evidence from sluicing in German and verb-raising VPE in Portuguese.

There are four basic ways to probe for internal structure in the syntax. The first is the availability of overt A-bar dependencies, the base of which must be inside the anaphor (typically shown through case on the moved item and lexical restrictions on the moved item). The second is the availability of A dependencies. This includes passive subjects co-occurring with passive morphology, short scrambling out of the anaphor site, and similar types of movement-like dependencies. Third, there are instances where head movement out of the ellipsis site has demonstrably occurred. Finally, there is the availability of morphological dependencies controlled by material internal to the anaphor site, such as overt agreement with a DP inside the anaphor site.[6] I will run through each type of example in turn, and show that although surface anaphors are thought to always have this type of structure, deep anaphors do not.

[6]Case on A-bar moved items is a sub-type of this sort of dependency.

2.1.6 Overt A-bar dependencies

The first set of tests to be looked at is the test from overt A-bar dependencies. In English, the most commonly explored set of these dependencies is constituent questions, topicalization, and *wh*-relative clauses. In all three dependencies, selectional restrictions between a pied-piped preposition and the verb can be used to show that the dependency is one of movement, and not left dislocation or some other non-movement dependency. For example, certain verbs select particular prepositions as their complements; take pairs like *rely on*. Other prepositions are impossible with *rely*:

(12) *rely {off, to, from, into, through, around, of, over, . . . }

This is not a semantic distinction; this is a selection issue. Similarly, case on pronouns can be used to show that movement has occurred (especially in dialects in which *whom* is still productive).[7] Interestingly, all of these are possible out of VPE—but not out of *do it*.

(13) a. I don't know on whom you can rely, but I know on whom you can't.

b. %I don't know whom you can rely on, but I know whom you can't.

c. *I don't know on whom you can rely, but I know on whom you can't do it.

d. *I don't know whom you can rely on, but I know whom you can't do it.

[7]More must be said about *whom* with respect to (13-b). Those speakers who acquired *whom* as part of prescriptive language teaching are often very reluctant to *wh*-move *whom* without the accompanying pied-piped preposition. There are some speakers who acquire *whom* without the aid of prescriptive teaching and who do seem to allow this type of movement.

(14) a. On Matthew, you can rely. On Thomas, you can't.

b. *On Matthew, you can rely. On Thomas, you can't do it.

c. Him, you can rely on. Her, you can't.

d. *Him, you can rely on. Her, you can't do it.

(15) a. At the conference, I met many good reviewers on whom we can rely, and many bad reviewers on whom we can't.

b. *At the conference, I met many good reviewers on whom we can rely, and many bad reviewers on whom we can't do it.

The same pattern occurs in German sluicing. Unlike English, German retains productive case. Importantly, certain verbs require dative objects, while others require accusative objects. In sluicing, a phenomenon in which the TP of a constituent interrogative question is elided, the *wh*-remnant bears the case assigned to it by the missing verb (Merchant 2001, p.42-43). We can contrast this with the case assigned by the matrix verb – for example, with the case typically assigned to objects by verbs such as *know*, which is accusative. We know then that *wissen* cannot assign the dative; the verb *schmeicheln* must be present, in order to account for the dative case. Data from Greek, shown in (17), show the same thing (all examples from Merchant, 42–43:13–16; originally from Ross 1969):

(16) a. Er will jemandem schmeicheln, aber sie wissen nicht,
he wants someone.DAT flatter but they know not
{wem/*wen}.
who.DAT/who.ACC
'He wants to flatter someone, but they don't know who.'

b. Er will jemanden loben, aber sie wissen nicht,
he wants someone.ACC praise but they know not
{*wem/wen}.
who.DAT/who.ACC
'He wants to flatter someone, but they don't know who.'

c. Sie wissen {*der Antwort/die Antwort} nicht.
they know the answer.DAT/the answer.ACC not
'They don't know the answer.'

(17) a. Kapjos irthe, all dhe ksero {pjos/*pjon}.
someone came but not know.1SG who.NOM/who.ACC
'Someone came but I don't know who.'

b. Dhe ksero {*i apantisi/tin apantisi}.
not know.1SG the answer.NOM/the answer.ACC
'I don't know the answer.'

In these cases, there is no way to account for the case on the remnant without appeal to the missing TP.

Finally, we see similar patterns with A phenomena as well. We finally come to that set of tests which do not necessarily rely on movement, but rather on morphological reflexes of syntactic structure: most importantly, case and agreement. With respect to agreement, we find evidence from existential *there* constructions in English. These constructions have two especially interesting properties, which are shown in (18). First, there is always a DP correlate of *there* somewhere in the structure. Second, in Standard American English this correlate—and not *there*—controls agreement on the predicate.[8]

(18) a. There was a cat on my bed.

b. *There was on my bed.

[8]Not all dialects preserve the singular/plural contrast.

c. There were/*was five cats sitting on my bed.

Interestingly, the controller may go silent if existential *there* co-occurs with VPE. The presence of non-default agreement, however, shows that the controller is still present—apparently somewhere inside the ellipsis site. In the *do it* case, however, the controller may not go silent; if it does, the sentence is ungrammatical (as in (19-b)). If the controller is pronounced, the anaphor is licit, as one would expect for any other predicate.

(19) a. There really shouldn't have been five cats eating mice on my bed, and yet there were anyways.

b. *There really shouldn't have been five cats eating mice on my bed, and yet there were doing it anyways.

c. There really shouldn't have been five cats eating mice on my bed, and yet there were five cats doing it anyways.

Importantly, in (19-a), there is no overt DP accompanying the anaphor—and yet it seems that some unpronounced DP is ultimately controlling verbal agreement, which is plural. This can be straightforwardly accounted for if the DP that licenses *there* and controls agreement is inside the ellipsis site; any other account will necessarily have to treat these as aberrant data, and complicate the theory to account for apparently uncontrolled plural agreement. In (19-b), on the other hand, it is hypothesized that *do it* contains no internal structure—and therefore there is nowhere inside the anaphor that a *there*-licensing, agreement-controlling DP can sit.

2.1.7 Unpronounced A-bar dependencies

We have seen evidence for overt A-bar dependencies in surface anaphora, and have seen that these dependencies are impossible in deep anaphora. Language is not limited to overt A-bar dependencies, though; it also makes use of unpronounced A-bar dependencies. These include phenomena such as relative clauses, comparative clauses, and inverse scope, all of which seem to involve some sort of dependency between a high, silent operator and a lower position. The first two—relative clause dependencies and comparative dependencies—bear enough similarities that I will discuss them together; I will discuss inverse scope separately.

Both relative clauses and comparative clauses are island-bounded A-bar dependencies in English, and in the other languages to be discussed here. They are generally thought to involve the movement of an operator, sometimes silent, from a low argument position into a high A-bar position (often thought to be spec,C).Since they involve such movements, they, like overt A-bar dependencies, are a useful probe for the syntactic structure of an anaphor. Surface anaphors are predicted to allow these dependencies, as they can host the variable that the operator binds. Deep anaphors, on the other hand, cannot host any variables for an operator to bind, since they have no internal structure. These predictions are in fact borne out, as we can see below for both ACD relatives and comparatives and non-ACD relatives and comparatives; this is in fact a fairly robust generalization:

(20) *ACD relative*

a. I've read every book that he has.

b. *I've read every book that he has done it.

(21) *ACD comparative*

a. I've read more books than you have.

b. *I've read more books than you have done it.

(22) *Non-ACD relative*

a. This is a book that you may read; this is a book that you may not.

b. *This is a book that you may read; this is a book that you may not do it.

(23) *Non-ACD comparative*

a. I've read fewer books than you have magazines.

b. *I've read fewer books than you have done it magazines.

In addition to the relative clause and comparative clause tests, we have also the availability of inverse scope readings, in which a lower quantifier seems to scope out of the anaphor. I will assume that scope is handled through Quantifier Raising (QR) (May 1985).[9] Again, we predict that surface anaphors—but not deep anaphors—allow inverse scope dependencies. The surface anaphor can host the dependency, within certain restrictions on parallelism between anaphor and antecedent;[10] the deep anaphor, with no internal structure, cannot host the de-

[9]This is not necessary to account for these data; for example, type shifting analyses of those like Hendriks 1993 will allow us to account for these differences as well. The crucial part is that there is a difference between a logical constant and a syntactico-semantic structure which contains, at some point, a quantifier in an argument position.

[10]See Fox 2000 for much discussion and information on scopal parallelism. It is well worth noting here, however, that scopal parallelism is not limited to anaphors—it is also a property of de-accenting and many focus constructions, including between the pivot and relative clause of an *it*-cleft.

pendency, as the dependency requires some relationship between a high-scoping quantifier and its argument position. Again, these predictions are borne out. I illustrate this here with predicate anaphors, but this is also expected to be possible with propositional and entity anaphors which allow internal quantifiers to scope out. In English, inverse scope between a subject and object is freely available:

(24) a. A lawyer read every book in the library. $\forall > \exists$; $\exists > \forall$

b. Every lawyer read a book in the library. $\forall > \exists$; $\exists > \forall$

There is an interesting contrast between VPE and *do it* with respect to inverse scope of a universal. Namely, only VPE allows inverse scope:

(25) a. A lawyer read every book in the library, and a socialite did too. $\exists > \forall$; $\forall > \exists$

b. A lawyer read every book in the library, and a socialite did it too. $\exists > \forall$; *$\forall > \exists$

Both of these types of unpronounced A-bar dependencies—operator-variable dependencies and scope dependencies—prove to be useful tests in distinguishing surface and deep anaphora. These tests will prove quite important in our discussion of mixed anaphors, as well; as we will see, different mixed anaphors show different behavior with respect to unpronounced A-bar dependencies.

2.1.8 A dependencies

The next set of tests comes from A dependencies. Prominent among these in English are passive, unaccusative, and raising. For these cases, the idea is that

particular types of arguments are always generated in certain places—and so if we see one of those arguments, it must have been generated in its standard place. (I will discuss this assumption in much more depth in §2.1) Therefore, if we see a passive antecedent, and a predicate anaphor whose meaning is 'passive' in nature, then we have a passive structure—and the subject of the anaphor must have been generated in VP, as all other passive subjects are. Again, for VPE we see that apparent passive, unaccusative, and raising structures are possible—but that these are impossible for *do it*. Importantly, in the case of passive, at least, we know that there is no morphological problem regarding the co-occurrence of passive and *do*; *it* may in fact be a passive subject, as in (29).

(26) a. This cat was adopted, but that one was not.

b. *This cat was adopted, but that one was not done it.

(27) a. The lake has frozen, and the river has, too.

b. *The lake has frozen, and the river has done it, too.

(28) a. The Dowager Countess seems to be very upset today, and the Earl does, too.

b. *The Dowager Countess seems to be very upset today, and the Earl does it, too.

(29) Facebook is able to match faces in images with users; here's how it is done.

Again, if we assume that subjects of clauses with a passive, unaccusative, or raising meaning are always introduced in a particular syntactic configuration, then

the data above provide evidence that there is indeed structure in these examples. I will have a great deal more to say about this shortly, and so for now leave us here.

2.1.9 Head movement

We next come to the last of the movement tests: head movement. In some languages, we have evidence for long-distance head movement out of anaphor sites. This is not useful for a language like English, which has relatively little head movement, especially long-distance head movement. However, it is quite useful for languages like Irish and Portuguese. Both Irish and Portuguese exhibit what is known as verb-stranding VPE (VVPE), a phenomenon which seems parallel to verb phrase ellipsis except that the verb is stranded. We see examples below for Irish, which are especially interesting in that although the language allows DP drop, it does not allow independent drop of PPs—and yet both the DP and PP arguments are missing in (30) (data from McCloskey 1991, 273:27a).

(30) Dúirt mé go gceannóinn é agus cheannaigh.
said I COMP buy.COND.1SG it and buy.PAST.ANL
lit. 'said I that would buy [(I) it] and bought [I it]. '

'I said that I would buy it and I did.'

There is copious data supporting an analysis in which VPE contains internal syntactic structure, and in which deep anaphors like *do it* do not have any such structure. In a wider view, we consistently see that surface anaphors are complex: They behave as if they are record-interpretive, and their syntax is complex. Deep anaphors, on the other hand, may be simplex (*it*) or complex (*the same sort of*

thing) in the narrow syntax. However, they are unified by their interpretation: All deep anaphors are model-interpretive.

2.2 The common analyses

There are two broad approaches to the analysis of anaphora like VPE. These are the non-structural and structural approaches. Non-structural approaches are those of the type proposed in Culicover and Jackendoff 2005; in these analyses, the “silent" anaphor does not, in fact, exist at all. This is in heavy contrast to the structural approaches, which hold that there is indeed structure in the silence. I will be focusing here on the structural approaches.

I will discuss non-structural approaches only briefly here (for much more detail, see Ginzburg and Sag 2000; Culicover and Jackendoff 2005). As just mentioned, the non-structural approaches hold that the syntax and the phonetic realization are in fact isomorphic: there is no more structure than what is pronounced. For Culicover and Jackendoff in particular, anaphors like VPE are licensed by the phenomenon of *indirect licensing* (IL). IL is a discourse-based phenomenon, not syntactic; under IL, an anaphor receives interpretation by reference to an antecedent elsewhere in the linguistic discourse or the broader context. This process is mediated by references to items and rules not present in the construction itself or in the antecedent. I will not deal with these approaches further, as they require a conception of the syntax that is quite different from the broadly Minimalist assumptions that I make. However, such approaches could indeed be extended; crucially, one would need to account for the differences between record- and model-interpretive anaphors, and for the differences in which

anaphors allow dependencies out of the anaphor site.

I will now move on to the structural approaches; the discussion of these approaches will form the bulk of this section.

2.2.1 The structural approaches

The structural approaches—by definition—propose that there is some sort of structure inside the anaphor site. There are three types. The first—the type used in Lobeck 1995's work—utilizes a null anaphoric head, which has no internal structure either in the narrow syntax or at LF. Although this could easily work for a silent deep anaphor—a category that I believe we have evidence for—it will not work for phenomena like VPE. It is clear from our discussion of the properties of VPE that an element which remains solely a head throughout the entirety of the linguistic derivation cannot suffice; this element could not host the various types of movement we see occurring out of VPE and other surface anaphors.

The other two types of analysis are the PF deletion and LF copying approaches; modern touchstone versions of these are laid out in Merchant 2001 for PF deletion and Chung, Ladusaw, and McCloskey 1995 for LF copying. These works deal with sluicing, and so I will use sluicing data here to set forth the basic tenets of these approaches. *Sluicing* is a type of ellipsis which commonly occurs in constituent questions; concurrent with the appearance of the *wh*-item to the clausal periphery, the clause (roughly the part corresponding to TP) goes silent.[11] An example is shown below in (31). The silent TP, corresponding roughly to the

[11]This description greatly simplifies a rather large and rowdy literature; there are disagreements about whether sluicing must involve *wh*-movement, whether the sluiced structure must always be a constituent question, and so on and so forth. Since sluicing is not the topic of this dissertation, I set these considerations aside.

parenthesized material, is the *sluice*; the left-behind *who* is known as the wh-*remnant*. The entire preceding clause is known as the *antecedent*, with *someone* being called the *correlate* of the *wh*-remnant.

(31) Mrs O'Brien was conspiring with *someone*, but we don't know **who**. (= Mrs O'Brien was conspiring with)

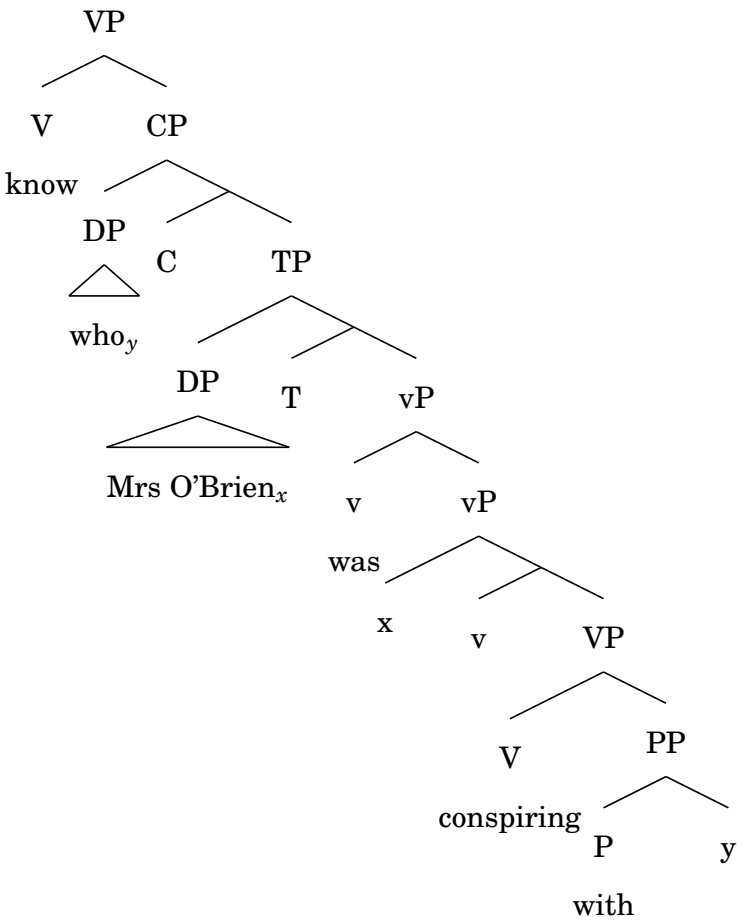
Under PF deletion approaches, the syntax generates a complete structure—including the material inside the anaphor site. After the transition to PF, however, part of this structure—the part contained in the anaphor—fails to be pronounced.[12] The process is licensed by an identity condition; the structure of the anaphor must be sufficiently close to the structure of the antecedent to license the deletion. The exact nature of this identity condition is a matter of dispute; however, such a condition is generally agreed to be necessary. The process is shown in (32).[13]

(32) Mrs O'Brien was conspiring with someone, but we don't know who.

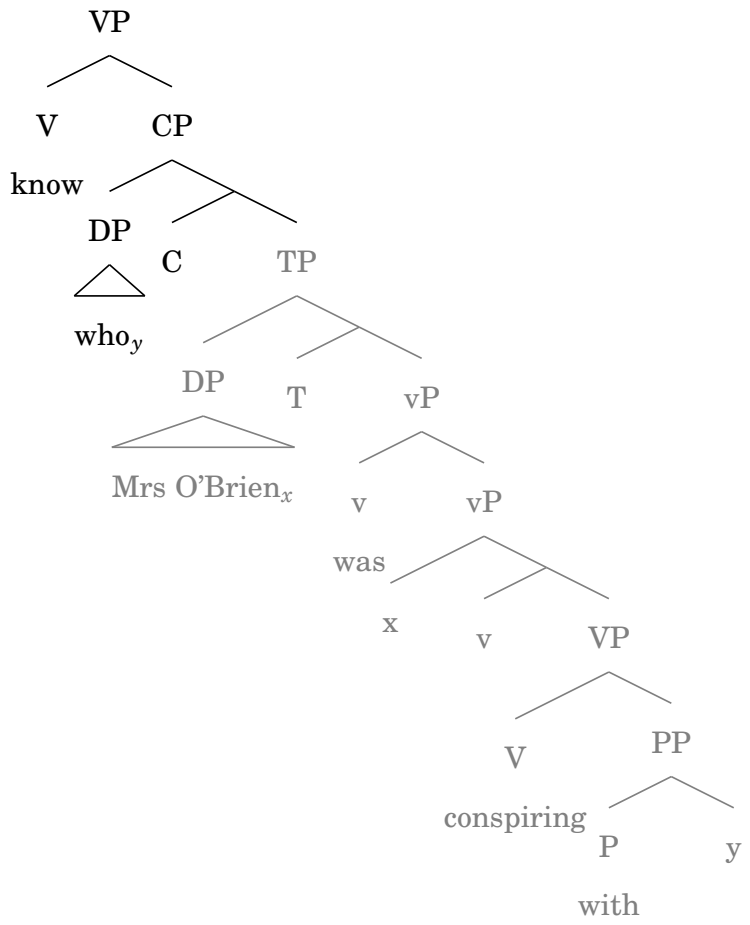
[12]Whether or not this is actually by deletion, as the name of this type of approach suggests, or by non-insertion of phonological material differs based on analysis.

[13]Throughout most of this discussion, I will use traces instead of unpronounced copies in trees. This is for the purpose of saving space; we will have cause to discuss lower copies in Ch 3.

a.


VP
V
CP
know
DP
C
TP
who$_y$
DP
T
vP
Mrs O'Brien$_x$
v
vP
was
x
v
VP
V
PP
conspiring
P
y
with

b.



The PF deletion approach accounts for the properties of surface anaphors quite handily. Since syntactic structure is present, all overt movements are possible, and unpronounced dependencies are as well. Morphological connectivity effects, such as case connectivity in sluicing and agreement in existential *there* sentences in VPE, are easily accounted for. Since the syntactic structure is present, these relations can be established as per usual in the syntax without any interference or trouble. Additionally, the PF deletion approach accounts for phenomena such as linguistic control and MAP quite well. In the case of linguistic control, this is accounted for by constraints on the deletion process itself. For MAP, there is a

referent-introducing phrase present at all syntactico-semantic stages; this means that a highly salient referent is introduced.

However, there are a few quirks in the PF deletion approach, especially when applied to sluicing. Sluicing allows apparent island violations, as shown in (33), taken from Merchant 2001.

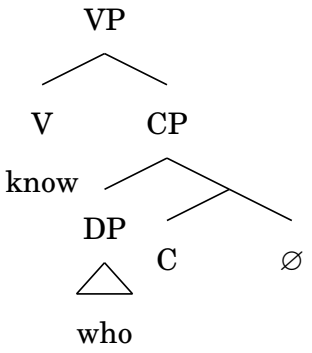
(33) They hired someone who speaks a Balkan language, but I don't know which Balkan language. (= *they hired someone who speaks)

These are expected to be a problem for the PF deletion approach; there are apparently island violations in the sluice, and the syntax should not generate them. Merchant accounts for this data with the claim that island violations of this type are actually violations at PF (for example, violations of linearization). Because the offending phonological material is removed via the anaphoric process, no violation occurs.

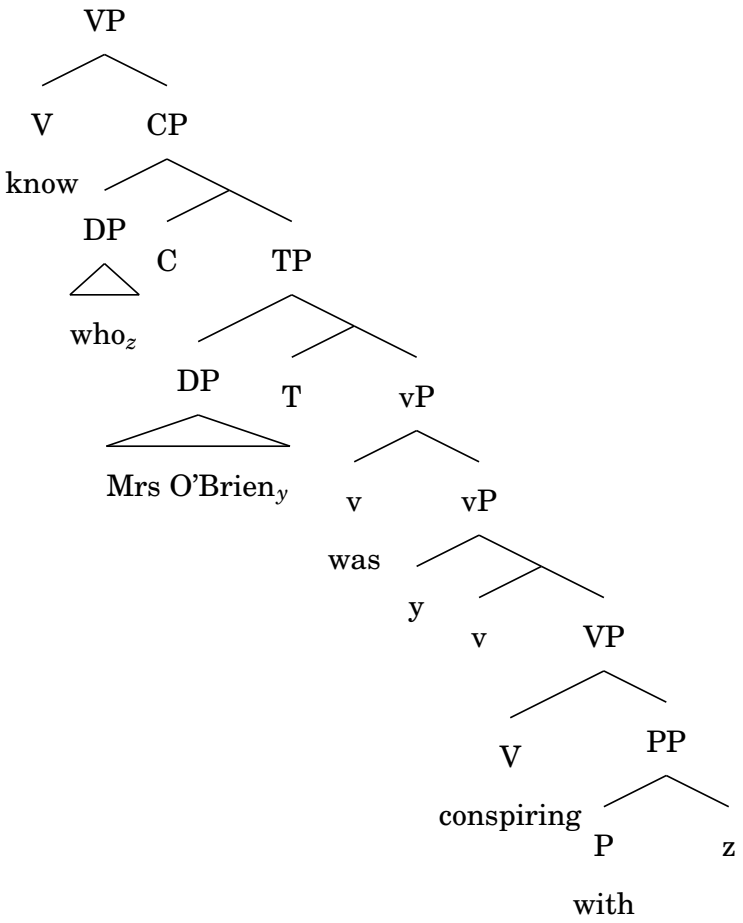
The LF-copying approach differs from the PF deletion approach in its view of the derivation. In LF copying, the syntax does not generate anything in the anaphor site (except, perhaps, a null proform). Rather, the anaphor site is simply a null element. It contains no structure. After the passage to LF, linguistic structure kept in the discourse record is copied in. This is represented like so:

(34) Mrs O'Brien was conspiring with someone, but we don't know who.

a. *Product of the syntax*



b. *After Recycling and Merge*

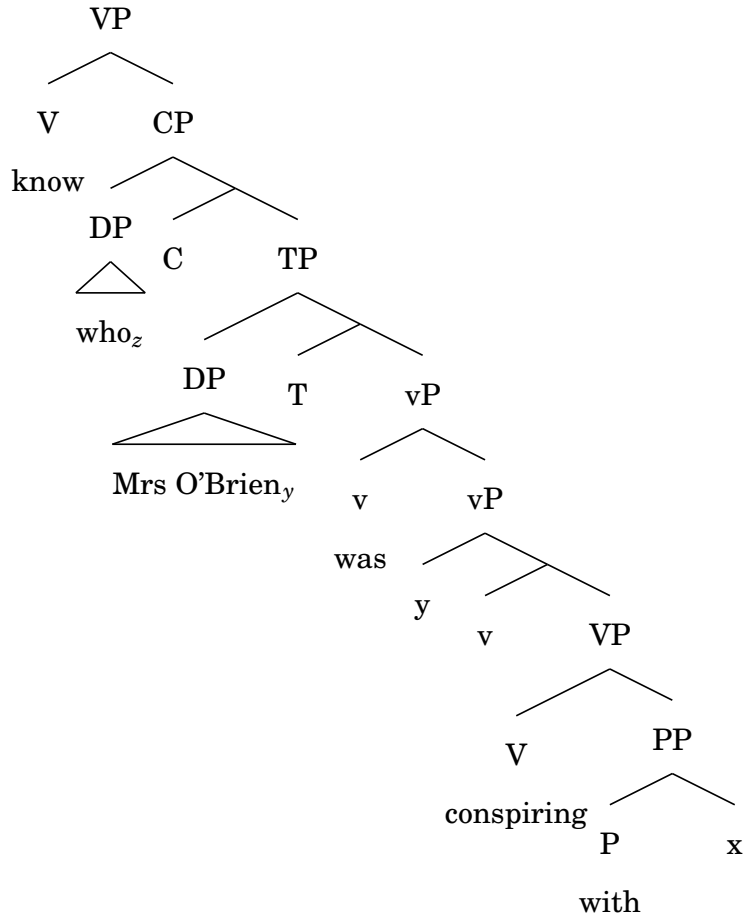


After copying—called Recycling by Chung et al.—occurs, a second process known as Merge occurs. Merge is a rebinding process. In Merge, binders—for

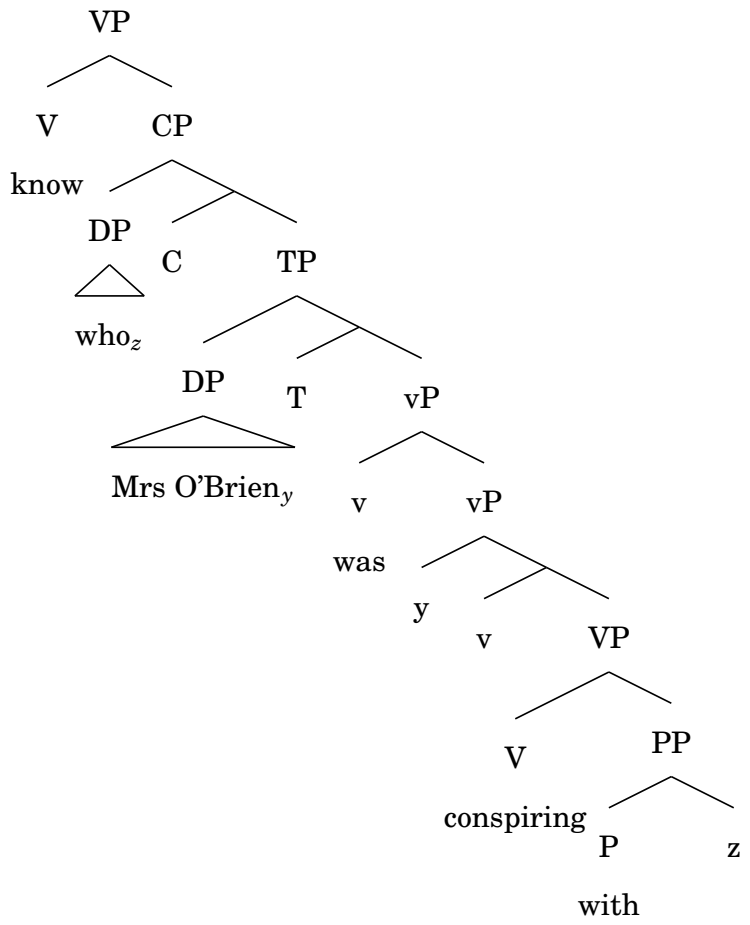
Chung et al., *wh*-items, but presumably also quantifiers and other material—can rebind variables inside the anaphor site. In the trees, this is represented by a change in indexing on the lower variable.

(35) Mrs O'Brien was conspiring with someone, but we don't know who.

a.



b.



Merge essentially mimics movement. The rebinding of variables allows the formation of an operator-variable chain. This chain is surface similar to the type of operator-variable chain produced by movement. Therefore, as long as the operator can be generated independently, in a high position, Merge will allow that operator to bind lower variables, thereby mimicking a movement chain.

LF copying again accounts for MAP and linguistic control well. Here, too, there is an indefinite in the structure that can introduce a referent into the discourse. Linguistic control is, of course, accounted for quite handily; copying necessarily relies on the presence of linguistic antecedents to provide the appropriate

linguistic structure.

Perhaps the only place where LF copying runs into difficulties is with respect to morphological dependencies. If dependencies like case and agreement are not relevant to LF—as many syntacticians assume—then there is no way that such dependencies can be satisfied at LF. However, they also cannot be established in the syntax, since the case assigner/agreement controller does not exist then. Morphological dependencies of this type must be viewed very differently under Chung et al.'s version of LF copying—they must be active and checkable at LF.

I will treat ellipses such as VPE and sluicing as cases of PF deletion throughout this dissertation. There are several reasons for this. One is the previously mentioned facts regarding case and agreement; I assume that case and agreement cannot be checked at LF. Rather, case and agreement dependencies can only be formed in the syntax. Therefore, since both VPE and sluicing allow such dependencies out of the anaphor site, they must contain syntactic structure—i.e. they must be derived via PF deletion. This does not mean that LF copying is not a viable approach to anaphora; I will now turn to a class of anaphora which I argue are best accounted for with LF copying.

2.3 Mixed anaphors

One of the 'missing' classes of anaphora was the record-interpretive anaphors which lacked syntactic structure. This class of anaphors can indeed be observed. There are multiple anaphors that should be qualified as mixed anaphors, and I will eventually claim that there are two subclasses of mixed anaphors, based on movement possibilities; I will describe this in more depth in Chapters 2 and 3.

For now, I will focus on one anaphor, British English *do* (British *do*). British *do* is, as the name suggests, an anaphor typical of British English; an example is given in (36).

(36) Although I've never read that book, Tom has done.

British English *do* shows some properties typical of both deep and surface anaphors; it is, in some ways, a canonical mixed anaphor. With respect to its pragmatic behavior, it behaves in all ways as if it is a surface anaphor: It requires linguistic control, and it can easily introduce highly salient referents into the discourse.These data are supplied below:

(37) *Linguistic control*

Context: A child is reaching for the cookie jar. The parent says:

a. #You may not do!

b. Child: I'm going to take a cookie.

Parent: You may not do!

(38) *Missing antecedent phenomena*

a. I've never ridden a camel, but Ivan has done, and he said it stank horribly.

British *do* also allows unpronounced dependencies, which show no case or agreement. This is important, in that such dependencies could be formed by movement in the syntax, or the formation of operator-variable chains at LF; they are not limited to the syntax. These types of dependencies include inverse scope and relative

clauses and comparatives. We first see the case of inverse scope:

(39) *Inverse scope*

a. A man must read every book, and a woman must do too. $\exists > \forall; \forall > \exists$
Abels 2012, 31:26e

Before moving on, there must be at least some discussion regarding the material involving inverse scope. Baltin (2012) claims that British *do* does not, in fact, allow inverse scope. He gives data such as the following in support:

(40) Some man will read every book, and some woman will do too. $\exists > \forall; *\forall > \exists$

These data are indeed ungrammatical. Abels (2012) provides different data which do allow inverse scope (39)). There is, in fact, a principled reason behind these differing judgments: the nature of the modal involved. Abels' examples use *must*; Baltin, on the other hand, reports examples using *will*. It is rather well known that epistemic modals (such as *will*) tend to take wide scope, while deontics (the most felicitous interpretation of the *must* in (39)) are more likely to take narrow scope. It is therefore expected that inverse scope will be difficult in an example (40), with an epistemic modal.

Additionally, British *do* behaves like a surface anaphor with respect to other unpronounced dependencies. For example, it allows ACD relatives and comparatives:

(41) a. At first he felt more relaxed than he had done in a long time.[14]

[14]BNC; *My beloved son* by Catherine Cookson.

b. He ate more than he should have done.

(42) a. He has read every book that he must do.

Again, note the importance here of the fact that any possible 'movement' out of the anaphor is not a pronounced movement. This is therefore a movement that could occur in the syntax, or it could be a movement that occurs at LF; there is no way to distinguish between the two from pronunciation alone.

Finally, we look at overt movements. It is at this point that we see behavior from British *do* which is more typical of deep anaphora. No pronounced movements—A or A-bar—are possible out of British *do*. This is shown below for *wh*-questions, *wh*-relativization, topicalization, and passive (examples from Baltin 2012):[15]

(43) *Although we don't know what Matthew might read, we do know what Tom might do. Baltin 2012, 387:10

(44) *I sold the furniture I knew my cat might scratch, and I kept the pieces that he already had done.

(45) *Hazelnuts, I'll eat. Peanuts, I won't do. Baltin 2012, 387:11

(46) *Matthew will be visited by Mary, and John will be done too. Baltin 2012, 388:20a

British *do* falls strongly into the mixed anaphor category. There is strong evidence that linguistic structure is necessary at some point in the derivation.

[15]British *do* does allow apparent unaccusatives; this is something I explore in much more depth in Chapter 2.

The anaphor is clearly record-interpretive, based on its discourse requirements. It also allows unpronounced dependencies out of the anaphor site, all of which require at the least a compositional semantics. However, it can host no overt dependencies. This makes the presence of genuine syntactic structure somewhat questionable—if there is a syntax, why should phenomena like *wh*-movement be impossible, especially when phenomena like inverse scope and ACD relatives are possible?

The other anaphor that I present is a well-known anaphor, available quite generally in English: *do so*. The anaphor bears many similarities to British *do*, but is not identical.

Like British *do*, *do so* is record-interpretive. It can introduce antecedents, and needs a linguistic antecedent (shown here through a general need for linguistic control):

(47) I've never ridden a camel, but Erin has done so. It had two humps.

(48) *Context: Matthew and Isobel are walking down a country lane, and pass by a man who is whitewashing his fence. Isobel says to Matthew:*

a. #We should do so, too.

Also just like British *do*, *do so* disallows overt dependencies; this is seen below for object *wh*-questions, object *wh*-relatives, object topicalization, and passive:

(49) *I don't know which cat you should adopt, but I know which one you shouldn't do so.

(50) *These are some books which you can borrow. These are some you really can't do so. Sorry!

(51) *Hazelnuts, I'll eat. Peanuts, I won't do so.

(52) *The schooner was destroyed by pirates; the frigate wasn't done so.

The point of difference between British *do* and *do so* comes at the unpronounced dependencies. Where British *do* allows such dependencies, *do so* does not: ACD relatives and comparatives are impossible, and inverse scope is generally disallowed:

(53) *This is a book that you can borrow. These are some that you really can't do so. Sorry!

(54) *I'll read every book that you do so.

(55) *I've read more books than he's done so.

I will show more extensively in Chapter 3 that these are actually two fairly common classes of anaphora. British *do* belongs to the class of *extracting mixed anaphora*; *do so* belongs to the class of *non-extracting mixed anaphora*. Non-extracting mixed anaphora are in fact particularly common, as I will show. For now, we will just acknowledge the presence of these two classes.

2.4 Building an analysis

There has been relatively little discussion of mixed anaphora in the literature on ellipsis; there are a smattering of papers on *do so* and British *do*, Aelbrecht's work on Dutch MCA,[16] and some work on *det* in Scandinavian (Houser, Mikkelsen, and Toosarvandani 2007 and Bentzen, Merchant, and Svenonius 2012). Many works on mixed anaphors eschew analysis in favor of data collection, or assume that mixed anaphors fit easily into a typology of anaphora, and can be accounted for by standard theories of ellipsis. However, several of these works have shown that mixed anaphors cannot be accounted for by standard theories of ellipsis. Ellipsis theories tend to take VPE as their gold standard; as we have seen, VPE allows fairly free movement out of the anaphor site. Standard ellipsis theories therefore predict fairly free movement out of anaphors like British *do* and *do so*, too. In this section, I will examine some previous approaches to mixed anaphora: the assimilation of mixed anaphors to deep anaphora and the assimilation of mixed anaphors to ellipsis (with some modifications to the theory of ellipsis). I will go through each in turn, starting with the deep anaphoric approach.

2.4.1 Deep anaphoric approaches

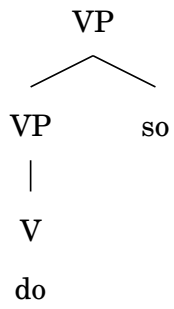
There are several approaches which assimilate mixed anaphora to deep anaphora. One well-known approach, that of Hardt 1993, treats all anaphora as syntactically atomic; since this approach does not account for the wide range of movement possibilities in ellipsis, I do not discuss it further. One other approach, Houser

[16] Aelbrecht calls these modal complement ellipsis (MCE); I call them MCA (model complement anaphora), as I do not believe that they are ellipses.

2010, treats mixed anaphors essentially as deep anaphors. I will examine this in brief.

Houser (2010) deals with *do so*. He provides a deep anaphoric account of the anaphor in which *so* is a proform. *So* is treated as a head adjoined to VP; *do* is a V. This is schematized in (56) (tree mine):

(56)



Under this analysis, *so* finds a referent in the model. Since *so* is not internally structured, it can host no syntactic dependencies. However, where the analysis runs into trouble is with *do so*'s discourse properties: *Do so* is solidly record-interpretive. It requires a linguistic antecedent and it can freely introduce salient referents into the discourse. Houser essentially discounts this data; nevertheless, it remains relevant and important. For this reason, all analyses which treat mixed anaphors as deep anaphora will run into an intractable problem: Mixed anaphors are by definition record-interpretive, and so will need to be interpreted relative to the record; deep anaphors are by definition model-interpretive, and must be interpreted relative to the model.

Given these problems, I drop deep anaphoric accounts for mixed anaphora. I will now move on to the surface anaphoric accounts. Two works in particular, Baltin 2012 and Aelbrecht 2010, propose theories which are best called *deriva-*

tional ellipsis. These theories claim that mixed anaphora and traditional ellipses like VPE are indeed accounted for by the same analysis; however, the differences between the two types of anaphor fall out from slight differences in the derivation of each anaphor. Whether or not movement is possible out of the anaphor is essentially due to the timing of the ellipsis with respect to timing of movement. If the movement can occur before the ellipsis is triggered, then movement is allowed; if the ellipsis is triggered before movement can occur, then movement is not allowed. I will here examine both Baltin's and Aelbrecht's theories, and show that these cannot account for the full range of data seen with record-interpretive anaphors (both ellipses and mixed anaphors).

2.4.1.1 Baltin's (2012) derivational theory of ellipsis

The claim that ellipses and pronouns are deeply connected is not new; ellipses and pronouns certainly bear many similarities. For example, both can be cataphoric, and both work across islands, sentences, and speakers:

(57) a. If you don't, I'll take the trash out.

b. If you eat it, that food will make you sick.

(58) a. If you go home early, you'll probably just fall asleep. If you don't, you get to hang out with us.

b. If you adopt that dog, you'll have a friend for life. If you don't adopt her, you'll just be lonely.

(59) a. Jason: I'm going to play with the cat!

Anie: Don't, unless you want to get scratched.

b. Jason: I'm going to play with the cat!

Anie: She might scratch you.

In collapsing these two categories, there are essentially two approaches that can be taken. The first is the ellipsis-as-proform approach; Lobeck 1995 is one such approach. In that particular approach, all ellipses are treated as null simplex forms—null heads. Hardt (1993) takes a similar approach; both VPE and *do it* are just heads for him. As I have already discussed, these approaches deal quite well with *do it*: They predict that no movement is possible, which is how the data fall out. However, these approaches have significantly more problems with VPE, which allows both A and A-bar movements.

The counterpart to the ellipsis-as-proform approach is the proform-as-ellipsis approach, often instantiated as PF-deletion theories. Under these theories, all anaphora are internally structured.[17] Proforms are functional heads whose complements have elided:

(60) [F [~~XP ...~~]]

Under this view, we can easily understand why movement is possible out of VPE: VPE contains an elided complement, which may host the base position of a moved constituent. At this point, though, *do it* becomes mysterious: Why is it that movement is not possible out of *do it*, if proforms contain internal structure? The answer, according to this approach, is locality constraints on the derivation. The complement to F in VPE is accessible at the time that the relevant probe is

[17] On the strongest reading of this theory. It is not always clear how strong a claim theorists would like to make; either way, we will not worry about deep anaphora here. Accounting for both ellipses and mixed anaphora will prove difficult enough.

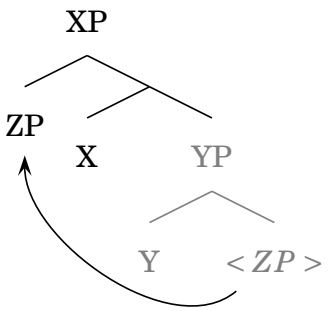
searching; in *do it*, the complement is not accessible. This type of constraint is common to all derivational theories of ellipsis. There are several ways of arriving at the necessary constraints. I will examine Baltin's and Aelbrecht's work here; ultimately my own proposal will be a derivational theory of anaphora. It differs from Baltin's and Aelbrecht's approaches in that it is not a PF-deletion approach to mixed anaphora. Nevertheless, it will require appeal to timing with respect to the availability of goals and probes.

In Baltin's work, ellipsis induces freezing via syntactic deletion. When a node merges with another node, the formal features of the relevant node are deleted. There are three crucial components to the theory. First, formal features are deleted in the syntax—importantly, this does not include features relevant to the semantics.[18] Second, the position of the deleted node (i.e. phrase) is not specified; it may be either a complement or a specifier.[19] Third, deletion is syntactic, and it occurs at merge. Baltin qualifies this later: Deletion of a YP which has merged with X is delayed until the full build of XP. This has an important consequence: If YP is merged with X, a phrase ZP can move out of YP to spec,X before YP deletes. This provides an escape hatch out of the ellipsis site, illustrated below:

[18]Since only formal features delete, semantic features may pass on to LF; presumably the deletion of formal features induces the deletion of PF features. The mechanics of this are unclear.

[19]Or, in fact, an adjunct. Since there do not seem to be elliptic processes targeting adjuncts, we will ignore this possibility here. It is also worth noting that the ability to target specifiers for deletion tends to be more important for theories which have more movement, especially remnant movement; this is the case for Baltin, whose theory of passive involves movement of a phrase to be deleted into a specifier position.

(61)



Baltin uses this to account for the fact that some apparent A dependencies are possible with British *do*, but A-bar dependencies are not; recall that Baltin claims that inverse scope is not possible.[20,21] The data, all taken from Baltin (388:18-20, 387:10-11, 14), are given in (62).

(62) a. John might die, and Fred might do too. *unaccusative*

b. John might seem to enjoy that, and Fred might do too. *raising*

c. *John might be visited by Sally, and Fred might be done too. *passive*

d. *Although we don't know what John might read, we do know what Fred might do. *object question*

e. *Hazelnuts, I like; peanuts, I don't do. *topicalization*

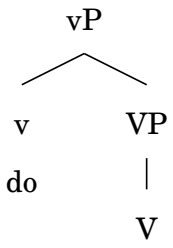
f. Some men will read every book, and some woman will do too. $\exists > \forall; * \forall > \exists$

Baltin believes the basic structure for British *do* is one in which *do* is a v head, which takes a VP complement, as shown below in (63). *Do* induces the deletion of its complement.

[20]I will show in Ch 2 that actual genuine A movement is impossible with mixed anaphors.

[21]Baltin considers QR to be a type of A′ movement occurring in the syntax, with the lower copy spelled out.

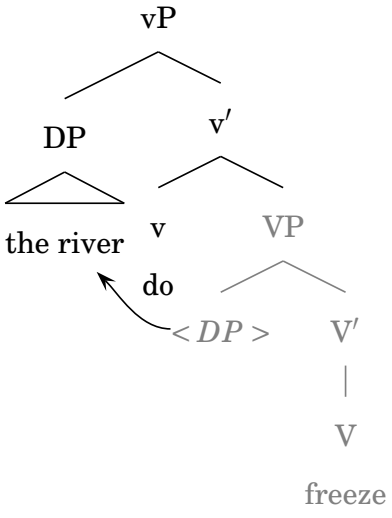
(63)



For unaccusatives, Baltin assumes that the unaccusative argument is introduced as a specifier of VP, and eventually raises to subject position; however, as part of its derivation, the unaccusative DP first raises to spec,v. Since movement to the specifier of the deletion-triggering head is concurrent with deletion, unaccusative DPs can escape to spec,v as the complement to v deletes. The same line of reasoning holds for raising: The raised subject DP stops off in spec,v before moving onwards.

(64) The lake might freeze, and the river might do too. Baltin 2012, 405:65

a.

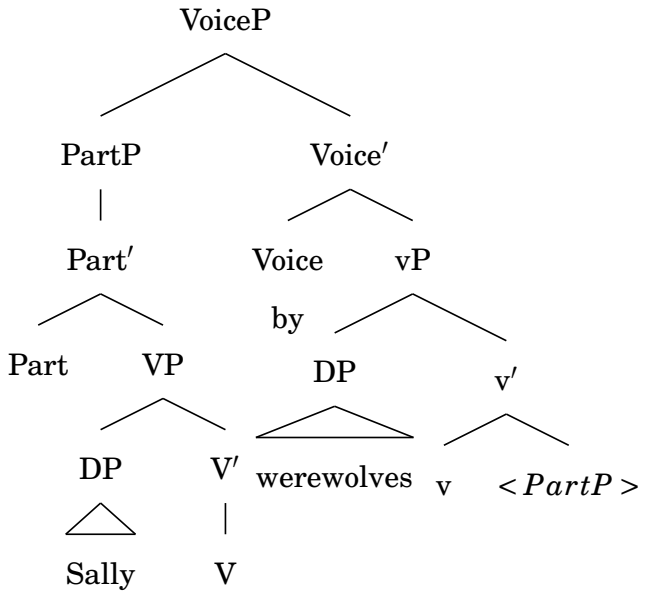


In the case of passive, the situation is much different. Baltin follows the analysis of passive as in Collins 2005, which includes Voice, v, and Part(iciple)

projections. The structure is one as in (65), taken from Baltin's paper; after PartP has moved to spec,Voice, *Sally* may escape from the phasal edge to move up to TP.

(65) Sally was bitten by werewolves. Baltin 2012, 412:84, 86

a.



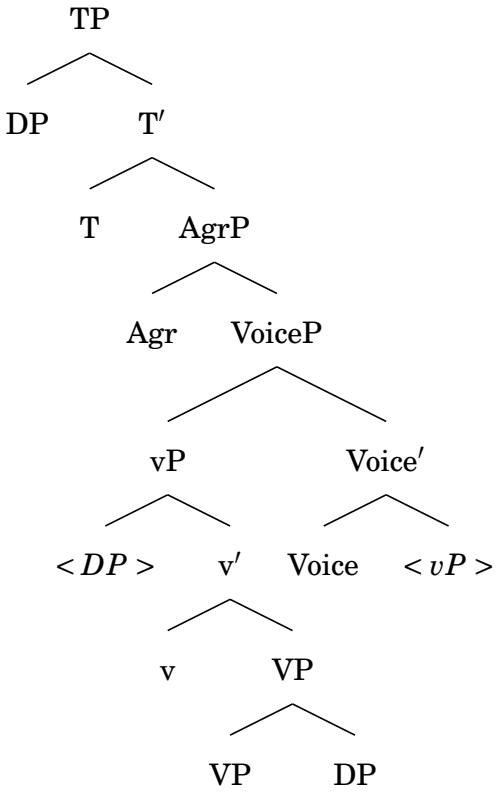
This analysis will trap the passive subject low inside the vP in the case of British *do*; since *werewolves*, and not the PartP, moves to spec,v, the entirety of the PartP will be trapped inside the ellipsis site for British *do*, thereby rendering British *do* impossible with passive.

It is also clear that, if movement into spec,v is necessary for movement out of British *do*, all sorts of A-bar movement will fail. For Baltin, spec,v is not an A-bar position; rather, spec,Voice is the phasal escape hatch. Therefore, all A-bar objects—topics, *wh*-constituents, and so on—will be trapped inside the ellipsis

site.

Although I have here given only the account for British *do*, Baltin uses the system to account for several types of ellipsis. I will now focus on the analysis for VPE, as it will be highly relevant to later discussion. First, let me discuss the clausal architecture that Baltin assumes. There is a highly articulated middle field. In addition to a VP, he also assumes a vP (seeming to come in unaccusative, unergative, and transitive flavors); an optional AgrP, which functions as a middle field focus position, especially important for pseudogapping; a VoiceP, occurring in both active and passive; and higher positions such as TP. Baltin assumes that VoiceP is the phase, and that vP in active clauses moves into the specifier of VoiceP, thereby producing the following articulated structure:

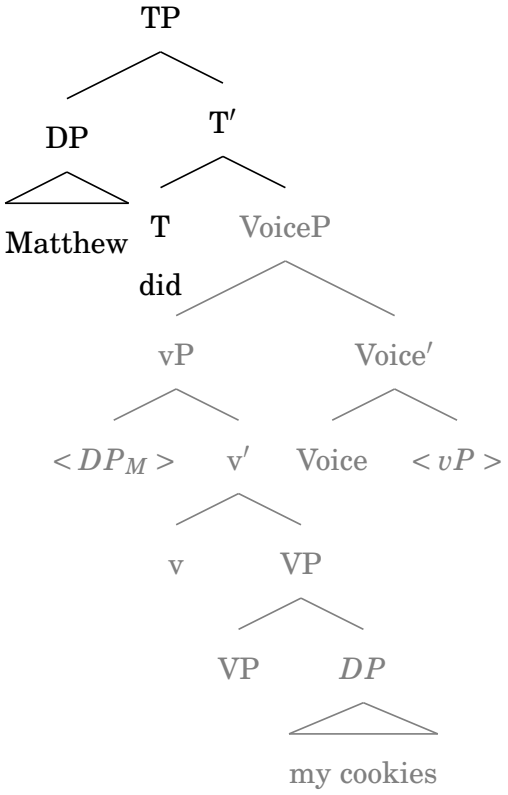
(66)



For VPE, Baltin claims that VoiceP is the deleted phrase.[22] Since vP moves to spec,Voice, all vP-internal material is at the phase edge. When VoiceP merges with a head (such as T), movement out of the specifier of VoiceP is possible into the specifier of the merged head.[23] Therefore, a subject may move out of the vP in spec,Voice to spec,T; *wh*-objects, which sit inside vP, are already at the VoiceP edge and therefore may also escape.

(67) Mary didn't eat my cookies. Matthew did.

a.



[22]Those curious about the derivation of voice mismatch in ellipsis, and the relation between Baltin's theory of VPE and Merchant's (2008) theory of voice mismatch, are referred to Baltin's paper.

[23]This type of analysis assumes that left branch islands and subject islands cannot just be accounted for by forbidding movements out of specifiers and other left branches; more must be said.

This therefore accounts quite well for basic cases of VPE. However, these cases are quite simple. They involve only A movement, and do not involve any extended material in the middle field, such as Asp phrases or sentential negation. We will examine cases involving A-bar movement and a more extended middle field in the next section.

2.4.1.2 Problems for Baltin

Before moving to the data portion of this section, it is worth outlining the possible ways in which movement is allowed out of proforms under Baltin's theory. Recall that deletion is slightly delayed: If XP merges into YP, XP does not delete until YP is fully built. This allows for material to move out of XP into spec,Y. In other words, if spec,Y is a host for A or A-bar movement, movement is possible out of the ellipsis site. However, movement out is not possible under any other configuration.[24] For example, imagine that XP is merged into YP; YP is then merged into WP. There can be no movement from within XP directly into the higher WP; since XP deletes when YP is built (i.e. upon merge with W), XP is impenetrable to further syntactic operations at the merge of W. Therefore, if YP does not function as a host for movement, no movement out of XP is possible; there can be no movement into YP, and XP will be deleted before higher phrases can merge.

This well-delineated set of possible movements is quite attractive; movement out of anaphor sites is predicted to be possible only in certain limited circumstances. Unfortunately, the data do not behave as neatly as predicted by the theory. In fact, there are data which are problematic because of both conditions listed above: the presence of intervening phrases and the nature of YP. These

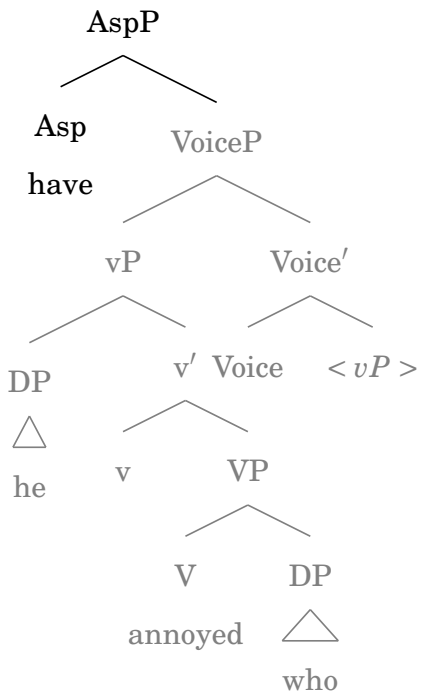
[24] Assuming that movement to adjoined positions is not possible.

turn out to be problems for all A-bar movements out of VPE, and even for some A movements. Let us begin with a simple *wh*-object question:

(68) I know who Matthew fell in love with, and I know who he didn't.

VoiceP, under Baltin's theory, is both the phase edge (phrases to be A-bar moved land in spec,Voice), and also the site of verb phrase ellipsis. Therefore, A′ movement should be possible if VoiceP merges with a phrase which can host A-bar movement: The phrase can move from spec,Voice to spec,Y. However, in (68), there are no aspectual phrases or polarity markers present; VoiceP is presumed to merge directly with T. Notably, spec,T is not an A-bar position—it is an A position. *Wh*-phrases are not thought to stop over in spec,T at any point; neither are topicalized phrases, which we have also seen in cases of VPE. However, the *wh*-object cannot reach spec,C directly; VoiceP is deleted before spec,C is available. In fact, the subject itself also cannot escape the ellipsis site, if we assume that NegP or AspP is not a landing site for A movement: Since VoiceP above deletes with the merge of Neg, and NegP is not a landing site for subject movement, then the subject will remain inside VoiceP and be deleted. T is merged too late to provide a landing site for the subject.

(69)



In other words, movement out of VoiceP into the C layer should be ungrammatical in VPE under Baltin's theory: The middle field heads (other than Voice) do not host A-bar movement, and the C layer is too far from VoiceP to allow direct movement. If the middle field is expanded, A movement into the T layer is also impossible: If the middle field heads (other than Voice) do not host A-bar movement, then T is merged too late to provide a landing site for the subject, which will already have been deleted.

There is an additional problem here, having to do neither with distance nor with the type of phrase that XP is merged with. Recent work on locality and ellipsis has often assumed that VPE always deletes the same phrase (typically the complement to v or V, depending on the preferences of the analyst); this assumption seems to come from readings of Merchant (2008)'s work, which claims that the complement to vP is the minimal deletion domain for VPE. Baltin makes an

assumption like this, taking VoiceP to be the only deleted phrase in VPE. However, this is an overly strong reading of Merchant's work; the claim in that work is that the complement to v is the *minimal* deletion domain, not the *only* deletion domain. The site of VPE is, in fact, a moving target, a fact explicitly acknowledged in Merchant's work and much previous work; the set of licensing heads must include T, Asp, Neg, and likely v as well. This is visible in the examples below, in which the AspP complement to Asp is what deletes:

(70) a. Tom has been drinking tonight. I think that Robert has, too (= been drinking tonight).

b. Mary hasn't been dancing at all today, although I think that Sybil has (= been dancing today).

c. Pie, we've been eating every day. Cake, we haven't (= been eating every day).

This is, again, a problem for Baltin's theory. Since VoiceP is what is taken to delete, and not AspPs, then we cannot predict these data. Additionally, these data again demonstrate the problems that Baltin's theory has with intervening middle field heads; there is again too much distance between VoiceP and TP for the subject to move into TP.[25]

[25]One can try to wriggle out of the latter problem by claiming that the Asp heads and Neg actually have specifier positions available to subject DPs; however, this does not seem to be supported by any data (other than the data we are discussing here). In fact, if one takes the availability of quantifier float to indicate traces of movement, then Neg does not have a specifier position; sentences like the following are highly ungrammatical:

(71) *The students did all not dance.

Since subject movement out of VPE is obviously possible when negation is present, this remains

Finally, Baltin's analysis runs into problems with the derivation of unpronounced A-bar dependencies. Baltin claims that inverse scope is not possible for British *do*; however, it actually is. Even if inverse scope were not possible, British *do* still allows ACD relatives and comparatives, which are thought to involve some sort of operator movement. Baltin assumes that movement for inverse scope (and presumably also movement for ACD) happens in the syntax, with the only difference between movement for inverse scope and movement for things like *wh*-questions being that the lower copy is pronounced in things like inverse scope. This means that QR and other types of A-bar movement are all identical in terms of the derivation. Both should therefore be impossible with British *do* for Baltin (and they are intended to be impossible). However, inverse scope is indeed possible, as previously mentioned. Baltin could, of course, account for these differences by allowing post-syntactic movements that do not rely on the presence of formal features. As it stands, phenomena like inverse scope and ACD are not accounted for in Baltin's analysis.

2.4.2 A general problem for derivational theories of ellipsis

We have just seen that Baltin's theory, although promising, underpredicts movement possibilities in several configurations: Although the analysis seems to account for most of the British *do* data, it fails when it is extended to instances of VPE which have a more complex middle field. Here I would like to briefly extend the discussion to theories of derivational ellipsis in general, and show that theories of ellipsis which rely on Spell-out/PF-freezing face insurmountable diffi-

a troubling problem for the derivational theory in Baltin's work.

culties in predicting correct generalizations about movement. I will first briefly outline another derivational theory of ellipsis, that of Aelbrecht 2010, which allows some greater leeway for movement possibilities than Baltin. I will then show that this theory, and derivational theories in general, cannot correctly account for the data.

2.4.2.1 A brief introduction to Aelbrecht (2010)

This section will function as a brief introduction to another theory of derivational ellipsis, which will be useful in helping us to understand the various ways in which a derivational theory can be constructed. Again, this is a PF-deletion theory. Aelbrecht's work focuses most heavily on Dutch modal complement anaphora (MCA), an anaphor that is surface-similar to VPE in many ways; in MCA, the complement to a modal goes unpronounced (note that negation, although it follows *kan*, is actually above the modal in the hierarchical structure):

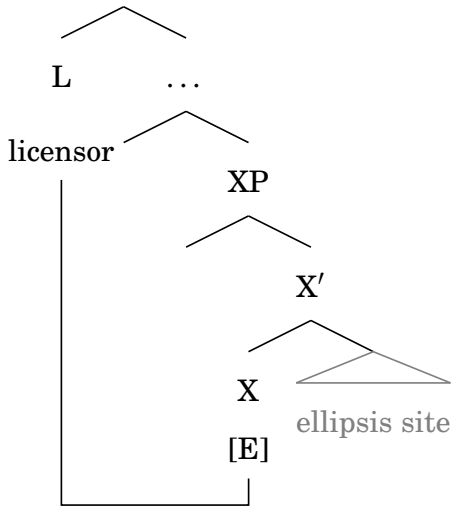
(72) Jelle zal wel betalen, maar Johan kan niet.
Jelle will PRT pay but Johan can not
'Jelle will pay, but Johan can't.' Aelbrecht 2010, 14:33a

As I will explain in depth in Ch 2, this anaphor is in the class of mixed anaphors; it disallows all overt A-bar and A dependencies (for example, object *wh*-questions, short scrambling, and so on). For now, I will hold off on detailed discussion of MCA, as it will figure only lightly in the discussion of Aelbrecht's overall analysis.

The theory that Aelbrecht proposes is innovative in two ways. The first is that licensing is treated as a more complex phenomenon than it is under the vast

majority of ellipsis theories. In most theories, a head is taken to license the deletion of its complement (under Merchant's analysis, via an [E] feature). Aelbrecht maintains the idea of a licensing head, and retains Merchant's [E] feature. However, the notion of a licensing head is complicated: There is both a local licensing head and a higher licensing head. Both heads carry [E] features of the Merchantian variety; the higher head checks/values the [E] feature of the lower through an Agree relation, thereby triggering Spell-out of the lower head's complement to PF and LF (with PF processes resulting in the non-pronunciation of material). This then freezes the anaphor for further movement, i.e., makes it an island. A schematic is given in (73), taken from Aelbrecht 2010, p.88; for evidence for this suggestion, see chapter 3 of Aelbrecht's work. I will provide evidence against this suggestion later (Aelbrecht 2010, 88:2).

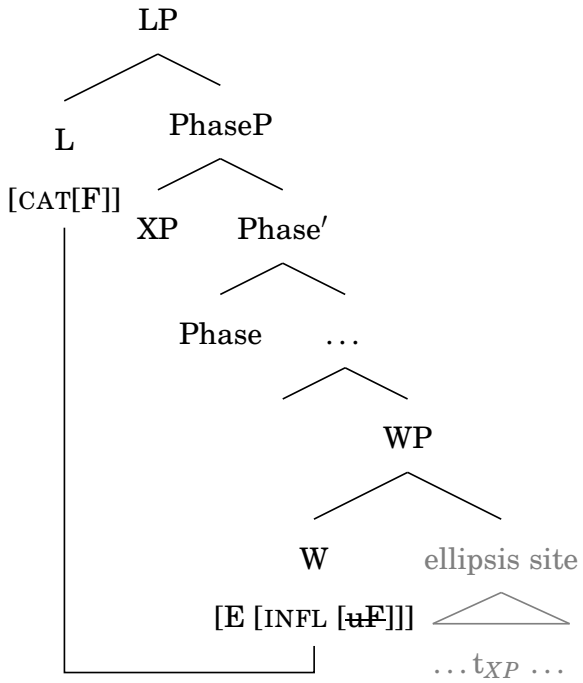
(73)



The second innovation is that ellipsis is taken to occur as soon as the lower head is valued—not at Merge of that head, as occurs under Baltin's theory, but at valuation. Aelbrecht remains agnostic as to the exact nature of ellipsis, but

holds that whatever ellipsis is, it freezes the ellipsis site for further syntactic operations: Once a phrase is elided, it may not have contact with the outside syntactic world. This allows for varying movement possibilities, depending on where the two licensing heads sit in relation to phase heads and other movement hosting heads. In particular, there are different predictions made depending on whether or not a phase head intervenes. Let us start with a case where a phase head intervenes between the two licensors (Aelbrecht 2010, 119:57).

(74)

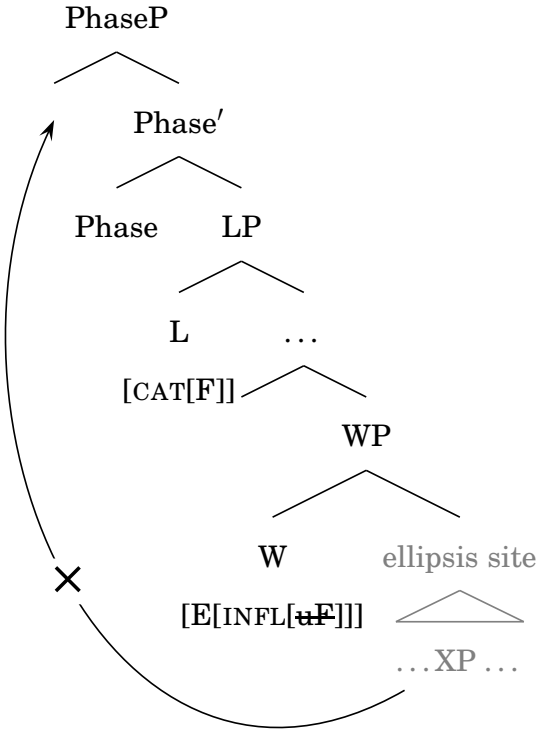


In this tree, the phase head (which I have termed *Phase* here) is merged, and the XP within the complement to the $W_{[E]}$ is automatically attracted to the phase edge. Later, the licensing head is merged, and Agrees with the E feature on W. The ellipsis site is sent off to PF for non-pronunciation; XP has escaped the ellipsis site, and therefore is pronounced. The phase head between the licensor

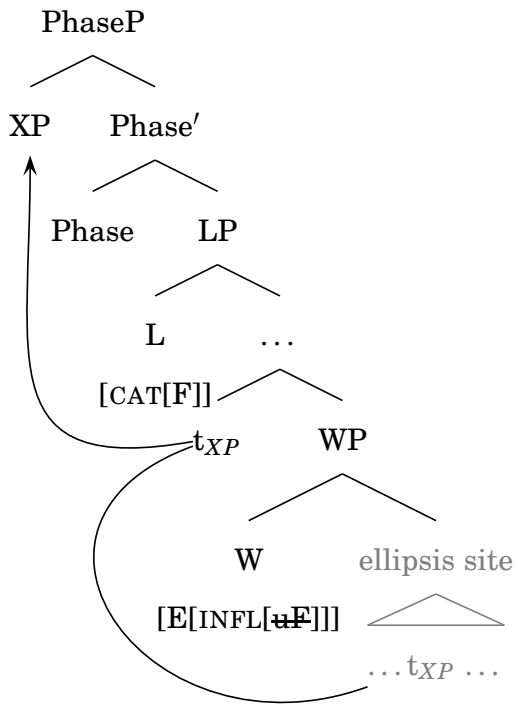
and the ellipsis site provides an automatic escape hatch for any phrases that must undergo further movements. This means that extraction possibilities are the same in the ellipsis and the non-elliptical counterpart.

The other cases to examine are ones in which no phase head intervenes. There are two possible outcomes here, depicted in (75) and (76). In this case, whether or not movement is possible is dependent on whether there is an available landing site for movement below the phase head (Aelbrecht 2010, 122:62–63).

(75)



(76)

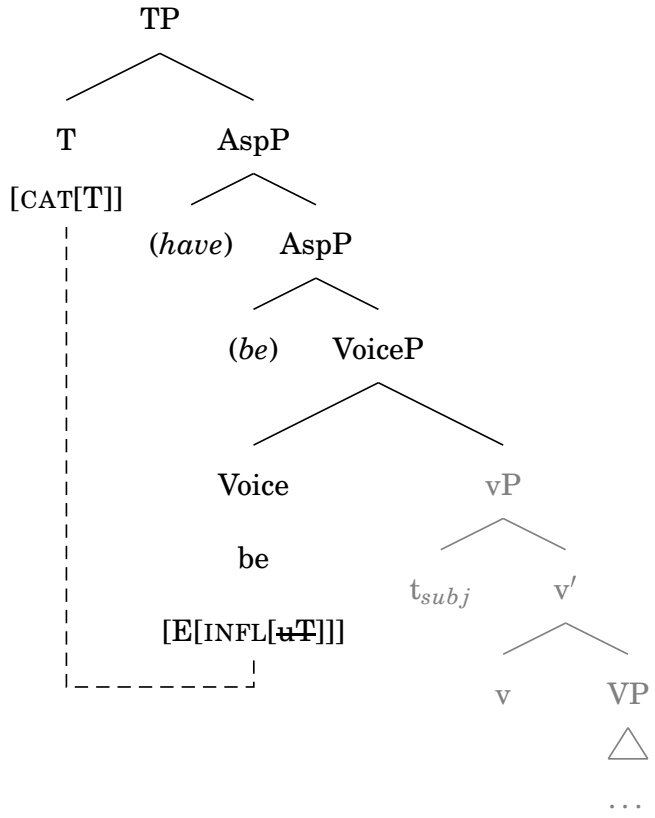


In a case like (75), not only is there no phase head to provide an escape hatch out of the ellipsis site before the licensor merges, but there are no intervening heads that provide a stopover point for the relevant XP. Therefore, the relevent XP remains trapped inside the ellipsis site, thereby reducing the possibilities for movement in ellipsis in comparison to the non-elliptical counterpart. In cases like (76), however, there is an intervening head that can provide a stopover point; this means that XP can indeed escape the ellipsis site before the licensor is merged, thereby creating the same movement possibilities in both ellipsis and the non-elliptical counterpart.

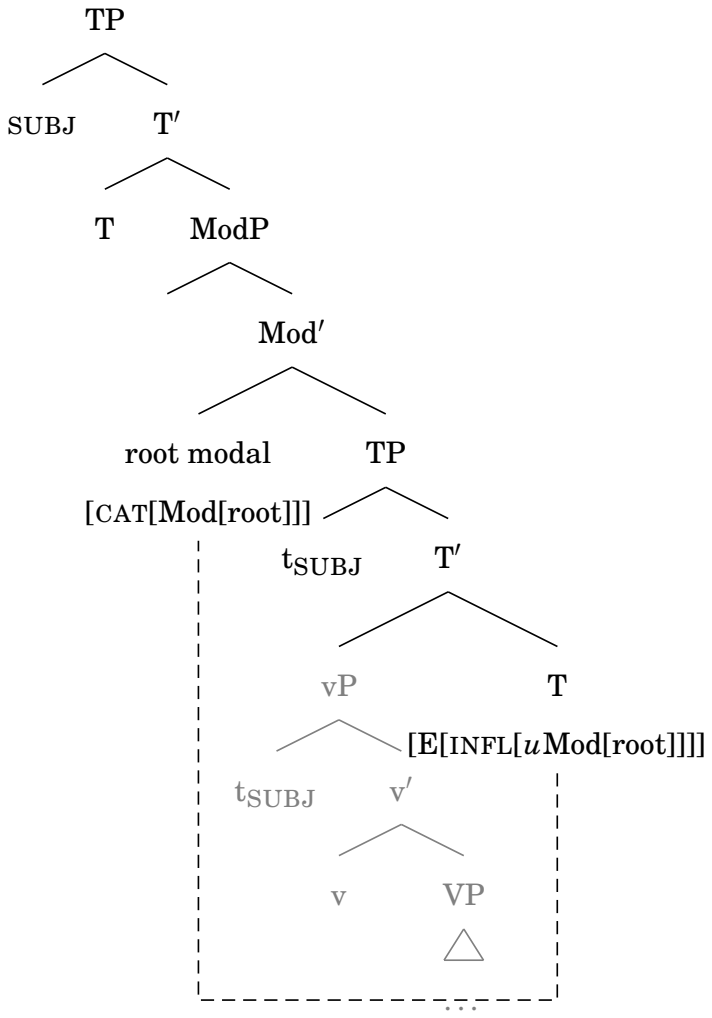
This analysis side-steps some of the problems faced by the Baltin-style analyses. Since elision occurs after the merge of the higher licensing head, Aelbrecht skirts the problems with short movement that Baltin faces: Material can escape to positions above the complement to the ellipsis site. Much like Baltin, Aelbrecht

portrays movement to the specifier of the licensing head as occurring simultaneously with freezing the ellipsis site (i.e., freezing does not block movement to the licensing head's specifier). Therefore, regular subject movement is perfectly acceptable for both VPE and Dutch MCA, where Voice is taken to be the phase head.

(77) *VPE*



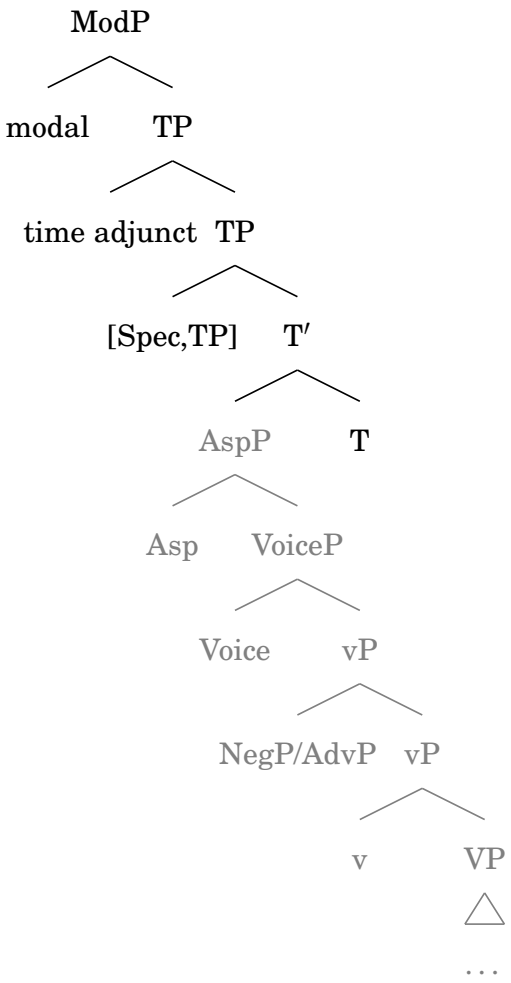
(78) *Dutch MCA*



Additionally, object *wh*-movement is also typically possible for VPE under this theory, but not for things like Dutch MCA. For example, in cases where the lower vP elides in VPE, an object *wh*-phrase may move to spec, Voice (the edge of the phase, and above the ellipsis site) before T is merged. When T is merged, the *wh*-phrase has already escaped the ellipsis site, and so may move up to CP upon the merge of C with no problems. We can then compare this to MCA. In that case, we see that the object *wh*-phrase is trapped low; it is still inside the ellipsis

site, at the vP edge, when Mod agrees with T. There is no suitable specifier for the *wh*-phrase to move to before it is frozen, and so movement is (rightly) blocked.

(79)



2.4.2.2 Problems for Aelbrecht

With respect to the timing of certain movements, Baltin's and Aelbrecht's theories clearly differ. However, both theories remain fundamentally derivational in nature; they rely on movements being blocked differentially, based on the size of the ellipsis sites. Much like Baltin, Aelbrecht faces difficulties once the mid-

dle field of the clause becomes more articulated, and the size of the ellipsis site changes—she has problems with the choice of the lower head for ellipsis. The data that are most problematic for Aelbrecht are the following:

(80) a. I don't know who you've been dancing with, or who you haven't (= been dancing with

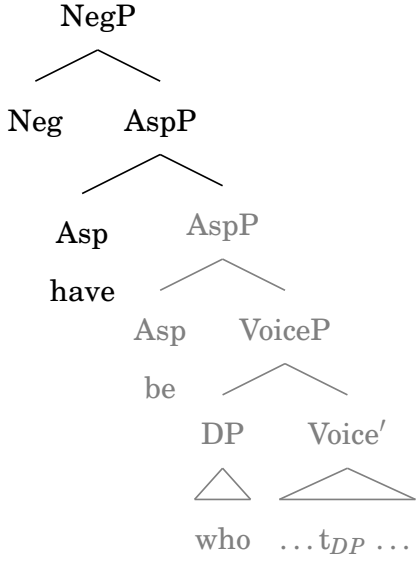
b. Matthew, she's been dancing with. Tom, she hasn't (=been dancing with).

c. Pie, I've been craving. Cake, I haven't (=been craving).

d. Pie, we've been eating every day. Cake, we haven't (=been eating every day).

In all these cases, the VPE site must contain VoiceP. Whatever is in spec, Voice is going to be deleted before it can move to spec,C. Therefore, movement will be blocked:

(81)



Another problem—albeit a much smaller one—revolves around the choice of heads for licensing VPE in Aelbrecht's theory. Aelbrecht maintains that T must be the upper licensing head, due to data like the following:

(82) a. *I hadn't been thinking about it, but I recall Morgan having.
b. *Max having come to dinner, and Jessi not having, we decided to wait for her.
c. *Sarah hated him having [been/arrived] late for for dinner and I hate him having too.

These sentences are all ungrammatical; Aelbrecht attributes this to the lack of T in gerundives. However, these data are ungrammatical due to a more general problem: the impossibility of ellipsis after *-ing* (Sag 1976; Johnson 2001). If there are other auxiliary verbs in the gerund, ellipsis is possible:

(83) a. Thomas having been athletic as a child doesn't surprise me, but Matt having been is quite surprising indeed.
b. Max having been reminded of the dinner, and Jessi not having been, we decided to call her.
c. I don't recall having been thinking about it, but I remember Morgan having been, and he was very upset about it too.

There are two ways to approach this data. One is to claim that there is a higher D head that takes the place of T as the licensing head; this then can license ellipsis. This is not without precedence; see LaCara 2010 for ellipsis in POSS-ings. However, although this approach could work quite well for ACC-ings,

it will not actually work for POSS-ings. Although POSS-ings allow lower ellipsis akin to (83), they also allow ellipsis directly after the possessive *-'s*, as in (85); these are demonstrably cases of ellipses. These ellipses are not possible with ACC-ings (Vahedi 2008).

(84) a. Thomas's having been athletic as a child doesn't surprise me, but Matthew's having been is quite surprising indeed.

b. I don't recall having been thinking about it, but I remember Morgan's having been. He was very upset about it too.

(85) a. Thomas's having been athletic as a child is not surprising. Matthew's is.

b. I remember Max's acting like a jerk, and I remember Morgan's, too.

(86) a. *Thomas having been athletic as a child doesn't surprise me, but Matt is quite surprising.

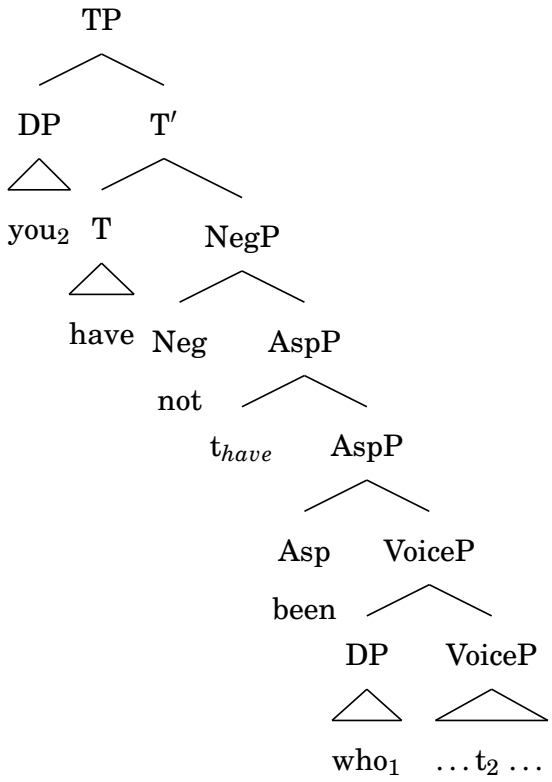
b. *I don't recall having been thinking about it, but I remember Morgan. He was very upset about it.

Therefore, treating D as the higher licensing head for ellipsis in POSS-ings and ACC-ings will not work; in the case of POSS-ings D is also the lower licensing head. Since a head cannot normally agree with itself, this is a conundrum. As there is also no evidence for a higher licensing head, it is difficult to maintain Aelbrecht's analysis here.

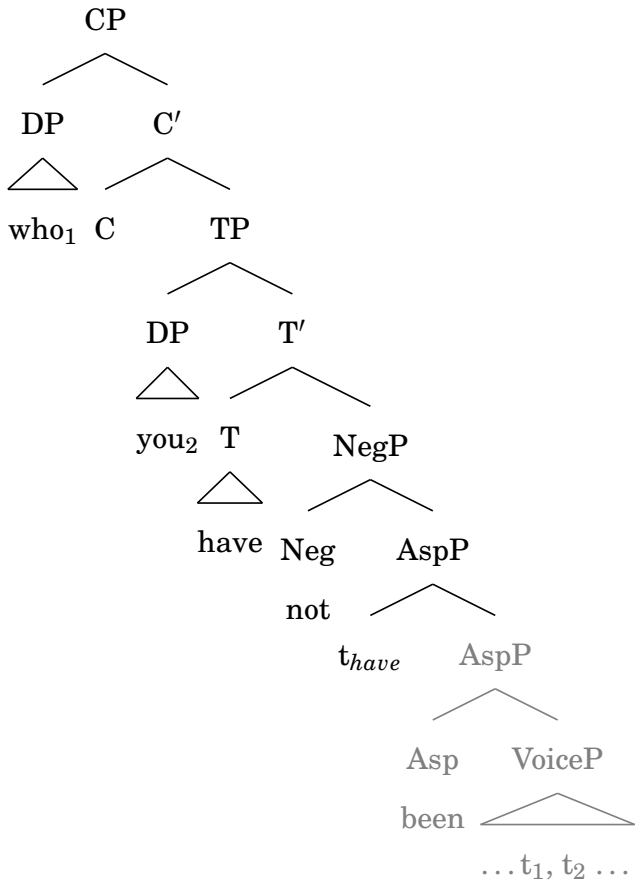
Another way of dealing with these problems is to take a more flexible approach to distributed licensing. For example, one might pursue a variant on Aelbrecht's approach in which one has both phase heads and ellipsis-licensing heads.

In this analysis, when the phase head merges, it triggers the ellipsis of the complement of the licensing head. Movement would be local (i.e. phase-bounded), but sufficiently distant as to allow the data in (80):

(87)

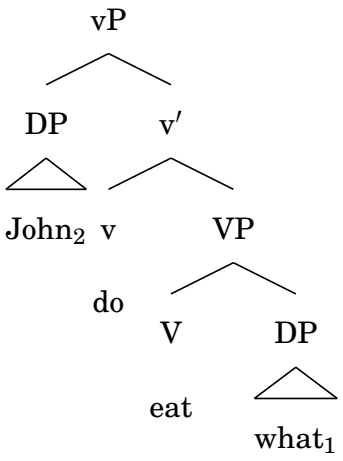


(88)

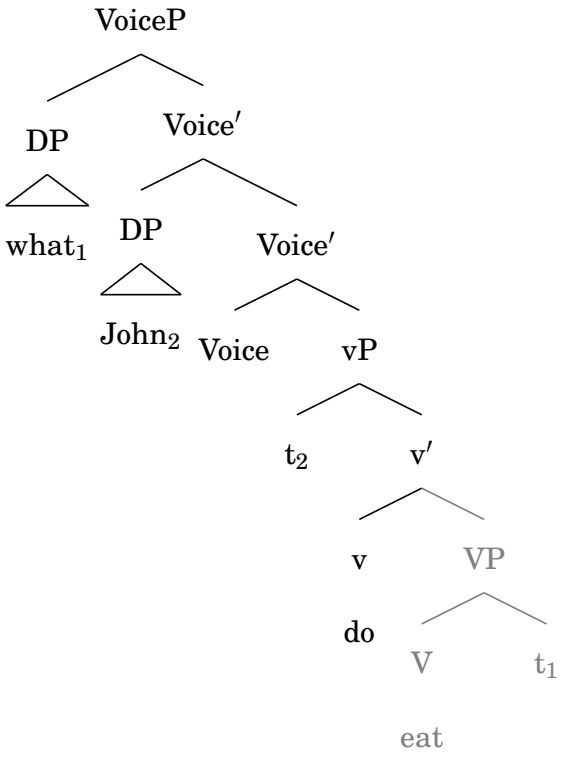


This configuration would allow the wide range of movements possible out of VPE, and would also account for the gerund data (as long as D is both a phase head and a licensing head). However, this configuration also allows rather free movements out of British English *do*, as we can see below. Voice would merge, allowing movement to its specifier, and therefore allowing escape of object *wh*-phrases from within vP—something which is needed for VPE, but impossible in British *do*. A phase-head triggering approach, then, will not be able to properly predict the distribution of movement out of British *do* and VPE.

(89)



(90)



This is quite difficult. After all, there is very little in between V and Voice; v is the only commonly available head.[26] If Voice is the phase head, and triggers

[26]We do not want Appl, Caus, Result, or other similar heads to block these ellipses—such patterns, where a transitive but not a ditransitive, or an activity but not an achievement, can be elided are not seen.

ellipsis of the complement to British *do*, we will still predict movement out of the anaphor site—just as we predict movement to C, the phase edge, for VPE. If we add in the various other complexities—for example, the fact that British *do* allows inverse scope and ACD relatives but not object *wh*-questions—we soon see that a phasal Spell-out-based derivational theory using PF deletion will not suffice. In general, any derivational PF-deletion theory that is flexible enough to accommodate the kind of distant movements needed for VPE is highly likely to erroneously predict movement for British *do*. Derivational PF-deletion does not seem to work.

2.4.2.3 Houser et al. 2007

Houser et al. 2007 focuses on Danish *det*, a phenomenon in which the pronoun *det* appears in lieu of a VP, often but not always accompanied by *gøre*, 'do' (Houser et al. 2007, 1:1, 3:5).

(91) Han siger han kan hœkle, men selvfølgelig kan han ikke det.
he says he can crochet but of.course can he not DET
'He says he can crochet, but of course he can't.'

(92) Bare toget ville bryde sammen lige nu! Men det gjorde det
just train.DEF would break together right now but DET did it
selvfølgelig ikke!
of.course not
'If only the train would break down right now! But of course it didn't!'

Like other mixed anaphors, it is record-interpretive but disallows overt syntactic dependencies out of the anaphor site. Houser et al. term the phenomenon *verb phrase pronominalization*. Although they do not discuss this operation in

depth, it is clear that they assume that *det* begins life as a fully structured vP and is produced by the pronominalization of that vP. An operation of this type is, presumably, generally available; it would have to be licensed by the presence of a linguistic antecedent, and would collapse phonological features, but not semantic features. If semantic features were collapsed, the analysis could not account for the ability of a *det* anaphor to introduce an antecedent:

(93) Jeg har aldrig redet på en kamel, men det har Ivan og siger at
I have never ridden on a camel but DET has Ivan and says that
den stank forfærdeligt.
it stank terribly
'I have never ridden a camel, but Ivan has and he says it stank terribly.'

Houser et al. 2007, 5:8

Houser et al. focus most deeply on the interaction of A-bar phenomena and *det*. *Det* can appear in its base position, or fronted in spec,C (an A-bar position). Houser et al. claim that *det*'s inability to license A-bar movement out of the anaphor site is evidence that *det* competes for the spec,C position.[27] They assume that *det* bears an A-bar feature, likely [top]. By locality, vP[top] is closer to spec,C than any *wh*-object. Therefore the vP (which will later become *det*) must move, and not the *wh*-phrase (Houser et al. 2007, 9:16).[28]

[27]Houser et al. assume that *det* allows A movements; this will be discussed in more detail in Ch 2.

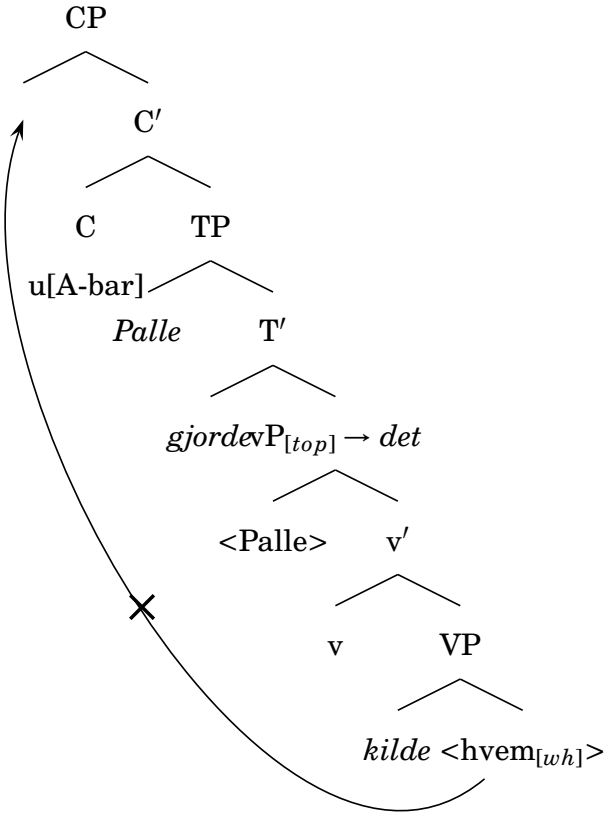
[28]Note that Houser et al. cannot assume common versions of locality, which they cite as akin to the following:

(94) G is the closest category in the sister of H iff there is no distinct category K such that K c-commands G and K bears a feature matching F.

They instead adopt Epstein, Groat, Kawashima, and Kitahara 1998, in which the more local movement is the one that results in the creation of the fewest mutual c-command relations. The reader is referred to Houser et al. for the details.

(95) a. *Jeg ved hvem Susan kildede, men jeg ved ikke hvem Palle
I know who Susan tickled but I know not who Palle
gjorde det.
did DET
Intended: 'I know who Susan tickled, but I don't know who Palle did.'

b.



However, this analysis cannot be extended. The analysis hinges on A-bar phenomena, and so it is unavailable for blocking any A phenomena. Since Houser et al. assume that A phenomena like passive are possible for *det*, this is intentional. However, this also means that the analysis cannot be extended to account for the fact that British *do* and *do so* disallow passive, for example; there is no competition between vP and the underlying object for the C position. Likewise, since T is lower than C, the underlying object would already have raised to subject position before the C probe is active, and so there is no way of blocking vP

pronominalization and movement in this case.

2.4.2.4 Bentzen et al. 2013

The last proposal I will discuss is Bentzen et al. 2012; Bentzen et al. deal with another *det*, this time Norwegian *det*. Although the primary focus of the work is typological—they propose that there are in fact at least two *det* anaphors in Norwegian, a 'deep' (model-interpretive) and a 'surface' (record-interpretive) variant which are distinguished by object shift—they also provide some analysis for the record-interpretive variant. They assume that *det* is a D hosting an [E] feature; this D has a vP complement, which is elided.[29] The discussion of why *det* should block A-bar extraction is not long; they basically appeal to nominalization. *Det*, a D, is a definite head and therefore blocks A-bar extraction out of the vP, as is typical of definite determiners. They assume that QR is always low, to the edge of vP (and therefore internal to *det*), and so they allow for inverse scope.

Again, this analysis clearly cannot be extended to all mixed anaphora. First, not all mixed anaphors have any sort of overt head corresponding to *det*. Second, many mixed anaphors show no A-bar dependencies whatsoever; other mixed anaphors show only a limited set which do not require overt extraction. However, British *do* and Dutch MCA clearly appear to allow high extractions: ACD relatives and comparatives. The data for British *do* are repeated below.

(41-b) He ate more than he should have done.

(42-a) He has read every book that he must do.

[29] It is notable that this must be a mandatory elision—something which is generally not true of classical ellipses, which have grammatical, fully-fledged counterparts. This is not the case here.

If we assume standard operator movement analyses of ACD relatives and comparatives, there must be a long-distance extraction to the edge of the clause here. This would certainly go across any D correlate in these examples; it will therefore predict that ACD is impossible in all mixed anaphors, which is false. If we claim that British *do* and Dutch MCA are just regular ellipses, with no island-forming element present, then we would predict the full range of movements to be available to British *do* and Dutch MCA. This analysis, although it suffices for the data that Bentzen et al. present, is not capable of accounting for the full range of mixed anaphora.

2.5 A copying analysis for mixed anaphors

We have seen so far that there is evidence for a class of anaphors which I term *mixed anaphors*. These are anaphors which are record-interpretive, but which behave as if they have no internal syntax. We cannot treat mixed anaphors as deep anaphors, as deep anaphors are not record-interpretive; we also cannot treat them as ellipsis, or we will predict far more movement out of the anaphor site than we actually see.We have seen several theories which try to deal with these anaphors: Those which are specific to Scandinavian are generally not extendable to other mixed anaphors. The theories which try to account for mixed anaphora in general are the derivational PF-deletion theories. Although these theories make a great deal of headway, they have a strong tendency to break when pushed to their limits; versions of these theories which are flexible enough to account for the wide variety of movement out of VPE tend to allow those movements out of anaphors like British *do* as well. We need an analysis of these anaphors which will account

for their inability to host syntactic dependencies, and yet still accounts for the fact that they must be interpreted relative to the discourse record.

The analysis I propose here takes the behavior of these anaphors at face value. Mixed anaphors like British *do* behave as if they do not have internal syntax; I claim that they do not, in fact, have an internal syntax. Rather, they are just heads in the syntax. Their interpretations are derived via copying of linguistic material from the discourse record into the anaphor site after the narrow syntax is finished.[30] This bars movement and other syntactic dependencies, since one cannot move or agree out of a head, but still yields all the properties associated with discourse interpretive anaphora. Since the structure that is interpreted is articulated (an "LF"), it is a structure that can contain e.g. quantifiers and other complex material that are not part of a d-ref. Meanwhile, genuine ellipses, such as VPE, are derived via some sort of PF deletion; because they both have an internal syntax and must be interpreted with respect to the discourse record, they appear 'complex' at both levels.

The copying mechanism I propose is in many ways nearly identical to that proposed by Chung et al. 1995. It involves both Recycling and Merge (i.e. copying and variable rebinding); however, the usage of Merge is slightly different. The first part, Recycling, involves the copying of a semantic structure from discourse; the proform essentially carries instructions to copy an antecedent structure of a particular type, which composes with surrounding material. This mechanism searches for an appropriate antecedent for the anaphor in the discourse record.

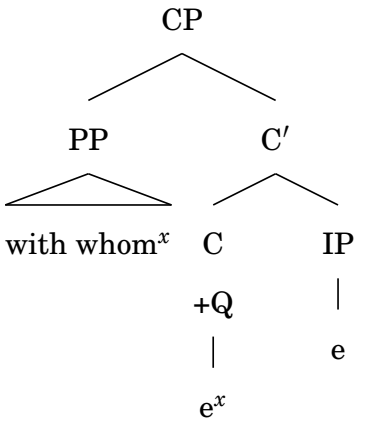
[30] I say "copying" and "after the narrow syntax" here; however, I am not married to either the idea that semantic interpretation happens after syntax, nor the idea that material must actually be structurally copied. What is key for me is that there is no syntactic structure in these anaphors (which is compatible with a semantics-first theory), and that the anaphor find material in the discourse record and then reinterpret that material as part of the anaphor site.

The antecedent is, of course, constrained by any parameters that the anaphor may have. Once an appropriate antecedent is found, this antecedent is "copied into" the anaphor site.

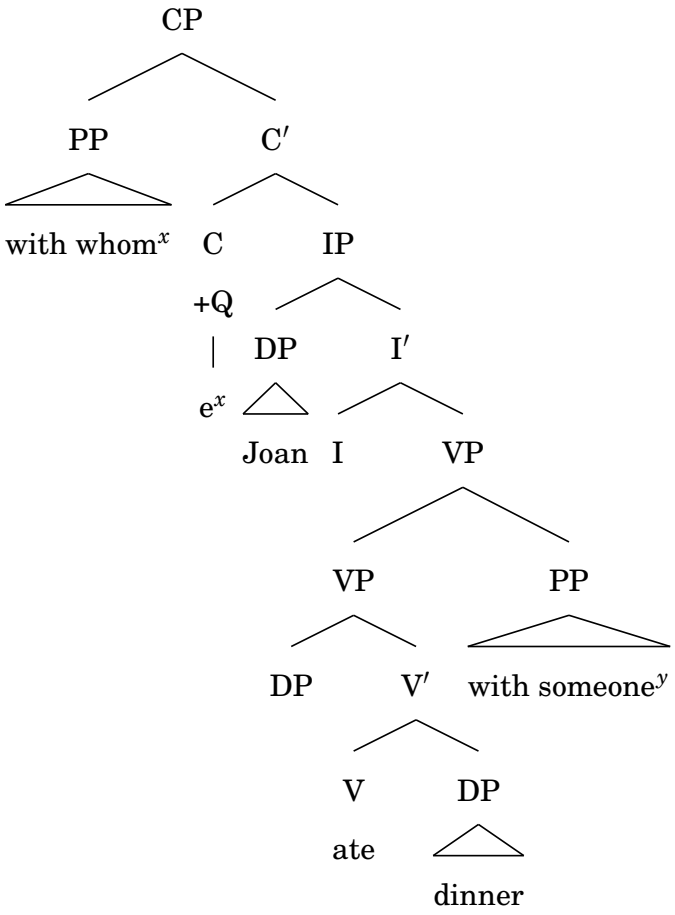
The next component, what Chung et al. call *Merge*, is perhaps the most intriguing part of a copying theory: It is the re-interpretation of the antecedent material inside the anaphor site. This process includes the re-binding of variables, both for quantificational and pronominal binding. I will reproduce here Chung et al.'s example for sluicing, although I do not myself analyze sluicing as a copying phenomenon. The example is shown in (96) (Chung et al. 1995, 242:6, 250–252:26–27).

(96) Joan ate dinner with someone but I don't know with who.

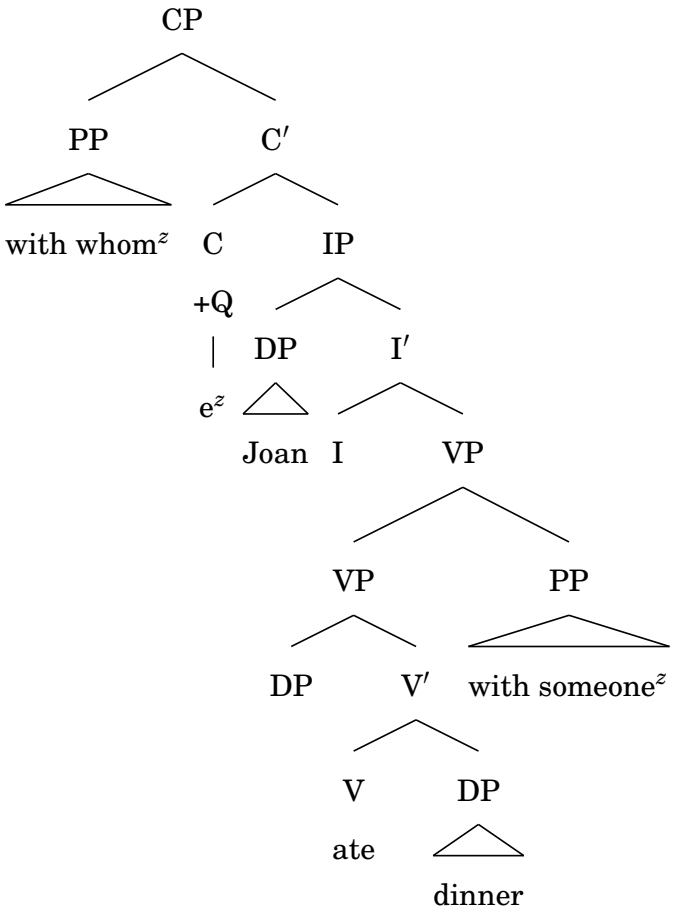
a. *The generated syntax*



b. *After Recycling*



c. *After Merge*

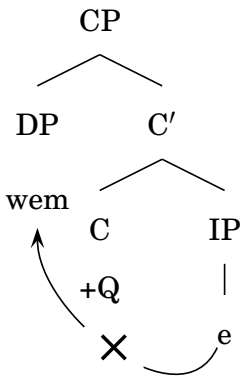


The syntax, for Chung et al., generates a case-marked *wh*-item in spec,C, with a null TP complement; the complement is not internally articulated. Floating in the discourse record is a TP-sized chunk of LF (in this case corresponding to the antecedent TP, *Joan had dinner with someone*). At the LF level of the anaphor-containing sentence, this chunk is copied into the sluicing site. It is important, here, that the quantifier *someone* QRs in the antecedent; that means that the object position is occupied only by a variable. After Recycling, this variable is re-bound via Merge.

At this level of detail, my analysis largely parallels that of Chung et al.. There is one specific point of divergence, which was briefly discussed earlier: I disagree with CLM on what can be generated in the syntax. In particular, I hold that case and agreement relations cannot be checked at LF. This means that—under my view—sluicing cannot be accounted for by copying: The case-marked *wh*-item is generated illicitly, without a case licensor; there is no way that the empty IP, which contains no internal structure, could license dative *wem*:

(97) a. Er will jemandem schmeicheln, aber sie wissen nicht,
he wants someone.DAT flatter but they know not
{wem/*wen}.
who.DAT/who.ACC
'He wants to flatter someone, but they don't know who.'

b. *The narrow syntax*



In my system, sluicing is only possible as a copying anaphor if case can be licensed without reference to syntactic material inside the anaphor site. This means that sluicing can be possible as a copying anaphor only if (a) the sluiced *wh*-item bears default case or (b) the *wh*-remnant is encased in a phrase which does not need case or show selectional properties (for example, some PPs). This holds true for all such material which must be satisfied in the syntax, including

agreement relationships and any syntactic requirements peculiar to particular heads.

To sum up, the system I propose here and which I will be using throughout the rest of this work is one in which genuine ellipses, such as VPE and sluicing, are derived via PF-deletion; mixed anaphors, such as British *do*, are derived through LF-copying. This analysis for mixed anaphors takes their apparent lack of internal syntax at face value: They are mere heads in the syntax, and their 'surface' anaphoric properties come from the fact that they are record-interpretive.

Chapter 3

A Dependencies in Mixed Anaphora

The function of this chapter is twofold. The first purpose of this chapter is to provide extensive data and background analysis of each mixed anaphor: British *do*, Dutch MCA, *do so*, and Swedish *det*. I will first provide a great deal of background data on each anaphor, thereby allowing us to have an idea of the external structure of each anaphoric construction; I then provide a full account of the data related to anaphoric status for each anaphor, as well as subsequent analysis of the A dependency data. Some of this material will be review, but there will be a significant amount of new data, including a great deal of data that is novel to the literature. In some cases, I will concur with the rest of the literature regarding the external and internal syntax of these anaphors; in others (particularly Dutch MCA) I will differ.

It is, secondarily, an examination of A dependencies in anaphora; I provide an overview of the importance of A dependencies for anaphoric status, and dis-

cuss the status of each mixed anaphor in turn. We will come to several conclusions: First, that A dependencies are most certainly important for discussion of anaphoric structure; second, that using A dependencies as a test must be done carefully (and it sometimes has not been); third, that for each mixed anaphor examined here, there is actually no evidence for internal structure from A dependencies (despite previous claims in the literature).

3.1 The nature of A dependencies

Before I move on to the discussion, I will first outline my basic assumptions regarding argument structure. Having clear assumptions will prove necessary not only for the discussion of A dependencies, but for the discussion of the structure of many of these anaphors in general—the majority of the anaphors that I discuss are verbal anaphors.

First, I assume that arguments are introduced into the syntax by a head. Second, I assume that DP arguments participate in a case relationship with a head, often a different head from that which introduces the argument.

Third, I assume that argument-introducing heads assign semantic roles to their arguments. These roles are collections of presuppositions regarding the nature of the argument. I do not formally adopt a rigid characterization of these presuppositions into roles like Agent, Experiencer, and Goal, as these characterizations are typically not sufficient for a thorough understanding of semantic roles and their relation to argument and event structure (see Dowty 1991 for useful background). However, I do assume that there is a continuum from the mostly highly agentive and most highly patientive roles, and I will sometimes make ref-

erence to “agents” and other standard roles as a form of short-hand. This should not be taken as a theoretical commitment.

Fourth, I adopt a weak version of the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker 1988). This weak version claims that any argument-introducing lexical item consistently assigns its semantic role to the same position (i.e., the compositional structure is invariant for any given lexical item). Importantly, this is a generalization about heads, and not semantic roles; we cannot generalize e.g. that highly agentive roles are always subjects, or that experiencer-type roles are always assigned to direct objects, as this is patently false:

(1) a. The invaders destroyed the city.
    b. The city was destroyed by the invaders.

(2) a. The people of the city hate the invaders. *subject ‘experiencer’*
    b. The invaders bothered the people of the city. *direct object ‘experiencer’*
    c. The invaders don’t appeal to the people of the city. *indirect object ‘experiencer’*

Fifth, I assume a decentralized notion of predicate structure, in which a single ‘predicate’ may actually be comprised of multiple heads. For example, I assume that the three arguments of the verb *give* are introduced by several different heads, making *give* a quite complex structure and not a single head. I do not ascribe to any particular analyses of such structures at this point.

3.2 The use of A dependencies as tests

I will now begin to discuss how argument structure phenomena are used as tests for the internal structure of an anaphor. This discussion will be divided into two conceptually distinct parts: how the tests are intended to be used, and how they actually are used. We will see, in short order, that the tests are often treated as more conclusive than they actually are. Each test will be examined in turn; I will present the tests using VPE and *do it*. Later, in the discussion of each mixed anaphor, I will show that the ways in which the tests have been applied to mixed anaphora are often faulty in nature. For now, we will consider only more familiar deep and surface anaphors.

Before we go any further, I want to remind the reader that VPE and *do it* can be distinguished as different types of anaphors independently of A phenomena. First, the pragmatic behavior of the two anaphors indicates that VPE is a record-interpretive anaphor, and *do it* is a model-interpretive anaphor. Furthermore, VPE allows the formation of overt A-bar dependencies out of the anaphor site, while *do it* does not; therefore VPE must have internal syntactic structure, but there is no evidence for internal syntactic structure in *do it*.

A phenomena can also be used to show that VPE, but not *do it*, contains internal syntactic structure. A phenomena tests break into roughly three types. The first is the availability of morphological dependencies between material inside and outside the anaphor. The second is the presence of syntactic dependencies between material inside and outside the anaphor. The third and last is the morphosyntactic nature of the antecedent. I show that the first two, which involve examination of the anaphor itself, prove useful. Although the presence of a lin-

guistic antecedent is important, the morphosyntactic nature of that antecedent can only tell us so much; we generally cannot glean any sort of real conclusion by looking at the anaphor alone.

Before I move on to the tests themselves, remember that we must use the tests to distinguish between three possible structures, not the traditional two. The first structure is the traditional deep anaphor, one in which there is absolutely no compositional structure inside the anaphor, whether syntactic or semantic. The second structure is the traditional surface anaphor, one in which there is compositional structure in both the syntax and the semantics. The third structure is the mixed anaphor, an anaphor in which there is no compositional syntax, but there is a compositional semantics. What we look for with the tests is whether or not particular anaphors are compatible with—or require—one of these structures.

3.2.1 Morphological dependencies in A phenomena

I will begin by discussing the use of morphological dependencies as a A phenomenon test. By *morphological dependencies* I refer to things like case and agreement. Since VPE and *do it* are verbal anaphors that are at least VP-sized, the object assigned case by the verb does not appear overtly with either anaphor; we therefore cannot look to internal objects for A dependencies. Similarly, the subject is assigned case by T, which sits outside the anaphor site in both cases; therefore, the availability of nominative case cannot tell us anything about the anaphor's internal structure.[1] However, agreement proves to be quite useful, due

[1]I treat pseudogapping as an independent phenomenon from VPE; however, productive case in pseudogapping constructions is indeed evidence for internal structure in pseudogapping. For

to the availability of different types of subjects in English. The most highly relevant construction is the expletive *there* construction. In this construction, the subject stays low (typically thought to be somewhere inside vP); *there* appears in the canonical subject position. However, unlike in expletive *it* constructions, T does not agree with *there*; rather, agreement is controlled by the low subject (what I term the *correlate* of *there*) in Standard American English.[2]

(5) a. There are five cats sleeping on my bed.

b. *There is five cats sleeping on my bed.

The correlate normally must be overt. *There* is licensed by the presence of the correlate; the correlate cannot just disappear:

(6) a. *Context: Speaker sees five cats napping on her bed.*

*There are sleeping on my bed.

analysts for whom pseudogapping is a type of VPE, then pseudogapping provides evidence for internal structure in VPE.

[2]Dialects may vary on this regard, especially if they have different general agreement patterns. Many dialects allow singular agreement with all plural correlates:

(3) There was 50 cats in the back yard. Jorge Hankamer, p.c.

It is interesting that even speakers of Standard American English sometimes allow an apparently aberrant agreement pattern: If *be* is cliticized to *there*, speakers will often accept singular agreement with a plural as quite natural:

(4) a. I'm really upset. There's five cats sleeping on my bed and my blankets are covered in fur now.

b. I'm really upset. There's a cat sleeping on my bed and my blankets are covered in fur now.

However, speakers typically do not allow plural agreement with a singular correlate. We therefore can deduce a great deal more from the presence of plural verb agreement than from singular verb agreement.

b. *Context: Speaker sees a single cat napping on her bed.*
*There is sleeping on my bed.

Both VPE and *do it* can appear with existential *there*; however, the patterns of agreement and the nature of the correlate are different between the two. VPE can easily appear without an overt correlate, which is in itself notable. However, it is even more notable that agreement is still controlled by the missing correlate: There is no default agreement, but rather the usual dependence between ϕ agreement on the predicate and the correlate's ϕ features.

(7) a. There should have been five cats sleeping on my bed, but there weren't/ *wasn't.
b. There should have been a cat sleeping on bed, but there wasn't/ *weren't.

Do it, on the other hand, cannot appear without the correlate; it absolutely must be overt. Again, agreement is controlled by the correlate.

(8) a. There should have been five cats sleeping on my bed, but there weren't/ *wasn't any cats doing it.
b. There should have been a cat sleeping on my bed, but there wasn't/ *weren't a single cat doing it.
c. *There should have been five cats sleeping on my bed, but there weren't doing it.
d. *There should have been a cat sleeping on my bed, but there wasn't doing it.

The availability of a silent correlate in VPE, but not *do it*, is quite important here. This is a phrase that cannot go missing willy-nilly; it must generally be overtly present, as it is in the non-anaphoric examples and the *do it* examples. Nevertheless, it can go silent in the case of VPE—and yet it still seems to be present, controlling agreement on the predicate. This is evidence that VPE contains internal syntactic structure. If the correlate is not actually missing, but is within the anaphor site and just unpronounced, we can account for both the fact that the construction is grammatical at all (the correlate really is there) and for the agreement patterns. Likewise, the unavailability of a silent correlate with *do it* casts doubts on the idea that *do it* does not have silent syntactic structure containing the correlate. This is not genuine evidence against any sort of internal structure; *do it* is a relatively small anaphor, and it is always possible that the correlate simply sits too high to even be considered inside the anaphor. The fact that *do it* examples are grammatical with an overt correlate suggests as much. However, it is quite clear that *there* constructions cannot be used as evidence for internal structure in the case of *do it*.

In all of these cases, we have an instance where a morphological dependency holds between something inside the anaphor site and something outside it: Some chunk of morphology can only be accounted for if it is being controlled by material inside the anaphor site.

3.2.2 Syntactic dependencies in A phenomena

We also see cases where a syntactic dependency must hold between something inside the anaphor site and something outside it. In these cases, the external

syntax—i.e. the visible syntax—is such that we know that the anaphor must have internal syntax. These cases are relatively rare; however, passive in English is such a case. Let us first see the interaction between passive and VPE:

(9) The schooner was sunk yesterday by some pirates. Interestingly, the clipper was not.

The antecedent here is, of course, in the passive. More importantly, so is the anaphor itself: passive *be* is clearly present here. We can show through syntactic tests that this must be passive *be*, and not progressive or copular *be*, even though the three cannot be morphologically distinguished. *Be* in this case is not progressive *be*, as there is no progressive meaning. Similarly, it is not copular *be*, as copular constructions cannot take verbal constructions (whether active or passive) as antecedents in VPE, even if the complement to the copula is derivationally related to the verb in the antecedent:

(10) a. Max upset me, and now he's upset too.
b. *Max upset me, and now he is Δ too.
c. *I was upset by Max, and now he is Δ too.

(11) a. *The leaf reddened, and now it really is Δ!
b. *The leaf was red, and then it really did Δ!

It is therefore clear that the anaphor in (9) is genuinely in a passive structure, and we may reason accordingly. English passive *be* does not itself introduce an argument; the subject is derived via the raising of an internal argument. This means that passive *be* requires that its complement must be (di)transitive in a

suitable manner; the derived subject of a passive begins its life within this complement. If VPE were a proform (i.e. a null head), it would not be appropriately transitive in nature. It would therefore not be syntactically licit in the complement of passive *be*; VPE would be the only intransitive complement that ever occurred in the English passive. However, if VPE actually contains full linguistic structure, then it can contain a transitive predicate that fulfills the syntactic requirements of *be*. *Be* can have a transitive complement and the internal argument can raise to be the subject. Therefore, it appears that the grammaticality of passive with VPE gives us legitimate evidence for internal structure in VPE, with the presence of passive *be* serving as good morphosyntactic evidence for genuine passive structure in English.

There is no problem in general with having *do it* interact with passive. *Do it* is generally passivizable, so long as *it* is the passive subject. The agent in *do it* can surface in a *by*-phrase as per usual. All requirements of passive seem to be met:

(12) The schooner was sunk yesterday by some pirates. Interestingly, it wasn't done on purpose.

However, *do it* is only compatible with passive if *it* is the passive subject. If we attempt to passivize some other plausible internal argument, a crash occurs:

(13) *The schooner was sunk yesterday by some pirates. Interestingly, the clipper was not done it.

Again, we know that passive *be* does not itself introduce an argument; therefore *the clipper* could not have been introduced by *be*. However, if there were structure inside *do it* which included *the clipper*, we would expect *the clipper* to be able to surface as a passive subject. It cannot. This fact, coupled with the fact that *it* is the only possible passive subject, suggests strongly that there is no internal structure to *do it*; there are only the verbal head *do* and its pronominal complement, *it*. We therefore see an instance in which the external syntax of a construction—here, the English passive—requires that the internal syntax of an anaphor have a certain structure; if such a structure cannot be supported, then the use of the anaphor in conjunction with the passive will be ungrammatical.

3.2.3 The morphosyntactic nature of the antecedent and its interaction with anaphor structure

We have, at this point, moved on from the set of data which involve overt morphosyntactic evidence (i.e., case, agreement, and the overt presence of syntactic objects which must be licensed by particular syntactic configurations). We now begin the examination of a new set of data, which do not involve the morphosyntactic structure of the anaphor. Rather, they look at the structure of the antecedent, and the interpretation of the anaphor. These data do not involve any sort of case or agreement morphology which indicate the necessity of particular structures, nor do they involve the overt presence of material which must be licensed by particular structures. The argument for internal syntactic structures seems to be based on the assumption that if an anaphor has the same interpretation as its antecedent, then it must also have the same structure. The antecedent

has a particular (visible) syntactic structure, and an associated meaning; if the anaphor has the same meaning, then it must have the same internal structure. These assumptions are usually made in the context of unaccusatives and raising constructions, and so I will discuss those constructions shortly. However, before I move on to that data, I first wish to point out that the proposal cannot in general succeed. Take an example like (14) below.

(14) I need to feed the cats, but I don't have the time to do it right now.

The antecedent is *feed the cats*, which consists of at least a verb *feed* and a DP *the cats* (and most likely some higher functional structure, such as v). The basic meaning of the phrase *feed the cats* is something like *to take objects that are edible for cats and place those objects where the cats can eat them*. The anaphor clearly picks up this meaning. However, we do not want to assume that this is evidence that *do it* actually contains the phrase *feed the cats*. This would be at odds with the preponderance of the data showing that *do it* has no internal structure.

It is, in some ways, understandable to see why analysts would use this argument with respect to unaccusatives and raising constructions, even though it seems laughable when illustrated with an agentive transitive verb. Unaccusatives and raising constructions involve the movement of a rather low phrase to a higher subject position, while the external argument of an agentive transitive starts out higher. If one is already primed to think of movement (for example, in an examination of VPE), then this starts to look like more evidence for movement. Even more interestingly, we find that there is actually a difference between VPE and *do it*: VPE is grammatical with both unaccusative and raising antecedents;

do it, on the other hand, is ungrammatical with both:

(15) a. The glass broke, and the jar did Δ too.

b. The kitten seems to be eating its food, and the dog does Δ too.

c. *The glass broke, and the jar did it too.

d. *The kitten seems to be eating its food, and the dog does it too.

These data have been used as evidence for internal syntactic structure by many previous analysts who claim that VPE is surface anaphoric: The antecedent in (15-a) has an unaccusative structure (with the derived subject originating as object to the verb), and the anaphor has the same interpreation. Therefore, the anaphor must have an unaccusative structure, too. The same train of thought is also applied to (15-b): The antecedent has a raising structure, and the anaphor has the same interpretation as the antecedent; therefore the anaphor has the same structure as the antecedent. Meanwhile, since *do it* is not grammatical with either type of antecedent, examples like (15-c) and (15-d) have been used to argue that *do it* cannot have internal structure. The antecedent has an unaccusative structure, and *do it* cannot be used; therefore there must be a problem with the co-occurrence of unaccusative and *do it*. As it turns out, we cannot conclude anything in the case of either VPE or *do it*. In the case of *do it*, this is due to a confound: *do it* requires an agentive subject. This is visible in examples like (16), which are not unaccusative but which are impossible with *do it*—unless the subject is coerced into being sufficiently agentive.

(16) a. #She never loved him, because she never wanted to do it.

b. #The rain really bothered Erin. She doesn't know why it does it.

The subjects of unaccusatives are, of course, not agents. Similarly, although the subject of the downstairs predicate in a raising construction may be agentive, this participant is not in fact an agentive participant of the eventuality picked up by the predicate: *seeming*. We therefore cannot make any conclusions about *do it*, since the agentivity confound would rule out examples like (15-c) and (15-d) anyways.

In the case of VPE, there are obviously no confounds like those for *do it*; the examples are all grammatical. Nevertheless, we cannot make any strong conclusions for internal structure, contrary to what previous analysts have assumed: None of these examples show any sort of overt evidence for unaccusative structure or raising structure in the anaphor. They are compatible both with the presence of internal structure, and the lack of it. The evidence for traditional unaccusative-as-object structures in English is subtle at best; there is in fact very little of it. The adoption of unaccusative structure is largely in analogy to other languages, which show more obvious effects (differential subject marking, auxiliary selection, and the like; see Perlmutter 1978, Burzio 1986, and Mithun 1991, among others). However, such evidence simply does not exist in English. We may hold on analogy that the antecedent has unaccusative structure, because it obviously contains a verb that has been classed as unaccusative. The point of interest to us, though, is whether the anaphor itself has internal structure *and itself contains that unaccusative verb*. We cannot say that because the antecedent has the structure, the anaphor does too.

Likewise, evidence for genuine raising only comes from cases with modals. In non-anaphoric cases, the evidence for a classic raising analysis comes from the geometry of the whole structure, and in particular from the alternation between raising constructions with non-overt lower subjects and expletive subject constructions with overt lower subjects; a pair is given in (17).

(17) a. Tom seems to be very upset.

b. It seems that Tom is very upset.

In all cases, a raising verb like *seem* does not introduce an external argument. In the raising construction, the subject of the infinitival raises to become the subject of the *seem* clause. In the expletive subject cases, the subject cannot A move out of the finite clause; an expletive subject is therefore inserted to fulfill the EPP requirement of T in the *seem* clause. This evidence is not available in VPE, because the anaphor is silent. In instances where we have no modals or auxiliaries, and simply a dummy *do*, it is not possible to tell apart the dummy *do* from a genuine argument-introducing verb. The evidence for the moved subject in (17-a) requires the presence of the mysterious lower subject gap. When the lower clause goes unpronounced, as in VPE, there is no mysterious lower subject gap—there is no lower cause. Therefore, there is no syntactic evidence for raising in these cases. The only evidence is the shape of the antecedent, and the fact that the anaphor provides a very similar interpretation. However, this is poor evidence; after all, just because *do it* allows unergative antecedents, and can provide a quite similar interpretation to its antecedent, does not mean that *do it* actually contains an unergative verb inside the anaphor. We must instead look to

cases which contain e.g. a modal, as in (18):

(18) *Context: Stephanie's parents keep bothering her about not having a significant other. She makes one up to placate them, and then when they visit she ropes her friend Jamie into pretending to be her girlfriend.*

a. In order to fool Stephanie's parents, Stephanie must seem to be in love, and Jamie must too.

In sum, we learn an important lesson from the discussion of the A dependency tests as applied to English VPE and *do it*. First and foremost, it is the structure of the anaphor-containing sentence that is important for deciding whether the anaphor contains syntactic structure—not the structure of the antecedent. If the anaphor-containing sentence appears to allow morphosyntactic dependencies between elements inside and outside the anaphor site, then there is excellent evidence for internal syntactic structure in the anaphor. However, just because there is movement, agreement, or any other dependency in the antecedent does not guarantee that the anaphor contains the same structure.

3.3 The anaphors

I now move on to the discussion of the anaphors themselves. We have already seen that a mixed anaphor category exists—a set of anaphors which disallow overt movements out of the anaphor site, but which seem to have other properties which are consistent with surface anaphora. We have seen that there are two sub-varieties of mixed anaphora, one which disallows all movements and one

which allows certain unpronounced A-bar dependencies. Here I will go into more depth in surveying these anaphors, and showcase not only some further properties of British *do* and Dutch MCA, but will also introduce several other anaphors, including *do so*, and Swedish *det*. Parts of this section will be review in nature; however, there will be a significant amount of new data, including data that is new to the literature.

3.3.1 British *do*

I have already partially discussed British English *do* in Ch. 1; however, there are relevant and important data which have not yet been presented. Review and new data will be mixed in this discussion. Before talking about the anaphoric status of British *do*, I first discuss the external structure of British *do*, and in particular the nature of *do* itself, providing an analysis of the basic structure. I then discuss the anaphoric data, starting with data from pragmatics, and then moving on to discuss patterns of A and A′ movement. Following this, I provide an analysis of the anaphoric component of British *do*.

Our introduction to British *do* was, before, rather perfunctory. Recall again the basic form of British *do*: The VP goes missing, seemingly replaced by *do* as in (19). At first glance, this anaphor looks very similar to VPE—essentially like VPE with an extra *do* involved. However, the two are demonstrably different, as we will see.

(19) Although I've never read any books by Graham Greene, Clara has done.

Let us first examine the *do* involved in British *do*. This *do* is not the dummy

do that sits in T. First, it can co-exist with the dummy *do* that sits in T, as shown in (20). Co-occurrence indicates that these are not the same *do*. Second, the *do* of British *do*, unlikely dummy *do*, does not readily bear stress (Haddican 2007). Compare the difference between (21-a) and (22), in which dummy *do* can bear emphatic stress, but British *do* cannot.

(20) A: You do feel cold—don't you? B: I did do in the front, er, yes. *BNC: Conversations recorded by 'Arthur'*

(21) a. A: Has Ines eaten?

b. B: I don't know, but she SHOULD do.

c. B: *I don't know, but she should DO.

(22) a. A Ines didn't eat, did she?

b. B: Yes, she DID. Haddican 2007, 541:15

However, the *do* of British *do* is also not the lexical *do* associated with predicates such as *do it* or *do that*. First, we may look back up to (21); lexical *do* is like all other main verbs and may bear stress, including main sentential stress. This is again in contrast to be British *do* as in (21-a). Lexical *do* also has an agentivity requirement; it cannot be used with e.g. experiencers or patients, as we see in (23).[3] The *do* of British *do*, on the other hand, can be used with experiencers, patients, and other non-agentive subjects. It additionally has no eventivity requirement; it can be used with stative verbs as well as eventive ones. The only requirement seems to be that the antecedent is verbal in nature; British *do* is not

[3]Note that (23-b) only becomes licit if the subject has control over the fainting—in which case the subject is no longer classically patient-like, but is agentive.

licit with an adjectival or nominal antecedent.

(23) a. We have unfortunately already drunk all the beer, and we did it in under an hour.

b. #We have all unfortunately fainted, and we did it within an hour of getting home.

(24) a. Clara will visit Chelsea, and Anna will do too. *agent*

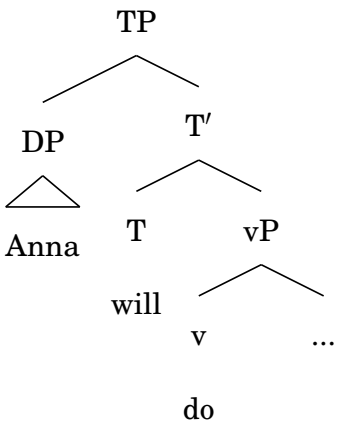
b. Martine liked that, and Clara might do too. *experiencer*

c. In order to fool everyone, Anna must *seem to be happy*; Erin must do too. *raising-type*

d. The lake may freeze, and the river may do too. *patient*

Based on these data, Haddican 2007 and Baltin 2012 both propose that *do* in British *do* is a light verb—a v head. I adopt this proposal here. The proposal accounts for the fact that *do* is not a classic dummy *do* (as it does not appear in T) and also for the fact that it does not have any of the semantic characteristics typically associated with lexical *do* (since it is a different lexical item). This also allows us to understand the position of the verb in the linear order (after all other auxiliaries); British *do* is a v, i.e. a head below the aspectual heads, and so it is expected to appear after the aspectual heads in the linear order. An example structure is given in (25).

(25) Clara will visit Chelsea, and Anna will do too.



The question that we must now answer, and that the rest of this section is concerned with, is what the nature of *do*'s complement is: Is there anything there? If so, what is its structure? I claim that *do* is a lexical item whose sole purpose is to introduce an argument; however, it has no particular presuppositions regarding the nature of that argument. This means that it is compatible with a wide variety of antecedents (unlike lexical *do*). *Do* takes as its complement a null anaphoric proform, i.e., a null head.[4] This head cannot support any movement, as it is a head and does not contain any internally articulated syntactic structure; it is this null proform that provides the ultimate meaning of the predicate, including any apparent presuppositions of the argument of *do*. This meaning is derived through a post-syntactic copying operation, which copies LF material from a linguistic antecedent into the anaphor site.

[4]I do not think that there is a significant difference between proposals with a null proform complement, like the one I give here, and proposals where *do* itself is the anaphor. I give this proposal, and not the other, because it is more similar to the analyses needed for other anaphors; however, to my knowledge, the two are interchangeable for the phenomena I discuss.

3.3.1.1 The data

The first set of data to be discussed regard linguistic control and the introduction of antecedents. As we saw in Ch 1, British *do* generally requires linguistic control and may be used to introduce a salient embedded referent into the discourse. The data are repeated below.

(26) *Linguistic control*

Context: A child is reaching for the cookie jar. The parent says:

a. #You may not do!

(27) *Missing antecedent phenomena*

a. I've never ridden a camel, but Erin has done, and she said it stank terribly.

These data are consistent with a record-interpretive status for the anaphor, as we saw in Ch 1: They appear to require the presence of a linguistic antecedent in the discourse record. This is, of course, neatly accounted for by the copying analysis: The anaphor can only receive an interpretation if it has linguistic structure to copy.

Our second group of data—that involving A-bar dependencies—is more complicated than the pragmatic data. Here, we find an especially strong division between overt A-bar dependencies and silent dependencies. Overt A-bar dependencies are universally impossible with British *do*, providing evidence that British *do* does not contain internal structure. We see this below:

(28) *Although we don't know what Matthew might read, we do know what Tom might do. *object* wh-*question*

(29) *Hazelnuts, I'll eat. Peanuts, I won't do. *topicalization*

Silent dependencies will require rather more discussion. Silent dependencies are, in general, quite possible. Take the case of inverse scope, the ACD relative, and the ACD comparative below:

(30) Some man must read every book, and some woman must do too. $\exists > \forall; \forall > \exists$ Abels 2012, 31:23e

(31) a. At first he felt more relaxed than he had done in a long time. *BNC: Catherine Cookson,* My beloved son

b. He found that when he ate more than he should have done, that that aggravated his pain. F.C. Westley, *Lectures on Anatomy, Surgery and Pathology*, 2nd edition: 464.

(32) a. They raise no interpretative difficulties of the kind that credo may do. *BNC: David Johnston,* The Roman law of trusts.

b. He found, however, as he loped along, ostensibly to school, that he could not feel the same bitterness that he had done when he first started to write. *BNC: Helen Forrester,* The latchkey kid

These data are compatible with an analysis in which there is a genuine syntactic structure inside the anaphor site (inside VPE). However, I will show in Ch 3 that these sentences do not involve internal structure; rather, they involve the resolution of LF A-bar dependencies. That analysis will need some discussion, as

the data actually turn out to be fairly complex; for example, *that*-relatives must be distinguished from ACD relatives, as *that*-relatives are generally impossible (while ACD relatives are not):

(33) *This is a book that you may read; this is a book that you may not do.

The last set of data are those data which involve A dependencies—the data that we will especially focus on in this chapter. The picture here is again more complicated than what we saw for the pragmatic data. There are some examples involving A constructions that are clearly ungrammatical; this includes passive, shown in (34). We saw earlier that the presence of passive *be* requires an appropriately transitive complement, from which an object may raise to become the surface subject, and therefore the presence of passive *be* with English anaphors indicates real A movement. If passive *be* is present, British *do* is not possible. Since there are no independent confounds, this indicates that British *do* does not have any internal structure:

(34) *Matthew will be visited by Mary, and Isobel will be done too. *passive*

The other data from A dependencies are, at first glance, unusual. If we do not take the nuanced view that we saw was necessary in §3.2, then we would assume that these data show that movement out of British *do* is necessary. I will discuss the analysis shortly; for now, note that there is no real morphosyntactic evidence for movement in these cases:

(35) John might die, and Fred might do too. *unaccusative*

(36) John might seem to enjoy that, and Fred might do too. *raising*

In sum, we see a rather interesting mix of data from British *do*. British *do* is a record-interpretive anaphor. It disallows overt A-bar dependencies, but allows unpronounced ones (I will delve into problems regarding A-bar dependencies in Ch 3). This leads us to believe that British *do* may be a mixed anaphor. This is further confirmed when we look at data from A dependencies: Passive is impossible with British *do*. However, previous analyses have claimed that British *do* has internal structure on the basis of A dependencies (see Baltin 2012); I will now show that this claim does not go through.

3.3.1.2 The analysis of British *do*

Let me begin the analysis of British *do* argument structure with passive, which we saw was impossible with British *do*. First, we must note that there is no problem with having a non-agentive subject; British *do* allows non-agentive subjects, as we have seen. We may also rule out any possible problems with potentially stative readings of passives; we can see below that British *do* allows stative readings:

(37) I liked her very much, and thought my readers might do also.[5]

We can therefore turn to an example like the following:

(38) *The schooner was destroyed, and the frigate was done too.

[5]Found at `http://blogs.telegraph.co.uk/culture/allanmassie/100066884/julian-fellowes-has-killed-off-downtons-lady-sybil-in-the-end-every-author-is-a-murderer/` through a Google search on 27 February 2013.

Since this is an English passive, we know two things: (a) *be* does not introduce the passive subject itself, and (b) *be* must take an appropriately transitive complement. If British *do* contained internal structure, there would be no immediate way to ban movement of a passive subject out of the anaphor site. Passive should absolutely be possible. Extra constraints would have to be added to account for such data (as they are added by Aelbrecht and Baltin). However, if we assume that British *do* does not contain internal syntactic structure, then the answer is quite clear. British *do* does not contain a passivizable object. This means that the problem is a purely syntactic one: English passive is incompatible with an intransitive verb—and British *do* is intransitive.

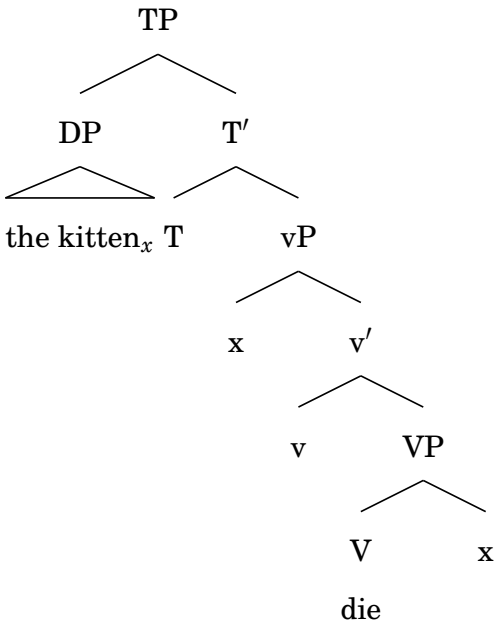
We next move on to unaccusatives. Recall that unaccusative antecedents are compatible with British *do*:

(39) The glass may break, and the jar may do, too.

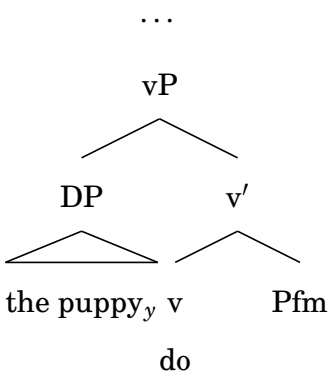
Baltin uses data like (39) to claim that British *do* must have internal structure. However, the same argument that we see with VPE goes through here as well. Just because the antecedent is an unaccusative doesn't mean that the anaphor contains an unaccusative; it means only that it can pick up an unaccusative meaning from its antecedent. There is no actual morphosyntactic evidence that *the puppy* is introduced inside the anaphor site, and not by *do*. Rather, these data can be accounted for neatly by the LF-copying view of mixed anaphors. *Do*, with its radical underspecification for the arguments it takes, introduces *the puppy* in its specifier; the proform is null and has no internal structure in the syntax, but at LF the antecedent VP is recycled and merged, giving the proform

an interpretation:

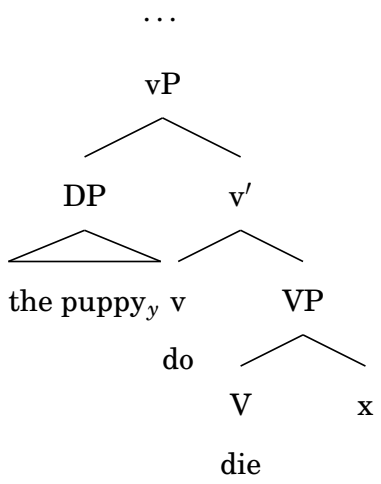
(40) a. *LF of the antecedent*



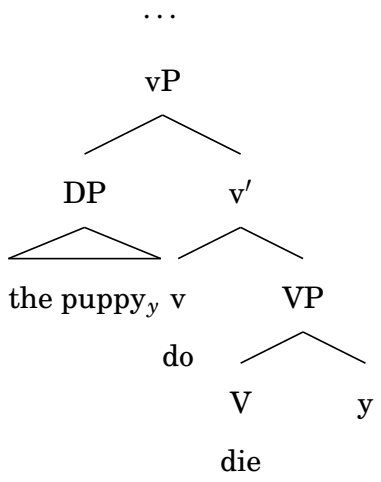
b. *Syntax of the anaphor*



c. *The anaphor post-Recycling*



d. *The anaphor post-Merge*



It turns out that similar facts are true for subject-to-subject raising. Antecedents with subject-to-subject raising are indeed possible. Witness the following:

(41) George might seem to enjoy that, and Fred might do, too. Baltin 2012, 388:19a

Since British *do* allows stative antecedents and has virtually no restrictions on the presuppositions on its subject, we do not automatically rule out raising antecedents as candidate antecedents, as we would with *do it*. Just like with unaccusatives, these examples have been used to argue for internal structure for these anaphors: The claim is that since the antecedent is a raising structure, and the meaning of the anaphor is broadly that of a raising structure, the anaphor must actually contain a raising structure. Again, this argument does not go through. Let us again imagine that British *do* really consists of a radically underspecified verb *do*, with few presuppositions of its own regarding its event structure or the nature of its argument, which acquires any apparent presuppositions through the anaphoric process. In this case, the apparent raising subject is generated in the specifier of *do*, and the meaning associated with the raising antecedent is acquired through copying—with no actual raising syntax whatsoever. Again, we don't need a raising structure in order to obtain a raising 'meaning' from a raising antecedent.

Finally, we come to an English-specific short A dependency that is of interest for anaphors like British *do*. This is pseudogapping, some examples of which are given below. Pseudogapping is a cousin to VPE; it is sometimes analyzed as an instance of VPE with remnant movement. No matter the exact analysis of the ellipsis itself, however, any analyst who will commit only to ellipsis of syntactic constituents and does not entertain the possibility of non-constituent ellipsis, must analyze pseudogapping as involving a short movement (see Jayaseelan 1990; Baltin 2003). This short movement is thought to involve particular discourse requirements, in particular some sort of focus requirement; the remnants

generally must bear contrastive focus.

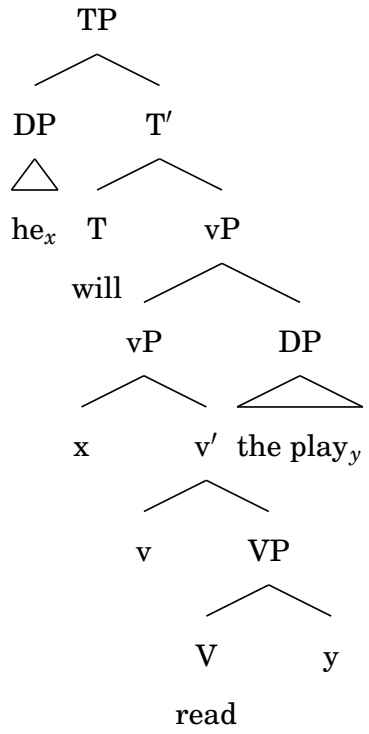
(42) a. You've helped THEM far more than you have HER.

b. She'll give money to her FATHER, but she won't to her MOTHER.

Pseudogapping passes a battery of tests indicating that it is a record-interpretive anaphor with internal syntactic structure; we can see some of this evidence in (42-a), where the remnant is a cased pronoun. Therefore, under an ellipsis analysis, the structure of pseudogapping must look something like what is shown below. I should note that I do not assume any particular analysis of pseudogapping, and that analysts may vary widely on what they take the mid-clause position of the remnant to be. For simplicity's sake, I am just assuming adjunction to vP; the exact identity of the site is not relevant to our purposes.

(43) He won't read the novel, but he will the play.

a.



Again, if an anaphor contains internal syntactic structure, we may expect this type of short movement to be possible. However, it is clearly not possible in the case of British *do*:

(44) *Although he wouldn't visit MARTHA, he would do SALLY. Baltin 2012, 391:30

If British *do* did indeed have internal syntactic structure, we would expect it to allow pseudogapping remnants; there would be nothing that would automatically ban such a movement. We would have to add extra constraints to deal with the lack of movement out of British *do*, which we have previously seen are difficult to delineate in a way that does not make certain instances of VPE impossible.

I have shown here that British *do* should be placed in the class of mixed anaphors. It behaves like a record-interpretive anaphor, and it supports a number of covert dependencies that require internal structure. However, just as we expect from a mixed anaphor, it does not allow overt movements. This includes A dependencies. Although we see quite clearly that passive is not possible, and can understand clearly how this follows from an analysis in which the anaphor contains no internal syntax, cases with unaccusative and raising antecedents require more discussion. However, the ultimate conclusion is still that unaccusative and raising antecedents do not provide actual evidence for internal structure; rather, they can easily be analyzed without internal syntax using LF-copying.

3.3.2 Dutch MCA

Dutch modal complement anaphora (MCA) is a predicate anaphor in which the complement to a modal appears unpronounced. While many of the constructions examined here appear as the complement of a rather varied set of TAM material, Dutch MCA, as the name suggests, appears only in the complement to a modal—in particular, the root modals. This limitation is shown below in (45). We see that the use of MCA with a deontic modal is perfectly licit, but use with epistemics is right out.[6] For more details, see Ch 2 of Aelbrecht 2010, which goes into great detail examining the contexts in which MCA can occur.

(45) a. Jelle zal wel betalen, maar Johan kan niet.
Jelle will PRT pay but Johan can not

[6]Dynamic modals generally also allow MCA. Dynamic *kunnen* "can" is an apparent exception to this pattern; it does not allow MCA. Interestingly, *kunnen* can take a *dat* predicate anaphor in its complement with a dynamic reading. Although there is an obvious parallel with *det* anaphora in the Scandinavian languages, I unfortunately do not have time for it here.

'Jelle will pay, but Johan can't.' Aelbrecht 2010, 27:33a

b. Klaas zegt dat hij al klaar is met zijn huiswerk, maar hij
Klaas says that he already ready is with his homework but he
kan toch niet *(al klaar zijn met zijn huiswerk).
can PRT no already ready be with his homework
'Klaas says that he's done with his homework already, but he can't be.' Aelbrecht 2010, 49:61b

As MCA is available only as the complement to a modal, it is worth discussing Dutch modals in a bit more detail. Modals in Dutch are fairly verbal in nature, although they do not behave exactly like full verbs. First, Dutch modals can stack, and can also inflect.

(46) Hij moet goed kunnen koken.
he must good can cook
'He has to be able to cook well.' Aelbrecht 2010, 40:48a

(47) a. Hij mocht niet buiten spelen.
he may.PAST not outside play
'He may not play outside.' Aelbrecht 2010, 40:47a

b. Pieter zal niet mogen komen.
Pieter will not may.INF come
'Pieter won't be allowed to come.' Aelbrecht 2010, 40:47c

Second, they are clearly fully fledged verbs in the sense that they can take a full range of complements, including CPs, DPs, APs, AdvPs, and PPs:

(48) a. Lien wil [dat ik die brief vertaal].
Lien wants that I that letter translate
'Lien wants me to translate that letter.' Aelbrecht 2010, 42:50c

b. Roos mag een ijsje vanavond.
Roos is.allowed an ice.cream tonight

'Roos is allowed to have an ice cream tonight.' Aelbrecht 2010, 43:51a

c. Die spin moet dood.
that spider must dead
'That spider must be dead.' Aelbrecht 2010, 43:51b

d. Deze boeken kunnen al weg.
these books can already away
'These books can be done away already.' Aelbrecht 2010, 43:51c

e. Frederik hoeft niet naar de doktor.
Frederik needs not to the doctor
'Frederik doesn't need to go to the doctor.' Aelbrecht 2010, 43:51d

Although this is clearly quite verb-like, modals are not 'regular' verbs. For example, they cannot undergo passivization; instead, the complement to the modal is passivized. For this reason, Aelbrecht labels modals as category Mod, and not V (Aelbrecht 2010, 44–45). It is worth noting, however, that this is quite expected if modals are raising verbs; raising verbs do not, in general, undergo passive. Rather, their complements are passivized:

(49) a. The city seems to have been destroyed.

b. Meto lijkt te zijn opgegeten door een van de ouders.
Meto seems to been eaten by one of the parents
'Meto seems to be have been eaten by one of the parents.'[7]

I will retain Aelbrecht's Mod label, as nothing in the analysis here hinges on the category label. As it turns out, though, all of the modals we will examine here are in fact raising verbs. This analysis is contra to the claims made in certain

[7]From a narration of the sad journey of a baby stork named Meto; accessed 6 April 2014 at http://mariekopdekiek.wordpress.com/2006/06/10/soap/

areas of the literature, which assume that epistemics are raising verbs, and deontics are control verbs. However, Aelbrecht provides extensive evidence showing that the modals we examine here are also raising verbs. I will not repeat her full argumentation; however, I will provide one of the more easily digestable tests, the presence of expletive subjects. The ability to take an expletive subject is evidence that the predicate does not assign a semantic role to the subject (as the subject is in fact semantically vacuous, and therefore cannot fulfill the presuppositions of any role). Control verbs, which do have presuppositions with respect to their subjects, do not allow expletive subjects. Raising verbs in Dutch allow for expletive subjects in three situations: what we might think of as classic CP-correlate expletives, impersonal passives, and weather expletives. We see both the expletive *het* and the expletive *er*, corresponding to English *it* and *there*, respectively.[8] In all these cases, a comparable control verb is ungrammatical:

(50) a. Het lijkt wel of Tasman Nauru gemist heeft.
it seems PRT that Tasman Nauru missed has
'It seems as if Tasman missed Nauru.' Zwart 2011, 165:67

b. ... dat Tasman Nauru wel gemist lijkt te hebben.
... that Tasman Nauru PRT missed seem to have
'... that Tasman seems to have missed Nauru. Zwart 2011, 165:68

c. *Tasman lijkt (als) of hij Nauru gezien heeft.
Tasman seems as if he Nauru seen has
'Tasman seems as if he saw Nauru.' Zwart 2011, 166:71

[8]Whether weather expletives should all be treated as 'genuine' expletives is a matter of debate; however, it is clear that they are not 'normal' semantic-role bearing elements, and they are certainly degraded with control verbs. The use of a weather expletive with a control verb will either be illicit or will require the speaker to find a referent for the pronoun, generally to some anthropomorphized part of the weather apparatus (say, the sky). Weather expletives are therefore still useful as a distinguishing test for raising versus control.

(51) a. Er lijkt gedanst te worden.
there seems danced to become
'There seems to be dancing going on.' Aelbrecht 2010, 24:17a

b. *Er probeert gedanst te worden.
there tries dancing to become
Aelbrecht 2010, 24:17b

(52) a. Het lijkt te regenen.
it seems to rain
'It seems to be raining.' Aelbrecht 2010, 24:18a

b. *Het probeert te regenen.
it tries to rain
Aelbrecht 2010, 24:18a

Interestingly, it turns out that modals pattern identically with verbs like *lijken*.They allow, for example, both impersonal passives and weather expletives:

(53) a. Er mag gedanst worden.
there may danced become
'People are allowed to dance.' Aelbrecht 2010, p29:27c

b. Er hoeft niet gedanst te worden.
there need not danced to become
'There doesn't have to be any dancing going on.' Aelbrecht 2010,
p29:27d

(54) a. Het moet regenen.
it must rain
'It has to rain.' Aelbrecht 2010, p30:30a

b. Het hoeft niet te regenen opdat ik droef zou zijn.
it needs not to rain so.that I sad would be
'It doesn't have to rain for me to be sad.' Aelbrecht 2010, p30:30d

There is an important conclusion to be drawn here: The subject of the MCA cannot be generated as an argument of the modal, as these heads do not appear to introduce arguments.[9] Instead, the subject of modal constructions is usually generated lower, and then moves to become the higher, derived subject. The necessity of this lower subject position will be crucial in the discussion of certain A dependency facts in MCA; such a position must be independently available.

3.3.2.1 The nature of the modal complement

In order to successfully analyze MCA, we must then ascertain the nature of the complement. Given the fact that the subject must be generated somewhere in this complement, it becomes even more important to understand the nature of that constituent. Aelbrecht assumes that this complement is a TP; this allows her to treat T as the lower ellipsis-licensing head and as a head whose specifier is a subject position. I will argue that the complement is in fact smaller. First, the verbal complements to modals are at least vP sized. This allows for the assignment of full-fledged argument structure, of course; with respect to the syntax alone, it accounts for the fact that modal complement can contain aspectual material. This is overtly true for non-anaphoric sentences; in MCA, the anaphor may be interpreted with aspectual information, indicating that the aspectual information is part of the antecedent:

[9]There is a question here about how this intersects with British *do*; why shouldn't modals in Dutch have the same capacity to introduce an argument, without any particular restrictions on that argument? This is certainly possible; however, we will see in the discussion of phenomena like *er* constructions that there is good evidence that subjects are introduced lower in the structure, and not as as the specifiers of modals.

(55) a. Senne moet zijn kamer opgeruimd hebben.
Senne must his room clean.PRTC have
'Senne is obliged to have cleaned his room.' Aelbrecht 2010, p32:32a

b. Jesse moet zijn huiswerk aan het maken zijn.
Jesse must his housework to the make be
'Jesse is obliged to be doing his homework.' Aelbrecht 2010, p32:32b

(56) A: Ik denk dat Charlotte haar kamer nog altijd niet opgeruimd
I think that Charlotte her room still always not cleaned
heeft.
has
'I think that Charlotte still hasn't cleaned her room.'

B: Goh, tegen vanavond moet ze wel.
well by tonight must she PRT
'Well, by tonight she'll have to have cleaned it.' Aelbrecht 2010, 54:70

Dutch MCA does not allow auxiliaries, including the passive auxiliary and aspectual heads, to appear overtly; although they may be semantically present in the meaning of the anaphor, they cannot be overt. We can therefore conclude that Dutch MCA appears in lieu of a structure that is at least as large as the aspectual layer.

(57) A: Ik denk dat Charlotte haar kamer nog altijd niet opgeruimd
I think that Charlotte her room still always not cleaned
heeft.
has
'I think Charlotte still hasn't cleaned her room.' Aelbrecht 2010, 54:70b

B: *Goh, tegen vanavond moet ze wel hebben.
well by tonight must she PRT have
'Well, by tonight she must have.' Aelbrecht 2010, 54:70b

Further evidence that MCA appears in lieu of a rather sizable constituent is that it only appears with high adjuncts, not with low ones:

(58) A: Wie kan er morgen naar Antwerpen rijden?
who can there tomorrow to Antwerp drive
'Who can drive to Antwerp tomorrow?'

B: Ik kan wel.
I can PRT
'I can.'

B′: *Ik kan wel, maar niet naar Antwerpen.
I can PRT but not to Antwerp

Aelbrecht 2010, 52:65

(59) A: Wie wil er even vooraan komen stan?
who wants there once in.front come stand
'Who wants to come stand in front?'

B: Ik wil wel.
I want PRT
'I want to.'

B′: *Ik wil wel, maar niet vooraan.
I want PRT but not in.front

Aelbrecht 2010, 52:66

Although they may not appear overtly, VP adjuncts are certainly semantically compatible with MCA; this is also true for negation. The anaphor may contain negation, so long as negation is provided as part of the antecedent; however, it cannot remain behind:

(60) a. Je hoeft niet per se snel te schrijven, maar je mag wel
you need not per se fast to write but you are.allowed PRT
snel *(schrijven).
fast write
'You don't have to write fast, but you can (write) fast.' Aelbrecht

2010, 52:67a

b. Je hoeft niet per se snel te schrijven, maar je mag wel.
you need not per se fast to write but you are.allowed PRT
'You don't have to write fast, but you can.'

(61) a. Je mag het vlees opeten, maar je mag het ook
you are.allowed the meat up.eat but you are.allowed it also
NIET opeten.
not up.eat
'You are allowed to eat the meat, but you're also allows NOT to eat it.'

Aelbrecht 2010, 53:68

b. *Je mag het vlees opeten, maar je mag ook NIET.
you are.allowed the meat up.eat but you are.allowed also not

(62) Ze zou liever NIET gaan, maar ze mag niet.
she would rather not go but she is.allowed not
'She'd rather not go, but she isn't allowed (= to not go).' Aelbrecht 2010, 54:69

So far we have seen evidence that Dutch MCA is an anaphor that operates over relatively large structures. As mentioned previously, Aelbrecht argues that the complement to the modal is in general the size of a TP. There are two general reasons for this. First, the anaphor can support the existence of an independent temporal adjunct, as we witness in (64). This is assumed to show that the anaphor must be TP-sized.[10]

[10]The anaphor is clearly not a finite CP; raising out of a finite CP is, as one would predict, ungrammatical (Aelbrecht 2010, 35–36

(63) a. Elke moet (*dat) chocolade kopen.
Elke must that chocolate buy
b. Elke zegt (*dat) Koen van chocolade houdt.
Elke says that Koen of chocolate loves

(64) Gisteren wou hij volgende week pas naar de zee vertrekken, maar
yesterday wanted he next week only to the sea leave but
nu wil hij blijkbaar vandaag al.
now wants he apparently today already
'Yesterday he only wanted to leave for the seaside next week, but now he wants to today already, apparently.' Aelbrecht 2010, 57:74b

The second piece of evidence for the size of the modal complement comes from existential *er* constructions (the correspondent to English existential *there*). In these examples, it appears from the linear order that the correlate of *er* sits below the modal, yet outside the anaphor site. We see this below in (66); (65) shows two examples of *er* expletives in a non-anaphoric context.

(65) a. En er zitten twee boeken in zie jezelf als ouder/juf
and there sit two books to see yourself as parent/teacher
kunt voorlezen.
can read
'And there sit two books that you see you yourself as a parent/teacher can read.'[11]

b. Er staat een olifant in de kamer.
there stands an elephant in the room
'There is an elephant standing in the room.' Schaik-Radulescu 2011, 65:5

(66) Ik ruim niet meer up, hoor. Er mag wel eens iemand anders deze
I clean not more up hear there may PRT once someone else this
kaar.
time
'I'm not cleaning up anymore. Someone else can this time.' Aelbrecht

These sentences are only grammatical if they are not actually full CPs (as indicated by the parenthetical notation). See Aelbrecht for more discussion.

[11]Accessed 6 April 2014 at http://www.kleutersdigitaal.nl/project/kleine-klaas-verhalen-sinterklaas/

Again, this is assumed to show that there must be a TP—i.e., a phrase whose specifier is a classic subject position—sitting below the modal.

However, these arguments do not hold up to scrutiny. First, it is already known that temporal adjuncts can be hosted by verbal material much smaller than TP; all that is necessary is the presence of a genuine bit of verbal material in the structure. Take various *-ing* phrases in English, none of which can plausibly be said to include tense:

(67) a. Going home *at 5p.m.* was a big mistake.

b. His being up early *today* was a surprise.

c. I didn't know about the package arriving *next week*!

There is another reason to believe that the complement to at least most modals is not TP: the fact that T is not realized. First, let us note that the complement to the modal is always an untensed verb; we do not see tensed verbs sitting in these positions. Second, it is notable that the modals by and large do not take infinitival *te*-complements. Traditionally, *te*, like English *to*, has been analyzed as an expression of non-finite T. The majority of the modals we examine here—*mogen*, *moeten*, *kunnen*, and *willen*—do not allow *te* complements.

(68) a. Zij kunnen niet (*te) zingen
they can not to sing
'They can't sing.'

b. Zij moet haar huiswerk (*te) doen
she must her housework to do

'She must do her housework.'

c. Ik mag niet (*te) zingen
I may not to sing
'I may not sing.'

Aelbrecht argues that the fact that some modals—such as *hoeven* and *durven*—allow *te* complements is evidence that the modals do, in general, allow TP complements. However, there are two problems for this claim. The first is one of over-generalization: just because *hoeven* and *durven* may take a TP complement is not evidence that all modals take a TP complement. Second, even though *hoeven* and *durven* take a *te* complement, *te* does not appear overtly with MCA:

(69) a. Hij durft niet te dansen.
he dares not to dance
'He doesn't dare to dance.'

b. Thomas moet dansen, maar hij durft niet.
Thomas must dance but he dares not
'Thomas has to dance, but he doesn't dare to.' Aelbrecht 2010, 48:59b

If we follow Aelbrecht in assuming that *te* is an infinitival marker like English *to*, then by analogy we would place it in T. However, T survives under Aelbrecht's analysis of MCA—therefore, we would predict *maar hij durft niet te* to be grammatical in (69-b).[12]

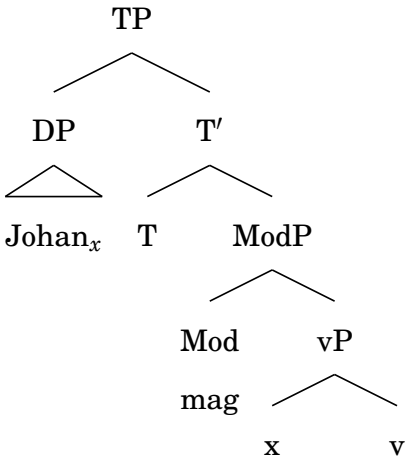
Given these counterpoints, I think that we do certainly want to say that there is some sort of real syntactic complement to the modal available in Dutch

[12]Note that it is not a certainty that *te* is an infinitival marker. For example, Zwart 1993, 101–106 argues that *te* is not the infinitival marker, but rather a preposition/complementizer that happens to appear in some infinitivals. Although Zwart concurrently claims that the verbal suffix *-en* is the infinitival marker, it is not clear where he thinks that marker should be generated in the syntax.

MCA; after all, one must deal with the correlate to *er*. However, I believe that the evidence points to this phrase being smaller than T—rather, it is another sort of verbal phrase. The exact nature of the phrase is unclear, as it is always null, and we therefore have no lexical information. For concreteness's sake, I will assume that it is a vP, headed by a null, anaphoric v. This allows us to license a subject position, in which the correlate to *er* may sit. However, we also expect that the head will not be pronounced (i.e., we do not expect the survival of *te*, no matter *te*'s analysis).

(70) a. Jelle zal wel betalen, maar Johan kan niet.
Jelle will PRT pay but Johan can not
'Jelle will pay, but Johan can not.'

b.



3.3.2.2 The anaphoric status of Dutch MCA

Moving on from here, I will discuss the evidence for anaphoric status. Again, the pragmatic evidence is relatively clear. The data indicate that we have a record-interpretive anaphor, which must be checked against some structure in the dis-

course record.[13]

(71) *Context: A child is reaching for the cookie jar. The child's parent says:*

a. #Jij mag niet!
you may not
'You may not!'

I now move on to the discussion of A-bar dependencies in Dutch MCA. I will begin with the unpronounced dependencies, and then move on to the overt ones. First, it is quite interesting to note that MCA allows both ACD relatives and comparatives. Both are given at the top of the next page:

[13]I leave discussion of MAP out, because of the confounds that are necessarily induced by modality.

(72) Olaf heeft elk boek gelezen dat hij kon.
Olaf has every book read that he could
'Olaf has read every book he could.'

(73) a. Will leest meer boeken dan hij moet.
Will reads more books than he must
'Will reads more books than he has to.'[14]

There are a number of interesting properties revolving around ACD in Dutch MCA; this will be the subject of intensive discussion in Ch 3. For now, I merely wish to note its existence, and to note that ACD in general requires some amount of internal structure to support the dependency that holds between the head of the relative and its corresponding argument position; this is, after all, a relative clause.

Given the fact that ACD is possible with MCA, it is surprising that inverse scope is not possible with MCA. One would expect that both unpronounced dependencies should be possible. However, such sentences are impossible; for example, (74) is considered unacceptable. There is a complication here, in that many speakers dislike indefinite subjects of this type; however, insofar as the example is acceptable, only the surface scope reading is possibe:

(74) ?Een externe reviewer moet elk abstract lezen, maar een interne
an external reviewer must each abstract read but an internal
reviewer mag ook wel.
reviewer is.allowed also PRT
'An external reviewer has to read each abstract, but an internal reviewer can too.' $\exists > \forall$; $*\forall > \exists$ Aelbrecht 2010, 111:fn28

[14] Accessed 21 February at http://fosssil.in/Essays_lobke_LISSIM6.htm.

This discrepancy between ACD and inverse scope is genuinely puzzling. Although we may conclude that MCA has semantic structure, since it allows ACD, much more needs to be said about the lack of inverse scope (see Ch 3).

The next examples I examine involve overt A-bar dependencies—in this case, *wh*-question movement and topicalization. As we might expect, these examples are thoroughly ungrammatical:

(75) ?*Ik weet niet wie Kaat wou uitnodigen, maar ik weet wel wie zie
I know not who Kaat wanted invite but I know AFF who she moest.
must.PST
'I don't know who Kaat wanted to invite, but I do know who she had to.'

Aelbrecht 2010, 63:81a

(76) *Met wat moeite wil ik de Figaro lezen, maar de Minute wil ik
with some effort want I the Figaro read but the Minute want I niet.
not
'With effort, I can read the Figaro, but the Minute, I can't.' Aelbrecht 2010, 72:95b

Since MCA is a record-interpretive anaphor, it must be either a surface anaphor or a mixed anaphor. Its behavior with A-bar dependencies leads us to conclude that it is a mixed anaphor; the fact that it allows (most) unpronounced A-bar dependencies and disallows all pronounced ones is evidence against a surface anaphoric analysis.

3.3.2.3 A dependencies in MCA

I will now discuss the A dependency properties of MCA, and how they fit into the the typology of anaphora argued for here. MCA does not in fact show any sort of movement out of the anaphor site; I show that cases of apparent movement are not actually movement. First, all types of A phenomena seem possible, including passive; we see this with the examples below:

(77) Erik is al langsgekomen, maar Jenneke moet nog.
Erik is already by.passed, but Jenneke must still
'Erik has already passed by, Jenneke still has to.' Aelbrecht 2010, 61:78b

(78) Dorien wou wel komen, maar ze mocht niet.
Dorien wanted PRT come but she was.allowed not
'Dorien wanted to come, but she wasn't allowed to." Aelbrecht 2010, 131:75

(79) Er kan gedanst worden, maar er moet niet.
there can dancing become but there must not
'There can be dancing, but there doesn't have to be.' Abels 2012, 33:26b

(80) A: Gaat er iemand naar het feestje morgen?
goes there anyone to the party tomorrow
'Is there anyone going to the party tomorrow?' Aelbrecht 2010, 56:72a

B: Er moet toch iemand.
there must still someone
'Well, there has to be someone.' Aelbrecht 2010, 56:72b

B:′ *Er moet toch.

(81) a. Ik kan <je> niet <*je> helpen.
I can you not you help
'I can't help you.' Aelbrecht 2010, 64:82a

b. Je moet <hem> <dat boek> al <*hem> <??dat boek> geven.
you must him that book already him that book give
'You have to give him that book already.' Aelbrecht 2010, 64:82c

I will begin the analytical discussion with passive, as this data has been used to argue for the presence of internal structure for Dutch MCA. I claim that it does not in fact provide evidence for internal structure; however, it does provide an instructive example of one type of interaction between passive and the argument structure of a mixed anaphor. Recall that British *do* does not allow passive; it is thoroughly ungrammatical. I have analyzed this ungrammaticality as being due to the presence of passive *be*; passive *be* in English requires an appropriately transitive verb in its complement, and there is no such verb available in British *do*. In the case of Dutch MCA, we see a very different pattern: Passive antecedents are perfectly licit with a 'passive interpretation' for the anaphor. The differences are not limited to this, though. First, note that there is no morphosyntactic reflex of passive structure in the clause containing the anaphor. This contrast between Dutch MCA and British *do* is important; ultimately, it shows that the argument structure of mixed anaphors and the structure of passive interact in subtle but regular ways.

(82) Die broek moet nog niet gewassen worden, maar hij mag al
those pants must still not washed become but they may already
wel.
PRT
'Those pants don't have to be washed yet, but they can be.'

In this case, the antecedent is certainly passive. However, there is no actual morphosyntactic evidence of passive structure in the anaphoric sentence it-

self; there are no auxiliaries left behind. Without the auxiliary, or any other morphosyntactic sign of an actual passive structure, the only evidence for passive syntax is the fact that the anaphor is interpreted similarly to its passive antecedent. As we know from our previous discussion, this does not provide evidence for the structure of the anaphor. In other words, examples like (82) are perfectly compatible with a null proform analysis. There is no evidence that the subject *hij* must have been generated inside, and not above, the anaphor site, nor any other evidence for passive; therefore, for Dutch MCA, the passive cannot be used as evidence for internal structure.

Even if MCA allowed the passive verb to be overt, however, we would still expect to see that passive structure would be possible with MCA. This is for a very simple reason: Dutch, unlike English, allows impersonal passives. The passive verb *worden* allows intransitive verbs in its complements, without any object moving to the subject position:

(83) Er wordt gefloten.
there becomes whistled
'There is some whistling taking place.' Schaik-Radulescu 2011, 65:4

In this case, the argument is exactly opposite from what happens with English: Because *worden* does not require a transitive complement, there is no syntactic crash if MCA is merged with *worden*—other than, of course, the crash that occurs in general if MCA appears anywhere other than the complement of a modal. This means that we predict for Dutch the possibility of a mixed anaphor that has a wider distribution than MCA, and which allows for passive antecedents with passive *worden*; whether this anaphor does indeed exist remains to be seen.

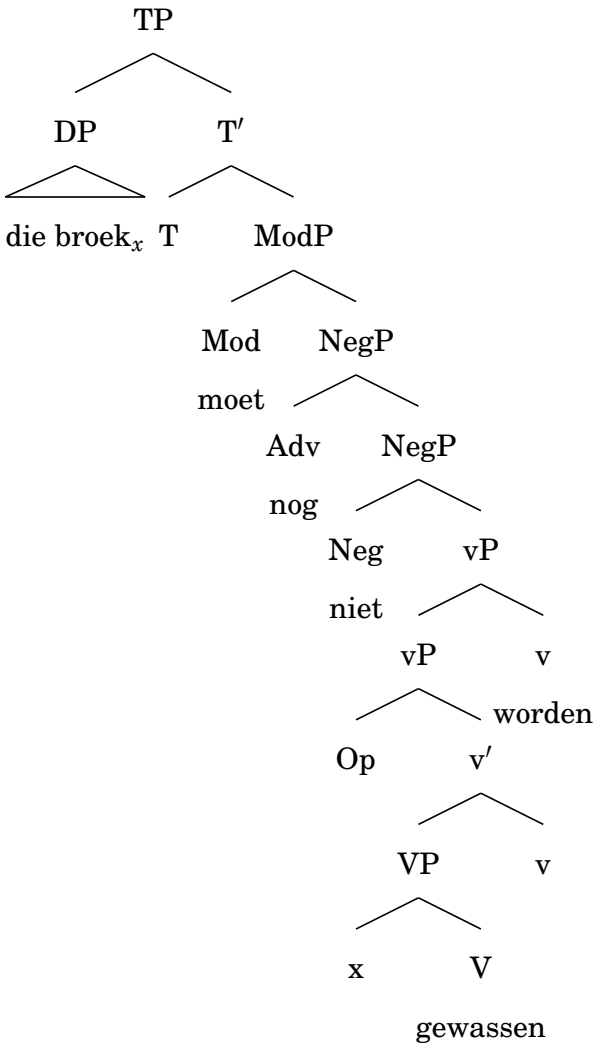
The upshot of this discussion, though, is that we see a principled difference between Dutch and English with respect to passive. Languages like English don't allow intransitive passives. This means that their intransitive mixed anaphors are incompatible with passive; intransitive mixed anaphors can only be possible with 'passive' in English if there's no actual passive structure (i.e., no auxiliary *be* present). Languages like Dutch do allow intransitive passives. Their intransitive mixed anaphors are therefore compatible with passive, even when the passive auxiliary is overt.

I here run through the copying algorithm in the case of passive:[15]

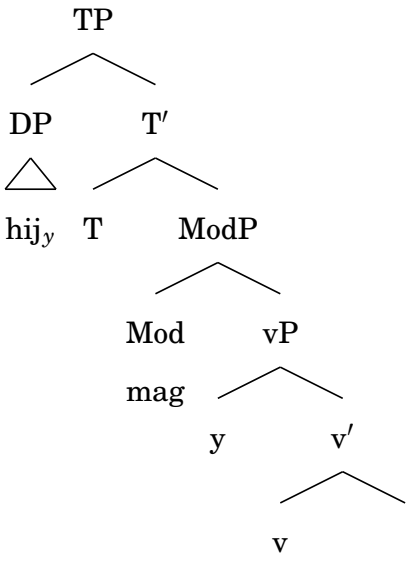
(84) Die broek moet nog niet gewassen worden, maar hij mag al wel.
the pants must still not washed become but they may already PRT
'Those pants don't have to be washed, but they can be.'

[15]I do not deal explicitly with certain details of passive structure, such as the name of the head that introduces passive *worden* 'become' or exactly how the external argument goes silent; I term *worden* a v and place an Op in the external argument position. These details do not matter for the analysis I am demonstrating.

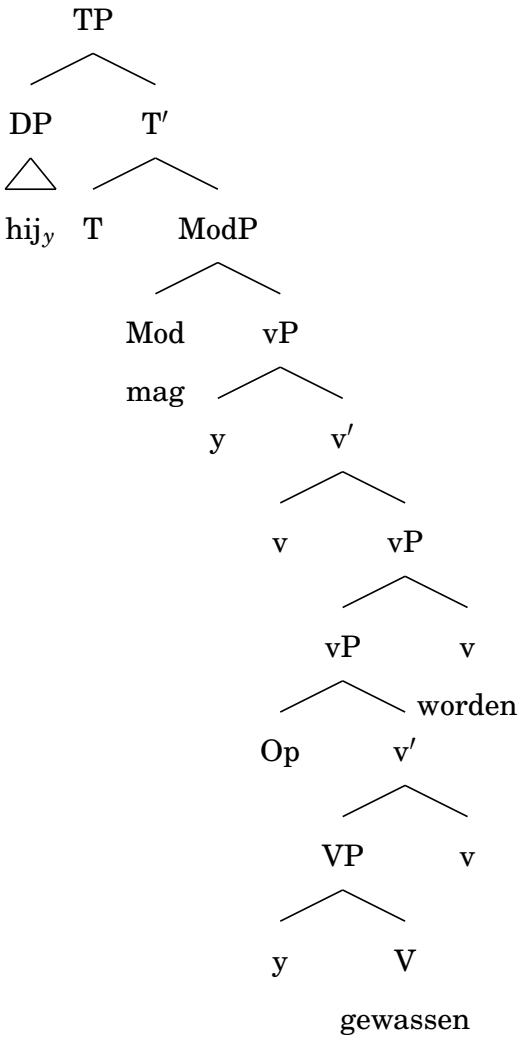
a. *Initial-stage LF of the antecedent*



b. *Syntax of the anaphor*



c. *LF of the anaphor after Recycling and Merge*



We next move on to expletive *er* constructions. Aelbrecht (2010) provides data from Dutch MCA which allows existential *er* constructions (the Dutch cousin of the English *there* constructions). Below we see an example of the *er* construction:

(85) Gaat er iemand naar het feestje morgen?
goes there anyone to the party tomorrow
'Is there anyone going to the party tomorrow?' Aelbrecht 2010, 56:72a

One can respond to a question like (85) with an answer like (86-a), a clause containing both a modal complement anaphor and the *er* construction. Note that the correlate must remain in these cases. If one tries to remove the correlate, then the construction is ungrammatical:

(86) a. Er moet toch iemand.
there must still someone
'Well, there has to be someone.' Aelbrecht 2010, 56:72b

b. *Er moet toch.

Aelbrecht uses this data as evidence for internal structure in the anaphor site, since examples like (86-a) themselves contain the *er* construction, and have an antecedent containing the *er* construction.[16] However, as we know from our discussion of VPE and *do it*, the mere presence of *there* is not sufficient evidence for internal structure. What is crucial as an indication of internal structure is that the correlate can both (a) disappear and (b) still control any possible agreement.[17] We actually see that Dutch MCA patterns identically with *do it*, and not with VPE: The correlate must be pronounced. This is especially surprising under an analysis where Dutch MCA has internal structure, since it is clear that Dutch MCA is a larger anaphor than *do it*; it is more difficult to argue that the chunk of syntax broadly comparable to the anaphor site could not independently host the correlate in non-anaphoric structures. Therefore, although this piece of data has been used to argue that Dutch MCA must have internal structure, this is not

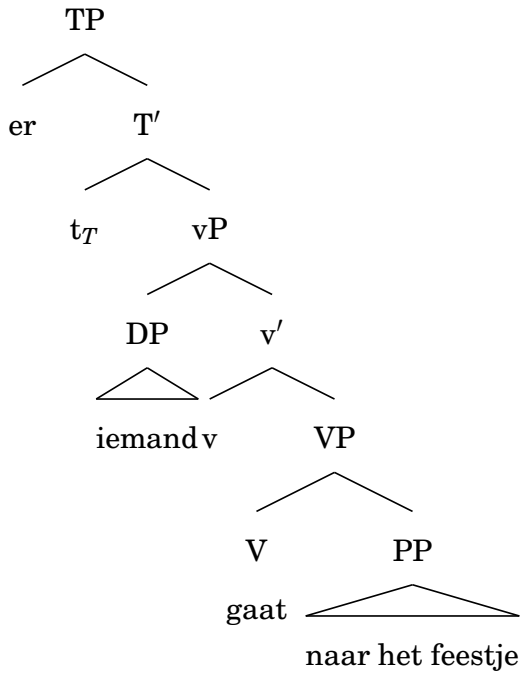
[16] I want to note that intransitive *er* constructions and the expletive *er* that we see here, cannot be completely collapsed (as one requires the presence of its correlate, and the other has no such correlate).

[17] Since Dutch doesn't show φ agreement, we would be unable to test this fully if the correlate could disappear.

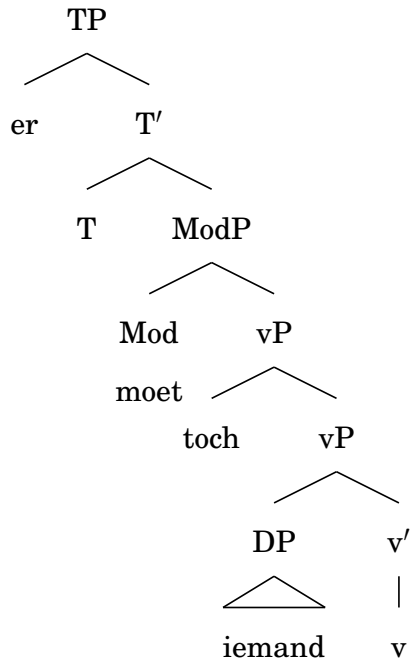
a valid line of argumentation. If anything, it suggests a lack of structure: The correlate must be overt, even though the anaphor takes a fairly large antecedent (thereby suggesting that the correlate should be inside the anaphor site if it is left low).

(87) Gaat er iemand naar het feestje morgen? Er moet toch iemand.
goes there anyone to the party tomorrow there must still someone
'Is there anyone going to the party tomorrow? Well, there has to be someone.'

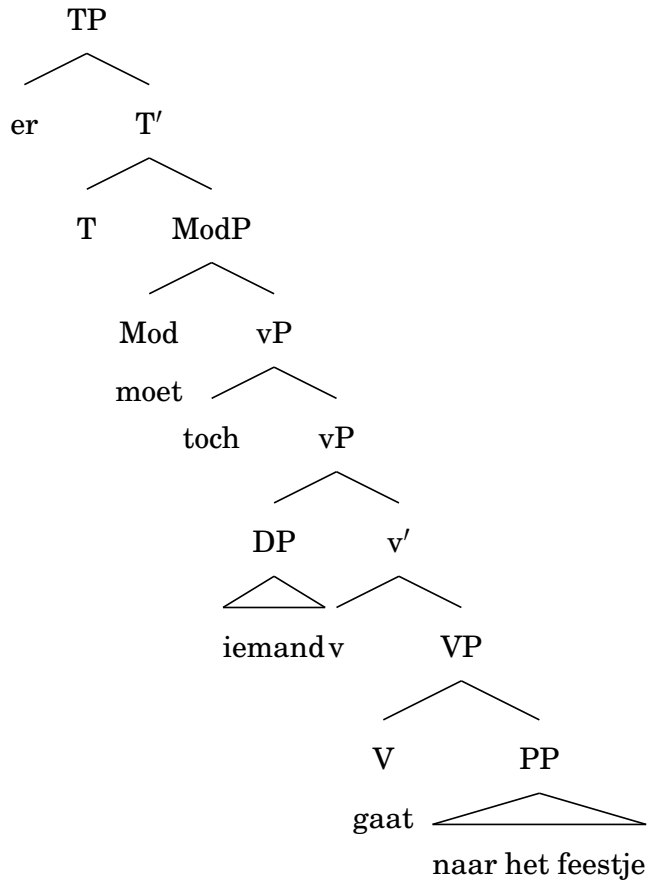
a. *LF of the antecedent*



b. *Syntax of the anaphor*



c. *LF of the anaphor post-copying*



We now move on to the unaccusative. Much like British *do*, MCA allows unaccusative antecedents. Again, much like British *do*, this fact has been used to argue for internal syntactic structure for MCA. However, there is no actual evidence for this structure in the anaphor itself. Dutch is similar to English in lacking the sort of overt morphosyntactic evidence for unaccusatives that we find in some languages. Let us take an example like (88), repeated below:

(88) Dorien wou wel komen, maar ze mocht niet.
Dorien wanted PRT come but she was.allowed not
'Dorien wanted to come, but she wasn't allowed to.' Aelbrecht 2010,

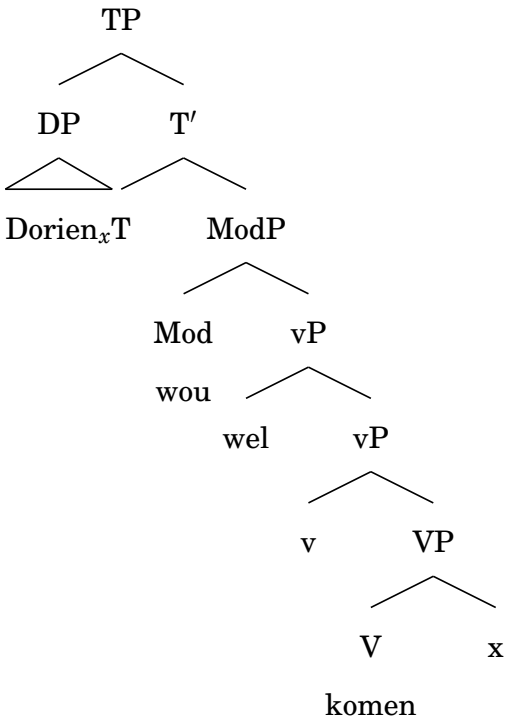
131:75

We can see that there is nothing outside the anaphor site that would make us conclude that the anaphor site itself must contain unaccusative syntax (i.e. there is nothing parallel to passive *be* in English). Although these data would be compatible with an analysis in which the anaphor has internal structure, they are also quite compatible with an analysis in which the anaphor has no such structure.[18]

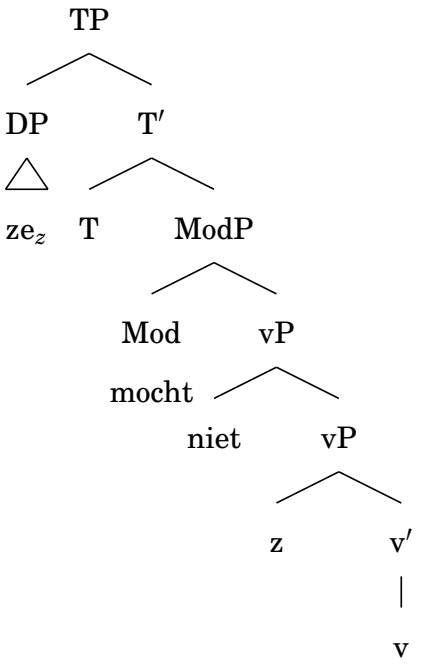
(89) Dorien wou wel komen, maar ze mocht niet.
Dorien wanted PRT come but she was.allowed not
'Dorien wanted to come, but she wasn't allowed to.'

[18]In the following trees, I follow Zeijlstra 2004 in assuming that Dutch sentential negation is an adverbial.

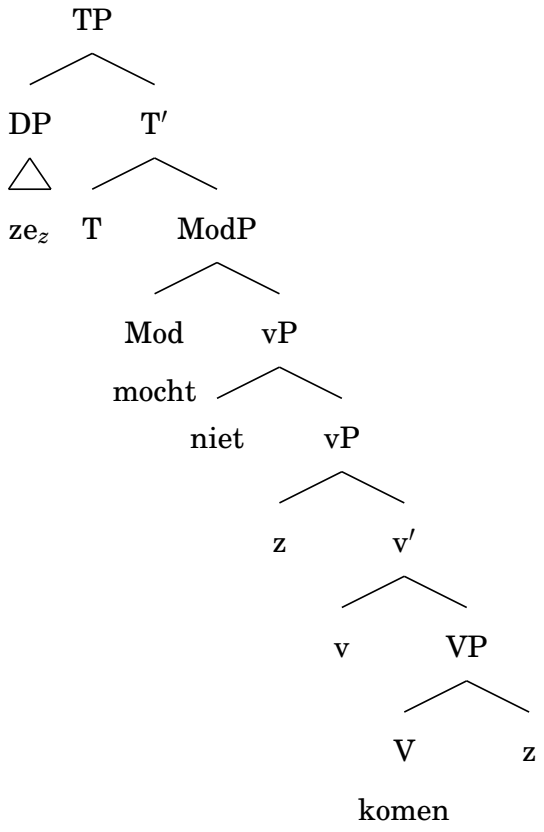
a. *Initial LF of the antecedent*



b. *Syntax of the anaphor*



c. *LF of the anaphor after copying*



I will now go on to talk about an A phenomenon that is not available in English, although we have discussed its cousin, pseudogapping. This is a phenomenon known variably as *object shift* or *short scrambling*. It affects pronominal objects and definite full DP objects in Dutch; it is obligatory for pronominal objects and typically preferred for DP objects.[19] These objects must move to a place in the string preceding negation; they cannot sit after negation (in the case of full DPs, they instead prefer to not sit after negation). We see examples below.

[19]The constraints on scrambling of full DPs appear to be discourse-related (e.g. contrast with other items in context and the like). I do not go into this here.

(90) a. Ik kan <je> niet <*je> helpen.
I can you not you help
'I can't help you.' Aelbrecht 2010, 64:82a

b. Je moet <hem> <dat boek> al <*hem> <??dat boek> geven.
you must him that book already him that book give
'You have to give him that book already.' Aelbrecht 2010, 64:82c

If Dutch MCA contained internal syntactic structure, we would expect to see object scrambling out of Dutch MCA. As it turns out, MCA does not in fact allow object scrambling out of the anaphor site:

(91) a. Ik wil je wel helpen, maar ik kan (*je) niet.
I want you PRT help but I can you not
'I want to help you, but I can't.' Aelbrecht 2010, 65:84a

b. Je mag me komen bezoeken, maar je moet (*me) niet.
you are.allowed me come visit but you must me not
'You are allowed to come visit me, but you don't have to.' Aelbrecht 2010, 65:84c

c. *Ik kan Max wel helpen, maar ik kan Adam niet.
I can Max PRT help but I can Adam not
'I can help Max, but I can't help Adam.' Aelbrecht 2010, 65:86a

If we follow an analysis in which Dutch MCA does not have internal structure, then this is perfectly well understood. The object cannot move out; it also cannot be generated high, as it will not get case in its surface position.

Finally, we run into an interesting Dutch-specific morphological phenomenon which indicates that MCA does not contain any sort of internal structure. Dutch exhibits what is known as the *infinitivus pro participio* (IPP) effect: When a modal occurs in the perfective, the infinitival verb in its complement triggers infinitival marking on the modal, instead of past participle marking.

(92) Ralf heeft (moeten/*gemoeten) werken.
Ralf has must.INF/must.PRTC work
'Ralf has to work.' Aelbrecht 2010, 78:103

Interestingly, MCA blocks this effect: Modals appear in the past participle, and not the infinitive; infinitival marking makes the sentence ungrammatical.

(93) a. Ralf wou niet werken, maar hij heeft gemoeten.
Ralf wanted not work but he has must.PRTC
'Ralf didn't want to work, but he had to.' Aelbrecht 2010, 78:104a

b. *Ralf wou niet werken, maar hij heeft moeten.
Ralf wanted not work but he has must.INF
Aelbrecht 2010, 78:104b

The explanation Aelbrecht offers for this involves the fact that, under her ellipsis analysis, the infinitival verb is present but unpronounced. She assumes, following previous work by Wurmbrandt, that the modal is in fact a past participle in the syntax and at LF; IPP effects are solely phonological in nature. IPP is triggered by assimilation of the modal to the form of the infinitive in order to facilitate the formation of a long verb cluster, a phenomenon which is typical of West Germanic languages. This seems to be an excellent intuition; however, it is not an articulated analysis. To translate this intuition into an analysis that works under Aelbrecht's structure for MCA requires two contradictory things. First, IPP must be triggered only by phonology. For Aelbrecht, IPP effects are triggered only if the infinitive is overt; the non-overt elided infinitive does not trigger IPP. Therefore, IPP effects are triggered by overt phonology. The insertion rule must therefore be written like so:

(94) [MOD] → [INF]/[pronounced verb]__

Since morphophonology exists, it is not a problem to write a rule that involves a phonological conditioning environment. However, IPP is not a morphophonological phenomenon, which becomes clear when we look at the sort of rule that must be written in (94); IPP is not like choosing a consonant-initial suffix for a stem ending in a vowel. It is a morphosyntactic phenomenon, triggered by the presence of certain syntactic features (i.e., the verbal feature that is referenced above). The context is not genuinely phonological, but morphosyntactic. Aelbrecht's analysis therefore involves morphophonological triggering of what is a morphosyntactic phenomenon. This is in some sense counter-cyclic: Phonology affects the realization of a morphosyntactic feature. However, it is crucial that the phonology, and not the syntax of the complement, affects the realization of the modal for Aelbrecht; since the syntax is the same for overt and non-overt complements to modals in Aelbrecht's analysis, the syntax alone could not differentiate between the two realizations. One is therefore required to create contexts like the unusual context in (94).

Under the analysis I propose, on the other hand, IPP effects are quite neatly accounted for. Under this analysis, the realization of the past participle modal as an infinitival modal is triggered by the presence of an infinitival feature in the complement. This can be written like so:

(95) [MOD] → [INF]/[INF]__

When MCA occurs, there is no such infinitival feature; there is only the null v head. Therefore, IPP effects are not triggered. This means that the phonological realization of a morphosyntactic feature is affected by its syntactic context—an interaction that has less of the counter-cyclic flavor of Aelbrecht's analysis.

In sum, we have seen a great deal of evidence that MCA—despite previous analyses that use A dependency data to claim that MCA has internal syntax—has no such syntactic structure. Rather, it is a null head in the syntax, into which compositional semantic structure is later copied.

3.3.3 *Do so*

The next anaphor I examine is *do so*, particularly the variety found in American English. *Do so* varies in some principled ways from British *do* and MCA. British *do* and MCA instantiate what I call the extracting mixed anaphors—they allow some unpronounced A-bar dependencies. *Do so* is the first anaphor I examine that will fall into the class of non-extracting mixed anaphors. It is a record-interpretive anaphor that allows no dependencies whatsoever from within the anaphor site, whether pronounced or not. I will discuss this difference shortly; I begin by providing an overview of the anaphor, as there are some confounds in the application of certain tests due to independent properties of the anaphor.

First, we examine the *do* of *do so*. Again, this is not dummy *do*; *do so* can co-occur with the dummy:

(96) I don't know why Edith wrote to the Turkish ambassador, but the fact of the matter is that she did do so.

It is also not the lexical verb *do*, which has an agentivity requirement; *do* of *do so* has merely an eventivity requirement. Houser 2010 expresses this as a preference, and not a requirement, as he finds corpus examples where the antecedent verb is canonically stative; however, it is well known that event type is not fixed for a particular predicate. Rather, it can change based on syntactic and discourse context. In the case of Houser's examples, I believe strongly that the prototypically stative verb has actually been coerced or otherwise interpreted as eventive in nature, and not stative. This is true of my own judgments, and the judgments of the other American English speakers I have consulted. This means that the *do* of AmE *do so* also differs from that of British *do*, since British *do* requires only a verbal antecedent, with no restriction on the eventuality status of the antecedent; it allows both events and states as antecedents.[20]

(97) a. John ate a doughnut, although he knew that doing so would give him a stomachache.

b. *Felix knows French from school, but doing so hasn't given him an advantage in his job search.

c. . . . AIDS deaths are increasing, and will probably continue to do so, because of the difficulties involved in bringing better therapies to Africa and Asia. Houser 2010, 52:36b

Importantly, we can show that this is a requirement of *do*, and not *so*, as *so* is in other constructions compatible with a stative antecedent (including adjec-

[20]This is likely simple dialectal variation from the British. The *do* of British *do so* is actually claimed to be identical to the *do* of British *do*; it has no requirement on the type of eventuality needed (Quirk, Greenbaum, Leech, and Svartvik 1985, 877–879, cited in Houser 2010, 39:fn2).

tives):[21]

(101) a. Mary knows French very well; so will Matthew, once he's done taking classes.

b. Mary was tired, and so was Cora.

We can also show that the anaphor site itself is relatively small; *so* takes antecedents roughly of vP/VP size. The antecedent cannot just be the verb, but must be at least as large as VP; selected internal arguments cannot appear overtly. For this reason, *do so* has in fact been used as a test for internal argumenthood; if the argument must be silent with *do so*, it is a genuine direct object of the verb (see (102)). Although the anaphor must always find an antecedent of at least VP size, the availability of certain argument structure mismatches, including passive, unaccusative, and middle mismatches, suggests that the anaphor can be smaller than VoiP, and possibly smaller than vP (see Merchant 2008; Chung 2013 and

[21]Please note that instances of fronted *so* with an inverted *do* are not instances of the *do so* I am discussing here, but apparently of *so* with dummy *do*. As can be seen, they do not have an eventivity requirement; curiously, they also do not allow remnants:

(98) Mary knew French very well; so did Matthew.

(99) *?Isobel talked to the gardener with great enthusiasm; so did Violet with some trepidation.

(99) is grammatical only if there is a significant pause between *Violet* and *with*. Some speakers do not accept even that version, and require the insertion of *but* in addition to the pause—at which point it is not longer clear that *with some trepidation* is part of the same verbal complex.

It's also notable that this is not an instance of VPE; VPE is always optional, and the predicate must be silent in inverting *so* cases:

(100) *Mary knew French, and so did Matthew know French.

This anaphor shares some interesting properties with other inverting parenthetical anaphors; unfortunately, we have no more time for it here.

much other work on the relevance of argument structure to the size and structure of anaphor sites):

(102) a. *Isis chased a squirrel, and she did so a rabbit too.

b. *Cora claimed that she was tired, and she also did so that she was not feeling well.

c. Robert said that he would leave for Scotland immediately, and Cora said that she would do so in a little bit.

(103) a. As an imperial statute the British North America Act could be amended only by the British Parliament, which did so on several occasions. Houser 2010, 19:26c

b. %John told Steve to hang the horseshoe over the door, and it does so now. Houser 2010, 20:31b

c. %Mary claimed that I closed the door, but it actually did so on its own. Houser 2010, 20:22b

d. %I was told that this new peanut butter spreads very easily, and I am now very excited to do so. Houser 2010, 20:34a

As we can see, passive mismatch is relatively free; however, causative-inchoative and middle mismatches are less free. There is considerable variation among speakers with (103-b)–(103-d); some speakers accept these, some speakers vehemently do not, and some speakers waffle. There are two possible reasons for this. The first is that it is not clear how large the antecedent for *do so* must be. *Do so* is a relatively uncommon anaphor; it is under pressure from the much more common VPE, which is often preferred to *do so*. It is not unthinkable that speak-

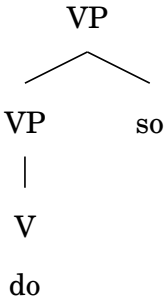
ers may have difficulties forming consistent generalizations as to the exact size of possible antecedents. The second possibility is that not all speakers have the same structures for causative-inchoative and causative-middle pairs, thereby affecting which structures are eligible to be the antecedent for *do so*.

We know, then, that *do* induces several restrictions on the types of antecedents that are semantically appropriate, and that *so* can take relatively small antecedents, including down to VPs for some speakers. The next question is how *so* is related to *do*. *So* appears to be selected by *do*; its presence is necessary for the construction to be grammatical.

(104) You shouldn't play with knives, because (*doing) so is dangerous.

I will treat *so* as a complement to *do*, as this will directly account for the selection relationship. Before moving on, I will briefly discuss Houser's (2010) proposal, in which *so* is an adjunct, as depicted below:

(105)



Houser's claim rests on the fact that *so* is normally an adverbial. Its historical form, *swā*, was adverbial (Houser 2010), and it has a wide variety of non-selected uses in modern English:

(106) a. They were burning brush, and so were we.

b. We wanted to pet the sheep, so we walked down to the pasture.

c. So I was trying to get on the bus at the bookshop. . .

d. He was so genuinely upset that we were worried.

e. They are SO not going to be happy with you.

f. Magda is so the best cat!

The fact that *so* is often an adverbial does not mean that it must be; a lexical item may typically be adverbial but also sometimes appear in selected positions. Although it is possible that modern *do so* developed from an adverbial construction, it does not behave as one now.

I will now move on to discuss the anaphoric status of *do so*. Houser (2010) cliams that *do so* is a deep anaphor, due to the general lack of movement out of the anaphor site; however, he discounts data from MAP and from linguistic control. I will show here that *do so* is indeed a mixed anaphor.

First, *do so* can introduce a salient embedded antecedent, and it generally requires linguistic control:

(107) *Matthew ignores the footman's offer of tea and pours his own instead. Isobel whispers:*

a. #You shouldn't do so, Matthew.

b. #You shouldn't, Matthew.

c. You shouldn't do that, Matthew.

(108) Bates has never stolen a snuffbox, but Thomas has done so. It was blue.

These data show that *do so* is a record-interpretive anaphor. To discard them is to ignore an important part of any anaphor's analysis—its basic usage conditions.

The next set of data to be discussed are those involving A-bar dependencies. Again, Houser's discussion does not dig very deep; he shows only overt A-bar dependencies. These are, of course, ungrammatical:

(109) *I don't know which puppy you should adopt, but I know which one you shouldn't do so.

(110) *Hazelnuts, I'll eat; but peanuts, I won't do so.

(111) *I sold the furniture which I knew my cat might scratch, and I kept the pieces which he already had done so.

Intriguingly, it turns out that all A-bar dependencies are impossible with *do so*. This includes inverse scope and ACD relatives and comparatives:

(112) *He ate more than he should have done so.

(113) *He has read every book that he must do so.

(114) *I sold the furniture that I knew my cat might scratch, and I kept the pieces that he already had done so.

(115) *?At least one representative will support each new measure, and I expect at least one senator to do so, too. $\exists > \forall; \forall > \exists$

It is this particular pattern that will eventually place *do so* in the non-

extracting mixed anaphor camp: *Do so* disallows all A-bar dependencies. This will be discussed in more detail in Ch 3; for now, I note only that the two camps exist, and that *do so* falls into the camp without dependencies.

We next move on to the A dependencies. With the A dependencies, we must keep several semantic confounds in mind. The first is *do*'s eventivity requirement, which rules out the availability of most subject-raising antecednets before one can even begin to discuss internal structure; likewise, it rules out stative unaccusatives, like *exist*:

(116) a. *Robert seems to dislike Tom, even though there's no reason for him to do so.

b. *The administrators aren't sure why the task force exists, and they don't want it to do so.

When we move on to phenomena that do not have these confounds, we get results that are typical of mixed anaphors. Passive is completely impossible, as we would expect for English. We are sure of a passive structure due to the presence of passive *be*. *Do so* is not an appropriately transitive verb:

(117) *This cat was adopted, but that one was not done so.

Additionally, since *do so* allows non-agentive subjects, the problem cannot be attributed to the fact that *that one* is not agentive; similarly, the problem cannot be relegated to stativity, as *was adopted* has an eventive reading available. The argument here should look quite familiar from the earlier discussion of British *do*: If *do so* contained internal syntactic structure, passive should be possible,

and extra constraints would have to be added to account for the ungrammatical data. However, if again we assume that *do so* is a syntactically simple configuration, with no hidden internal structure, then the answer is again clear: *Do so* does not contain a passivizable object.[22] Therefore, we again have the incompatibility of English passive, which requires an object to be raised, with syntactically intransitive predicates.

When we look at unaccusatives, we again see behavior we expect from mixed anaphors: Unaccusatives are quite possible:

(119) ...AIDS deaths are increasing, and will probably continue to do so... Houser 2010, 52:36b

Again, this is perfectly expected if *do so* has no semantic confounds with respect to non-stative unaccusatives. The unaccusative will make a perfectly licit antecedent, even without the presence of internal syntax.

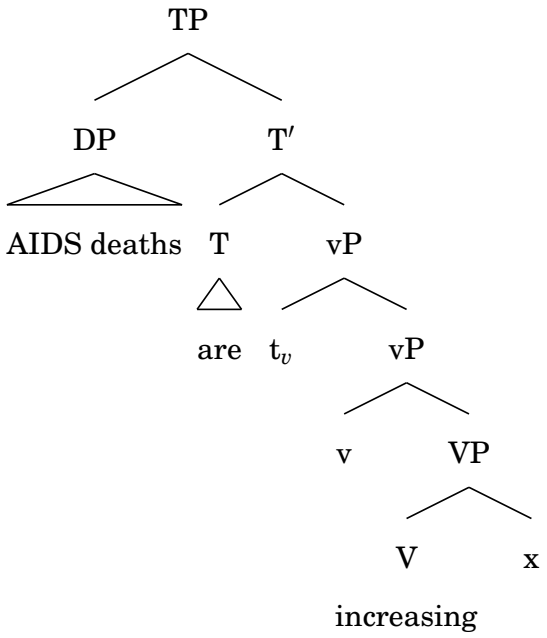
(120) ...AIDS deaths are increasing, and will probably continue to do so.

[22]One might wonder if *so* itself can be passivized; this does not appear to be possible:

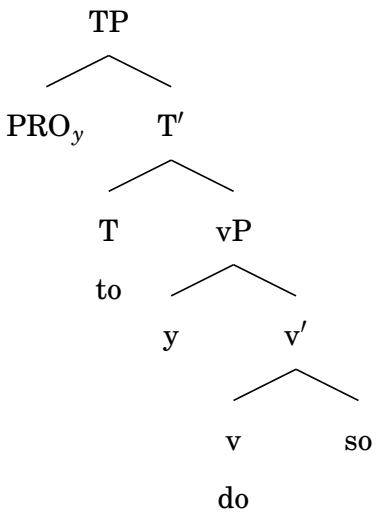
(118) *The schooner was destroyed by pirates, and so was done (the clipper).

For whatever reason, this is ungrammatical; whether this is to be attributed to the category of *so*, or to its syntactic position, is unclear.

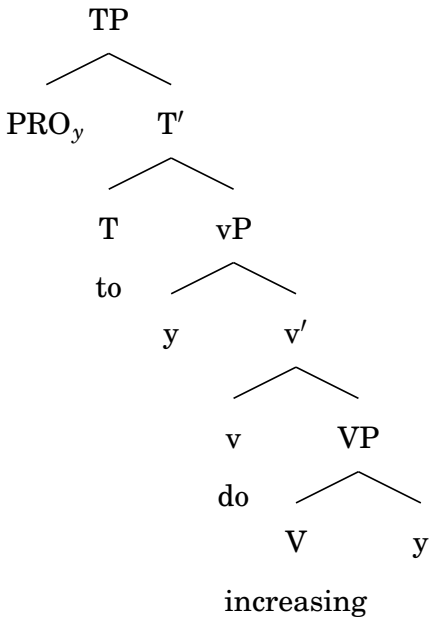
a. *Final LF of the antecedent*



b. *Syntax of the anaphor*



c. *LF of the anaphor after copying*



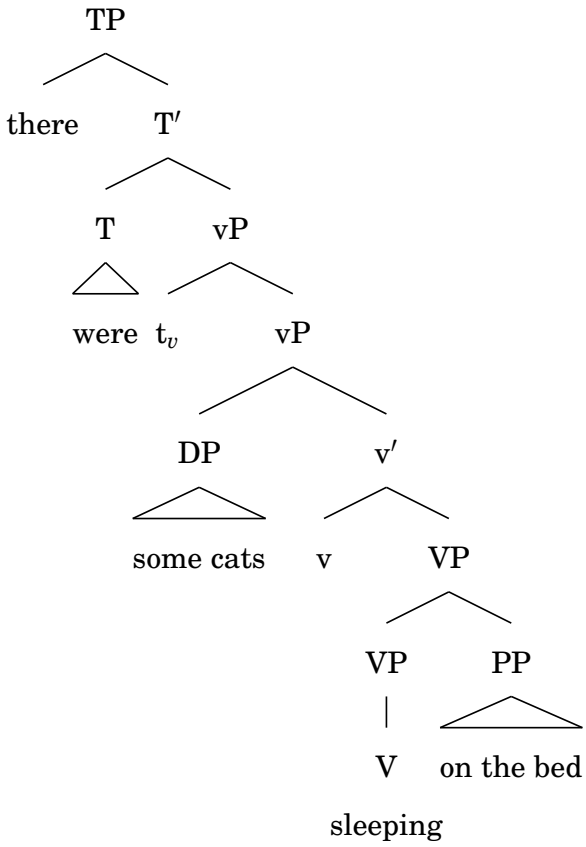
Finally, we also see the results we expect for *there*-insertion with a mixed anaphor. The correlate cannot go silent; it must be overt and control agreement. In each case, removing the correlate produces an ungrammatical sentence:

(121) a. I wanted there to be someone dancing a jig on the table, but there wasn't *(anyone) doing so at all. I was very disappointed.

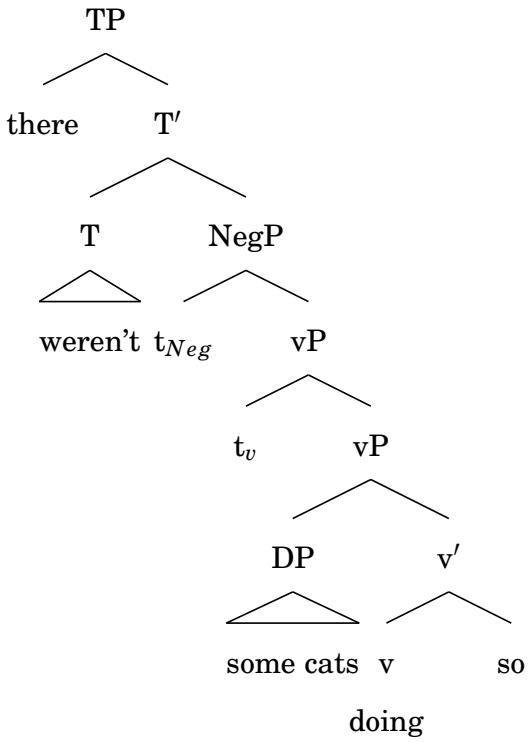
b. We thought there were some cats sleeping on the bed. There actually weren't *(any cats) doing so at all.

(122) We thought there were some cats sleeping on the bed, but there actually weren't any cats doing so at all.

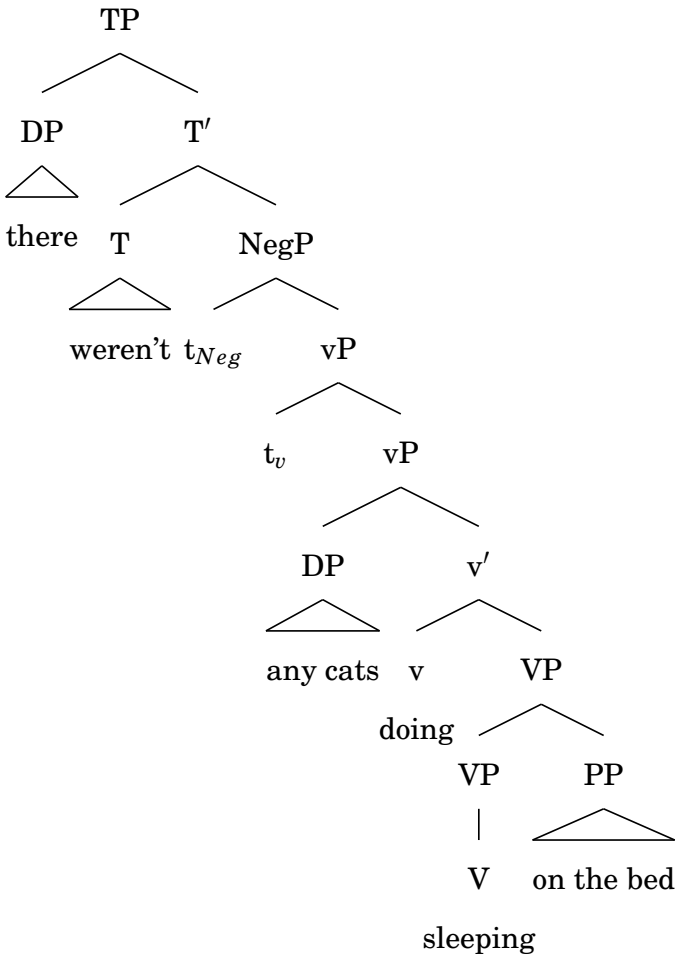
a. *Final LF of the antecedent*



b. *Syntax of the anaphor*



c. *LF of the anaphor after copying*



We have seen, then, that *do so* is a mixed anaphor; it is a particular type of mixed anaphor, which allows no dependencies out of the anaphor site. I have analyzed *do so* as a verb + complement structure, in which *so* sits as the complement to v. We have seen that we can account for the full range of A dependencies (both available and unavailable ones) through an LF-copying analysis.

3.3.4 Swedish *det*

I will now take us through an examination of Swedish predicate *det* anaphora.[23] *Det* is an incredibly common lexical item in Swedish, quite similar to *it* in English. Like *it*, *det* is best analyzed as a D of some type; like *it*, *det* has a wide variety of uses (see Data-Bukowska 2009 for information regarding the many usages of *det*). The usage I focus on here is its use as a bare pronoun/demonstrative. Under this usage, it can refer to many different kinds of objects, including predicates. As a predicate anaphor, *det* can appear as the complement to a variety of verbs. It may appear as the complement to a modal verb ((123-a)), to *göra* 'do' ((123-b)), to *bli* 'become' ((123-c)), and as the complement to a variety of other intensional verbs ((123-d)). The data that I use throughout here will involve this full range of verbs. The discussion is therefore coarse, by necessity; I do not discuss many of the differences that crop up based on which verb *det* appears with, although some will be relevant.

(123) a. Sjön kan frysa i november, och det kan floden också.
the.lake can freeze in November and DET can the.river also
'The lake can freeze in November, and the river can too.'

b. Min hund bits aldrig; men min mamma har en hund som gör
my dog bites never but my mom has a dog that does
det.
DET
'My dog never bites, but my mother has a dog that does.'

c. Fregatten blev förstörd av pirater, och det blev
the.frigate became destroyed by pirates and DET became

[23]Uncited data in this section were collected as part of on-going work with Filippa Lindahl; the vast majority come from a questionnaire sent out to six Swedish speakers, in which speakers were asked to give judgments of a wide range of sentences on a 1–5 scale.

skonaren också.
the.schooner also
'The frigate was destroyed by pirates, and the schooner was too.'

d. Förra måndagen sa min baslärare till mig att "kan du spela
last Monday said my bass.teacher to me that can you play
igenom hela det här stycket till nästa vecka får du en tårta
through whole this here piece until next week get you a cake
av mig, det klarar du aldrig!"
from me you DET manage you never
'Last Monday, my bass teacher said to me, 'If you can play through the whole of this piece next week, you'll get a cake from me. You'll never manage it!" [24]

Additionally, we can see in (123) that *det* can appear in a variety of positions in the sentence. It may be final, as in (124-a); it may undergo object shift ((124-b)); or it may appear fronted into the initial position, as we see throughout in (123) and (123-c)-(123-d) above.

(124) a. Anna älskar fransk musik och Olle gör också det.
Anna likes French music and Olle does also DET
'Anna likes French music and Olle does too.'

b. Hon gör det aldrig
she does DET never
'She never does it.'

The position that *det* occurs in is quite important. Objects may appear in several positions in Swedish, dependent upon various factors (primarily information structural). Therefore, when *det* can appear in one position but not in others, it is not necessarily clear that the issue is a syntactic one; it may be a problem

[24]Accessed 30 April 2014 at http://ellcorn.blogg.se/forstabloggen/2014/january/

with information structure. This has, of course, an interesting interaction with anaphoric status; different anaphors clearly have different sorts of informational structural status. As Bentzen et al. (2012) note for Norwegian, the availability of things like pragmatic control interacts with the position of *det*. Bentzen et al. take this to mean that there is a categorical difference in Norwegian between a 'surface *det*' and a 'deep *det*'; they posit the availability of two different lexical items. We shall soon see that the Swedish data are somewhat complex, and it is difficult to argue on the basis of these data that Swedish simply has two lexical items; the distinctions we see are gradient, and not clear-cut. In general, the fully fronted *det* has the most 'surface'-type behavior; object shifted *det* is in general the least like a record-interpretive anaphor. I will discuss *det*'s position where it is relevant; however, I will not offer any sort of deep analysis of the import of position. Instead, I will simply focus on the cases that are most clearly record interpretive.[25]

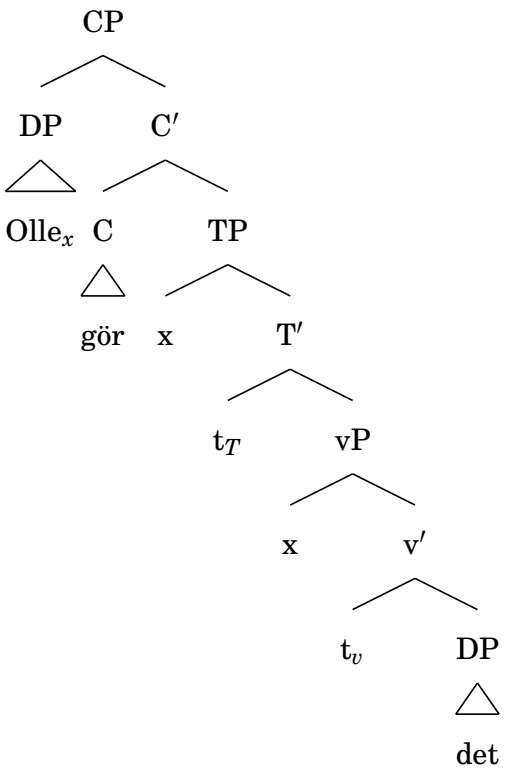
The basic structural analysis I provide for Swedish *det* is like the following:[26]

(125) a. Anna älskar fransk musik och Olle gör också det.
Anna likes French music and Olle does also DET
'Anna likes French music and Olle does too.'

[25]The positional differences and the import of information structure, including the interaction between information structure and the question of how many *det*s exist, are to be discussed in much more detail in currently on-going work with Filippa Lindahl.

[26]The exact identity of the V2 positions is not important for our purposes; their labels, and in the exact configurations by which material reach these positions, may be changed with no effect on the analysis pursued here.

b.



Note that this analysis assumes that *det* itself does not introduce any arguments; it simply finds a suitable antecedent. The argument is introduced by one of the many verbs that *det* may combine with. This structure is supported by two facts: First, *det* cannot appear in the predicative use without an accompanying verb (thereby suggesting that *det* does not introduce an argument; it cannot fulfill all the syntactic requirements of a predicate without assistance). Second, the verbs that *det* appears with all normally introduce arguments. For them to not introduce an argument in this case alone would be quite unusual.[27]

[27]Note that this includes modals like *måste*, 'must'. See Thráinsson and Vikner 1995 for discussion of modals in Scandinavian, where root modals are shown to be control verbs (unlike what we have seen for Dutch).

3.3.4.1 The pragmatics of *det*

I will begin with the discussion of the pragmatically-oriented data. The first that I will discuss is the variable necessity of a linguistic antecedent, here done through the availability of pragmatic control. In these instances, the fronted *det* and the low *det* behave like record-interpretive anaphors. Object shifted *det* behaves much more like a model-interpretive anaphor. There is an interaction here with prosody. If *det* is stressed—which is obligatory for shifted *det*, and optional for fronted and low *det*—*det* takes on its demonstrative usage, instead of the pronominal usage which is the target here. Unsurprisingly, the demonstrative usage behaves differently from the promominal usage; it is much more like the pure demonstrative *det där*. Judgments here are given for the unstressed pronominal usage.

(126) *Context: You see a person who is trying to balance 10 champagne glasses walk from one table to another while jumping on one leg. You say:*

a. *Det klarar du aldrig.
DET manage you never

b. *Du klarar aldrig det
you manage never DET

c. ?Du klarar det aldrig.
you manage DET never
'You'll never manage it.'

d. Du klarar aldrig det där.
you manage never that there
'You'll never manage that.'

e. Det där klarar du aldrig.
that there manage you never

(127) *Context: You see a person threatening to smash a window with a hammer. You don't really think they'll smash the window, and you say to your friend who is with you:*

a. Hon gör det aldrig.
he does DET never
'He'll never do it.'

b. *Hon gör aldrig det
he does never DET

c. *Det gör hon aldrig
DET does he never

d. ?Hon gör aldrig det där
he does never that there

e. Det där gör hon aldrig
that there does he never

From these data, we can conclude that fronted and low *det* are good candidates for genuine record-interpretive anaphora; the object shifted *det* is a worse candidate, and cannot be judged as a record interpretive anaphor from the use of linguistic control alone.

We then move on to MAP, where the data pattern slightly differently. As is expected for a phenomenon as sensitive to pragmatics as MAP is, the judgments show some variance; however, there is still a clear pattern. MAP is possible with fronted *det*; it is somewhat questionable with low *det*, and it is fairly impossible with shifted *det*.

(128) a. *Anna skriver aldrig med reservoarpenna. Jens gör det alltid.
Anna writes never with fountain.pen Jens does DET always
Den är grön.
it is green

'Anna never writes with a fountain pen. Jens always does. It's green.'

b. ?Anna skriver aldrig med reservoarpenna. Jens gör alltid det.
Anna writes never with fountain.pen Jens does always DET
Den är grön.
it is green

c. Anna skriver aldrig med reservoarpenna, men det gör Jens.
Anna writes never with fountain.pen but DET does Jens
Den är grön.
it is green

The shaded availability here is not surprising. As we have seen, MAP is about the ease of introduction of a salient embedded antecedent, and is not a black-and-white matter. A record-interpretive anaphor with an indefinite internal to the anaphor site will introduce a salient embedded referent easily, because it establishes one through the explicit use of linguistic material. In the case of a model-interpretive anaphor, an 'embedded' anaphor is not established explicitly, and therefore has to be inferred. Since inference of a referent is more resource-intensive than the explicit introduction of a referent, we understand that record-interpretive anaphors introduce referents more easily; however, the fact that inference and saliency is a gradient notion makes the introduction of referents gradient as well. What is important about the data in (128) is that the fronted *det* can introduce this referent quite easily.

In sum, we see that *det* in its fronted position behaves like a record-interpretive anaphor. Low *det* is probably also record-interpretive, though the evidence is less clear; shifted *det* does not have the behavior characteristic of a record-interpretive anaphor. I would like to note that this does not mean that that these

are different lexical items; there are easily discourse-related confounds in the position of *det* that will affect its ability to do things like introduce salient embedded referents. However, I will try to use examples with fronted *det* whenever possible; if this is not possible (e.g., we are looking at a case of A-bar extraction that will need to extract to the left clausal edge), then I will use the low *det*. I will now move on to the discussion of A-bar extraction, and then follow up with A phenomenon.

3.3.4.2 A-bar phenomena in Swedish *det*

Just like all other mixed anaphors, Swedish *det* disallows pronounced A-bar movements; we see that in (129) and (130):

(129) *Hasselnötter kan jag äta, men jordnötter kan jag INTE det.
hazelnuts can I eat but peanuts can I not DET
Intended: 'Hazelnuts, I can eat, but peanuts, I can't.'

(130) a. *Jag vet inte vilken katt du borde adoptera, men jag vet
I know not which cat you should adopt but I know
vilken du INTE borde det.
which you not should DET
Intended: 'I don't know which cat you should adopt, but I know which you shouldn't.'

b. *Jag vet inte vilken katt du borde adoptera, men jag vet
I know not which cat you should adopt but I know
vilken du INTE borde göra det.
which you not should do DET

In the realm of unpronounced A-bar dependencies, Swedish *det* patterns with *do so*: It disallows them. This can be shown for quite a wide variety of A-bar dependencies, as we see here for *som*-relatives, ACD relatives, and ACD compar-

atives:

(131) a. *Vi hittade boken som min syster måste läsa, men inte den som
we found the.book that my sister must read but not that that
jag måste det.
I must DET
Intended: 'We found the book that my sister had to read, but not the one that I had to.'

b. Vi hittade boken som min syster måste läsa, men inte den som
we found the.book that my sister must read but not that that
jag måste läsa.
I must read
'We found the book that my sister had to read, but not the one that I had to.'

c. *Vi hittade en halsduk som min syster gillade, men vi hittande
we found a scarf that my sister liked but we found
ingen som jag gjorde det.
none that I did DET
Intended: 'We found a scarf that my sister liked, but we didn't find any that I did.'

(132) a. *Jag läste alla böcker jag behövde det.
I read all books I should DET
Intended: 'I read all the books that I should.'

b. *Jag läste alla böcker jag behövde göra det.
I read all books I should do DET

(133) a. *Jag läste fler böcker än Olle gjorde det.
I read more books than Olle did DET
Intended: 'I read more books than Olle did.'

b. *Jag kunde läsa fler böcker än Olle kunde det.
I could read more books than Olle could DET

(134) a. *Jag läste lika många böcker som Olle gjorde det.
I read as many books as Olle did DET
Intended: 'I read as many books as Olle did.'

b. *Jag kunde läsa lika många böcker som Olle kunde det
I could read as many books as Olle could DET

It is important that these constructions—particularly the ACD relatives and comparatives—are generally possible. For example, Swedish has a correlate to VPE (more limited than English VPE) that can occur with ACD:

(135) a. Jag läste alla böcker jag behövde.
I read all books I should
'I read all the books I should.'

b. Jag läste fler böcker än Olle gjorde.
I read more books than Olle could did
'I read more books than Olle did.'

c. Jag kunde läsa fler böcker än Olle kunde.
I could read more books than Olle could
'I could read more books than Olle could.'

d. Jag läste lika många böcker som Olle gjorde.
I read as many books as Olle did
'I read as many books as Olle did.'

e. Jag kunde läsa lika många böcker som Olle kunde.
I could read as many books as Olle could
'I could read as many books as Olle could.'

We therefore cannot claim that ACD is generally impossible in Swedish; it is just impossible with *det*.

The last A-bar dependency to examine is inverse scope. Inverse scope is not possible with low or shifted *det*, as we see in (137). It is improved—if not always perfect—with fronted *det*.[28] This behavior is not atypical for non-extracting

[28]Some speakers prefer an existential in this context, as in the following:

mixed anaphors—although they strongly disallow ACD, inverse scope is a much greyer area. What governs these judgments is not particularly clear; more will be said in Ch 3.

(137) a. En securitasvakt stod framför varje byggnad.
a security.guard stood in.front.of each building
'A security guard stood in front of each building.' #∃ > ∀; ∀ > ∃

b. En securitasvakt stod framför varje byggnad, och en
a security.guard stood in.front.of each building and a
polis gjorde det också.
police.officer did DET also
'A security guard stood in front of each building, and a police officer did too.' #∃ > ∀; *∀ > ∃

c. En securitasvakt stod framför varje byggnad, och en
a security.guard stood in.front.of each building and a
polis gjorde också det.
police.officer did also DET
'A security guard stood in front of each building, and a police officer did too.' #∃ > ∀; *∀ > ∃

d. En securitasvakt stod framför varje byggnad, och det gjorde
a security.guard stood in.front.of each building and iDET did
en polis också.
a police.officer also
'A security guard stood in front of each building, and a police officer did too.' #∃ > ∀; ??∀ > ∃

Therefore, we so far seem to have a real non-extracting mixed anaphor: *Det* is a record-interpretive anaphor which generally disallows A-bar movements.

(136) Det stod en securitasvakt framför varje byggnad.
there stood a security.guard in.front.of each building
'There stood a security guard in front of each building.'

However, the inverse scope reading for *det* is not actually improved in this syntactic context.

3.3.4.3 A phenomena with Swedish *det*

I now turn to A phenomena. I will talk about three phenomena: passive, unaccusative, and raising. I will not discuss *there*-insertion here. Swedish does not have φ-agreement; therefore, the key component to using *there*-insertion as a test, the possibility of φ-agreement holding across the anaphor site, is already missing. This means that existential sentences are not particularly illuminating here.

3.3.4.4 Unaccusative and raising

With respect to unaccusatives, we see expected behavior: They are indeed possible with our record-interpretive *det*:

(138) a. Sjön kan frysa i november, och det kan floden också.
the.lake can freeze in November and DET can the.river also
'The lake can freeze in November, and the river can too.'

b. Sjön fryser alltid i november och det gör floden
the.lake freezes always in November and DET does the.river
också.
also
'The lake always freezes in November, and the river does too.'

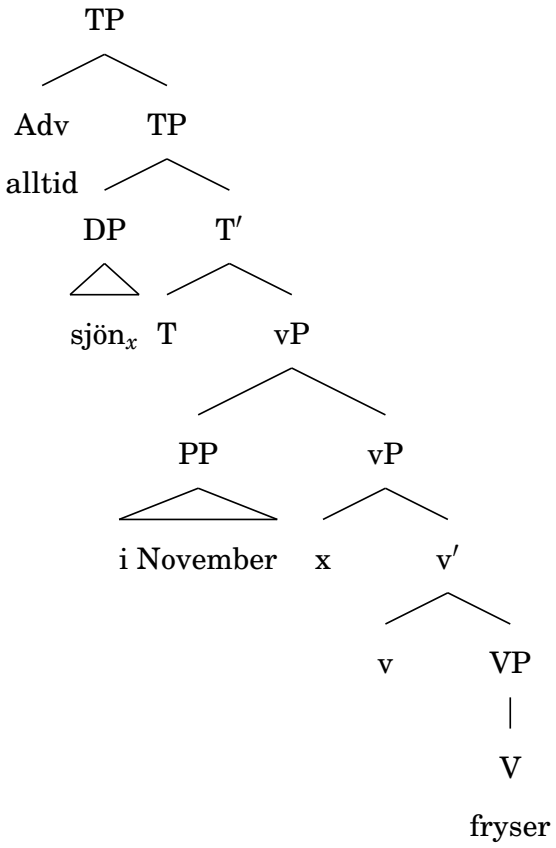
This can be understood as it is for the other anaphors: *Göra* does not have many restrictions on the semantic role of its argument, and so allows a broad range of arguments, including patients. Therefore, *göra det* can find an unaccusative antecedent and copy in the LF structure.[29,30]

[29]The structures here assume that movement of *det* to the clausal edge, like other A-bar movements, reconstructs.

[30]The fact that the DP *det* is replaced by a vP should not be alarming, as *göre* can independently take both nominal and verbal complements; therefore, although there is a category change,

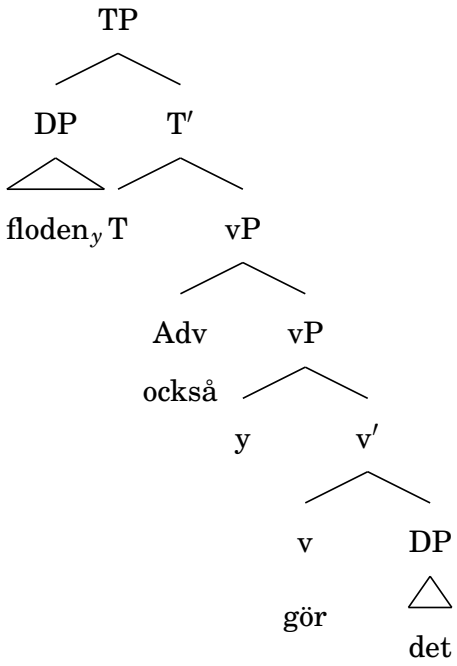
(139) a. Sjön fryser alltid i november och det gör floden
the.lake freezes always in November and DET does the.river
också.
also
'The lake always freezes in November, and the river does too.'

b. *LF of the antecedent*

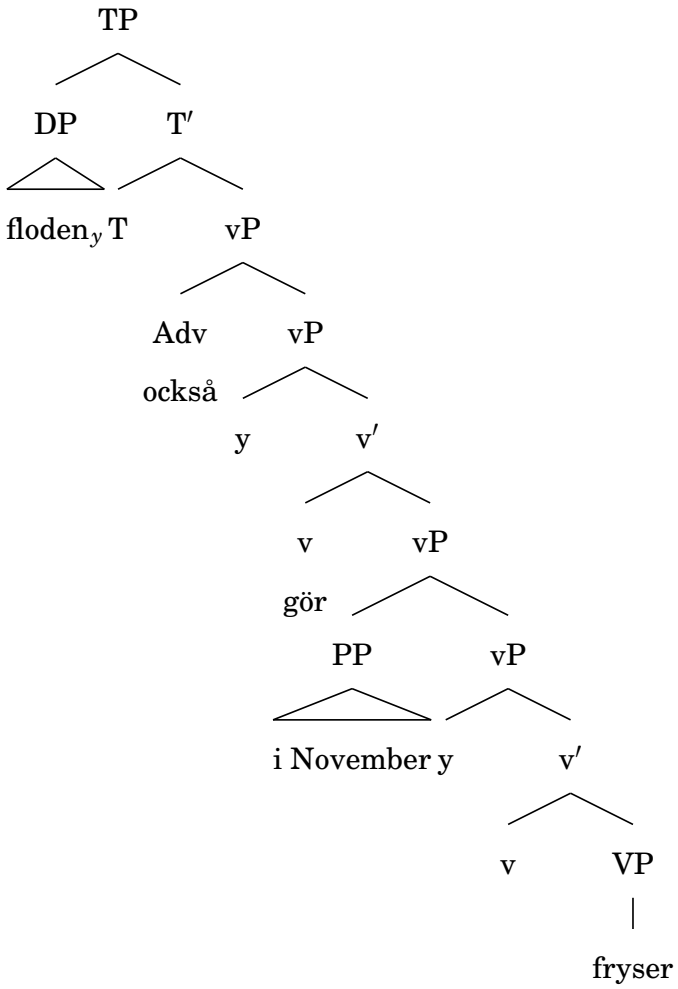


there is no subcategorization clash.

c. *LF of the anaphor pre-copying*



d. *LF of the anaphor post-copying*



Raising examples prove to be slightly more complex. These cases show a strong distinction between the use of *det* with a modal and with *göra*. First, let us note that raising is absolutely possible with modal + *det*; we can see this in (140):

(140) *Context: Anna is single, but told her parents she has a boyfriend so that they would stop asking her about her relationship status. Her parents are in town and want to meet her boyfriend, and so Anna and Olle are*

pretending to be dating.

a. Anna måste verkar vara kär, och det måste Olle också.
Anna must seem be in.love, and DET must Olle also
'Anna must seem to be in love, and so must Olle.'

Again, this is thoroughly expected for a copying anaphor. *Måste* has few restrictions on the external argument. Therefore, a role such as 'agent' or 'experiencer' is not required for the argument; rather, a highly patientive and abstract role (i.e. whatever it is to seem to be in love) is acceptable. The raising structure can therefore be copied in to the anaphor site, and may combined readily with the generated argument.

The behavior of *göra* with raising is quite unlike that of modals. If a lower reading is available, speakers will almost invariably latch onto that reading. If the lower reading is made unavailable—for example, if the predicate in the antecedent's lower clause is adjectival or nominal, and therefore unacceptable as part of the antecedent for *göra*—speaker reactions vary. Some speakers marginally accept examples like (141); others categorically reject them.[31]

(141) %Anna verkar vara sur över att det regnar och det gör Olle också.
Anna seems be acid over that it rains and DET does Olle also
'Anna seems to be upset that it's raining, and Olle does too.'

It is not clear why this pattern should hold, as stative antecedents are generally available in other instances with *göra det*:

[31]Speakers who do not accept the sentences have sometimes commented that 'Olle is being acted upon', perhaps indicating that *göra* is here being used in its capacity as a verb with a meaning close to *make*, i.e. a reading for (141) like 'Anna seems to be upset that it's raining, and it makes Olle (upset) too.'

(142) Anna älskar fransk musik och det gör Olle också.
Anna likes French music and DET does Olle also
'Anna likes French music, and Olle does too.'

However, it is always possible that the problem in this case is not one of stativity, but rather one more closely related to the nature of *verka* and of *göra*. For example, it is possible that modals, but not *göra*, may introduce an athematic subject of the type seen with *verka*. Due to issues of space and time, I do not pursue these data, as it is clear that *det* is possible with raising antecedents; the issue here is clearly with *göra*, and not with the anaphor itself.

3.3.4.5 Passive with *det*

The last A phenomenon I will discuss is passive. Passive in Scandinavian is a rather complex phenomenon. There are two types of passive in the mainland Scandinavian languages: the analytic and the periphrastic passive, shown in (143) and (144) respectively:

(143) Han sköts i benet.
he shot.PASS in the.leg
'He was shot in the leg.'

(144) Fregatten blev förstörd av pirater.
the.frigate was destroyed by pirates
'The frigate was destroyed by pirates.'

As one would expect, there are restrictions on the distribution of the two passives. Both are used; there are various semantico-syntactic factors which relate to the use of the two passives, such as animacy of the subject and the nature of the

verb. Engdahl (2006) concludes that the analytic passive is the unmarked form, which differentiates Swedish from Danish and Norwegian. The *-s* passive is a genuinely verbal passive; it behaves in all ways as a verbal predicate.[32] Semantically, the *-s* passive has a variety of available meanings; hence the designation as the unmarked passive (Engdahl 2006). Examples of the *-s* passive are given below.

(145) a. På den tiden tala-de-s franska vid hovet.
at that time speak-PAST-PASS French at the.court
'At that time, French was spoken at the court.' Engdahl 2006, 22:1

b. Facebook används (av många människor) över hela värld.
Facebook use-PASS by many people over whole world
'Facebook is used (by many people) all over the world.' Laanemets 2010, 4:1c

There are, in addition to the default *-s* passive, two periphrastic passives. These use the verbs *vara* 'be' and *bli* 'become' in combination with the past participle. The past participle is adjectival in nature; this can be shown in several ways, perhaps most obviously with the fact that the participle shows adjectival agreement for number and gender:[33]

(146) Älgen blev skjuten/*skjutet.
the.moose.CM became shot.CM/shot.NEUT
'The moose was shot.' Engdahl 2006, 23:4a

[32]The *-s* morpheme appears outside tense, which is sometimes taken to indicate a high position for *-s* (see Lundquist 2013 for some detailed discussion). I will treat *-s* as a passive morpheme of the usual type here.

[33]CM here stands for common gender; NEUT stands for neuter gender.

(147) a. Skjortan är struken
the.shirt.CM is ironed.CM
'The shirt has been ironed.' Klingvall 2011, 59:9a

b. Skortorna är strukna.
shirt.CM.PL are ironed.CM.PL
'The shirts have been ironed.' Klingvall 2011, 59:9b

c. Örngottet är struket.
the.pillowcase.NEUT is ironed.NEUT
'The pillow case has been ironed.' Klingvall 2011, 59:9c

The choice of verb has a semantic effect on the periphrastic passive. *Bli* passives are used when the focus is on a change of state; *vara* passives are used when the focus is on the result state itself (Engdahl 2006). Take the difference between the two following examples:

(148) a. Talarna blev avbrutna flera gånger.
the.speakers became interrupted several times
'The speakers were interrupted several times.' Engdahl 2006, 23:2

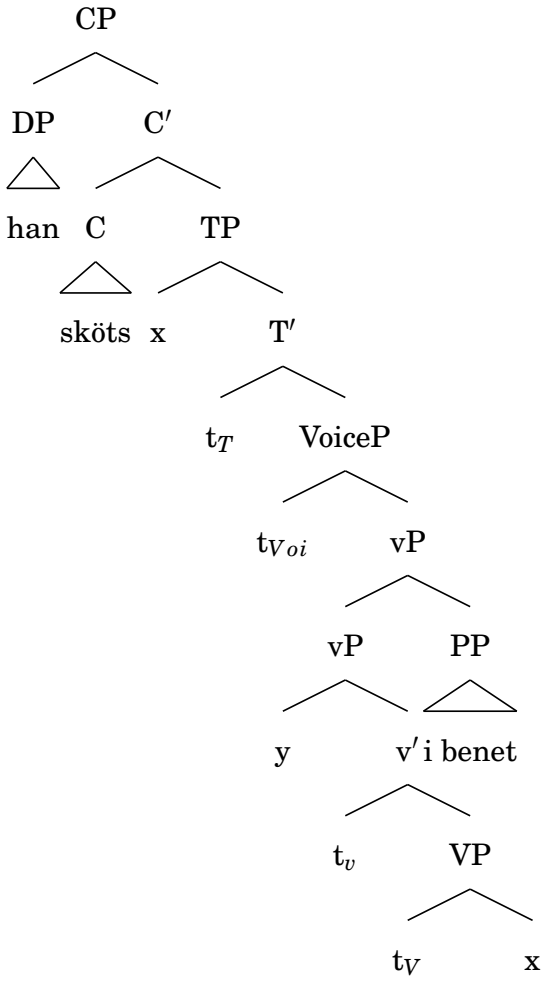
b. Fången var redan avrättad.
the.prisoner was already executed
'The prisoner had already been executed.' Engdahl 2006, 23:3

This is an important distinction. It shows that the verb used here contributes important semantic information; moreover, this is the type of information which we expect a predicate to contribute to one of its arguments. This is therefore evidence in favor of an analysis in which the copular verbs *bli* and *vara* introduce the 'passive' subject, and not the adjectival.

I will take the structures to be roughly as follows for *-s* and *bli* passives. The first is the *-s* passive, which I treat as a true passive involving Voice:[34]

(149) a. Han sköts i benet.
he shot.PASS in the.leg
'He was shot in the leg.'

b.



The analysis for the *bli* passive follows work by Klingvall 2011, which shows that the past participle cannot be analyzed as a genuinely passive participle.

[34]The *-s* morpheme has non-passive uses in Swedish as well; I assume that the structures for those uses are different from passive *-s*, and that the use of the *-s* form has simply been expanded to other related structures.

Rather, the choice between the passive and active uses of the past participle is dependent on the choice of verb. This latter difference can be seen in the example in (150), using both *vara* and *få* 'get'. We see that *katten* still appears as grammatical subject, despite the past participle, and with an interpretation that appears active. Similarly, in (150-b), the external argument of the adjectival *skrivet* is grammatical subject; in (150-c), the external argument of *tvättade* is instead in an *av*-phrase, with the grammatical subject interpreted as some sort of cause or beneficiary. It is very clear then that past participles are not limited to passive or unaccusative readings.

(150) a. Katten är bortsprungen.
the.cat is away.run
'The cat has run away.' Klingvall 2011, 54:3a

b. Per fick skrivet en hel del igår.
Per got written quite a lot yesterday
'Per got quite a lot written yesterday.' Klingvall 2011, 55:4a

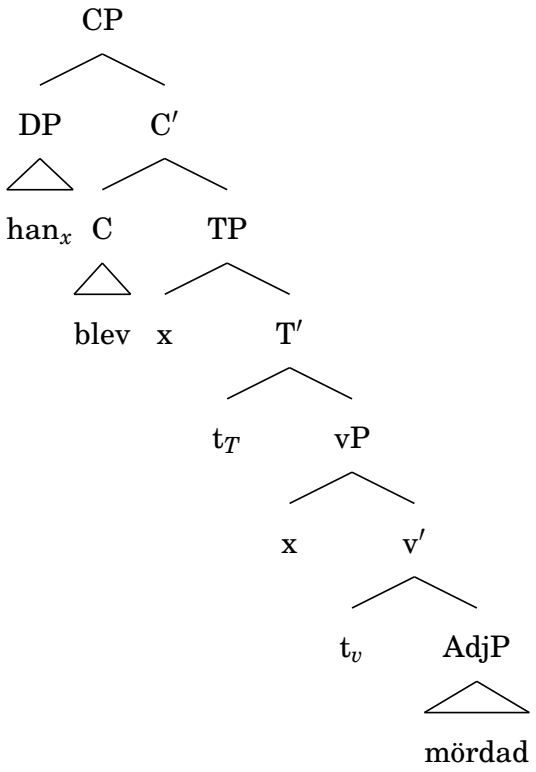
c. Olle fick fönstren tvättade av sin granne.
Olle got the.windows washed by his neighbor
'Olle got the windows washed by his neighbor.' Klingvall 2011, 55:4b

Given these, the nature of the past participle cannot be what determines the 'passive' readings. Since the types of readings that are available vary with the nature of the verb that combines with the past participle, the effects must be due to the verb itself. It is not therefore that we have what we think of as stereotypical 'passive' movement in *bli* passives; rather, the nature of *bli* leads to a passive-seeming reading. I treat *bli* as taking two arguments. The first argument is the adjectival predicate, which denotes some result state. The second

argument is an underspecified individual argument, which is simply entailed to undergo a change of state. The apparent passive meaning is therefore not due to a stereotypically passive syntax involving movement, but fall out from the semantics of *bli* in combination with the participle.[35]

(151) a. Han blev mördad.
he became murdered
'He was murdered.'

b.



We then move on to the interaction between passive and *det*. First, it must be noted that all passive antecedents—*bli* and *-s* passives, including impersonals—

[35]I remain agnostic on the internal structure of the past participle; I assume only that the participle is indeed formed from some sort of verbal structure, and there must be some sort of existential closure which applies to arguments of this verbal structure (as is assumed by Klingvall and others).

are permissible if the anaphor itself is active:[36]

(152) a. Han blev mördad, men vem gjorde det?
he became murdered but who did DET
'He was murdered, but who did it?'

b. Han blev mördad, men det var inte Anna som gjorde det.
he became murdered but it was not Anna that did DET
'He was murdered, but it wasn't Anna who did it.'

(153) Han sköts i benet, men Anna gjorde det inte.
he shot.PASS in the.leg but Anna did DET not
'He was shot in the leg, but Anna didn't do it.'

(154) A: Skvallras det mycket här?
gossip.PASS it much here
'Do they gossip a lot here?'

B: Ja, det gör det.
yeah, it does DET
'Yeah, they do.'

(155) A: Det borde beredas plats för fler parkeringar i Stockholm.
it should prepared.PASS room for more parking in Stockholm
'There should be more room made for parking in Stockholm.'

B: Ja, det borde det.
yes it should DET
'Yes, there should.'

This, of course, tells us nothing about the structure of the anaphor itself, as these data are compatible with multiple analyses; the anaphor could be a deep anaphor or a non-extracting mixed anaphor and still behave this way, since there

[36]Some speakers may dislike (153); however, this is largely due to the fact that the use of the *-s* passive with an animate subject is somewhat less preferred, and sounds fairly formal, especially in speech.

is no evidence for passive in the anaphor itself.

When evidence for passive does exist, we get much more intriguing results. The usage of a *-s* passive + *det* with a *-s* antecedent is not possible:

(156) a. *Fregatten förstördes av pirater, och det gjordes
the.frigate destroyed.PASS by pirates and DET did.PASS
skonaren också.
the.schooner also
Intended: 'The frigate was destroyed by pirates, and the schooner was too.'

b. *Fregatten förstördes av pirater, och skonaren gjordes
the.frigate destroyed.PASS by pirates and the.schooner did.PASS
också det.
also DET

c. *Fregatten förstördes av pirater, och skonaren gjordes
the.frigate destroyed.PASS by pirates and the.schooner did.PASS
det också.
it also

This is not due to any conflict between *-s* passives and, for example, *göra det*. Examples where *göra det* is combined with an *-s* are common; take (157), where *det* is an expletive, or (158), where *det* is an actual raised referential expression.

(157) Det vore vansinnigt att införa betyg från årskurs 4, innan
it would crazy that introduce grades from year four before
det gjorts några utvärderingar av hur det fungerar med betyg i
DET do.PASS any evaluation of how it works with grades in
årskurs 6.
year six
'It would be crazy to introduce grades in year 4 before there had been any evaluation done of how it works with grades in year 6.'[37]

[37]Anders Jönsson, researcher and Professor of Education at Malmö University; from PressDisplay, 28 April 2014.

(158) Det verkar alltid omöjligt tills det gjorts.
it seems always impossible until it do.PASS
'It always seems impossible until it's done.'[38]

We in fact expect to see this sort of asymmetry if *det* is a non-extracting mixed anaphor. *-s* must sit on a verb, which it does in these examples; this causes the verb to be passivized, which will have two effects. First, this will bias *göra* to an agentive reading (to make it a better candidate for undergoing passive); second, it means that the external argument of *göra* will be demoted, leaving the object to either be promoted or to occur in conjunct with an expletive (as in (158) and (157)). This means that examples like (156-b) and (156-c) will automatically be ruled out. The presence of *skonaren* in the initial position bars the *det* from being either an expletive or the actual object of the verb, thereby meaning that these must be ungrammatical. In the case of (156-a), the sentence is ungrammatical for another reason. *Det* could plausibly be either a raised object or an expletive. Since *skonaren* is present, *det* could not be a raised object; however, the expletive *det* reading is unavailable, in that it is difficult for speakers to parse *göra skonaren* 'do the schooner'.

When we turn to *bli* passives, we see a different pattern. *Bli* passives, which do not require the presence of a verb, are possible; however, they are only possible if two requirements are met. First, *det* must combine directly with *bli*. If *bli* combines with *göra det*, then *det* must be passivized, with *göra* appearing in the past participle form:

[38]Nelson Mandela quote; http://xn–kndacitat-v2a.se/nelson-mandela/det-verkar-alltid-omojligt-tills-det-gjorts/

(159) Fregatten blev förstörd av pirater och det blev skonaren
the.frigate became destroyed by pirates and DET became the.schooner
också.
also
'The frigate was destroyed by pirates, and the schooner was too.'

(160) Det är tänkt de ska betala in hyran själva, men för
it is thought they should pay in the.rent themselves, but for
säkerhets skull avdelas personal att gä med och se till
precautions should assigned personnel that join with and ensure
att **det blir** gjort.
that it becomes done
'They are supposed to pay in the rent themselves, but as a precaution, staff are assigned to come along and make sure that it gets done.' Engdahl 2006, 31:20b

Second, a *bli* antecedent is necessary; *-s* does not suffice as an antecedent:

(161) a. *Fregatten förstördes av pirater, och skonaren blev
the.frigate destroyed.PASS by pirates and the.schooner became
gjord det också.
did.SUP DET also
Intended: 'The frigate was destroyed by pirates, and the schooner was too.'

(162) a. *Det pratas alltför mycket här, men det behövde inte
there speak.PASS too much here, but it should not
bli det.
become DET
Intended: 'They talk too much here, but they shouldn't.'

b. *Det arbetades hårt, men det behövde inte bli det.
it was.worked.PASS hard but it should not become it
'They worked hard, but they shouldn't have.'

What looks like a *bli* passive can be understood straightforwardly here. According to the analysis proposed, these are not truly verbal passives. Rather, they are copular constructions using the verb *bli*. *Bli*, in all its forms, takes a prepositional, nominal, or adjectival complement; it does not compose with verbal complements. It may therefore, of course, take *det* as its complement. This selectional restriction has several additional consequences. First, it allows us to understand why *bli* cannot take e.g. an *-s* passive as its antecedent. The *-s* passive is genuinely verbal; copying a verbal constituent into the complement of *bli* will create a crash.[39] However, we do expect to see *bli det* take a *bli* passive antecedent; the material will be able to compose appropriately, just as it does when *bli det* takes a regular adjectival, nominal, or prepositional phrase as its antecedent:

(164) a. Du tror du ska' bli galen, men du hinner inte bli
you think you shall become crazy but you time not become
det, så fort går allting undan.
DET once goes everything away
'You think you'll become crazy, but you don't have time to be, once

[39]There is a possible rebuttal here, which is that category should not matter for LF copying. However, it is not clear that non-checkable features like category should be invisible at LF, which still operates over hierarchical structure. It is also quite clear that category is quite relevant for many anaphors, including *do so*, *be so*, and VPE, which do not allow category mismatch (even when the two are derivationally related). See (10) and (11) for VPE; examples for *be so* versus *do so* can be seen here:

(163) He was it, it was presumed, an innocent man, and if he were so, justice required that this subject should be dismissed in a very different way. *The Parliamentary Register, vol III, 1805-6*

While VP antecedents are only compatible with a use of *do so*, copular antecedents require the use of *be so*, insomuch as *be so* is used in modern English. The use of *do so* is absolutely impossible here.

In addition to these facts, it should be noted that the distinction between a syntactic category crash and a semantic type crash is not always clear.

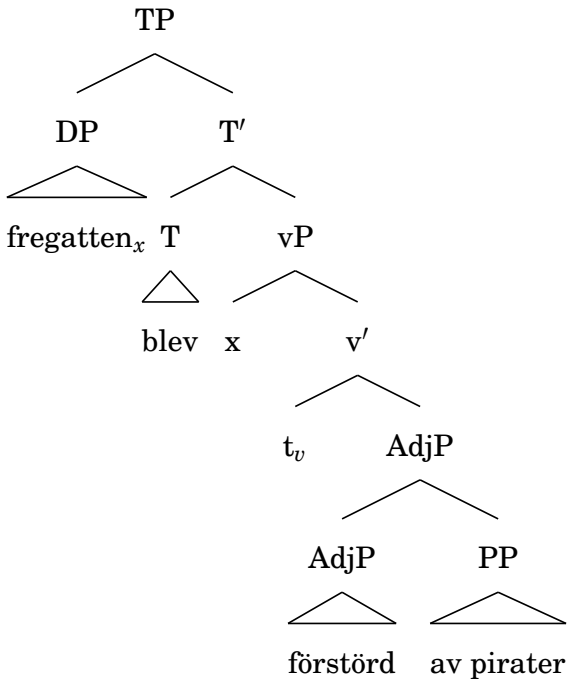
everything goes away.'[40]

b. Han är ingen författare, men han önskar bli det.
he is not writer but he wants become DET
'He isn't a writer, but he wants to become one.'[41]

We can therefore describe the *bli* passives with the following structure:

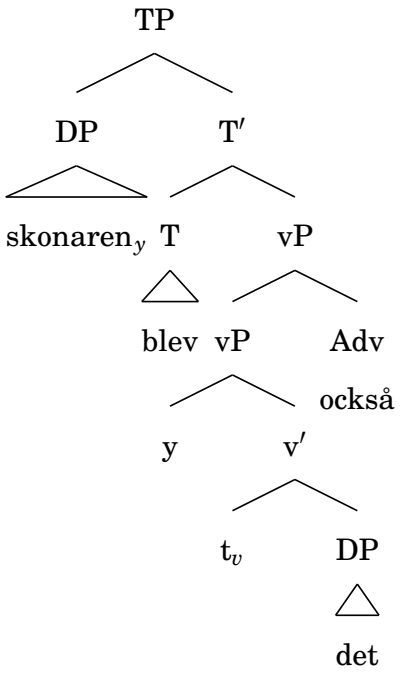
(165) Fregatten blev förstörd av pirater och det blev skonaren också.

a. *LF of the antecedent*

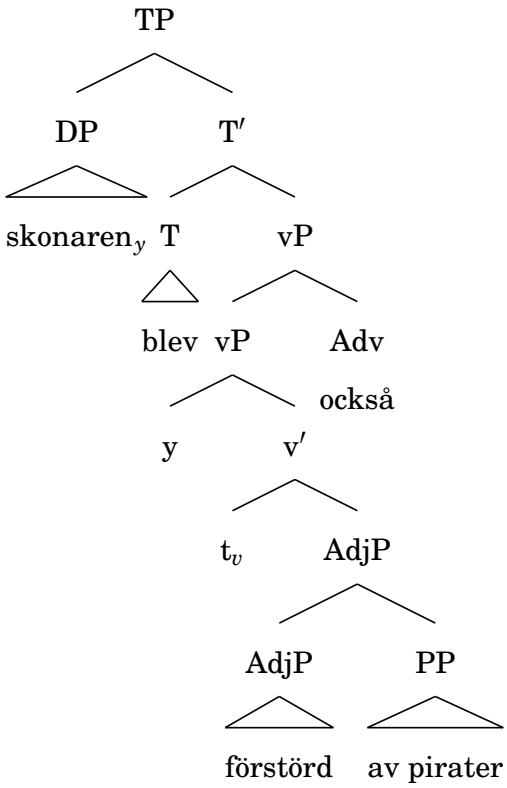


[40] *Swedish Grammar and Reader*, John S. Carlson, 1907:167.
[41] *Elementary Swedish Grammar*, Axel Louis Elmquist, 1914:202.

b. *LF of the anaphor pre-copying*



c. *LF of the anaphor post-copying*



We have now seen that Swedish *det* falls neatly into the class of non-extracting mixed anaphors: Although it must be interpreted relative to the record, it does not allow any overt extractions out of the anaphor site. Furthermore, it allows only unpronounced A dependencies; it allows no unpronounced A-bar dependencies. We have shown that this is accounted for with a final-stage copying analysis.

3.4 A movement and mixed anaphors

At this point, we have done some extensive examination of mixed anaphors. We have seen that there are two subtypes of mixed anaphors: non-extracting mixed

anaphors, which do not allow overt dependencies or unpronounced A-bar dependencies, and extracting mixed anaphors, which generally allow unpronounced dependencies—just not overt ones. These two classes are instantiated by *do so* and Swedish *det* (for the non-extracting cases) and British *do* and Dutch MCA (for the extracting mixed anaphors). This is presented below in Table 3.1.

Table 3.1: *The mixed anaphors*

	pragmatic control	MAP	A dependencies	ACD	inverse scope
British *do*	*	✓	*	✓	✓
Dutch MCA	*	✓	*	✓	*
do so	*	✓	*	*	*
Swedish *det*	*	✓	*	*	*

As part of this investigation, we have examined in-depth the behavior of A dependencies with mixed anaphors. First, we saw that argumentation on the basis of A dependencies must be done carefully. The presence of an antecedent showing a certain A dependency is not sufficient to show that that dependency exists in the antecedent as well. Rather, the anaphor itself must show that dependency. We then saw that, in all cases where the anaphor overtly requires some sort of A dependency, the use of the anaphor is ungrammatical.

Further, we have seen that these data can be dealt with straightforwardly in an LF-copying analysis. The lack of overt syntax in the anaphor site bars any sort of overt A dependency. However, the copying in of a structure, and subsequent rebinding, allows us to easily understand the data which mimic overt dependencies.

Chapter 4

A-bar Dependencies in Mixed Anaphora

The purpose of this chapter is to examine one of the most intriguing parts of the empirical landscape for mixed anaphora: the types of A-bar dependencies that are possible with mixed anaphora. Although all mixed anaphora disallow overt A-bar dependencies, there is considerable variation with the types of unpronounced A-bar dependencies that are possible.

I will begin this chapter by laying out the empirical landscape; I will recap the basic data that were introduced in Ch 2 for each anaphor, and provide a brief summary of the basic patterns. I will show that there are two basic types of mixed anaphors: ones which allow no extraction whatsoever (non-extracting mixed anaphors) and those which allow unpronounced extractions (extracting mixed anaphors). I will show that these classes are not entirely distinct. In particular, extracting mixed anaphors fall into two groups: extracting mixed anaphors which allow inverse scope readings, and extracting mixed anaphors

which do not. Extracting mixed anaphors which disallow inverse scope readings therefore bear a slightly closer empirical resemblance on this point to non-extracting mixed anaphors, which disallow all A-bar dependencies. However, extracting mixed anaphors and non-extracting mixed anaphors will still prove to fall into two highly distinct classes. The differences among the extracting mixed anaphors can be accounted for if extracting mixed anaphors which allow inverse scope copy the initial stage of the antecedent's LF, right after the antecedent has been spelled out; extracting mixed anaphors which disallow inverse scope copy the final stage of the antecedent's LF, right before the antecedent's LF is sent to the conceptual interfaces.

Non-extracting mixed anaphors, as it turns out, will require some extended discussion. Although the analysis painted for extracting mixed anaphors without inverse scope can also serve to rule out inverse scope in non-extracting mixed anaphors, the analysis correctly does not rule out ACD for extracting mixed anaphors, since all extracting mixed anaphors allow ACD. However, non-extracting mixed anaphors strongly disallow ACD. Since the LF copying theory advanced here correctly does not rule out ACD for extracting mixed anaphors, more must be said about non-extracting mixed anaphors. The empirical generalization, I claim, should be tied to the fact that non-extracting mixed anaphors—but not extracting mixed anaphors—involve independently available lexemes; the inability to host A-bar dependencies will fall out from this. I provide a way of analyzing this lexemic difference as involving the copying of non-hierarchical linguistic structure.

4.0.1 A-bar dependencies and mixed anaphora: The data

I will here summarize the patterns we see with A-bar dependencies. Again, recall that not all anaphors behave identically. All mixed anaphors behave alike in that they disallow overt A-bar dependencies; we can see this in (1), (2) and (3).[1]

(1) *Topicalization*

a. *Hazelnuts, I'll eat. Peanuts, I won't do. *British* do

b. *Met wat moeite wil ik de Figaro lezen, maar de Minute wil ik niet.
with some effort want I the Figaro read but the Minute want I not
Intended: 'With some effort, I can read the Figaro, but the Minute, I can't (=read).' Dutch MCA: Aelbrecht 2010, 72:95b

c. *Hazelnuts, I'll eat. Peanuts, I won't do so. *do so*

d. *Hasselnötter kan jag äta, men jordnötter kan jag det INTE.
hazelnuts can I eat but peanuts can I DET not
Intended: 'Hazelnuts, I can eat, but peanuts, I can't (=eat).' Swedish *det*

(2) Wh-*questions*

a. *Although we don't know what Matthew might read, we do know what Tom might do. *British* do

b. ?*Ik weet niet wie Kaat wou uitnodigen, maar ik weel wel wie
I know not who Kaat wanted invite but I know PRT who
zie moest.
she must
Intended: 'I don't know who Kaat wanted to invite, but I know who

[1] *Wh*-relatives in Swedish are sufficiently formal that speakers had difficulty judging sentences; the results were not grammatical, but because of this confound, these sentences are therefore set aside for Swedish, as they will not provide solid evidence.

she had to (=invite).' Dutch MCA: Aelbrecht 2010, 63:81a

c. *I don't know which puppy you should adopt, but I know which one you shouldn't do so. *do so*

d. *Jag vet inte vilken katt du borde adoptera, men jag vet vilken
I know not which cat you should adopt but I know which
du INTE borde det.
you not should DET
Intended: 'I don't know which cat you should adopt, but I know which one you shouldn't (=adopt).' Swedish *det*

(3) Wh-*relatives*

a. *He buys what he can do. British *do*: Abels 2012, 32:24a

b. ?*Hij praat met alle mensen met wie hij kan.
he talks with all people with whom he can
Intended: 'He talks with everybody that he can (=talk with).' Dutch MCA: Abels 2012, 35:34

c. *I talked to everyone who I could do so. *do so*

(4) That-*relatives*

a. *This is a book that you may read; this is a book that you may not do. British *do*

b. *Dit is een boek dat je mag lezen. Dit is degene die je niet mag.
this is a book that you may read this is one that you not may
Intended: 'This is a book that you may read. This is one that you may not (=read).'

c. *I sold the furniture which I knew my cat might scratch, and I kept the pieces that he already had done so. *do so*

d. *Vi hittade en halsduk som min syster gillade, men vi hittande
we found a scarf that my sister liked but we found
ingen som jag gjorde det.
none that I did DET
Intended: 'We found a scarf that my sister liked, but we didn't find any that I did.'

These data, along with the A phenomena data discussed in Ch 2, are evidence against the presence of syntactic structure for mixed anaphors. These data are all accounted for under an LF-copying analysis. The A-bar movements in (1)–(3) are impossible because there is no base position for the moved element to begin in—and, importantly, no way that the moved element could get case or account for relevant selectional restrictions.

The data for unpronounced A-bar restrictions show significantly more variation. British *do* and Dutch MCA both allow ACD relatives and comparatives quite freely, while *do so* and Swedish *det* emphatically do not:

(5) *ACD comparative*

a. At first he felt more relaxed than he had done in a long time. British *do*

b. Will leest meer boeken dan hij moet.
Will reads more books than he must
'Will reads more books than he has to.' Dutch MCA

c. *He ate more than he should have done so. *do so*

d. *Jag läste fler böcker än Olle gjorde det.
I read more books than Olle did DET
Intended: 'I read more books than Olle did.' Swedish *det*

(6) *ACD relative*

a. . . . he could not feel the same bitterness that he had done when he first started to write. British *do*

b. Olaf heeft elk boek gelezen dat hij kon.
Olaf has every book read that he can
'Olaf has read every book that he can.' Dutch MCA

c. *He has read every book that he has to do so. *do so*

d. *Jag läste alla böcker jag behövde det.
I read all books I should DET
Intended: 'I read all the books I should have.' Swedish *det*

Additionally, mixed anaphors show differing behavior with respect to inverse scope. Judgments here are not as black and white as judgments for ACD; there are also confounds with scope data that are not seen with ACD. For example, we saw in Ch 1 that epistemic containment sometimes proves to be a confound for scope judgments with British *do*. However, there are still clear patterns to be found. Inverse scope is widely possible only with British *do*; inverse scope with Dutch MCA, *do so*, and Swedish *det* is questionable at best:

(7) *Inverse scope*

a. A man will read every book, and a woman will do too. $\exists > \forall, \forall > \exists$

b. ?Een externe reviewer moet elk abstract lezen, maar een interne
an external reviewer must each abstract read but an internal
reviewer mag ook wel.
reviewer is.allowed also PRT
'An external reviewer has to read each abstract, but an internal reviewer can too.' $\exists > \forall$;
$*\forall > \exists$

c. A guard will stand in front of every building, and a police officer will

do so, too. ∃ > ∀; ?*∀ > ∃

d. En securitasvakt stod framför varje byggnad, och det gjorde en
a security.guard stood in.front.of each building and DET did a
polis också.
police.officer also
'A security guard stood in front of each building, and a police officer did, too.' ∃ > ∀; ??∀ > ∃

These are the basic data for A-bar constructions in mixed anaphors. We can see two important basic patterns. First, some anaphors categorically disallow A-bar dependencies out of the anaphor site, while others do not; this is an important distinction. Second, the availability of ACD is not dependent on the availability of inverse scope; we therefore do not wish to rule both out at once.[2]

4.1 The analysis of extracting mixed anaphors

This section focuses on the key requirements for a copying analysis of extracting mixed anaphors, using a May-style LF with QR (May 1985). Under this analysis, the anaphor is a head in the syntax. It therefore cannot support syntactic dependencies, such as overt movements or case or agreement relationships. Later, at LF, the LF of the antecedent is copied into the anaphor site. As previously discussed, this allows us to account for the record-interpretivity of mixed anaphors; it also allows us to account for the A dependency properties of mixed anaphors. We also saw in Ch 2 that an LF copying analysis accounted for the rather broad range of A phenomena interactions found with mixed anaphors. No genuinely

[2]Whether the opposite is true—that the availability of inverse scope is dependent on the availability of ACD—would require further research. Although there is a possible correlation, we do not have enough data to make the claim.

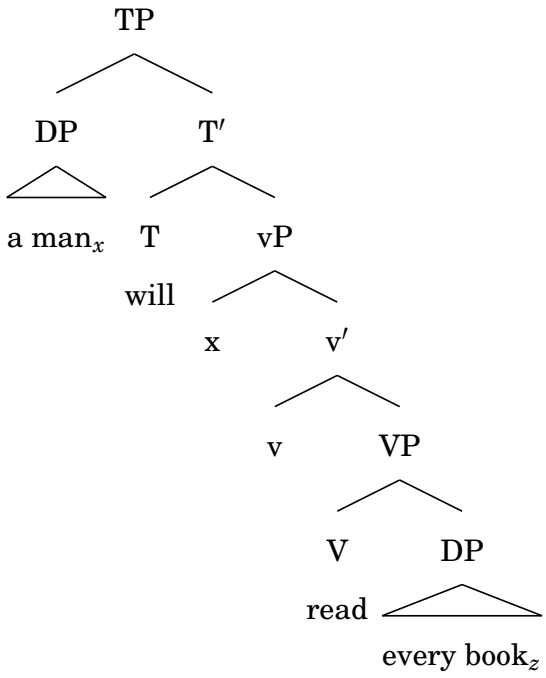
syntactic A dependencies—e.g., no genuine passive subject raising—was possible, the only possible A phenomena were those that could be accounted for solely by rebinding at LF. This analysis also lets us understand much of the A-bar phenomena that we see. There are two important possibilities that LF copying gives us. The first is the possibility of genuine LF movement of an operator that has been copied into the anaphor site: Once the operator has been copied in, it is eligible to undergo any normal operations. The second is the possibility of rebinding: If LF copying results in the production of some unbound A-bar copy in the anaphor site, that copy can (and must) be rebound by higher operators.

4.1.1 Inverse scope

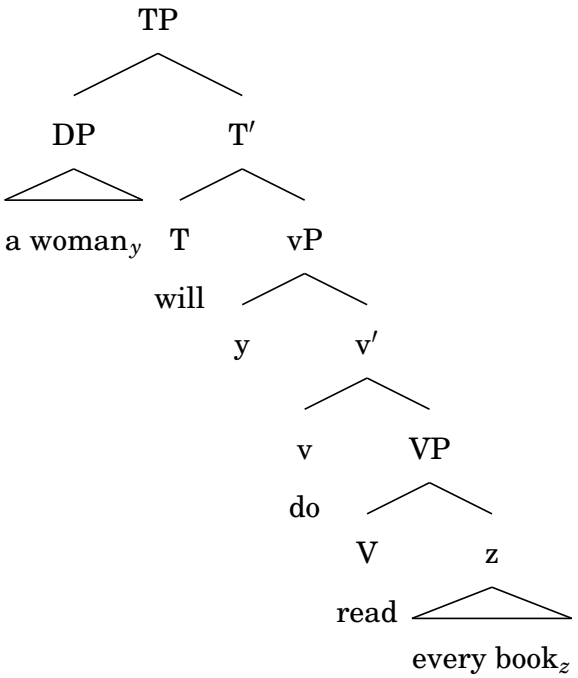
Let us begin by examining the production of inverse scope. I will start with British *do*, which appears to instantiate the first possible type of structure: the movement of a copied operator. British *do* itself contains no object in the syntax, and therefore cannot contain any sort of phrase corresponding to *every book* in the syntax. However, the anaphor clearly involves a scopal interaction between the overtly present subject and the overtly absent object—one in which the object takes wide scope. Since the overt syntax does not supply this material, the relevant LF material must be copied in.This is the type of LF that we see right after the Spell-out from syntax; no LF movements have yet occurred. After this is copied in, there is now a great deal of material inside the anaphor site, including the quantificational phrase *every book* (see (8-b)). This phrase can now move, as is necessary for QR analyses of quantifier scope, and results in the licit LF in (8-c).

(8) A man will read every book, and a woman will do too. $\exists > \forall; \forall > \exists$

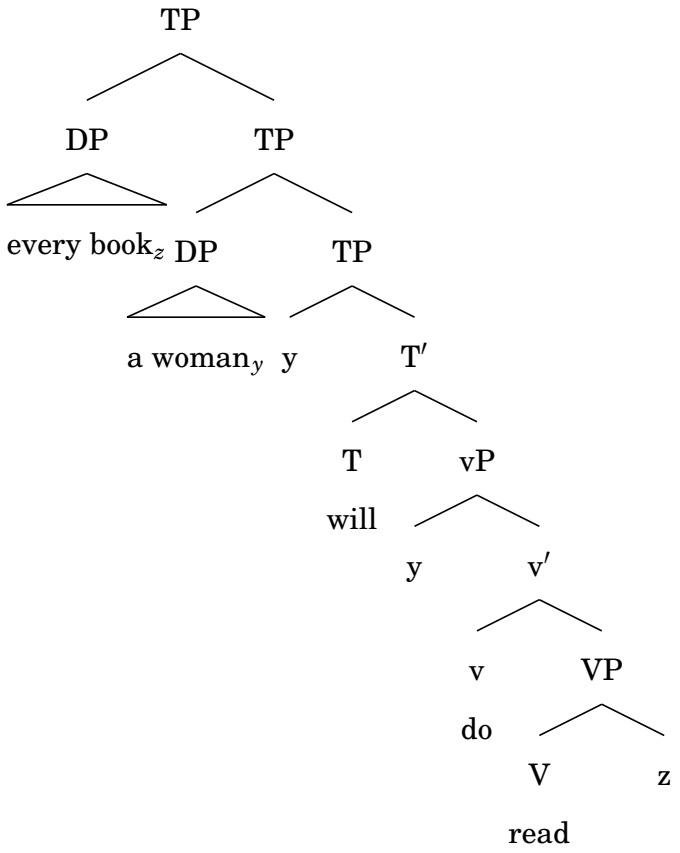
a. *LF of the antecedent*



b. *LF of the anaphor after copying*



c. *LF of the anaphor after QR*



We therefore see that a very basic example can be accounted for under this type of analysis. The analysis needed here is not complex; as long as the initial LF of the antecedent is copied in to the anaphor site, we expect inverse scope to be possible. However, as a whole the interaction of extracting mixed anaphors with inverse scope is more complex. After all, extracting mixed anaphors like Dutch MCA do not allow inverse scope at all:

(9) ?Een externe reviewer moet elk abstract lezen, maar een interne
an external reviewer must each abstract read but an internal
reviewer mag ook wel.
reviewer is.allowed also PRT

‘An external reviewer has to read each abstract, but an internal reviewer can too.’ $\exists > \forall$; $*\forall > \exists$

These data must, of course, be accounted for—and they can be, provided we change an assumption that was made for British *do*. For British *do*, we assumed that the anaphor copied in the LF of the antecedent as it looked right after Spell-out. This means that it copied an LF that contained the relevant quantifier.

Note that this is not an innocent assumption. Before this point, we have not needed to discuss the complexity of the copying algorithm itself; we have just said that an appropriately-sized chunk of hierarchical structure is copied in from the discourse record. We have not said a great deal about what these structures are—only that they are syntactico-semantic pairs.

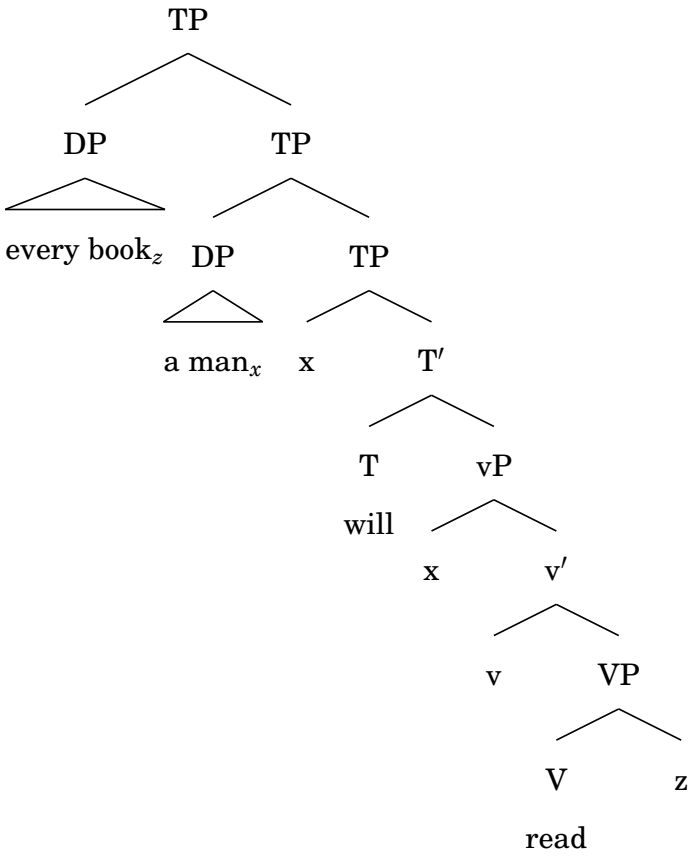
What does it mean, then, to be a syntactico-semantic pair? Such pairs should contain hierarchical structure for both the syntax and semantics—e.g., information at the very least about both syntactic selection and semantic compositionally. Since these pairs are for entire utterances, we must therefore have the hierarchical information available for the entire utterance. Under a Minimalist grammar, this is important: Once we have the hierarchical information for an entire utterance, we can trace the entire derivational history of the utterance, both forward and backward. By having access to one full stage of the hierarchical structure, we have access to every stage in the derivation of that structure. The claim that I make here is that mixed anaphors are sensitive to different stages of the derivation of a linguistic structure. Extracting mixed anaphors are sensitive to the hierarchical stages. Extracting mixed anaphors like British *do* copy the initial stage of the antecedent’s LF; this means that the anaphor can do things like copy in

quantifiers. Other extracting mixed anaphors, like Dutch MCA, copy in the final stage of the antecedent's LF, right before that LF is handed off to the conceptual interface. This means that they do not copy in quantifiers (which have moved) but rather the residue left behind by those quantifiers. (I will claim later that non-extracting mixed anaphors, which also copy linguistic structure, differ from extracting mixed anaphors in that they copy non-hierarchical linguistic structure; I will say more on this in §2.1.)

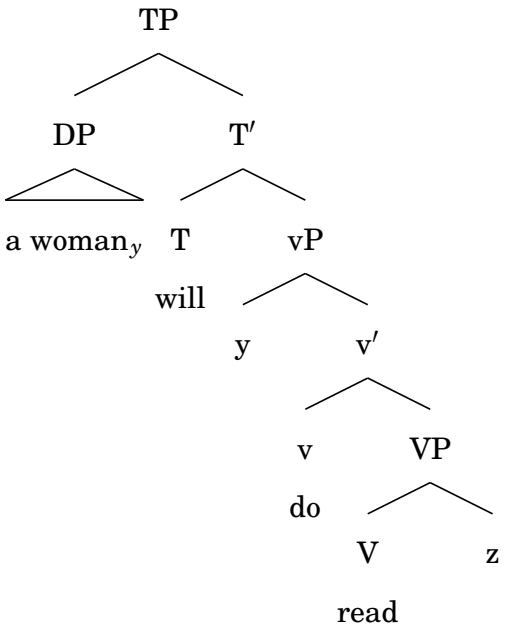
I will now use British *do* and Dutch MCA to illustrate what happens if the final LF stage is copied in. Given final stage LF copying, all quantifiers—such as *every book* in (10)—will have QRed out of the antecedent site, leaving behind a bound copy. When the antecedent site is copied, it does not contain the binding quantifier. This means that the lower copy of the quantifier is no longer bound after it is copied into the anaphor site. Since there is not a higher operator which can rebind the variable it will remain unbound. This is illustrated here for British *do*:

(10) A man will read every book, and a woman will do too. $\exists > \forall; \forall > \exists$

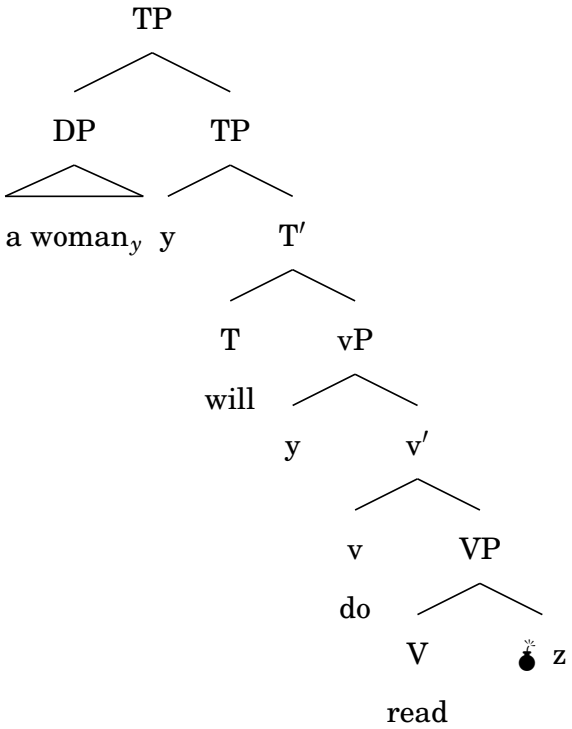
a. *LF of the antecedent after QR*



b. *LF of the anaphor after copying*



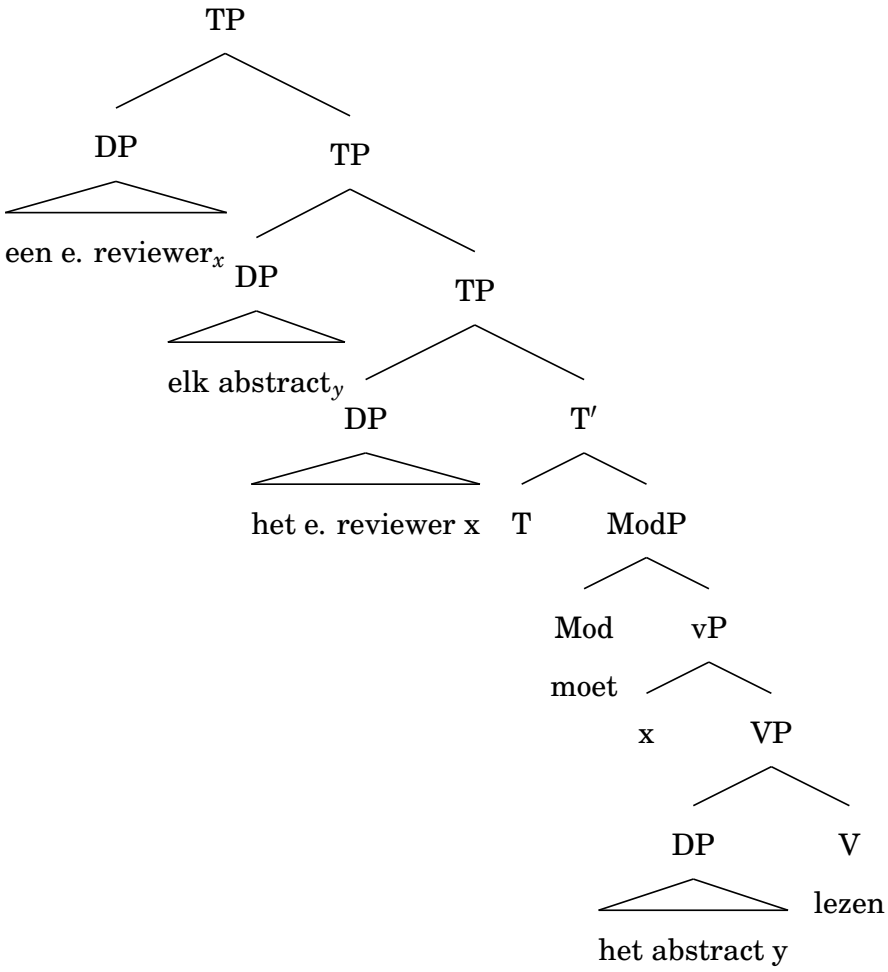
c. *LF of the anaphor after QR*



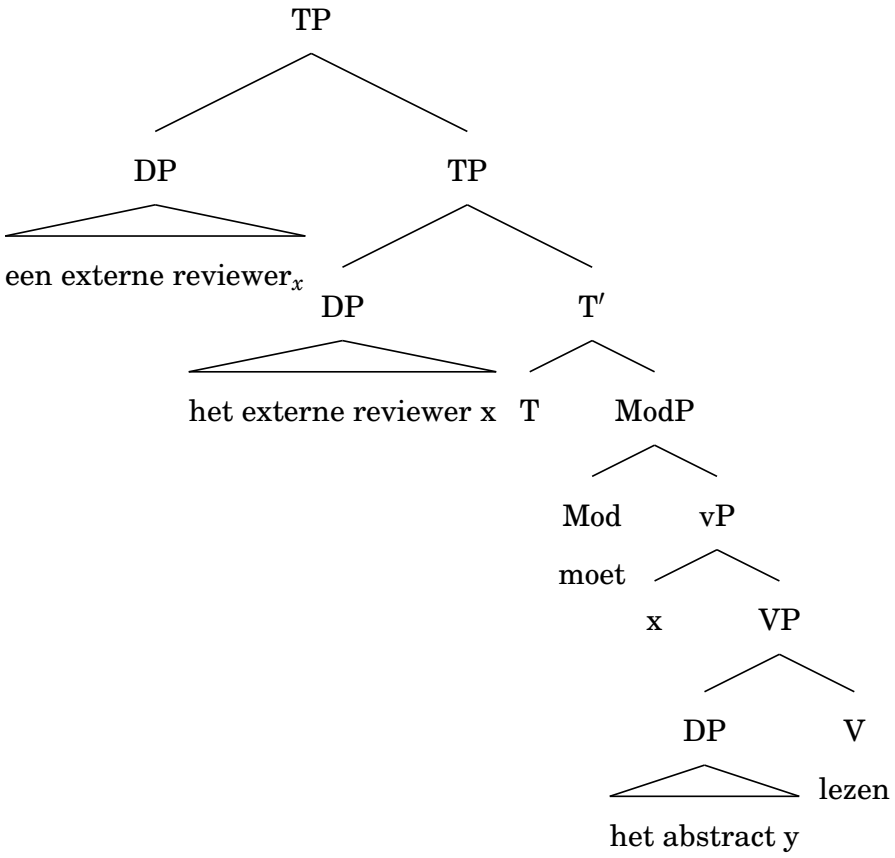
In the case of British *do*, this is clearly undesirable: Inverse scope is grammatical. In the case of an anaphor like Dutch MCA, however, this is in fact quite desirable: Dutch MCA does not allow inverse scope, and final-stage copying gives us a way of understanding that ungrammaticality

(11) a. ?Een externe reviewer moet elk abstract lezen, maar een interne
an external reviewer must each abstract read but an internal
reviewer mag ook wel.
reviewer is.allowed also PRT
'An external reviewer has to read each abstract, but an internal reviewer can too.' ∃ > ∀; *∀ > ∃

b. *Final-stage LF of the antecedent*



c. *LF of the anaphor after copying*



If we treat extracting mixed anaphors which disallow inverse scope as anaphors which copy the final LF stage of their antecedents, then we can account for the differences we see with inverse scope in extracting mixed anaphors.

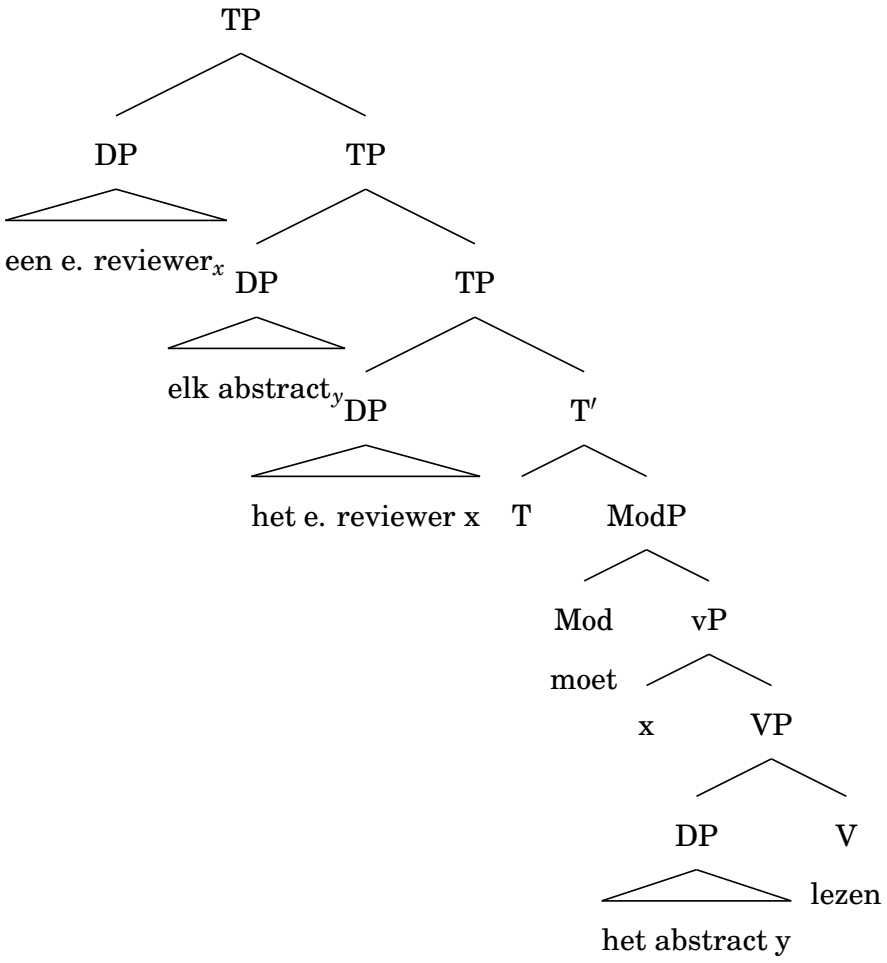
Before we move on to the discussion of relativization, and the general analysis of non-extracting mixed anaphors, I must first discuss some peculiarities of the analysis just presented—in particular, some peculiarities regarding the nature of the copies left behind, and how they may be rebound.

4.1.1.1 Existential closure

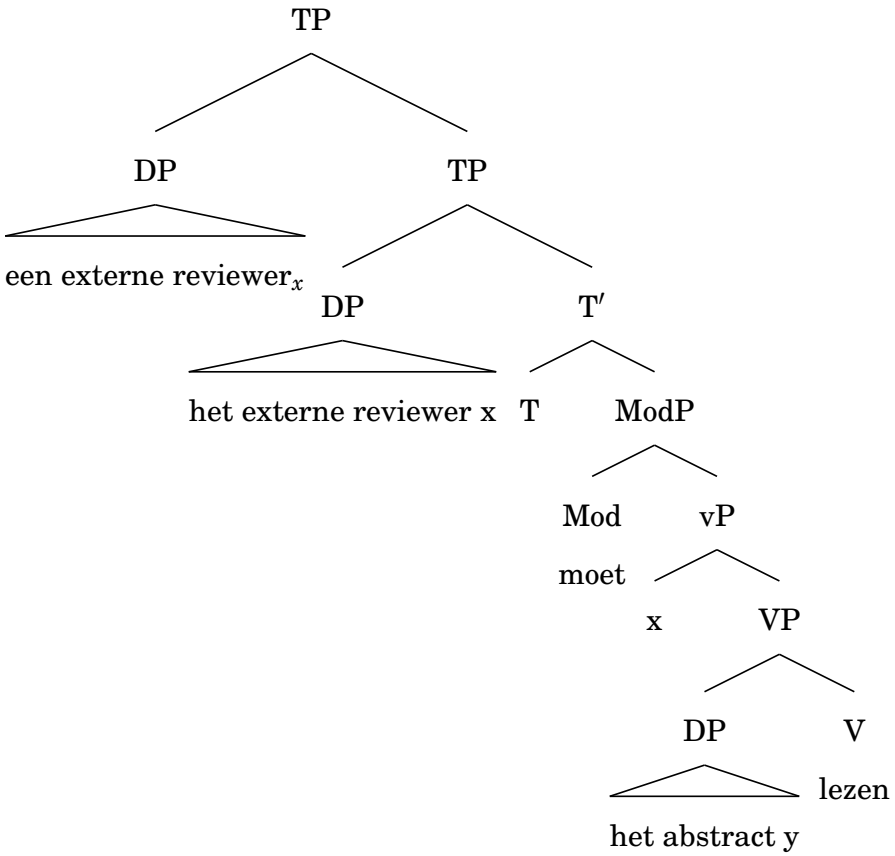
It is clear from the preceding discussion that a key part of the analysis of final-stage anaphors is that the unbound copies that they contain are left unbound; this causes a fatal crash. However, there is an operation which is troublesome for this analysis: existential closure (see Heim 1982, among many others). If existential closure were to apply to the copies left unbound in an example like (12), the structure would be saved, with an indefinite interpretation of the previously unbound copy. Instead of receiving the desired scope possibilities in (12-a), there would be both a surface reading (in which the universal does not raise high) and the undesirable reading in (12-b), in which existential closure binds the lower copy of *abstract*. We can see the full derivation below.

(12) a. ?Een externe reviewer moet elk abstract lezen, maar een interne
an external reviewer must each abstract read but an internal
reviewer mag ook wel.
reviewer is.allowed also PRT
'An external reviewer has to read each abstract, but an internal reviewer can too.' ∃ > ∀; *∀ > ∃

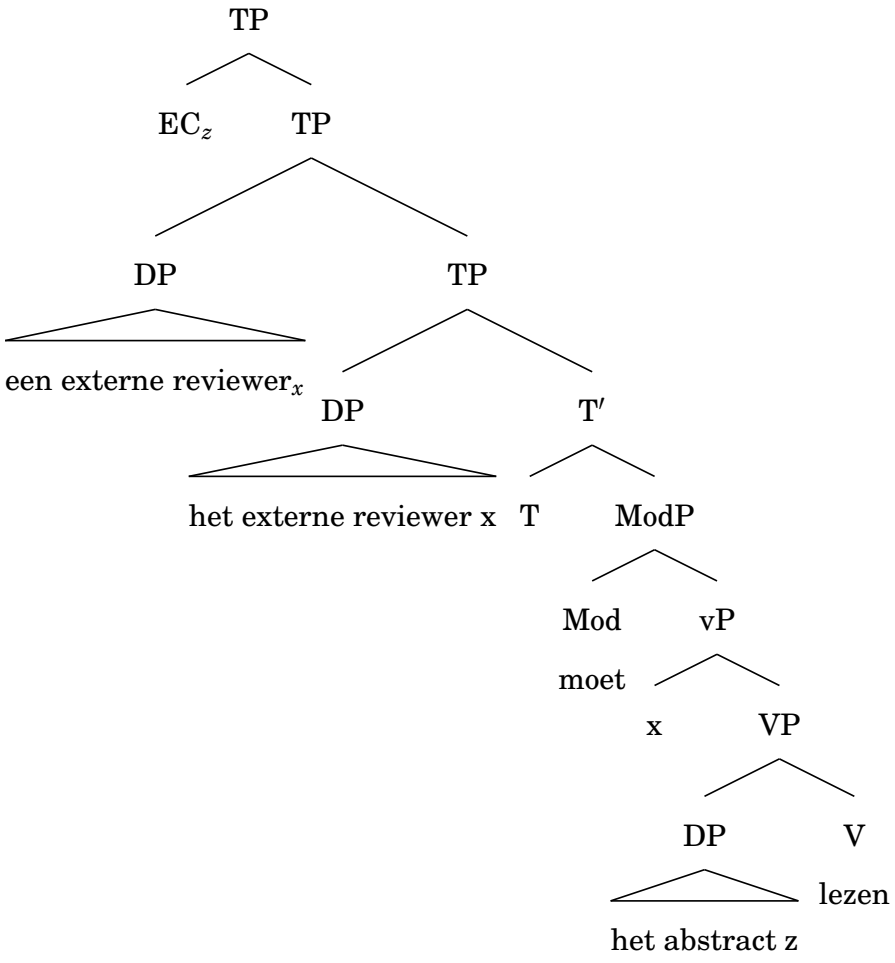
b. *Final-stage LF of the antecedent*



c. *LF of the anaphor after copying*



d. *LF of the anaphor after existential closure*



Note that we do not simply want to rule out existential closure overall. For example, take the Dutch MCA examples below. Dutch MCA does not allow wide scope universals, as shown above in (12-a); however, it does allow wide scope referential indefinites, as in (13). we need some way of accounting for the indefinite in (13) without allowing inverse scope in (12-a).

(13) Gisteren moest ik volgende week een lezing geven, en vandaag
yesterday must.PAST I next week a talk give and today
moet Els.
must Els
'Yesterday I had to give a talk next week and today Els has to.' Aelbrecht 2010, 57:38i

Note that we can view (13), in the context of (12-a), as involving unexpectedly wide scope; an anaphor which behaves as a scope island for universals does not behave as a scope island for indefinites. There are independent proposals in the literature for dealing with unexpectedly wide scope indefinites like these. One such approach is the approach to indefinites taken by Reinhart 1997, which crucially utilizes choice functions.[3] As mentioned, Reinhart's focus is exceptional wide scope, in particular data like (14). Examples such as this are expected to be ungrammatical under a QR approach to indefinites, in which case movement of the quantifier over an island boundary should be impossible:

(14) a. [If some relative of mine dies], I will inherit a house. Reinhart 1997, 342:17

b. [If a certain linguist shows up], we are supposed to be polite, but do you remember who? Reinhart 1997, 355:33d

Reinhart's approach to this problem is to claim that indefinites are quite different animals from other quantifiers. Strong quantifiers, and certain 'weak' quantifiers such as *at least X* or *less than X*, are treated as genuine quantifica-

[3]This is not the only such possible solution; what is crucial for our purposes here is a view of quantifiers and indefinites that (a) formally distinguishes the two and (b) allows us rebind indefinites, but not quantifiers, in situations like these.

tional phrases dealt with through QR; nothing is changed about their treatment. The majority of weak quantifiers, and in particular indefinites, are not treated as quantifiers; rather, they are treated as choice functions, i.e. functions which take a set as input and return (choose) a member of that set. These functions can be quantified over, and take scope at the point in the structure at which they are quantified over. This means that, if existential closure applies to a choice function, the choice function will take scope at the point of existential closure. In the case of sentence or text-level existential closure, this means that the choice function will result in a referential indefinite:[4]

(15) $\exists f\,(CH(f) \wedge (f(\text{relative-of-mine})\ \text{dies} \rightarrow \text{I will inherit a house}))$

One important part of Reinhart's analysis is that existential closure is selective; it is restricted to choice functions only, and does not apply to other variables, such as individual level variables or other DPs. Therefore, only the relevant subset of weak quantifiers can be bound via existential closure: They are the only elements which are choice functions. This has an important outcome for the analysis of non-extracting mixed anaphors: It means that the situation depicted in (12) cannot occur. Since the copy of the universal does not contain a choice function, it cannot be bound by existential closure, which looks only for choice functions. The example in (12) will therefore contain an unbound variable under an inverse scope reading and will crash, as desired.

[4]For Heim (1982), at least, sentence and text-level EC is the only possible type; Reinhart 1997 and Winter 1997 assume that choice functions can apply at a wide variety of positions in the structure. I will follow Reinhart and Winter here.

4.1.1.2 The nature of copies and rebinding

At this point it also becomes necessary to briefly discuss different types of movement, and in particular what the 'traces' of different types of movement are. This is relevant for all types of movement—head, A-bar, and A movement all. I will run through each in turn.

Head movement is naturally relevant to the data here, though perhaps not as central as the discussion of A and A-bar movement. Head movement can have semantic consequences (contra Matushansky 2006; see e.g. Bhatt and Keine 2013, Bhatt and Keine 2014), and so cannot be relegated solely to the PF component; however, the type of head movement that is relevant to the data here is verb movement, which seems to almost universally be interpreted low. This is sensible, in that verbs must compose with their arguments, and so should be interpreted where they compose with those arguments. Since most verbs have only one opportunity to do so, which is at the point of initial merge, they are therefore interpreted at the lowest copy.

The notion that verbs must be interpreted low is further supported by evidence from verb-stranding VPE (VVPE) in languages like Irish and Hebrew. As Goldberg 2005 documents, there is a verb-matching requirement on VVPE: Even though the verb has overtly escaped both the antecedent site and anaphor site, the verb must still be identical in antecedent and anaphor, as seen in (16).

(16) Q: (Ha'im) Miryam hevi'a et Dvora la-xanut?
Q Miriam bring.PST3FSG ACC Dvora to.the-store
'Did Miriam bring Dvora to the store?'

A1: Ken, hi hevi'a.
yes, she bring.PST3FSG

'Yes, she brought (Dvora to the store).'

A2:*Ken, hi laxxa.
yes, she take.PST3FSG
yes, she took (Dvora to the store).'

A3:*Lo, hi šalxa!
no, she send.PST3FSG
'No, she sent (Dvora to the store)!' Goldberg 2005, 160:1

As Goldberg shows, this identity requirement is not a general requirement on responses; the examples in (16) all become grammatical if an accusative pronoun is added, thereby ruling out the VVPE analysis. It is therefore an identity requirement on VVPE itself. This requirement can be accounted for by the general identity requirement on ellipsis if the verb is interpreted low, inside the anaphor site; however, it cannot be accounted for if the verb is interpreted outside the ellipsis site. VVPE therefore provides evidence that verbs must be interpreted low, at least in many cases.[5,6]

This is further supported for mixed anaphors in particular by evidence from Dutch MCA. Dutch, like many other Germanic languages, requires verbal movement to C in questions; unlike English, main verbs can fulfill this requirement in Dutch. Importantly, this is also true of MCA; a question can be answered using MCA:

[5]Gribanova (2013) provides some data from Russian which seem to allow obviation of the identity requirement for VVPE. The case for VVPE (versus object drop) is not as strong in Russian as in Hebrew or Irish; even if it is VVPE, however, it should also be noted that the Russian cases require heavy contrastive focus on the verb. Since contrastive focus is known to obviate the interpretation of moved material low (as in e.g. pseudogapping), these examples are not a death knell for the verbal identity requirement on VVPE, though they provide an interesting contrast to Hebrew and Irish.

[6]Bhatt and Keine 2013, 2014 also provide some data in which verbal material—in this case, in verbal clusters in German—is necessary interpreted low.

(17) A: Gaat er iemand naar het feestje morgen?
goes there someone to the party tomorrow
'Is anyone going to the party tomorrow?'

B: Er moet toch iemand [naar het feestje gaan].
there must still someone to the party go
'Well, someone has to.'

Clearly, *gaat* is interpreted inside the anaphor site; the verb therefore behaves as if it is low. It appears, then, that at least verbal head movement reconstructs in mixed anaphors.

The more crucial distinction is, I believe, the one between A and A-bar dependencies. Part of this distinction is predicated on the behavior of mixed anaphors; some of it simply comes from what we know about these types of movement. It is generally well known that A-bar movement exhibits what are called reconstruction effects. A-bar movement often appears to lack a semantic effect, even though the movement may be overt; this is visible below. (18) shows reconstruction effects for Condition C; similarly, (19) shows reconstruction for variable binding.

(18) a. *Which remarks about Sam_1 did he_1 ignore?

b. Which remarks about him_1 did Sam_1 ignore?

(19) Which of his_1 parents did Freud say that a man_1 loved best?

Effects like this were an initial argument for the copy theory of movement (Chomsky 1995). If movement left behind not just a trace, but a full lexical copy, then it would be easy to understand why A-bar chains might be interpreted in a lower position—the lower copy was interpreted instead of the higher copy. Further work by Fox 2002 suggests that what is left behind is not a full copy, but

instead a modified copy which has undergone Trace Conversion (see §4.2.1 for more discussion of Trace Conversion). I will adopt that position here, as there are no confounds in mixed anaphors with treating A-bar traces this way. As this is not a particularly controversial position in Minimalist syntax, I will not go into great depth arguing for it here; rather, the reader is referred to the extensive literature on A-bar reconstruction and copy theory.

A movement, on the other hand, presents a possible difficulty. A movement does not for the most part reconstruct. We can see this below, where the chain must necessarily be interpreted at its head; this can be seen with scope effects in the examples below (Chomsky 1995; Lasnik 1999).

(20) a. It seems that everyone isn't there yet. $\forall > \neg$; $\neg > \forall$

b. Everyone seems not to be there yet. $\forall > \neg$; $*\neg > \forall$

(21) Mary proved every Mersenne number not to be prime, and John will every Fibbonacci number. $\forall > \neg$; $*\neg > \forall$

Since (20-b) and (21) do not allow inverse scope interpretations, these are analyzed as not leaving behind a lower copy which can be interpreted in its base position. Therefore, these are plausibly analyzed as instances of a copy being converted to a variable, instead of a copy of the restrictor. These data are especially strong in the case of A-moved universal quantifiers; the judgments in (20-b) and (21) seem to be fairly robust. However, there are certain examples which do seem to allow reconstruction under A movement; take the pair below:

(22) a. Two women seem to be expected to dance with every senator. $\exists >$

$\forall; \forall > \exists$

b. Two women$_1$ seem to each other$_1$ to be expected to dance with every senator. $\exists > \forall$; *$\forall > \exists$

The example in (22-a) allows both surface and inverse scope interpretations. This can be shown to not simply be QR by examination of examples like (22-b); in (22-b), *two women* must sit in a high position in order to bind the reciprocal. This results in a 'scope trapping' effect; only surface scope is possible. This would be unexpected if the universal could QR over the indefinite.[7]

Data like these obviously require that at least some instances of A movement leave something more than a variable behind; in this case, the entire choice-functional phrase must be left behind, and then existentially closed in this lower position. However, there is something important to be noted here. The type of behavior shown in (22-a) is not behavior that is typical of A-dependencies in mixed anaphors. We have already seen this is Ch 2, where the trace of A movement in the antecedent behaved as if it had no lexical content when it was copied into the anaphor site:

(23) The lake has frozen, and the river has done, too.

Furthermore, examples like (22-a) lose the inverse reading when utilized with anaphors like British *do*:

(24) Two women must seem to dance with every senator, and two men must

[7]Furthermore, since universals are commonly thought to be clause-bounded, this would be an instance of a strange universal indeed if it could QR over the indefinite.

do too. $\exists 2 > \forall$; $*\forall > \exists 2$

The antecedent on its own here allows the inverse reading; however, this reading is not available for the anaphor. These data suggest that for mixed anaphors, the traces of A movement do not maintain the presuppositions that are maintained in other cases; the copying algorithm simply does not seem to reproduce these presuppositions as part of the copied structure. We might view this as akin to the type of presupposition weakening discussed in Sauerland 2013, where presuppositions disappear upon the generation of certain focus alternatives; since mixed anaphors are anaphors, and therefore inherently related to the generation of focus alternatives, such an analysis could plausibly be extended to predicate anaphora. As this is is a sizable undertaking, I do not do this here; rather, I only point out what we must have in order to account for mixed anaphors, and a possible way forward.[8]

4.2 The formation of ACD dependencies

One of the most interesting facts about mixed anaphors is their behavior with respect to ACD. extracting mixed anaphors, such as British *do*, allow ACD relatives and comparatives; non-extracting mixed anaphors, like *do so*, do not. I will discuss here one partial analysis for these data, focusing largely on extracting mixed anaphors. Before I discuss the analysis itself, I will introduce the basic structures I assume for ACD; I will then move on to the extracting mixed anaphor-specific

[8]Note that all analyses of mixed anaphors which take record-sensitivity seriously will have to deal with the fact that data like (23) and (24) exist; all analyses must be able to treat these as appropriately parallel. This is therefore not just a problem for copying analyses.

part of the discussion. I show that, under fairly standard assumptions about ACD, the theory as-is can account only for extracting mixed anaphors; it over-generates ACD for non-extracting mixed anaphors. I then show a plausible way forward for understanding ACD in non-extracting mixed anaphors, capitalizing on their status as genuine lexemes.

4.2.1 Background on ACD

I assume a Fox (2002) analysis of ACD relatives, and extend this to ACD comparatives as well (see Bhatt and Pancheva 2004 for related argumentation). Fox proposes an analysis for ACD which has three key parts. First, as previously mentioned, A-bar movement in general undergoes Trace Conversion, a process with two components: Variable Insertion and Determiner Replacement.

(25) a. Variable Insertion: (Det) Pred (Det) [Pred λy(y=x)]

b. Determiner Replacement: (Det) [Pred λy(y=x)] the [Pred λy(y=x)]

This yields structures like the following:

(26) a. A girl talked to every boy. → *Trace Conversion*

b. every boy λx [a girl talked to **the boy x**]

Importantly, this theory of movement leaves behind the content of the restrictor. This sets up the possibility for Condition C violations under A-bar movement, which is desirable; A-bar movement does not generally obviate Condition C violations, even if movement removes the relevant R-expression from the c-

command domain of the binder.[9]

(27) ??Guess which friend of John$_1$'s he$_1$ visited. Fox 2000, 5:5a

This is in conflict with the theory generally proposed for ACD, in which A-bar movement crucially seems to remove material from the lower A-bar position, preventing the 'infinite regress' problem (see Sag 1976 for early discussion); the issue here is that since the antecedent itself contains the ellipsis, resolution of the ellipsis will create an infinite regress, with the antecedent being substituted ad infinitum into the ellipsis. (28) shows the traditional account of ACD. (28-a) is the actual example; (28-b) shows the predicted infinite regress problem; (28-c) shows the classic QR solution.

(28) a. John likes every boy that Mary does.

b. John likes every boy that Mary does [like every boy that Mary does [like every boy that. . . .

c. [every boy Mary does [like x]]
John likes x

Under the traditional view of QR in ACD (see May 1985 and others), the traces left behind by A-bar movement are quite impoverished; however, the traces left behind by A-bar movement cannot be so impoverished for purposes of Condition C. These two different patterns must be reconciled; this is the point of Fox's work. Under Fox's analysis, movement is indeed just a copying operation, followed by trace conversion. It does not 'obviate parallelism' for the purpose of solving infinite regress. However, the analysis still avoids the infinite regress

[9]This is, of course, a very simplified characterization of a complex phenomenon.

problem straightforwardly. Fox assumes that adjuncts, including relative clauses, undergo late merger (see Lebeaux 1991, among others, for background). Before the adjunct is merged, the DP which will eventually contain the adjunct undergoes movement to a dislocated position (typically thought to be the position at which it takes scope, although this is a syntactic movement, not one at LF). Since late merger occurs after movement, the offending infinite regress problem never arises—and likewise the offending Condition C violations never arise. We can see this in (29) and (30) for Condition C and parallelism. However, note that complement clauses, which cannot be late merged, still induce Condition C violations:

(29) a. I gave him$_1$ a book yesterday that John$_1$ liked.

b. I gave him$_1$ a book yesterday. → raising (unpronounced)

c. I [gave him$_1$ a book yesterday] [~~a book~~] → adjunct insertion

d. I [gave him$_1$ a book yesterday] [~~a book~~ that John$_1$ liked]

e. [a book x that John$_1$ likes] λx I gave him$_1$ the book x

(30) a. John likes every boy Mary does.

b. John likes every boy → raising

c. John [likes every boy] [every boy] → adjunct insertion

d. John [likes every boy] [every boy that Mary does like boy] → trace conversion

e. [every boy λx Mary does [like the boy x]
λy John [likes the boy y]]

(31) a. *Someone introduced him$_1$ to every friend of John$_1$'s.

b. [every friend of John$_1$'s] [someone introduced him$_1$ to the friend of John$_1$'s]

I will assume this basic theory for ACD relatives throughout, and extend it to ACD comparatives as well (a move already supported by work by Bhatt and Pancheva (2004), who show that late merger for comparative clauses is also needed).

4.2.1.1 Analyzing extracting mixed anaphors

We can, as it turns out, understand the data from British *do* and Dutch MCA quite well under this analysis. Let me run through a derivation step by step, making each part explicit; I will start with the following example:

(32) Max has read every book that Sebastian has done.

The first step is to build the main clause. Here, the object *every book* will not contain the relative clause. The end of this step yields the following structure:

(33) Max has [$_{VP}$ read every book].

The second step is to raise the DP *every book*. As noted before, this movement occurs in the overt syntax; although it is framed in a historical context where ACD is based on QR, this is not actually QR in the usual sense. Rather, it is a short, overt movement—an extraposition or dislocation. This movement leaves behind a copy which undergoes trace conversion to become *the book x*.

(34) Max has [$_{VP}$ read the book(x)] every book(x)

Following this raising, the relative clause is merged. It is here where the analysis I provide must differ slightly from Fox's, in that the relative operator

must be treated differently. Although Fox does not discuss the relative operator in detail, it is common to assume that the relative operator begins low in the structure and moves. This cannot be the case in our ACD relatives, in that the anaphor does not contain any internal syntax where the operator could be generated. Rather, the operator must be generated high at the edge of the clause. Although this is perhaps unusual, it is also not a problem. The operator is not a DP, and does not need case. Additionally, the operator does not need to move to enforce islandhood effects: Since the anaphor in the relative clause must be parallel to its antecedent, the A-bar dependency built in the relative clause will necessarily be constrained by the shape of the A-bar dependency in the main clause. Since the main clause dependency has island-bounded movement, the relative clause dependency will also be island-bounded.

(35) Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done]]

At this point, the structure is handed off to LF. Copying is triggered for British *do*; the VP from the main clause is copied into the anaphor site; the relative clause operator can now bind the lower copy.

(36) Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done read the book(x)]]

This gives us the following familiar structure:

(37) [every book(x) [that OP Sebastian has done read the book(x)]]
[Max has [$_{VP}$ read the book(x)]]

As we can see, the ultimate output is a licit structure, derivable on the basis of how mixed anaphors function: Instead of deletion under identity in ACD, we have copying of an LF. This type of analysis accounts quite well for British *do* and Dutch MCA, and therefore represents a significant step forward in comparison to previous work, which could not (see e.g. Aelbrecht 2010's discussion of ACD in MCA, which cannot generate ACD structures for either Dutch MCA or British *do*).

However, the astute reader may already have noticed that this analysis cannot immediately account for *do so* and Swedish *det*. Recall that these anaphors do not allow ACD—and yet, if this theory is applied to them, they should undergo the same process as British *do* and Dutch MCA.

(38) a. Max has [$_{VP}$ read every book(x)].

b. Max has [$_{VP}$ read the book(x)] every book(x)

c. Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done so]]

d. Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done so read the book(x)]

e. [every book(x) [that OP Sebastian has done so read the book(x)]] [Max has [$_{VP}$ read book(x)]

This is clearly a problem for *do so* and Swedish *det*; the theory here overgenerates, predicting that ACD will occur in all mixed anaphors, not just extracting mixed anaphors. Without additional constraints, this situation is functionally intractable; the high-generated operator will always be able to bind the licit

lower copy. The high-generated operator cannot be jettisoned, as it is necessary for extracting mixed anaphors; likewise, the lower copy cannot be different in non-extracting mixed anaphors than it is in extracting mixed anaphors, as it is formed by the same movement.

4.2.2 ACD in non-extracting mixed anaphors

There is one substantial difference between non-extracting mixed anaphors and extracting mixed anaphors that we have hitherto not needed to discuss in much detail, though it is a salient difference: Non-extracting mixed anaphors are pronounced, genuine words, while extracting mixed anaphors are not. Most of the differences we see between mixed anaphors and ellipses can be attributed simply to the fact that mixed anaphors are heads, and ellipses are not. However, it is clear that ACD cannot be attributed to this difference. Rather, I believe that it must be attributed to the fact that *so* and *det* are not only heads (like British *do* and Dutch MCA) but also lexemes; they are independently existing words. Although all four are lexical items, *so* and *det* are genuine words in a way that the silent anaphors of British *do* and Dutch MCA are not. *So* and *det* have uses independent of the predicate anaphoric uses that we examine here; they are true lexemes with an array of senses. This is in distinct contrast to the silent anaphors of British *do* and Dutch MCA, which we see only appearing in these highly constricted predicate anaphor usages; they are not lexemes.

One of the salient properties of lexemes—things that are not just heads, but actually words—is that they behave like islands in many ways. The notion of 'word' is, of course, extremely fuzzy; see Haspelmath 2011 for a nice discussion of

wordhood and the divide between morphology and syntax. However, *so* and *det* would be by almost any definition words, and there is something real to the idea that lexicalization makes an element impenetrable in some ways. If we accept the possibility that words can sometimes be genuine islands, then we can make some headway in understanding why *do so* and Swedish *det* don't allow ACD: *so* and *det* are lexemes (i.e. genuine words), and therefore barriers to A-bar dependencies.

There are many possible ways to outline an analysis that capitalizes on the lexemic status of *so* and *det*. I will present one here, which I will call *non-hierarchical copying* or *formula copying*.

4.2.2.1 The formula copying analysis

The hypothesis I present for *so* and *det* is in some sense a timing analysis, and therefore similar to how timing was used to differentiate British *do* and Dutch MCA for inverse scope. Under this hypothesis, *so* and *det* are still record-sensitive anaphors. However, they do not copy a hierarchical LF structure from the record. Rather, what they find is a flatter structure in the discourse record—essentially, the (chunk of) formula that is produced by the compositional LF structure.

Let me now quickly run through the consequences of this hypothesis. The record-sensitivity is again straightforwardly accounted for: *So* and *det* find formulas in the record. These formulas are chunks of linguistic structure—they are not referents in the model. However, they also lack a great deal of the hierarchy that their LF tree counterparts have; I will therefore refer to them as 'non-hierarchical' here, although of course there is some hierarchical information remaining (e.g., restrictor-nuclear scope structure, and the like). The fact that

so and *det* need to find a formula as their antecedents leads to their need for a linguistic antecedent (assuming that formulas, like all other linguistic structure, are not just generated willy-nilly). Since a formula—i.e. linguistic structure is copied—we can also account for the fact that anaphors like *do so* and Swedish *det* can introduce antecedents. Although they may not copy hierarchical structure, they do copy linguistic structure which can contain things like low quantifiers or choice functions. These quantifiers can't raise to scope over other quantifiers, since they are not part of the hierarchical structure; however, they can be interpreted, which means that they can introduce referents.

In the case of A binding, we again get the proper outcome. The phrases which introduce the formulas for *so* and *det* are VP-sized; they produce formulas of type ϵ, t. These formulas do not have open individual arguments; all arguments are saturated. However, *so* and *det* combine with verbal heads that themselves introduce arguments, such as *do* or *göre*. These heads take a complement of type ϵ, t and lambda abstract, introducing an argument. The exact nature of the abstraction will depend on the particular head (see Kratzer 1996 for some background). We therefore see what appears to be rebinding, without actual rebinding. Note also that overt A phenomena will still be ungrammatical, since the structures provided in the syntax still do not contain crucial pieces, such as DPs which can be raised as passive subjects in English, etc.

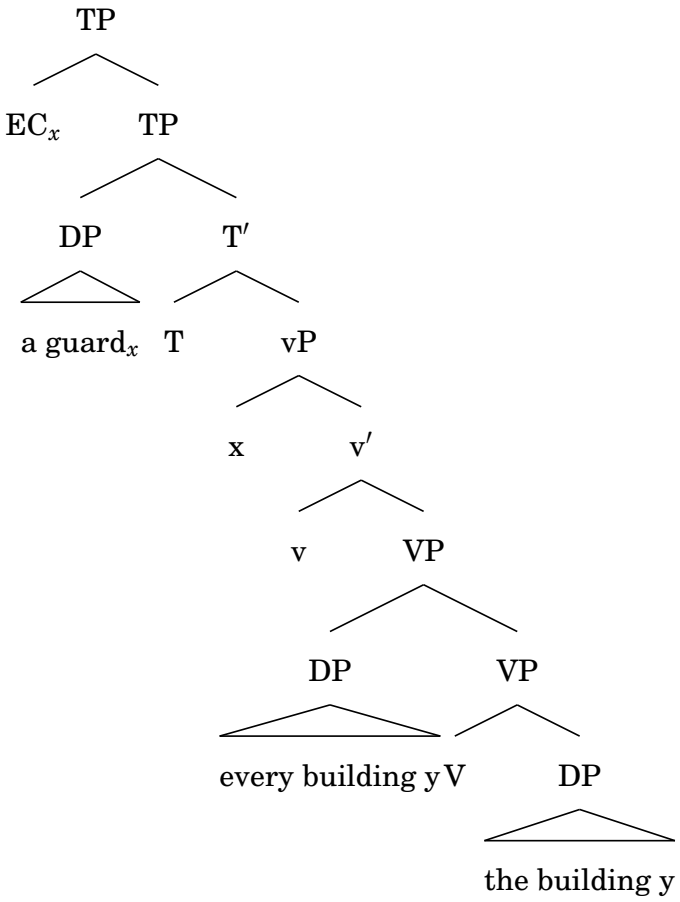
When we move to A-bar dependencies, we see that the method of lambda abstraction available for A phenomena is simply not available to A-bar phenomena. *So* and *det* don't contain quantifiers in the hierarchical structure; therefore, there are no quantifiers that can undergo QR, thereby producing inverse scope.

The quantifiers that *so* and *det* copy will necessarily appear to be low, since they cannot be raised to interact with other quantifiers in the hierarchical structure. I show the grammatical derivation in (39); the ungrammatical derivation is shown in (40).

(39) a. A guard stands in front of every building, and a policeman does so too. $\exists > \forall$; $*\forall > \exists$

b. *Formula and LF of the antecedent*

$\exists x\ \text{guard}(x)\ [\exists \epsilon \wedge \text{Agt}(\epsilon)=x \wedge [\forall y\ \text{building}(y)\ [\text{stands-in-front-of}(\epsilon,y)]]$



c. *Formula of the anaphor*

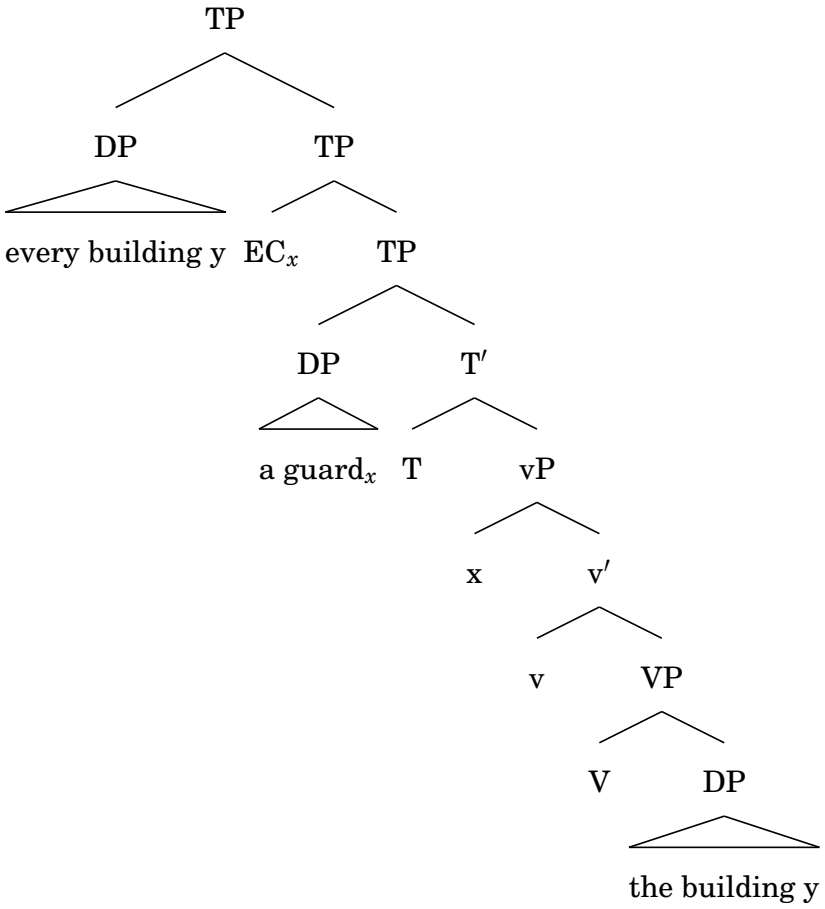
$\exists z\ \text{policeman}(z)\ \exists \epsilon[\text{do}(\epsilon) \wedge \text{Agt}\epsilon=z \wedge \text{so}_{\epsilon,t}]$

d. *Formula of the anaphor after copying*

∃z policeman(z) ∃ϵ[do(ϵ) ∧ Agtϵ=z ∧ [∀y building(y) [stands-in-front-of(ϵ,y)]]

(40) a. *Formula and LF of the antecedent*

∀y building(y) ∃x (guard(x) [∃ϵ ∧ Agt(ϵ)=x ∧ stands-in-front-of(ϵ,y)]



b. *Formula of the anaphor*

∃z policeman(z) ∃ϵ[do(ϵ) ∧ Agtϵ=z ∧ so$_{\epsilon,t}$]

c. *Formula of the anaphor after copying*

∃z policeman(z) ∃ϵ[do(ϵ) ∧ Agtϵ=z ∧ stands-in-front-of(ϵ,y)]

Finally, we come to ACD, and find that we can correctly rule it out. We have the exact same derivation for ACD as we do for British *do* and Dutch MCA, until we come to the point of copying. Under the theory used for British *do*, we copied in an LF structure. This left us with an undesirably licit ACD structure:

(41) a. Max has [$_{VP}$ read every book(x)].

b. Max has [$_{VP}$ read the book(x)] every book(x)

c. Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done so]]

d. Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done so read the book(x)]

e. [every book(x) [that OP Sebastian has done so read the book(x)]] [Max has [$_{VP}$ read book(x)]

However, this last step is now different. *So* and *det* do not copy hierarchical structure; rather, they find a non-hierarchical formula for their meaning. This formula is therefore hierarchically inert; it cannot interact with the hierarchical structure. However, relative clauses are formed over hierarchical structure; they need to bind syntactically present variables. Therefore, in the last stage, the copied material cannot provide an appropriate variable for the relative clause to bind. We instead end up with an operator that binds no variable, producing a crash. (Note that this is different from the A phenomena: In those cases, the verb essentially performs event identification and then introduces an argument; in this case, we have a high-generated operator, but no way of introducing something for that operator to bind.)

If we adopt this formula-copying analysis, we can then provide a way of understanding the lack of A-bar dependencies in non-extracting mixed anaphors, while still understanding the presence of such dependencies in extracting mixed anaphors. The difference is in the fundamental nature of the elements that have been copied. The genuine lexemes *so* and *det* copy formulas; the non-lexemic heads found in British *do* and Dutch MCA copy LF structures.

4.2.3 A note on *that*-relatives

I wish to here point out a problem regarding relative clauses and mixed anaphors. We have already accounted for the ungrammaticality of overt *wh*-relatives, and the grammaticality of ACD. However, as we saw in earlier chapters, there is another wrinkle in the tapestry of relative clause interactions with mixed anaphors: object *that*-relatives. Non-ACD object *that*-relatives are difficult to find for both British *do* and Dutch MCA; witness the following:

(42) a. *This is a book that you may read; this is one that you may not do.

b. ??Dit is een boek dat je mag lenen. Dit is een boek dat je niet
this is a book that you may read this is a book that you not
mag. Sorry!
may sorry
'This is a book that you may read; this is a book that you may not.
Sorry!'

This is not to say that such examples are universally impossible; some instances do exist, as in the following LeCarré quote. In this case, we have an ATB *that*-relative with a dropped complementizer, with British *do* occurring in the second conjunct:

(43) Then Toby realized that Shorty was sitting beside him. And that Shorty must have been hovering all the time in the toilet at the back of the café, which was *something Toby hadn't thought of and should have* ***done***, but clearly Shorty had.

The fact that regular object *wh*-relatives appear much less natural than object ACD relatives is surprising in the context of an otherwise robust empirical generalization: ACD relatives are not a separate construction from regular *that*-clauses, but are instead a subset of *that*-relatives which involves a complex interplay between quantification, relativization, and ellipsis (or, more generally, predicate anaphora). We therefore expect that anaphora which allow ACD relatives should generally allow regular *that*-relatives. Although the non-ACD counterparts are possible, why they should be so less common than ACD relatives is a mystery.

4.2.4 A quick note about parallelism

Before we move on to the application of these analyses to each anaphor in particular, I want to discuss parallelism. Scopal parallelism in ellipsis is a phenomenon that has been known about for some time; see Sag 1976, Williams 1977, and Fox 2000 for deeper discussion. In general, it refers to the fact that an antecedent and its ellipsis must have parallel scope relations. Take an example like (44). Both antecedent and ellipsis must either have surface scope or inverse scope; there can be no difference between the two:

(44) a. A girl saw everyone, and a boy did too. $\exists > \forall; \forall > \exists$

This is especially noticeable in that we see scope-fixing effects in certain cases. Take data like (45).

(45) a. A girl saw everyone.

b. Sebastian did too.

Examples like (45-a) inherently allow two different relationships between the quantificational arguments: a surface scope reading and an inverse scope reading. (45-b), which has a non-quantificational subject, does not allow the wide-scope reading of the universal.[10] Interestingly, when (45-a) is followed by (45-b), the possibilities for (45-a) change: Suddenly (45-a) can only have surface scope, too. These are prototypical examples of the parallelism requirement.

Such examples are important for the identity condition on ellipsis, of course, and they must be accounted for. Without looking at further data, one might wish to account for scopal parallelism facts using the identity condition on ellipsis. This is clearly not possible for extracting mixed anaphors, which do not involve ellipsis; a quick examination of the analysis for extracting mixed anaphors, which allow many scope possibilities, shows that the analysis has nothing to say about parallelism. Since the analysis only requires that quantifiers be copied into the anaphor site, it says nothing about what happens with the following QR operations; it cannot enforce parallelism.

Although this may seem like a detriment to the analysis, it is not. Although parallelism is commonly discussed in the context of ellipsis, it is not an ellipsis-specific phenomenon. In fact, parallelism seems to be necessary in many focus

[10] See Fox 2000 for more discussion of scope economy effects.

phenomena. For example, it has been observed for deaccenting (Tancredi 1992, among others) and can also be shown for clefts (complete with scope-fixing):

(46) A boy admires every teacher, and a girl admires every teacher too.

(47) a. It was an Austrian that every sailor wanted to marry, but it was an Australian that every teacher wanted to marry. $\exists > \forall; \forall > \exists$

b. It was an Austrian that every sailor wanted to marry, but it was my friend Sebastian that every teacher wanted to marry. $\exists > \forall$; $*\forall > \exists$

It is difficult to claim that there is any sort of ellipsis phenomenon going on in the examples in (46) or (47); however, they still exhibit parallelism effects. If parallelism were enforced solely as part of ellipsis, we would be unable to account for these examples. It is therefore clear that parallelism must be enforced instead as part of a more general requirement on focus constructions, and theories of focus should be able to account for such requirements. Relevant work on this point includes Tancredi 1992, Rooth 1992 and Fox 2000; the reader is referred to these authors for detailed discussion of how a theory of focus can account for these observations.

4.3 The application of the analysis

This section applies the analysis for A-bar movement to each anaphor, allowing for individual differences between the different anaphors. We begin with the extracting mixed anaphors British *do* and Dutch MCA, and then move on to the non-extracting mixed anaphors, *do so* and Swedish *det*.

4.3.1 British *do*

We begin with British *do*, which is in some ways the most well-understood of the anaphors discussed here. Like all other mixed anaphors, British *do* does not allow any overt A-bar dependencies; however, as a stereotypical extracting mixed anaphor, it allows ACD relatives and comparatives, as well as inverse scope:

(48) a. *Hazelnuts, I'll eat; peanuts, I won't do.

b. *I don't know which puppy you should adopt, but I know which one you shouldn't do.

c. *I met the man who Clara had talked to. I didn't meet the man who Anna had done.

(49) a. Sebastian has read every book that he must do.

b. Clara has read more books than the others have done.

(50) A man has read every book in this library, and a woman has done too. $\exists > \forall; \forall > \exists$

The LF-copying analysis allows us to understand the lack of overt A-bar dependencies from within the anaphor site quite easily. Since there is no syntactic structure in the anaphor site, there can be no actual movement from within the anaphor site. If we assume that overt A-bar dependencies like *wh*-questions and topicalization require this type of movement, and cannot be base-generated, then we easily understand their ungrammaticality. However, even if we allowed base-generation of e.g. *wh*-object phrases in spec,C, we would expect ungrammaticality: the *wh*-phrase or topicalized phrase cannot be case-licensed in the syntax,

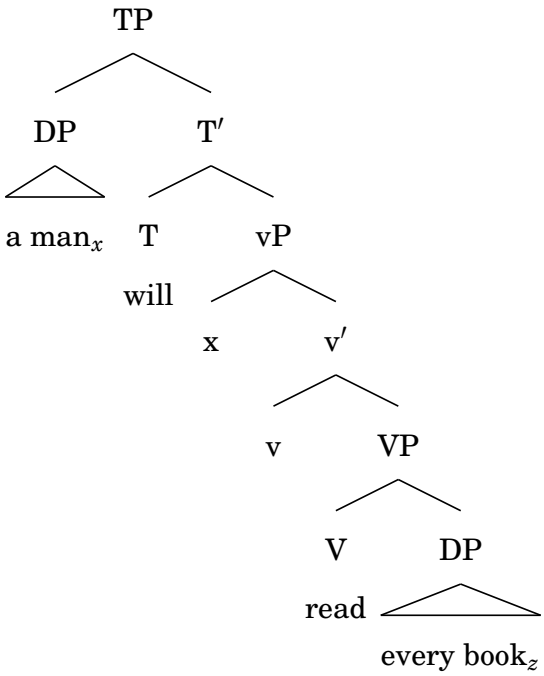
and so will cause a crash at Spell-out.[11]

As a extracting mixed anaphor, we further treat British *do* as an anaphor which copies the initial LF-stage of its antecedent—i.e., an LF in which there has not been any covert movement. This means that quantifiers and any other LF-specific operators are low in the antecedent. This allows us to account for inverse scope quite handily, as we saw earlier. If the copied structure from the antecedent contains a low quantifier, that quantifier will essentially be active when it is copied into the anaphor site; after copying, it can undergo all operations applicable to quantifiers, such as QR. We can see this in the derivation in (51), repeated from the earlier (8).

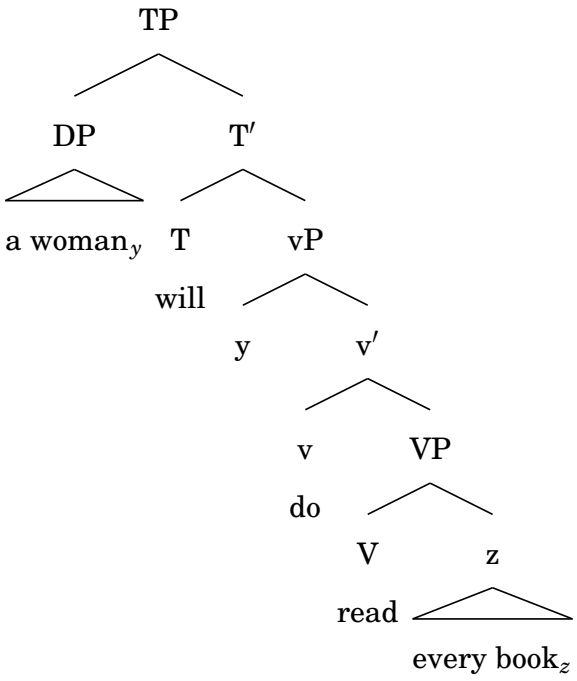
(51) A man will read every book, and a woman will do too. $\exists > \forall; \forall > \exists$

[11]It is for this reason that I assume that sluicing, in which case plays an important role in argumentation for internal structure, typically cannot be handled with LF copying.

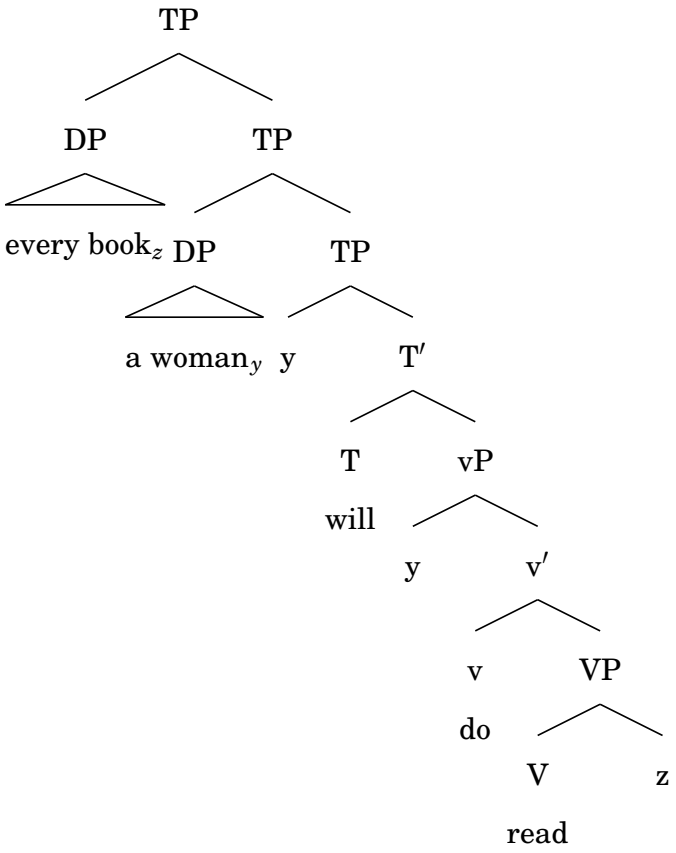
a. *LF of the antecedent*



b. *LF of the anaphor after copying*



c. *LF of the anaphor after QR*



We can also understand quite straightforwardly the derivation of ACD relatives and comparatives. I will here go through these derivations in some detail, allowing us to understand the derivation as deeply as possible. I will begin with the derivation of an ACD relative below:

(52) a. Max has read every book that Sebastian has done.

b. Max has [$_{VP}$ read every book]. → DP raising

c. Max has [$_{VP}$ read the book(x)] every book(x) → adjunct insertion

d. Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done]] → copying

e. Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done read the book(x)]]

f. [every book(x) [that OP Sebastian has done read the book(x)]]
[Max has [$_{VP}$ read the book(x)]]

In sum, we see that the basic data for British *do* can all be captured quite handily by initial-stage LF-copying; this allows us to rule out overt dependencies, but to allow a wide range of unpronounced dependencies.

4.3.2 Dutch MCA

We next move on to Dutch MCA, which is in many ways quite similar to British *do*—but not in all. Like all other mixed anaphors, it disallows overt A-bar dependencies; like British *do*, it allows ACD relatives and comparatives. Unlike British *do*, however, it disallows inverse scope.

(53) a. ?*Ik weet niet wie Kaat wou uitnodigen, maar ik weet wel wie
I know not who Kaat wanted invite but I know AFF who
zie moest.
she must.PST
'I don't know who Kaat wanted to invite, but I do know who she had to.' Aelbrecht 2010, 63:81a

b. *Met wat moeite wil ik de Figaro lezen, maar de Minute wil
with some effort want I the Figaro read but the Minute want
ik niet.
I not
'With effort, I can read the Figaro, but the Minute, I can't.' Aelbrecht 2010, 72:95b

(54) a. Olaf heeft elk boek gelezen dat hij kon.
Olaf has every book read that he could

'Olaf has read every book he could.'

b. Will leest meer boeken dan hij moet.
Will reads more books than he must
'Will reads more books than he has to.'

(55) ??Een externe reviewer moet elk abstract lezen, maar een interne
an external reviewer must each abstract read but an internal
reviewer mag ook wel.
reviewer is.allowed also PRT
'An external reviewer has to read each abstract, but an internal reviewer can too.'

Like British *do*, the facts for overt dependencies are understood straightforwardly through an LF-copying analysis; there is no overt syntax that can host overt dependencies. Like British *do*, ACD relatives and comparatives are also understood quite straightforwardly. I run through a derivation here:

(56) a. Olaf heeft elk boek gelezen dat hij kon.
Olaf has every book read that he can
'Olaf has read every book that he can.'

b. Olaf heeft [$_{VP}$ elk boek gelezen]. → DP raising

c. Olaf heeft [$_{VP}$ het boek(x) gelezen] [elk boek(x)] → adjunct insertion

d. Olaf heeft [$_{VP}$ het boek(x) gelezen] [elk boek(x) dat OP hij kon] → copying

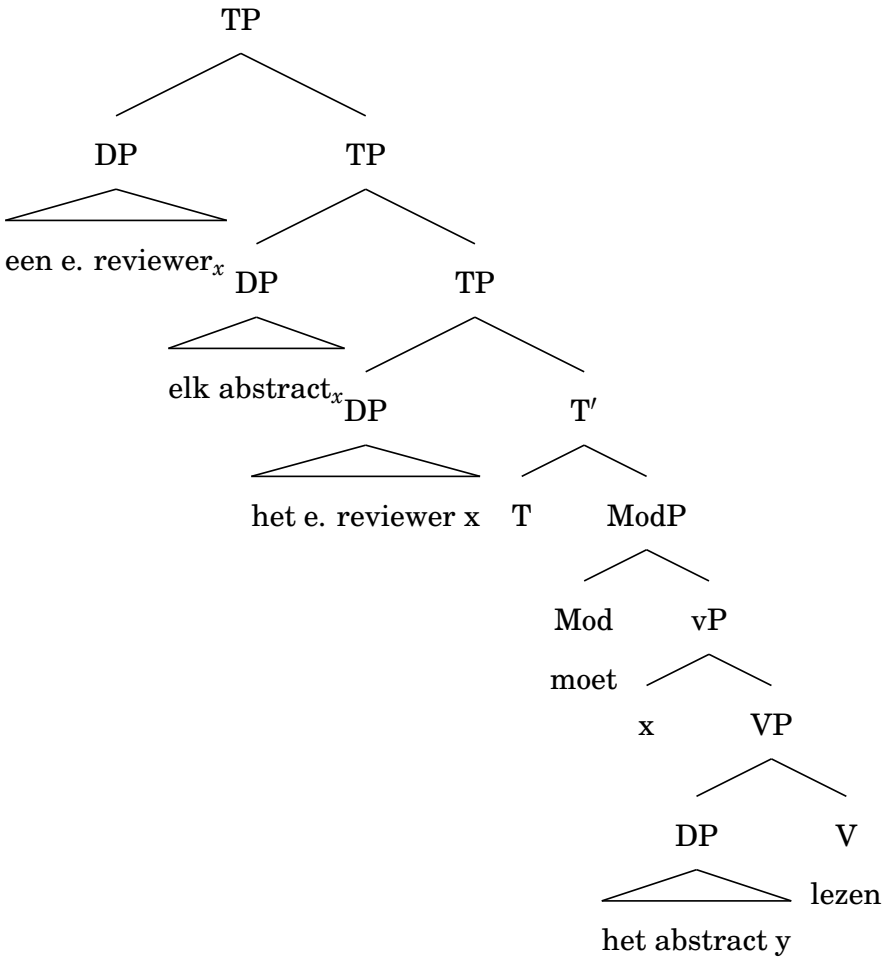
e. Olaf heeft [$_{VP}$ het boek(x) gelezen] [elk boek(x) dat OP hij kon het boek(x) gelezen]

f. [elk boek(x) dat OP hij kon het boek(x) gelezen]
Olaf heeft [$_{VP}$ het boek(x) gelezen]

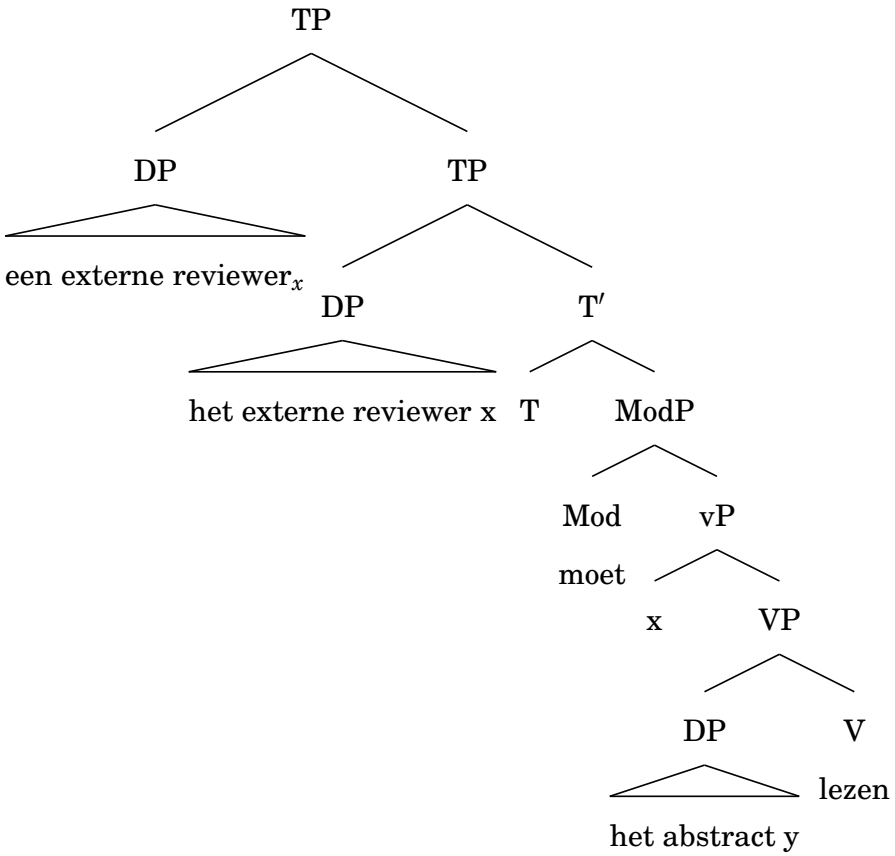
We now come to the point where Dutch MCA differs significantly from British *do*: inverse scope. In this instance, Dutch MCA is much more similar to *do so* and Swedish *det*; it disallows inverse scope. This cannot be due to epistemic containment, as we saw for some British *do* examples, since Dutch MCA does not occur with epistemic modals; similarly, it cannot be due to the availability of indefinite subjects or inverse scope in general, as both are possible. We must find some other way of capturing these data. As it turns out, these data can be captured straightforwardly if MCA is treated as a final-stage extracting mixed anaphor: The LF it copies from the antecedent is the final LF that occurs right before the hand-off to the conceptual interface. This is an LF in which all LF operations have occurred; there are no low operators, including quantifiers. This means that, when the LF is copied in, there is an unbound A-bar copy sitting low in the structure that cannot be existentially closed.

(57) a. ?Een externe reviewer moet elk abstract lezen, maar een interne
an external reviewer must each abstract read but an internal
reviewer mag ook wel.
reviewer is.allowed also PRT
'An external reviewer has to read each abstract, but an internal reviewer can too.' $\exists > \forall; *\forall > \exists$

b. *Final-stage LF of the antecedent*



c. *LF of the anaphor after copying*



We also see then that Dutch MCA can be accounted for quite well; although it bears certain similarities to British *do*, such as an ability to license ACD, it is actually a slightly different type of anaphor. It copies the final stage of LF, and not the initial stage, unlike British *do*.

4.3.3 *Do so* and Swedish *det*

I will analyze *do so* and Swedish *det* in parallel here, since they are markedly similar anaphors. Again, both are mixed anaphors; they do not allow any sort of overt dependencies, which could be accounted for by LF copying. Where they

differ from extracting mixed anaphors (and thereby require a different analysis) is that they allow absolutely no A-bar dependencies at all, whatever the type. We can see this below:

(58) a. *I don't know which cat you should adopt, but I know which one you shouldn't do so.

b. *Jag vet inte vilken katt du borde adoptera, men jag vet
I know not which cat you should adopt but I know
vilken du INTE borde det.
which you not should DET
Intended: 'I don't know which cat you should adopt, but I know which you shouldn't.'

c. *Hazelnuts, I'll eat. Peanuts, I won't do so.

d. *Hasselnötter kan jag äta, men jordnötter kan jag INTE det.
hazelnuts can I eat but peanuts can I not DET
Intended: 'Hazelnuts, I can eat, but peanuts, I can't.'

e. *We found a scarf which my sister would like, but we couldn't find one which I would do so.

f. *Vi hittade en halsduk som min syster gillade, men vi hittande
we found a scarf that my sister liked but we found
ingen som jag gjorde det.
none that I did DET
Intended: 'We found a scarf that my sister liked, but we didn't find any that I did.'

(59) a. *We ate far more at the carnival than we should have done so.

b. *Jag kunde läsa fler böcker än Olle kunde det.
I could read more books than Olle could DET
Intended: 'I read more books than Olle could.'

c. *Clara has read more books than the others have done so.

d. *Jag läste alla böcker jag behövde det.
I read all books I should DET
Intended: 'I read all the books that I should.'

(60) a. A guard stood in front of every building; a policeman did so too. ∃ > ∀;

*∀ > ∃

b. .En securitasvakt stod framför varje byggnad, och det gjorde
a security.guard stood in.front.of each building and iDET did
en polis också.
a police.officer also
'A security guard stood in front of each building, and a police officer did too.' #∃ > ∀; ??∀ > ∃

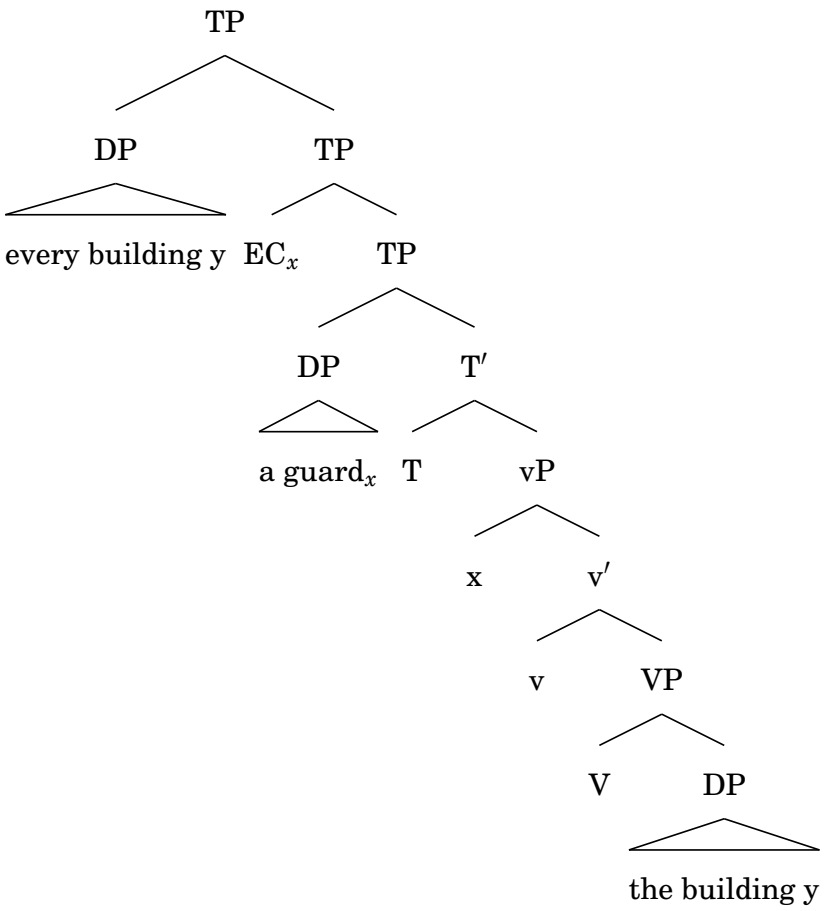
In §2.2, I proposed a slightly different analysis for non-extracting mixed anaphors. Although non-extracting mixed anaphors are still record-sensitive copying anaphors under this analysis, they copy non-hierarchical formulas instead of LFs. I will run through this again here for A-bar dependencies in *do so* and Swedish *det*.

First, we examine inverse scope. This is not available for either *do so* or Swedish *det*. In each case, this is due to the fact that there are no quantifiers in the anaphor site in the hierarchical structure. If inverse scope requires QR (as analysts claim it does), then there can be no QR of the universal *every building/varje byggnad*—they are not available to hierarchical operations. While they will be interpreted, they cannot be interpreted with inverse scope.

(61) A guard stands in front of every building, and a policeman does so too.

a. *Formula and LF of the antecedent*

$\forall y\ \text{building}(y)\ \exists x\ (\text{guard}(x)\ [\exists \epsilon \wedge \text{Agt}(\epsilon)=x \wedge \text{stands-in-front-of}(\epsilon,y)]$


TP
DP
TP
every building y
EC$_x$
TP
DP
T′
a guard$_x$
T
vP
x
v′
v
VP
V
DP
the building y

b. *Formula of the anaphor*

$\exists$z policeman(z) $\exists\epsilon$[do(ϵ) $\wedge$ Agtϵ=z $\wedge$ so$_{\epsilon,t}$]

c. *Formula of the anaphor after copying*

$\exists$z policeman(z) $\exists\epsilon$[do(ϵ) $\wedge$ Agtϵ=z $\wedge$ stands-in-front-of(ϵ,y)]

Next, we have the derivation of ACD. Again, the formation of ACD is licit until the point of copying. Since relative clause formation is syntactic, the relative operator must bind a variable in the actual hierarchical structure. Since *so* and *det* provide no such variables at LF, binding by the operator will fail, and so ultimately relative clause formation will fail:

(62) a. *Max has read every book that Sebastian has done so.

b. Max has [$_{VP}$ read every book]. → DP raising

c. Max has [$_{VP}$ read the book(x)] every book(x) → adjunct insertion

d. Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done so]] → copying

e. *Max has [$_{VP}$ read the book(x)] [every book(x) [that OP Sebastian has done so]] *Crash; no hierarchical structure*

In sum, we see that the lack of A-bar dependencies in *do so* and Swedish *det* are accounted for if we capitalize on the idea that *so* and *det* are truly lexemes, and therefore impervious to the syntax in a way that other heads are not. I have dealt with this analytically through the copying of formulas instead of hierarchical structure.

4.4 Summary

This chapter concludes the meaty part of the dissertation. It focuses on the A-bar properties of mixed anaphors. Empirically, we see that there are two very broad classes of mixed anaphors with respect to A-bar dependencies, the extracting mixed anaphors and the non-extracting mixed anaphors. The first class splits into two subtypes, those which do and do not allow inverse scope. These two subtypes, which are instantiated by British *do* and Dutch MCA, are analyzed as initial-stage and final-stage LF copying anaphors, respectively. This difference in timing allows us to distinguish between structures which contained active quantifiers and those which did not —and therefore between structures which could and could not support inverse scope.

The investigation of A-bar dependencies had a second result: It shows that non-extracting mixed anaphors must be treated as fundamentally different form extracting mixed anaphors. We saw this after examination of ACD, which is categorically ungrammatical for non-extracting mixed anaphors, but which is predicted to be grammatical under an LF copying analysis of non-extracting mixed anaphors. This difference was tied to the fact that the non-extracting mixed anaphors we see here are genuinely words, unlike extracting mixed anaphors (which are heads, but not lexemes). Since *so* and *det* are lexemes, it should not surprise us that binding into them is impossible.

I then moved on to provide an analysis for non-extracting mixed anaphors. This analysis crucially copied non-hierarchical structure (i.e., just a formula). Since this material was non-hierarchical, it was not available to interact with the hierarchical structure; this meant that hierarchical A-bar dependencies could not

be formed with non-hierarchical material in the anaphor site.

Chapter 5

Conclusion

The purpose of this work has been to push on the typology of anaphora, and to show how that typology and the accompanying theory must be expanded. The traditional typology divides the vast array of anaphora into just two classes, the model-interpretive (or deep) anaphors and the record-interpretive (or surface) anaphors. Researchers have assumed for a long time that model-interpretive anaphors come in many flavors (for example, the many types of definite referring expressions that have been catalogued by linguists); record-interpretive anaphors, on the other hand, have long assumed to be a fairly monolithic class. However, research in the last half-dozen years has made it increasingly clear that this typology is too coarse-grained. The presence of anaphors like *do so*, British *do*, Dutch MCA, and Swedish *det*—among many others—shows that we need a typology that can accurately group the many subtypes of record-interpretive anaphors.

I have argued that record-interpretive anaphors group into numerous categories, all based on the interaction of these anaphors with various types of syntactic dependencies. As I show in Chapter 1, a first cut in this class of record-

interpretive anaphors can be made based on the availability of overt syntactic dependencies. Some allow such dependencies; these are the ellipses, such as VPE and sluicing. There are also the mixed anaphors, which allow no overt dependencies. I have focused primarily on mixed anaphors, and in particular on the four anaphors mentioned above. The mixed anaphors themselves can then be broken down into at least two classes, based on the availability of unpronounced A-bar dependencies. Extracting mixed anaphors allow unpronounced A-bar dependencies; non-extracting mixed anaphors do not. This distinction splits British *do* and Dutch MCA from *do so* and Swedish *det*, respectively. Finally, a third distinction can be made in the extracting mixed anaphors; some extracting mixed anaphors (British *do* in particular) allow inverse scope, while others (Dutch MCA) do not.

Given these pervasive distinctions, the relevance of several different classes of record-interpretive anaphors to our theory of anaphora must be admitted. The prevailing accounts of record-interpretive anaphora— the PF-deletion and LF-copying accounts—cannot on their own distinguish between the various classes of record-interpretive anaphors. This is true even for accounts which are aimed directly at accounting for a variety of anaphors; as I show in Chapter 1, using a single mechanism to account for these many anaphors will almost inevitably fail. Instead, I propose an account where there are two mechanisms available to record-interpretive anaphors. The first mechanism is PF-deletion, which takes an already-generated syntactic structure and ensures that it is not pronounced under identity with another linguistic structure; this is the mechanism I take to underlie ellipses like VPE. The second mechanism is copying, which I claim accounts for the mixed anaphors.

There turn out to be at two basic types of copying available. The first type of copying is LF-copying, which copies the LF-hierarchical structure of some linguistic antecedent. LF-copying is used to account for extracting mixed anaphors, which allow some A-bar dependencies. LF-copying makes available non-overt hierarchical structure to the anaphor site, and therefore affords the formation of (at least some) unpronounced dependencies. This includes the formation of certain A dependencies and ACD, and inverse scope under certain types of copying. All anaphors which copy an LF will allow the formation of A dependencies after LF copying, provided that the external syntax can licitly generate the structure that is eventually send to LF; similarly, all anaphors which copy an LF will allow ACD. Where we see a difference within the extracting mixed anaphors is with respect to inverse scope; not all allow it. I have treated this difference as resulting from a difference in timing. LF-copying may copy either the initial stage of the antecedent's LF (when e.g. quantifiers are still low) or the final stage of the antecedent's LF (when quantifiers have raised and left behind A-bar copies). Whether or not an anaphor copies the initial or final stage accounts for whether or not an anaphor allows inverse scope, since only anaphors which copy the initial stage will copy in a quantifier that can undergo QR.

In addition to LF copying, I have also proposed that formula copying exists; this is used to account for non-extracting mixed anaphors. Non-extracting mixed anaphors bear the distinct status of not only being heads (like all mixed anaphors), but also being genuine lexemes: These are objects which truly behave like islands, into which one cannot rebind. Formula copying can be used to account for this island behavior. Formula copying copies non-hierarchical semantic

structure, i.e. the formulas that can be stripped off of LF structure. Material internal to this non-hierarchical structure cannot interact with material in the hierarchical LF structure. Interestingly, non-extracting mixed anaphors do appear allow A dependencies; however, this is easily explained as a result of the structure of the anaphors we have examined. Since the non-extracting mixed anaphors we examine are event-sized anaphors which appear as the complement to argument-introducing heads, they copy an event-sized formula. The argument-introducing heads that they appear with then induce Event Identitfication, and introduce an argument. This allows for the appearance of A-rebinding, even though there has in fact been no rebinding in the overt structure. However, A-bar dependencies are completely impossible under the analysis. Copied quantificational material can be interpreted, but cannot scope out of the anaphor site (since it cannot QR). Similarly, operators outside the anaphor site cannot bind into it, since there is no hierarchical structure for the operators to work over. Using this theory, we can then understand why predicate non-extracting mixed anaphors appear to allow A dependencies, without allowing A-bar dependencies; it is because of the nature of the formulas they copy.

Appendix A

A Step-by-Step Derivation

This appendix serves to give a fully explicit step-by-step derivation of LF-copying; the primary purpose here is to show that phase boundaries do not, in fact, cause problems for the derivation. I will do this here for ACD relatives with British English *do*, as these have the most complex derivation of any of the sentence types shown in this dissertation.

(1) I've read every book that I should have done.

Recall again the basic steps of the derivation for an ACD sentence:

(2) a. I've read every book(x) → *raising*

b. I've [read the book(x)] [every book(x)] → *adjunct insertion*

c. I've [read the book(x)] [every book(x) that OP I should have done] → LF-copying

d. I've [read the book(x)] [every book(x) that OP I should have done read the book(x)]

Although these steps outline the basics of the derivation, they do not discuss the explicit timing of copying, especially with respect to things like phases. It is well worth examining the timing of these steps in greater detail. Throughout this section, I will represent all material this is currently in the syntactic workspace with black text; material that has been spelled out to LF and PF will be represented with colored text.

The derivation of a mixed anaphor begins, of course, with the creation of the antecedent. In non-ACD cases, this will typically be the utterance of some sentence or fragment earlier in the discourse, which is then entered into the discourse record. When the mixed anaphor itself is built, it will (inside its phase) copy in its antecedent; all other phenomenon will proceed as per usual. In the ACD case, the derivation is of course a bit more complex; it requires the management of multiple workspaces. There are three workspaces that will be particularly relevant to the derivation here; I will term them workspaces A, B, and C (to be realized as sub-examples a, b, and c in the following discussion). Workspace A is the workspace in which the main clause is built; workspace B is the workspace in which the relative clause is built; workspace C is the LF workspace. Again, material in the LF workspace will be represented with colored text to distinguish it from the narrow syntactic workspaces.

First, then, we begin with workspace A, the workspace in which the main clause is built. The first thing that happens must be the build of the VP itself:

(3) *Step 1: Build of main clause VP*

[I read every book(x)]

After the main clause VP is built, the derivation continues on, building the rest of that phase. As this phase is built, raising of the phrase *every book* occurs to the right-edge position:

(4) *Step 2: Raising*

[I read the book(x)] [every book(x)]

Now that raising of the DP has occurred, the status of the adjunct becomes relevant. Note, here, that I do not hold that the adjunct cannot be built *until* this point; merely that it could not have been inserted until this point. I therefore turn our attention to it now, noting that Steps 3 and 4 could be concurrent with Steps 1 and 2. In the relative clause, we again must begin by building the vP phase; this will include build of the predicate and movement of the subject to the phasal edge. For the sentence given here, this includes building the anaphor *do* and its subject:

(5) *Step 3: Build of relative clause vP*

a. [I read the book(x)] [every book(x)]

b. [I [done]]

At this point, the relative clause vP phase is complete; the phase will be spelled out to LF and PF.

(6) *Step 4: Spell-out of the relative clause vP*

a. [I read the book(x)] [every book(x)]

b. [I]

c. [done]

We now begin work both on building the rest of the relative clause. At this point, since the main clause has not yet been shipped off to LF, the anaphor cannot copy the LF of the (main clause) antecedent. Since LF—unlike the narrow syntax—does not care about phases, this should not pose any problem; all that needs to happen is that the copying algorithm occurs at some point before the entire structure is shipped off to the conceptual interface (which does not seem to be a phase-based handoff). Therefore, we continue building the rest of the relative clause:

(7) *Step 5: Build of the relative clause CP*

a. [I read the book(x)] [every book(x)]

b. [that OP I should have]

c. [done]

Once the relative clause is built, the clausal phase will occur, and the complement to *that* will be spelled out to LF and PF:

(8) *Step 6: Spell-out of the adjunct clause TP*

a. [I read the book(x)] [every book(x)]

b. [that]

c. OP I should have [done]

At this point, the operator is now at LF, without any variable to bind; again, however, this should not be a problem. What is crucial is that the operator binds

a variable by the *end* of LF, not when it is first sent to LF. At this point, adjunct insertion occurs, and workspaces A and B collapse:

(9) *Step 7: Adjunct insertion*

a. [I read the book(x)] [every book(x) that]

b. OP I should have [done]

Following adjunct insertion, the rest of the main clause vP is built; the subject moves to the phasal edge, and the vP is spelled out to LF and PF:

(10) *Step 8: Spell-out of the main clause vP*

a. [I]

b. [read the book(x)] [every book(x) that OP I should have [done]]

At this point, the antecedent for the anaphor has been spelled out to LF and PF; this means that an appropriate LF antecedent now exists, and the anaphor can copy in the antecedent. Concurrently, the rest of the main clause can also be built:

(11) *Step 9: Copying of the antecedent & Step 10: Build of main clause TP*

a. [I have]

b. [read the book(x)] [every book(x) that OP I should have [done read the book(x)]]

Following this, there are only two final steps that must occur. These are the binding of the copy of the *the book* by the relative clause operator, and the

Spell-out of the remaining main clause material to LF. The data we have here cannot provide any sort of argument for an intrinsic ordering between these two operations, and so I again treat them together.

(12) *Step 11: Operator-variable binding* & *Step 12: Spell-out of main clause TP*

a. I have [read the book(x)] [every book(x) that OP I should have [done read the book(x)]]

At this point, the creation of the ACD relative is complete.

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