ABSTRACT

Title of Dissertation:	SYNTACTIC IDENTITY AND LOCALITY RESTRICTIONS ON VERBAL ELLIPSIS
	Elixabete Murguia, Doctor of Philosophy, 2004
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This dissertation investigates the topic of verbal ellipsis in English. Two main issues are addressed in this work: (i) the identity condition that restricts the application of ellipsis and (ii) the different locality restrictions that apply to elliptical constructions. The identity condition is examined from the point of view of competence, while the locality condition is given a natural answer from the processing domain. Furthermore, a parsing algorithm based on minimalist grammars is defined.

Chapter 1 introduces the topic. Chapter 2 and Chapter 3 deal with the syntactic identity condition. Chapter 2 reviews some proposals in the literature, namely, Lasnik (1995b), Kitagawa (1991) and Fiengo and May (1994). All these analyses examine controversial examples where, apparently, partial syntactic identity between antecedent and gap is found. Chapter 3 presents a new analysis which

assumes late lexical insertion, in the spirit of derivational morphology (Marantz 1993), and offers a unified account of all the cases of partial identity introduced in the previous chapter. It is argued that syntactic identity must be respected, and that the crucial notion for ellipsis is identity of syntactic categories—a condition that is met before lexical items are inserted. Also, the different readings that obtain under ellipsis (i.e., sloppy and strict readings) are explained as emerging at different points in the derivation: before and after lexical insertion, respectively.

Chapter 4 reviews one proposal in the parsing literature (Lappin and McCord 1990) as well as the problems it faces. Chapter 5 offers a processing account of the locality restrictions on gapping (as opposed to VPE and Pseudogapping)), those are analyzed as a result of (i) tense absence/presence (Fodor 1985), (ii) low initial attachment of coordinates, and (iii) Spell-out operations which render syntactic structure unavailable (Uriagereka 1999). A two-fold ellipsis resolution process is presented here—where some work is done on-line, but some at the LF level.

Chapter 6 defines an algorithm based on minimalist grammar operations, precisely on the preference of Merge-over-Move-over-Spell-out (as defined by Weinberg 1999); thus, showing that minimalist grammar models can be translated into computational models. Chapter 7 presents the conclusions.

SYNTACTIC IDENTITY AND LOCALITY RESTRICTIONS ON VERBAL ELLIPSIS

by

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CHAPTER 1: OVERVIEW OF THE DISSERTATION

This dissertation deals with a variety of syntactic constructions that can be grouped under the name of verbal ellipsis. I look at different elliptical structures in English; to be precise, Verb Phrase Ellipsis (henceforth VPE), Gapping, and Pseudogapping. They are exemplified below in (1), (2), and (3) respectively:

(1) a. Mary loves red wine, and Susan does too.

b. He reads the newspaper on the Internet, while she doesn't.

(2) John cooked some paella, and Peter a wonderful pasta.

(3) a. Ann did not excuse his father, but she will her mother.

b. The teacher talked about the problem with the parents after she did with the kid.

The obvious common feature of all elliptical structures is that some elements of the sentence are not present; they have been omitted. In sentence (1), the whole verb phrase in the second conjunct *Susan does too* is omitted. Clearly, the meaning of that sentence is: "Mary loves red wine, and Susan loves red wine", even if the second verb phrase is not overt. In sentence (1), another example of VPE, the verb phrase *read the newspaper* is missing from the subordinate clause. In gapping structures, like (2), the verb is omitted (and optionally some arguments or adjuncts as well); in the case of (2), what Peter was taken to do is to cook a wonderful pasta. In (3), an example of

pseudogapping, only the verb *excuse* is omitted, the argument *her mother* is not. In (3) both the verb and the argument *about the problem* are absent.

1.1. Goals of this Dissertation

I will be looking at ellipsis from the point of view of competence, performance, and also from a computational point of view. From the competence side, the questions that I will answer are: (i) How are these sentences built? (ii) What kind of syntactic structure does the elision site have? i.e., are the omitted elements part of the sentence structure or not? And (iii) under which conditions can predicates and arguments be omitted? From the performance side, the issues that arise are relatively similar: (i) How are these sentences assigned structure? How are they parsed? (ii) Do we build syntactic structure for the omitted constituents or not? (iii) If so, how can syntactic structure be computed when there are no overt input items from which to project structure?

Two main issues are addressed in this work: (i) the syntactic identity condition on ellipsis, and (ii) the different locality restrictions that apply for elliptical constructions. It has been argued (e.g. most recently by Chomsky (1993), Lasnik (1995b), Fiengo and May (1994)) that ellipsis is a deletion process that occurs under identity (see (4) below). However, there are examples that seem to argue against this generalization (see (4)). It has also been shown (e.g. Chao (1987), Fodor (1985), and

Berwick and Weinberg (1985)) that gapping as opposed to VPE is subject to locality, i.e. the antecedent needs to be local with respect to the gap (see (5) below):

(4) a. They travel to Europe often, and Peter does ~~travel to Europe often~~ too.

b. They traveled to Europe, and Peter will ~~travel to Europe~~ too.

(5) a. Tom called his friend, and Peter his mother.

b. *Tom called his friend, and I think Peter his mother.

I address the identity condition from the point of view of competence. I propose a minimalist analysis that accounts both for cases of partial syntactic identity (as in (4)), and for the different readings that can be obtained under ellipsis (see example (6) and the strict and sloppy readings in (7) below). I suggest that a more abstract notion of identity is needed, i.e. identity of categories.

(6) John phoned his friend, and Peter did too.

(7) a. $John_i$ saw his_i friend and $Peter_k$ saw his_i friend. (strict)

b. $John_i$ saw his_i friend and $Peter_k$ saw his_k friend. (sloppy)

I address the locality restrictions issue from the point of view of performance. I propose an analysis based on minimalist economy principles that accounts for cases of VPE, pseudogapping and gapping. Locality restrictions for gapping are given a

natural account from the processing side, as a result of (i) non-overt tense, (ii) low initial attachment of coordinate structures, and (iii) spell-out operations (in the sense of Uriagereka (1999)) which render syntactic structure unavailable. Verbal ellipsis resolution is described here as a two-fold process which takes place on-line and at LF as well.

From a computational point of view, I define a novel algorithm based on minimalist grammars that accounts for incremental structure building, coordination, as well as VPE, pseudogapping and gapping cases.

1.2 Traditional Accounts of Ellipsis

Traditionally, from the competence side of generative linguistics, there have been two different ways of analyzing ellipsis: the Deletion Hypothesis (e.g. Sag 1976) and the Interpretation Theory (e.g. Williams 1977). I introduce the basic main ideas for each approach here. According to the former, an elliptical sentence like (1) above, repeated here as (8), is base generated as in (9) with a fully realized VP. A deletion rule applies and as a result (9) is obtained:

(8) Mary loves red wine, and Susan does too.

(9) a. Mary loves red wine, and Susan **loves red wine** too.

↓ Rule of deletion

b. Mary loves red wine, and Susan does too.

The application of this rule of deletion is constrained by syntactic identity. Since the first and the second conjunct are structurally identical, deletion may apply and delete the second verb phrase. Syntactic identity guarantees recoverability of deletion, in other words, that the deleted material can be recovered at the interpretive level (i.e. Logical Form (LF)), and that the sentence is assigned the correct interpretation.

The Interpretation Theory, however, claims that a sentence like (8) is base generated with an empty category occupying the position of the second verb phrase, as in (10); this empty category is later on interpreted, giving as a result (10):

(10) a. Mary loves red wine, and Susan does [e] too.

b. Mary loves red wine, and Susan loves red wine too.

There are two problems that deletion theories face: (i) the syntactic identity condition that constrains deletion is questionable in examples where only partial identity seems to be met, at least on the surface (see (11) and (12)); and (ii) identity seems to be operative at levels other than the surface syntactic level (see (13)):

(11) Peter **worked** a lot yesterday, and tomorrow he will ~~**work**~~ too.

(12) I have finished all my readings, and you have ~~finished all **your** readings~~ too.

(13) Paul_i visited his_i friends, and Peter_k did ~~visit **his_k** friends~~ too.

In examples (11) and (12) the elided VP is not identical to antecedent VP. In the first case, the verb in the antecedent is the past form *worked*, while the verb in the elision site is *work*. In the second case, the pronoun in the antecedent clause is the first person pronoun *my*, but in the elision site we find the second person form *your*.

The sentence in (13) exemplifies what has been called a sloppy reading under ellipsis—one in which the pronoun in the elision site is interpreted as referring to the subject in that clause, rather than the subject in the antecedent clause. It shows that identity could be at work not only at the syntactic level, but also at other levels, since the dependency that the elided pronoun establishes inside its own clause has to be parallel to the dependency of the pronoun in the antecedent clause.

The Interpretative approach faces the following problems: if the elided VP is structurally empty, then how are grammatical relations going to be satisfied? How will the subject of the elided clause, for example, receive a theta-role? Also, it has been shown that there are ellipsis sentences in which there is a trace inside the elided VP that needs to be bound (Chao 1987), and that these traces are subject to island constraints (Haik 1987), which argues in favor of having a structured VP:

(14) John knows who$_i$ Bill criticized t_i, and Mary knows who$_k$ Sue did t_k.

(15) John read everything which$_i$ Bill did t_i.

(16) *John read everything which$_i$ Bill believes the claim that he did t_i.

In Chapter 3, where the proposal for VPE is introduced, I adopt an approach along the lines of deletion, i.e. I assume that the elided VP is fully structured, and that ellipsis occurs under syntactic identity. Based on the idea of late lexical insertion, I address those cases where sloppy readings obtain (example (13) above), and also those where partial syntactic identity seems to be at work (examples (11) and (12)).[1] I suggest that ellipsis takes place under identity of syntactic categories, and that this condition is met before lexical items are part of the derivation.

1.3 Structure of the Dissertation

Chapter 2 and Chapter 3 of this dissertation deal with ellipsis from the competence point of view. Chapter 2 offers a review of some of the proposals for VPE in the literature; in particular, I concentrate on some proposals related to the issue of the identity restrictions and of the strict and sloppy readings under ellipsis. I discuss Kitagawa (1991) and Fiengo and May (1994), which address the different available readings under ellipsis. Fiengo and May also discuss cases of partial syntactic identity between antecedent and gap. I also look at Lasnik's (1995b) account of the differences in verbal morphology under ellipsis.

Chapter 3 introduces an alternative minimalist proposal for VPE in coordinate structures. Assuming that lexical insertion is a late process in the derivation, I (i) analyze ellipsis as a Null Lexicalization process (rather than deletion or

[1] It has been proposed that lexical insertion is a late process in the derivation, in other words, lexical items are not part of the derivation from the beginning, (Marantz (1993), and Otero (1998)).

interpretation), (ii) account for strict and sloppy readings as emerging at different stages in the derivation of a syntactic structure—if the elided VP is interpreted before lexical items are inserted the sloppy reading obtains; on the contrary, if it is interpreted after lexical insertion, then it is assigned the strict reading—and (iii) reanalyze the identity issue as a condition on syntactic categories—a condition that is met before lexical items are part of the derivation.

Chapter 4 presents a review of one proposal in the parsing literature. Lappin and McCord's (1990) s-structure parsing algorithm for VP anaphora is reviewed. I adopt part of their algorithm for my account of ellipsis in the next chapter. I also present some cases which are not covered by their algorithm which suggest that ellipsis resolution also involves operations at the LF level.

In Chapter 5, I present an account for the processing of the different types of elliptical constructions I have mentioned (i.e. VPE, gapping, and Pseudogapping). A two-fold process in which some work is done on-line, and some at the interpretive level (i.e. Logical Form (LF)) is proposed. Only the minimal syntactic structure is built on-line for the gap—enough structure so as to satisfy grammatical constraints and attach remnants of elision. At the LF level, some interpretation work is carried out—strict and sloppy readings are obtained, as well as Quantifier Raising operations. I assume Weinberg's (1999) algorithm for human sentence processing, and extend it to account for ellipsis and coordination. I offer an explanation for locality restrictions based on (i) the presence/absence of an auxiliary, (ii) low attachment of coordinates, and (iii) spell-out operations.

In Chapter 6, I define a novel algorithm based on minimalist grammars; thus, showing the possibility of creating a computational model based on minimalist principles. I take Weinberg's (1999) human sentence algorithm with the extensions I propose in Chapter 5 for ellipsis and coordination, and translate it into a computational model. I define a non-deterministic parser based on that of Pullman (1986), but modifying the operations proposed there, in order to account for incremental structure building, displaced elements, coordination, and ellipsis. I finish with some conclusions in the last chapter, Chapter 7.

CHAPTER 2: RELATED SYNTACTIC WORK ON VP ELLIPSIS AND PARTIAL SYNTACTIC IDENTITY

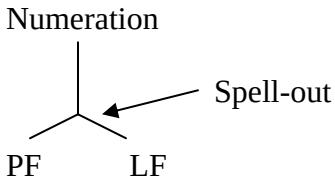
In this chapter I review some proposals that deal with the identity question, i.e. with the condition that ellipsis takes place if syntactic identity between antecedent and gap is respected. All these proposals discuss examples of verbal ellipsis where that condition on identity seems not to be respected; i.e., examples which could argue against a condition on identity for ellipsis. Those proposals include: (i) Lasnik (1995b) who discusses cases of different verbal morphology, (ii) Kitagawa (1991) who deals with examples of strict and sloppy readings, and (iii) Fiengo and May (1994) who investigate both (a) cases of strict and sloppy readings and (b) examples where the arguments in the antecedent verb phrase and in the elision site are syntactically realized in different ways, i.e. examples with different number or gender agreement morphology or even with different nominal expressions (e.g. a pronoun in the antecedent and a reflexive in the elision site or vice versa).

Lasnik (1995b), Kitagawa (1991) and Fiengo and May (1994) show that those examples of superficial sloppy identity (or partial syntactic identity) can be analyzed as examples where syntactic identity is respected, thus, arguing in favor of maintaining the condition of identity for ellipsis.

2.1 Lasnik (1995b): Verbal Morphology: Syntactic Structures Meets the Minimalist Program.

Lasnik (1995) proposes that VPE is the result of a deletion rule that applies at the PF level, before Affix Hopping.[1] His analysis is developed in the minimalist program framework (Chomsky 1993). The minimalist model is depicted in (1):

(1)



A derivation for a sentence starts with a Numeration, i.e. a collection of lexical items, which are assembled into a sentence through subsequent Merge and Move operations.[2] Once the sentence is built, it is spelled-out. In other words, there is a split point where relevant information is sent to the phonetic form (PF) and the logical form (LF) levels.

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[1] Lasnik proposes that in languages like French: (i) verbs are fully inflected in the lexicon, and (ii) INFL is a set of strong abstract features that need to be checked—verbs move overtly and check these features. In English, however, it is only with auxiliaries that the situation is parallel to that in French; main verbs (i) are uninflected in the lexicon, and (ii) INFL is an affix that must merge with a bare V. Affix hopping, which attaches the affix to the bare form of the verb, is a morphophonemic rule that applies at PF, and requires adjacency.

[2] The operation *Merge* joins two syntactic elements together, thus, building/projecting syntactic structure—those syntactic elements that are joined can be lexical items or syntactic constituents. The operation *Move* copies syntactic constituents from one position in the sentence to a different one, later on deleting all but one copy in order to satisfy grammatical requirements.

2.1.1 VPE: A Rule of Deletion that Applies at PF under Identity

Lasnik (1995) analyzes VPE as the result of a deletion rule that applies at PF before the rule of Affix hopping, and only when identity of verbal morphology is respected. He shows how syntactic identity between the antecedent and the gap is respected, even in those sentences where the surface string seems to argue against it.

Consider examples (2), (3), (4) and (5) where it seems that tense and aspectual differences between antecedent verb phrase and elided verb phrase can be ignored by ellipsis. There seems to be some kind of sloppy identity (i.e. partial identity) at work here:[3]

(2) John slept, and Mary will ~~sleep~~ too.

(3) John sleeps, and Mary should ~~sleep~~ too.

(4) John was sleeping, and Mary will ~~sleep~~ too.

(5) John has slept, and Mary will ~~sleep~~ too.

Lasnik analyzes all these cases that involve sloppy identity with main verbs as deletion under complete identity by relying on his proposal for verbal morphology in

[3] There are two ways in which the notion of sloppy identity is used in this dissertation, in both cases total identity between antecedent and gap is not met: (i) to refer to cases of partial syntactic identity, where there is a difference in the syntactic realization of certain elements, for example in verbal or agreement morphology between antecedent and gap (see examples (2-5) in text above, (15-17) at the end of section 2.1, and the examples in section 2.3.4 as well), and (ii) to refer to sloppy readings under ellipsis, where for example the pronoun in the elision site is understood as referring to the subject in that clause rather than the subject in the antecedent clause (see examples in section 2.2.1 or 2.3.2). Lasnik uses the term *sloppy identity* only to refer to examples where there is a difference in verbal morphology.

English—i.e. main verbs are retrieved uninflected from the lexicon, and it is through affix hopping that the verbal affix that resides in INFL is attached to the verb.

If the deletion rule applies at PF before affix hopping occurs, then identity of verbal forms holds. Example (2) (repeated below as (6)), consequently, has the structure in (7) when deletion applies:

(6) John slept, and Mary will too.

(7) John INFL **sleep**, and Mary will ~~**sleep**~~ too.

Deletion applies to the structure in (7), which is the structure that the sentence has before affix hopping applies, and which respects identity. The same reasoning applies to the rest of the examples in ((3)-(5)).

This sloppy identity is not found in examples with auxiliary *be*, where total identity must be respected. Consider examples (8), (9), and (10) below:

(8) *John was here, and Mary will ~~be here~~ too.

(9) John will be here, and Mary will ~~be here~~ too.

(10) *The children have been very good here. I wish they would ~~be~~ at home.

In sentence (8), the auxiliary *was* has raised out of the VP in the antecedent, but not in the elided VP, since there it behaves as a main verb. Nevertheless, the reason for its

ungrammaticality is not the fact that there is a trace in the antecedent, because (i) a sentence like (11) below where raising has taken place is perfectly grammatical, and (ii) sentence (10) is also ungrammatical and in this case *been* does not raise; the verbal form is different, though. Sentence (9) is acceptable, because the verbal forms in both the antecedent and the gap are identical.

(11) ?John should have left, but Mary shouldn't ~~leave.~~

The case with the verb *have* is similar. If it functions as an auxiliary (examples (11), (12) and (13)) its behavior patterns like auxiliary *be*; total identity must be respected. Instead, when it is the main verb (example (14)), it patterns like the rest of verbs:

(12) *John has left, but Mary shouldn't ~~have left~~.

(13) *The men have left, but the women shouldn't ~~have left.~~

(14) John has a driver's license, but Mary shouldn't ~~have a driver's license.~~

Sentence (11), above, is better than (12), in which the verb forms are different (*has* versus *have*). Even though the forms in the antecedent and the ellipsis site are phonetically identical in sentence (13), the form in the antecedent is the present plural while in the gap it is the base form.

2.1.2 Summary and Comments

Lasnik (1995) deals with one of the problems that any deletion account of VPE has to face, that of differences in verbal morphology between the antecedent and the elision site. Deletion theories defend the idea of verbal ellipsis taking place under syntactic identity. Thus, the examples discussed above by Lasnik are a potential problem for any deletion account since partial identity seems to be at stake. If that was the case, those examples would violate the syntactic identity condition.

Lasnik defines VPE as a deletion process that takes place at the level of Phonological Form (PF) under syntactic identity conditions. He shows how both in the case of the auxiliaries and the main verbs identity of verbal forms is respected. Those examples that involve main verbs with different verbal morphology realizations in the antecedent and the gap are accounted for by assuming that (i) main verbs are uninflected in the lexicon in English, (ii) there is an affix in INFL that must be merged with the bare form of the verb, this happens at the level of PF (Affix Hopping), and (iii) deletion applies before Affix Hopping does, so identity of verbal forms is met.[4]

However, differences in verbal morphology are not the only trigger for sloppy identity in ellipsis examples. Sloppy identity also seems to be at work with gender

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[4] It seems plausible to have uninflected verb forms in the lexicon for regular verbs: a form like *decided* is, thus, obtained by merging the affix for the past *-ed* (which resides in INFL) to the bare form *decide* at the level of PF. Nevertheless, it is not so clear how the past form *saw* of the verb *see* can be derived by Affix Hopping. The lexicon seems to be the right repository for irregular forms. If it is so, then the explanation for those examples of ellipsis that involve different forms of irregular verbs in the antecedent is not so straightforward.

and number morphological differences (see (15), and (16)), as well as in cases that involve pronouns in the antecedent and reflexives in the gap (see (17)) or vice versa:

(15) Peter visited his family, and Mary did ~~visit her family~~ too.

(16) The Smiths visited their family, and John did ~~visit his family~~ too.

(17) Tom shaved himself before the barber could ~~shave him~~.

So, the question of how sloppy identity in these cases is accounted for must be addressed. A satisfying answer cannot be that this type of sloppy identity is not important for ellipsis, while identity of verbal forms is. Ideally, we should be able to account for all the cases of sloppy identity in a unified manner.

In Chapter 3, I propose an alternative account of sloppy identity under ellipsis which covers both the cases discussed by Lasnik, where there are differences in the verbal morphology, and the ones in (15)-(17), where differences in gender and number morphology are observed. Thus, mine is an account that unifies all those cases of sloppy identity (where there are morphological differences between antecedent and gap) under the same analysis: identity of syntactic categories.

2.2 Kitagawa (1991): Copying Identity

2.2.1 A Binding Theory (BT) Approach to Ellipsis

According to Kitagawa (1991), VPE is reconstructed and interpreted at the LF level by a VP copy rule. So for a sentence like (18) below, the VP ellipsis will be resolved at the LF level—the VP copying rule applies and copies the antecedent verb phrase into the gap, as represented in (19):

(18) John blamed his son, and Bill did [$_{VP}$ e] too.

(19) LF: John blamed his son, and Bill did [$_{VP}$ blame his son] too.

Kitagawa presents a Binding Theory (BT) approach to VP ellipsis—he argues that Principles A, B, and C of the BT must be satisfied at LF. He suggests that at the LF level the VP copying process (in order to reconstruct the elided verb phrase) and the application of BT need not be extrinsically ordered. Thus, there are two possibilities: (i) the first one is that the VP copy rule applies followed by BT (represented in (20) below); (ii) the second one is that first BT applies and then the VP is copied, represented in (20) below:

(20) a. John$_1$ blamed his$_1$ son, and Bill$_2$ did [blame his$_{2/1}$ son] too.

b. John$_1$ blamed his$_1$ son, and Bill$_2$ did [blame his$_1$ son] too.

If the VP is copied before BT applies, then either the sloppy or strict reading is assigned to the sentence. In the strict reading, the pronoun *his* in the elided clause is interpreted as referring to the subject *John* in the antecedent clause. However, in the case of the sloppy reading, the pronoun is interpreted as referring to *Bill* the subject in the elided clause.[5] If, on the contrary, the VP is copied after BT has applied only the strict reading is obtained (see (21)):

(21) a. Coindexation < VP Copy --- > strict identity

b. VP Copy < Coindexation --- > sloppy identity/strict identity

No matter whether we decide to apply VP copy first and BT after, or BT first and VP copy after, the resulting syntactic object must respect binding theory. Thus, for the sentence in (22) there is only one reading available, the one in (23):[6]

(22) John blamed himself, and Bill did [$_{VP}$ e] too.

(23) a. *John$_1$ blamed himself$_1$, and Bill$_2$ did [blame himself$_1$] too.

b. John$_1$ blamed himself$_1$, and Bill$_2$ did [blame himself$_2$] too.

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[5] This is the second sense that the term *sloppy identity* has (see footnote 3 above). In this case, the term refers to sentences where the pronoun(s) in the elided clause hook back to the subject in that clause. In the case of sentence (20) in the text, the different interpretation for the pronoun is the only difference between antecedent and elision site—there are no morphological differences, although there could be morphological differences as well (recall examples (15-17).

[6] This claim will be readdress in the next section, since there are some variations in the readings that different speakers permit. But for the moment let us assume that this is the general pattern.

The reading in (23)—which obtains by coindexation followed by VP copy—is unavailable, since it violates Principle A of the binding theory; the anaphora is not locally bound.[7]

2.2.2 Dialectal Variations

One very interesting observation that Kitagawa makes is that variations in the availability of strict and sloppy readings can be found. He discusses sentences involving the reconstruction of both anaphors and pronouns at LF, and identifies four dialectal variations (Dialect A, B, C and D). We will start by looking at the anaphor examples and then move to the pronouns.

Consider the sentences below, examples involving the copy of anaphors at LF. Binding Theory (Principle A) can be overridden in some cases: for some speakers (Dialect A and B) this happens when there is a gender conflict only, and for others (Dialect C and D) it also can occur when there is no conflict. Kitagawa (1991) analyzes these dialectal variations as the result of the optionality of copying certain features at LF in different dialects:

(24) John considers himself to be intelligent, and Bill does too.

(25) John considers himself to be intelligent, and Mary does too.

[7] Thus, Kitagawa (1991) accounts for the contrast between anaphors and pronouns with respect to strict and sloppy readings by means of the principles of BT, which are independently needed. An independent Variable Rewriting Rule, such as Reflexivization (Williams 1977) or "PRO -> BV" (Sag 1976)—which applies obligatorily to anaphors and optionally to pronouns—is not needed to account for this contrast.

(26) Mary considers herself to be intelligent, and John does too.

Sentence (24), which shows no conflict in gender, has only the sloppy reading for speakers of Dialect A and B—the strict reading is not available since the copying of the anaphor *himself* into the elided verb phrase at LF violates Principle A of the Binding Theory. For speakers of Dialect C and D, however, both the sloppy reading (in (27) below), and the strict reading (in (28) below) are available—speakers of these dialects suppress BT(A) in the output of the copying at LF, and permit the strict interpretation. The feature [+Anaphor] is optionally copied in these dialects:

(27) LF: John_1 considers $[+\text{Pro}, +\text{Anaphor}, +\text{Masculine}]_1$, and Bill_2 does $[_{\text{VP}}$ consider $[+\text{Pro}, +\text{Anaphor}, +\text{Masculine}]_2$ to be intelligent too.

VP Copy < Coindexation

(28) LF: John_1 considers $[+\text{Pro}, +\text{Anaphor}, +\text{Masculine}]_1$, and Bill_2 does $[_{\text{VP}}$ consider $[+\text{Pro}, \varnothing, +\text{Masculine}]_1$ to be intelligent too.

Coindexation < VP Copy

Sentence (25), however, has a strict reading for speakers of both Dialect A and B—the conflict in gender between *himself* and *Mary* permits the suppression of Principle A, in other words, the copy of the feature [+Anaphor] is optional in these dialects under the circumstance of gender conflict, as represented in (29) below:

(29) LF: John$_1$ considers [+Pro, +Anaphor, +Masculine]$_1$, and Mary$_2$ does [$_{VP}$ consider [+Pro, ∅, +Masculine]$_1$ to be intelligent too.

For speakers of Dialect B this sentence also has a sloppy reading, accounted for by the optionality of copying the feature [+Masculine], as represented in (30) below. For speakers of Dialect C and D it also has both readings:

(30) LF: John$_1$ considers [+Pro, +Anaphor, +Masculine], and Mary$_2$ does [$_{VP}$ consider [+Pro, +Anaphor, ∅]$_2$ to be intelligent too.

Sentence (26) has a strict reading for speakers of Dialect A, B, C, and D. For those first two, again, BT (A) is suppressed because of gender conflict (the [+Anaphor] feature is not copied. For C and D it is the case that the optionality of copying that feature applies across the board. Only for dialect C there is a sloppy reading for sentence (26) too. For speakers of this dialect the feature [+Feminine] is optionally copied as well.

Consider now sentence (31), (32), and (33) below. For sentence (31) two readings, the strict and sloppy, are available for the speakers of all four dialects. For sentence (32), however, speakers of all dialects except Dialect A—for whom only the strict reading is fine—find both readings acceptable. In the case of sentence (33) it is only speakers of Dialect C that accept the strict and sloppy readings; for the rest of the speakers this sentence is given only the strict interpretation:

(31) John considers his father to be intelligent, and Bill does [$_{VP}$ e] too.

(32) John considers his father to be intelligent, and Mary does [$_{VP}$ e] too.

(33) Mary considers his father to be intelligent, John does [$_{VP}$ e] too.

Once again the dialectal differences are accounted for by the optionality of copying some features. Dialects B, C, and D permit optionality to copy the feature [+Masculine] when there is gender conflict; copying of the feature [+Feminine] is optional in Dialect C too.

In the table that follows below all the different available readings for the four dialects are summarized:[8]

	(24)	(25)	(26)	(31)	(32)	(33)
Dialect A	SL	ST	ST	SL/ST	ST	ST
Dialect B	SL	SL/ST	ST	SL/ST	SL/ST	ST
Dialect C	SL/ST	SL/ST	SL/ST	SL/ST	SL/ST	SL/ST
Dialect D	SL/ST	SL/ST	ST	SL/ST	SL/ST	ST

Table 1

[8] ST stands for strict reading and SL stands for sloppy reading.

2.2.3 Summary and Comments

Kitagawa's proposal offers a good descriptive analysis of the possibilities for sloppy and strict readings under ellipsis in different dialects. He links the availability of those readings to the VP copying rule that applies at LF. This VP copying rule in different dialects allows the exclusion of different features ([+Anaphor], [+Masculine], and/or [+Feminine]).

Two questions should be raised here. First, why should there be a preference to not copy the feature [+Anaphor] over [+Masculine] or [+Feminine]? Abstracting away from dialectal variations, speakers tend to prefer strict readings for sentences (32) and (33) over sloppy readings; in other words, they prefer to interpret a reflexive in the antecedent as a pronoun in the gap rather than interpreting it as a reflexive with a different gender. And second why should the feature [+Masculine] be different from [+Feminine] with respect to its optionality nature? To be precise, why do speakers of Dialect B and Dialect D consider the copying of [+Masculine] optional, but not the copying of [+Feminine]? Why should copying of one gender feature but not the other be optional? What is it about [+Masculine] that makes it special? I give an answer to these questions in the next chapter.

2.3 Fiengo & May (1994)

Fiengo and May (1994) (henceforth F&M) propose that in VPE contexts the elided verb phrase is a reconstruction of the antecedent; the antecedent VP and the elided

one are structurally identical. They offer an account for the different readings that are available in ellipsis contexts, i.e. strict and sloppy readings (see example (34) below), as well as for some cases where identity of syntactic structure seems not to be respected.

2.3.1 VPE Eliminates Potential Readings

F&M offer an analysis of the readings that are available in VPE contexts. They observe how ellipsis has an eliminative effect in anaphoric possibilities. Consider examples (34), (36) and (38) below, together with their respective readings (35), (37), and (39):

(34) Max saw his mother, and Oscar did too.

(35) a. Max saw Max's mother, and Oscar saw Oscar's mother. *(sloppy)*

b. Max saw Max's mother, and Oscar saw Max's mother. *(strict)*

Example (35) represents the sloppy reading, in which the pronoun *his* in the elided VP is interpreted as referring to the subject in that clause *Oscar* rather than the subject in the antecedent clause *Max*. In the case of (35), which represents the strict reading, the pronoun in the elision site refers to the subject in the antecedent clause.

(36) Max said he saw his mother, and Oscar did too.

(37) a. Max said Max saw Max's mother and Oscar said Oscar saw Oscar's mother. (*across-the-board sloppy*)

b. Max said Max saw Max's mother and Oscar said Max saw Max's mother. (*across-the-board strict*)

c. Max said Max saw Max's mother and Oscar said Oscar saw Max's mother. (*sloppy-strict*)

d. *Max said Max saw Max's mother and Oscar said Max saw Oscar's mother. (*strict-sloppy*)

The across-the-board sloppy reading, where both pronouns in the elision site are interpreted as referring to the subject in that clause *Oscar*, is represented in (37). Example (37) represents the across-the-board strict reading, where both pronouns in the elision site are interpreted as referring to the subject in the antecedent clause *Max*. Example (37) represents a mixed reading, where the first pronoun in the elision site is interpreted as referring to the subject in that clause, and the second pronoun as referring to the subject in the antecedent clause. (37) represents a mixed reading where the first pronoun refers to the subject in the antecedent clause, while the second pronoun to the subject in the elided clause.

(38) Max said he thinks he saw his mother, and Oscar did too.

(39) a. Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Oscar saw Oscar's mother. (*across-the-board sloppy*)

b. Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Max saw Max's mother (*across-the-board strict*)

c. Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Oscar saw Max's mother. (*sloppy-sloppy-strict*)

d. Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Max saw Max's mother. (*sloppy-strict-strict*)

e. * Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Max saw Oscar's mother. (*sloppy-strict-sloppy*)

e. * Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Max saw Oscar's mother. (*strict-strict-sloppy*)

f. * Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Oscar saw Oscar's mother. (*strict-sloppy-sloppy*)

g. * Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Oscar saw Max's mother. (*strict-sloppy-strict*)

Those precluded readings in (37) and (39) above are available for the non-elided counterparts of sentences (36) and (38). It is ellipsis that reduces the number of possible readings. F&M account for this fact with their analysis of verbal ellipsis as reconstructing different index types, which are subject to certain identity conditions.

2.3.2 Strict and Sloppy Readings: Reconstruction of α- and β-type Indices

F&M characterize verb phrases under ellipsis as reconstructions, i.e., a set of token structures under an identity condition; or in other words, as occurrences of a sub-phrase marker over a given terminal vocabulary.[9] Reconstructions have the same syntactic structure and the same lexical items. Thus, even though their syntactic structure is identical, phrases like *fly an aeroplane* and *drive a car* are not reconstructions, since they are not built of the same terminal vocabulary.

Reconstructions constitute connected parallel discourse; their role is to introduce fixed points against which to introduce new information. These occurrences can be overt or not; since they are in some sense redundant they do not need to be repeated, ellipsis may apply and omit some of them.

In order for ellipsis to apply, two verb phrases must be reconstructions, in the sense just discussed. Two VPs are reconstructions if (i) the two VPs are built out of the same terminal vocabulary, and (ii) the indexical dependencies present in both VPs are identical. Before we discuss how these two conditions apply with an example, there are two notions that should be introduced: α-occurrences and β-occurrences.

According to F&M (1994), indices are complex objects which have both an indexical value (1, 2… etc), and an indexical type (α or β). α-type indices are independent; they are not licensed through association with other occurrence of the same index. They are evaluated in relation to a context, and reference is established

[9] This is the first definition of the term *reconstruction* that the authors provide in their work. This definition is revised and slightly modified in order to account for examples where there are different nominal expressions in the antecedent and the elided verb phrase. I discuss these cases in section 2.3.4.

independently for each occurrence of the same index. Two α-occurrences are identical if they bear the same index value. However, β-type indices are structurally dependent. They are well-formed if there is another occurrence of the same index value inside the same phrase marker that they can depend on, and get their value from. Thus, they are indexical dependencies (IDs). See (40) where the formal representation of an ID is included:

(40) $<(c_1^{\alpha}, c_2^{\beta} \ldots c_n^{\beta}), I, SD>$

An ID is formed by (i) a sequence of elements (the bearers of the occurrences of index I), (ii) the index value (I), and (iii) the structural description (SD) of the syntactic structure that connects the elements that bear the occurrences of the index. Two IDs are identical, that is i-copies, if they only differ in their index value.

Now, let us see how these notions apply with an example. F&M account for strict and sloppy readings as reconstructions of α-type or β-type occurrences, respectively. Consider (41) below and the two available readings for this example in (42). In (42) an α-type index occurrence is reconstructed, so the strict reading obtains, in (42) a β-type is reconstructed and the sloppy reading obtains instead:

(41) Max saw his mother, and Oscar did too.

(42) a. Max_1 [saw his_1^{α} mother] and $Oscar_2$ [saw his_1^{α} mother] *strict*

b. Max_1 [saw his_1^{β} mother] and $Oscar_2$ [saw his_2^{β} mother] *sloppy*

VP1-ID < ([$_{NP}$ Max], [$_{NP}$ his]), 1, <NP, V, NP> >

VP2-ID < ([$_{NP}$ Oscar], [$_{NP}$ his]), 2, <NP, V, NP> >

Recall that VPs must obey two conditions to be reconstructions: identical dependencies, and same terminal vocabulary. In (42), the index occurrences in the antecedent and the elided verb phrase are identical; since they have the same value "1". Also, the terminal vocabulary is the same, so the VPs are reconstructions and ellipsis may apply. In (42), the IDs in both verb phrases are i-copies: they only differ in their index value ("1" in the case of the antecedent, and "2" in the case of the elision), and they are parallel (the pronouns occur in the same context with respect to their antecedents). The terminal vocabulary is also the same, and ellipsis can also apply.

If the parallelism between dependencies is broken, the sloppy reading is not available. Consider example (43) below, where only the strict reading is acceptable. The sloppy reading is precluded because the IDs are not i-copies; they are not structurally parallel. As soon as the parallelism between dependencies is broken, the identity condition is violated, and consequently the verb phrases involved are not reconstructions of each other to which ellipsis may apply:

(43) Max's mother saw him, and Oscar said Mary did too.

(44) a. Max_1's mother [saw him_1^{α}] and $Oscar_2$ said Mary [saw him_1^{α}] *str*.

b. *Max$_1$'s mother [saw him$_1^{\beta}$] and Oscar$_2$ said Mary [saw him$_2^{\beta}$] *sl.*

VP1-ID: < ([$_{NP}$ Max], [$_{NP}$ him]), 1, <NP, N, V, NP> >

VP2-ID: < ([$_{NP}$ Oscar], [$_{NP}$ him]), 2, <NP, V, NP, V, NP> >

If the parallelism is restored, the sloppy reading becomes available. The sentence below can have a strict reading, and a sloppy reading, which can be paraphrased as: "Max's mother saw Max, and Oscar said that Peter's mother saw Peter". The pronoun in the elided verb phrase can never be interpreted as referring to *Oscar*, since this interpretation would also break the parallelism of dependencies:

(45) Max's mother saw him, and Oscar said that Peter's mother did too.

2.3.3 Many Pronouns Puzzle and Many Clauses Puzzle

F&M account for the available and the unavailable readings in the Many Pronouns Puzzle—i.e. those examples that involve more than one pronoun in the elision site—with the use of indices too. Consider sentence (36) above, repeated here as (46). The readings are represented under (47):

(46) Max said he saw his mother, and Oscar did too.

(47) a. Max_1 said [he_1^{α} saw his_1^{α} mother] and ($strict\text{-}strict$)

$Oscar_2$ said [he_1^{α} saw his_1^{α} mother]

b. Max_1 said [he_1^{β} saw his_1^{β} mother] and ($sloppy\text{-}sloppy$)

$Oscar_2$ said [he_2^{β} saw his_2^{β} mother]

VP1-ID: < (Max, he, his), 1, <NP, V, NP, V, NP> >

VP2-ID: < (Oscar, he, his), 2, <NP, V, NP, V, NP> >

c. Max_1 said [he_1^{β} saw his_1^{α} mother] and ($sloppy\text{-}strict$)

$Oscar_2$ said [he_2^{β} saw his_1^{α} mother]

VP1-ID: < (Max, he), 1, < NP, V, NP> >

VP2-ID: < (Oscar, he), 2, <NP, V, NP> >

d. *Max_1 said [he_1^{α} saw his_1^{β} mother] and ($strict\text{-}sloppy$)

$Oscar_2$ said [he_1^{α} saw his_2^{β} mother]

VP1-ID: < (he, his), 1, <NP, V, NP> >

VP2-ID: < (Oscar, his), 2, <NP, V, NP, V, NP> >

The readings in (47), (47), and (47) are available because the index occurrences in both VPs are identical. Example (47) involves the reconstruction of an α-type occurrence for both pronouns, the index value is the same in both conjuncts, the VPs are reconstructions and ellipsis can occur. This reconstruction represents the across-the-board strict reading. In (47), which represents the across-the-board sloppy reading, the β-dependencies in the two conjuncts are i-copies—so ellipsis can also occur here. The same reasoning applies to (47), but in this case it is only the first

pronoun that is included in the β-dependency copy: the second pronoun is interpreted as strict—but the index value is identical in both VPs.

However, in (47), even though the occurrences for the first pronoun are identical, the ones for the second pronoun are not; the β-occurrences are not in parallel structures; so the SDs are not identical. Thus, the dependencies are not i-copies, the VPs are not reconstructions, and consequently ellipsis is blocked.

The readings for the sentence below ((38) above) are also accounted for in the same way. All the readings in the left column are i-copies to which ellipsis can apply, while those on the right do not respect identity, thus, they are not reconstructions and ellipsis cannot apply.

(48) Max said he thinks he saw his mother, and Oscar did too.

(*strict-strict-strict*)	* (*strict-strict-sloppy*)
(*sloppy-sloppy-sloppy*)	* (*strict-sloppy-sloppy*)
(*sloppy-sloppy-strict*)	* (*strict-sloppy-strict*)
(*sloppy-strict-strict*)	* (*sloppy-strict-sloppy*)

Those examples involving the so-called Many Clause Puzzle (i.e. cases where there is more than one elision site), like (49) below, are accounted for in the same manner. The sentences we have looked at so far had only two clauses: one functioning as antecedent and the other as the gap. However, there can be any number of elided copies of the antecedent phrase; i.e. of reconstructed VPs. In sentences where there is

more than one clause elided, the effect of ellipsis on anaphoric possibilities is also eliminative. The availability of readings once again can be justified in terms of the reconstruction of indices that need to respect a condition on identity. See (49) and the available readings in (50):

(49) Max saw his mother, Oscar saw his mother too, but Sam didn't.

(50) a. Max_1 [saw his_1^{α} mother], $Oscar_2$ [saw his_1^{α} mother], but Sam_3 didn't [see his_1^{α} mother] (*strict-strict-strict*)

b. Max_1 [saw his_1^{β} mother], $Oscar_2$ [saw his_2^{β} mother], but Sam [didn't see his_3^{β} mother] (*sloppy-sloppy-sloppy*)

VP1-ID: < (Max, his), 1, <NP, V, NP> >

VP2-ID: < (Oscar, his), 2, <NP, V, NP> >

VP3-ID: < (Sam, his), 3, <NP, V, NP> >

c. *Max_1 [saw his_1^{α} mother], $Oscar_2$ [saw his_1^{α} mother], but Sam_3 [saw his_3^{β} mother] (*strict-strict-sloppy*)

VP3-ID: *<(Sam, his), 3, <NP, V, NP>>

d. *Max_1 [saw his_1^{β} mother], $Oscar_2$ [saw his_2^{β} mother], but Sam_3 didn't [see his_1^{α} mother]. (*sloppy-sloppy-strict*)

*his_1^{α}

Sentence (49) only permits across-the-board strict or sloppy readings, as in (50) and (50) respectively. No mixed readings in which one elided clause has a strict reading

and the other a sloppy reading (50), or vice versa (50), are allowed. The reason for this is that those readings involve reconstructing an α-occurrence as a β-occurrence (or vice versa), violating identity of indices. Thus, the verb phrases are not reconstructions, and ellipsis cannot apply.

2.3.4 Vehicle Change

F&M study some examples that involve sloppy syntactic identity between the antecedent and the elided VP, i.e., where the syntactic form of an argument is altered among the tokens of the reconstruction.[10] In order to account for these cases, while maintaining the characterization of elided verb phrases as reconstructions of their antecedents, they propose an operation called Vehicle Change which allows for free adjustment of feature values. See examples below:

(51) Peter blamed himself before his boss did.

(52) Peter blamed **himself** before his boss [blamed **him**].

(53) John visits his family often and Mary does too.

(54) John visits **his** family often, and Mary [visits **her** family often] too.

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[10] I have already discussed some examples of sloppy identity in the form of distinct verbal morphology between the antecedent and the elided clause (section 2.1.1). I have also talked about sloppy identity in the form of sloppy readings (sections 2.3.1, 2.3.2, and 2.3.3). In this section, I discuss sloppy identity in the syntactic realization of arguments. Some of the cases presented here have been introduced in section 2.2.1, in our discussion of Kitagawa´s work.

In sentence (51) the operation of Vehicle Change allows the reflexive in the antecedent to be reconstructed as a pronoun, at least under the sloppy reading in (52). The case with sentence (53) is similar; vehicle change allows the masculine pronoun in the antecedent to be realized as a feminine pronoun in the gap, as represented in the sloppy reading in (54).

Reconstruction requires that each token structure have the same set of arguments; non-arguments and non-argumental parts of NPs are not relevant. In other words, there are certain aspects of syntactic structure that cannot be distinguished by reconstruction. So, some elements in the reconstructed structures might be realized differently, and still be non-distinct.

There are two types of vehicle change: (i) Type A, when one sort of expression is realized in various ways (e.g. nondistinctiveness of pronouns, reflexives, and PRO; or nondistinctiveness between a name and a variable), and (ii) Type B, which refers to cases of indescernibility of values within a syntactic feature paradigm (e.g. agreement features).

Let us start by considering Type A. F&M (1994) claim that reflexives are not atomic elements, but they are rather composed of two parts: the pronominal part (the argument part) and the grammatical formative *self*, which triggers Principle A of the Binding Theory. Pronouns and reflexives are non-distinct for reconstruction, since in order to respect identity, all that is required is that the argument part is reconstructed. Thus, the two expressions in (55) below are non-distinct. Consider examples (56) and (58):

(55) $[_{NP}[_{NP}$him]self] $[_{NP}$him]

(56) Max hit himself before Oscar did.

(57) a. Max_1^{α} hit him_1^{β}+self before $Oscar_2^{\alpha}$ [hit him_2^{β}+self].

b. Max_1^{α} hit him_1^{β}+self before Oscar [hit him_1^{β}].

(58) Bush voted for himself, and Barbara did.

(59) a. $Bush_1^{\alpha}$ voted for him_1^{β}+self, and $Barbara_2^{\alpha}$ [voted for her_2^{β}+self].

b. $Bush_1^{\alpha}$ voted for him_1^{α}+self, and Barbara [voted for him_1^{α}].

Both examples are acceptable under the strict and the sloppy readings.[11] For reconstruction, a nominal can take any syntactic form as long as its indexical type and value is unchanged. For example, sentence (56) under its strict reading (in (57)) respects identity, since even though only the pronominal argument part of the reflexive has been reconstructed, the indexical type and value did not change. The strict reading for sentence (58), under (59), can be accounted for in the same way. Example (60) below shows that reconstruction is a symmetrical relation; therefore, in the same way that *himself* can be reconstructed as *him*, the opposite also holds, i.e. *him* can be reconstructed as *himself*:

(60) Barbara voted for him, but Bush didn't.

[11] Whether an α-reflexive or a β-reflexive is reconstructed depends on the context, it is a result of the interaction of Binding Theory (Principle A, B and C), and Dependency Theory (α or β index types).

(61) Barbara$_1^{\alpha}$ voted for him$_2^{\alpha}$, but Bush$_2^{\alpha}$ didn't [vote for him$_2^{\alpha}$+self].

Pronouns and reflexives are nondistinct for reconstruction; the important thing is that an expression of type [+pronoun] is reconstructed—which syntactic form it adopts is a function of the context in which it occurs. [12]

Consider (62) now, an example of the non-distinctiveness of names and variables. Names and variables are the lexical and the null forms, respectively, of a cell of the nominal typology (like pronouns and PRO are). Identity holds as long as the indices in both do respect identity conditions.

(62) John kissed Mary, but I wonder who Harry will.

(63) John kissed Mary$_1^{\alpha}$, but I wonder who Harry [kissed e$_1^{\alpha}$].

Type B of vehicle change (featural vehicle change) refers to cases where there is indescernibility within syntactic feature paradigms. Example (64) involves agreement features, and example (65) the *some/any* alternation:

(64) I turned in **my** assignment, but most of the students didn't [turn in **their** assignments].

(65) Max didn't talk to **anyone**, but Oscar did [talk to **someone**].

[12]F&M (1994) propose the existence of only one anaphoric feature [pronoun]. Reflexives and pronouns are [+pronoun], and referring expressions such as names are [-pronoun]. The feature [anaphor] does not exist in the nominal typology they propose.

This sort of featural vehicle change interacts with Binding theory. Example (66) illustrates this: the feature [+/-pronoun], which distinguishes pronominal from nonpronominal elements, is affected by vehicle change here. Consider the reading in which the pronoun *he* is understood as anaphoric to *John.* Then if the name *John* is reconstructed in the elided site, Principle C of the BT will be violated. If instead vehicle change applies, and the feature [-pronoun] is switched to [+pronoun] then the reconstruction conforms to BT requirements. Here, vehicle change reconstructs what F&M call the pronominal correlate, which is subject to Principle B of BT.[13]

(66) Mary loves John, and he thinks that Sally does too.

(67) Mary loves $John_1^{\alpha}$, and he_1^{α} thinks that Sally loves $^{P}John_1^{\alpha}$

Featural (Type B) and non-featural (Type A) vehicle change can interact, as example (68) shows. In this case, the reflexive form of the pronominal correlate of *John* is reconstructed; this avoids violating Principle B:

(68) I shaved John, because he wouldn't.

(69) I shaved John, because he wouldn't shave ^{P}John+self.

[13] A is a pronominal correlate (P) of B iff where B has [-pronoun] A has [+pronoun]. This must be the only difference.

F&M also include examples of nonpronominal vehicle change, i.e., featural vehicle change where a pronominal element in the antecedent is reconstructed as a nonpronominal element in the elision, an example is (70):[14]

(70) Which paper$_1$ did the student who was supposed to read it$_1{}^{\alpha}$ refuse to [read $^{p-}$e$_1{}^{\alpha}$]?

Pronominal correlation from a variable to a pronoun can also be found, as example (70) shows. In the following example, if what is reconstructed is the verb and the trace of the wh-element, the resulting structure will be ungrammatical since the trace will not be bound. Instead, if the pronominal correlate of the variable is reconstructed the sentence is acceptable:

(71) John named a country which$_1$ he wants to visit e$_1{}^{\alpha}$, and given the amount of traveling he does, I am sure that he will [visit ^{P}e$_1{}^{\alpha}$].

Let us finish the discussion of examples that involve sloppy identity with the sentence in (72) below, where the antecedent is in passive voice, and the elision site in active voice:

[14] They observe how nonpronominal vehicle change, where a [+pronoun] in the antecedent is vehicle changed into a [-pronoun], is practically unobservable, since all the violations of Principle B are included in Principle C.

(72) This law restricting free speech$_{\alpha}^{1}$ should be repealed by Congress e$_{\alpha}^{1}$, but I am sure that it won't [repeal this law restricting free speech$_{\alpha}^{1}$].

F&M propose that arguments are composite elements, they consist of two parts: (i) an argument expression, and (ii) an argument position. Neither of these constitutes an argument in and of itself, and they may appear in the same position or they might occupy two different positions, i.e. they form a chain. The argument *this law restricting free speech* in the first clause in sentence (72) forms a chain. In the second clause, however, that same argument is not spread out in the sentence. Nevertheless, those two VPs are reconstructions. Even though the VP argument in the antecedent is realized as a trace, the two VPs are reconstructions, since both are occurrences of the same verb and argument.

Thus, in order to account for all the cases of partial identity in this last section, F&M redefine the concept of reconstruction as a set of token structures over a given terminal vocabulary of predicates and arguments.

2.3.5 Summary and Comments

F&M (1994) present an analysis of verb phrase ellipsis that defends the idea of the elided VP being structurally identical to the antecedent. The elision site is categorically fully specified, though there is no lexical material. They define elided VPs as reconstructions of their antecedents, i.e. as occurrences of the same sub-phrase

marker—where identity of lexical items must be respected by the predicates and the arguments (at least by the argument part).

Their proposal accounts for the anaphoric possibilities, and for both the available and the unavailable readings under ellipsis by proposing the existence of two different index types. Strict readings are proposed to involve the reconstruction of an α-type index, and sloppy that of a β-type index.

F&M also deal with the problem of apparent sloppy identity, or partial syntactic identity. In their case, they study nominal expressions that are syntactically realized in different ways among the occurrences of the VP (as Lasnik (1995b) above did with respect to differences in verbal morphology). They show that these differences can be accounted for with an operation called Vehicle Change, which allows maintaining the description of verb phrases under ellipsis as reconstructions.

In the next chapter, I offer an alternative analysis of VP ellipsis, which accounts for all the different cases of sloppy identity presented in this chapter. This new proposal is based on the Minimalist Program (Chomsky 1995), it does not make use of different index types, and it offers a unified account for all the cases of sloppy identity (i.e. partial syntactic identity) and of sloppy readings. It is proposed that, by assuming late lexical insertion, strict and sloppy readings are obtained in a derivational way, as a result of the stage at which the elided VP is interpreted. The problem raised by differences in verbal morphology and differences in nominal expressions is also addressed there. F&M discuss differences between nominal expressions in their work, but not between verbs.

2.4 Conclusions

We have seen with the discussion of the proposals above that sloppy identity (or partial syntactic identity) manifests itself in different fashions: in the form of different verbal morphology (as discussed by Lasnik (1995b)), in the form of sloppy readings (as discussed by Kitagawa (1991) and F&M (1994)), and in the form of different gender and number morphological realizations, or even as different anaphoric expressions (as discussed by F&M (1994)).

We have also seen that all these cases of partial syntactic identity can be accounted for, and consequently, that the condition of syntactic identity that constraints the application of ellipsis under deletion type theories can still be maintained if it is relaxed (like in the case of Vehicle Change for example). Ellipsis occurs under syntactic identity.

In the next chapter, I offer a unified treatment of all these cases of partial syntactic identity. I propose that the condition that constrains the application of ellipsis is identity of syntactic categories.

CHAPTER 3: A MINIMALIST ACCOUNT OF VP ELLIPSIS

In this chapter, I introduce an account for VPE that is developed inside the Minimalist Program framework (Chomsky 1993, 1995). Coordinate elliptical structures are analyzed, together with the available readings in those contexts. The proposal discussed here is based on that of F&M (1994), which defines verb phrases in elliptical constructions as reconstructions that are syntactically fully realized, even though there might be no lexical material inserted. As we saw in the previous chapter (section 2.3.2), F&M view strict and sloppy readings as a reconstruction of different index types—the so-called α- and β-occurrences. But the approach taken here is derivational rather than representational; in other words, strict and sloppy readings are explained as a result of interpreting the elided VP at different stages in the derivation, instead of by means of using representational devices such as index types.

I assume that lexical insertion is a late process in the derivation along the lines of Distributed Morphology (Marantz 1993). By adopting this view on lexical insertion, ellipsis can be accounted for as a null lexicalization process (i.e. no lexical items are inserted in the elision site) —rather than deletion or interpretation—and a derivational account for strict and sloppy readings can be advanced. Depending on which stage of the derivation the elided verb phrase is interpreted at—i.e. prior to or after lexical insertion—the sloppy or the strict readings are assigned to the elided structure.

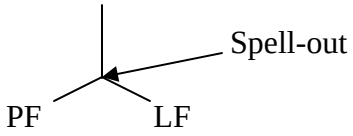
The issue of the syntactic identity condition between antecedent and gap that must be met in order for ellipsis to apply is also discussed here. A more abstract notion of identity is proposed: identity of syntactic categories, which is met before lexical items are inserted in the derivation. With this new notion of identity, cases of the so-called sloppy identity can be explained; to be precise, I deal with cases of (i) verbal morphology differences, (ii) agreement differences (e.g. gender), and (iii) pronoun/reflexive (or vice versa) differences.

3.1 Some Theoretical Background

3.1.1 A very Brief Introduction to the Minimalist Program (Chomsky 1993, 1995)

The new proposal for VPE that is about to be introduced is developed inside a minimalist framework (Chomsky 1993, 1995). The language model that this syntactic theory develops is depicted in (1). For a sentence like *The woman found the place* the derivation will start with the following elements in the Numeration:

(1) Numeration: {the$_2$, woman$_1$, found$_1$, place$_1$}



The derivation of any sentence starts with a Numeration, which can be defined as a collection of lexical items and their syntactic features: every lexical item in the

numeration is a token, since it is the instantiation of a type. Each lexical type has a sub-index attached that indicates how many tokens of it can be pulled out of the numeration to build the syntactic structure of a sentence.

Words are pulled out of the Numeration and combined by way of an operation called *Merge*—which joins two syntactic objects together (see definition of the term *syntactic object* in footnote 2 of the current chapter) and projects syntactic structure. Every time that *Merge* pulls out a word from the Numeration its sub-index is modified (e.g. once the word *woman* has been used once the sub-index it holds in the numeration will be modified to zero, indicating that this word/token is no longer available in the Numeration for future *merge* operations).

The second operation that builds syntactic structure is *Move* which copies syntactic constituents form one position in the sentence to a different one, thereby deleting all copies but one (hence the "move" metaphor). The reason for movement operations is always syntactic features that need to be checked at certain positions in the tree.

Once the Numeration has been exhausted—in other words, when there are no tokens left in the numeration—and all relevant syntactic features have been checked through *merge* and *move* operations, then Spell-out applies. This last operation splits the derivation and sends only the relevant information to both the Phonetic Form (PF) level and the Logical Form (LF) level. Thus, information about the pronunciation of a sentence is sent to the PF level; while information about the interpretation of a sentence is sent to the LF level.

The previous paragraphs summarize the main ideas inside the minimalist theoretical framework. However, it has been proposed by Uriagereka (1999) that there can be more than one Spell-out operation in a derivation, and that certain properties can be deduced from this assumption. I assume this view on Spell-out for my work and I discuss Uriagareka´s proposal as well as its theoretical implications in the next section.

3.1.2 Multiple Spell-Out (MSO) (Uriagereka 1999)

MSO is an attempt to reduce Kayne's Linear Correpondance Axiom (LCA) to a more minimalist basis.[1] According to Uriagereka (following Chomsky 1995:chapter 4), the linearization condition follows from bare output considerations—the phrase marker has to be linearized, otherwise it will be an ill-formed object at PF. The LCA is deducible from economy considerations, under Uriagereka's view.

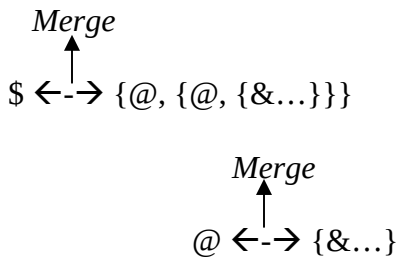
The first concept we have to address is a Command Unit (henceforth CU), which Uriagereka defines as an object that emerges through the monotonic application of merge, as in (2):

---

[1] Linear Correspondance Axiom (LCA)
Base Step: If @ commands &, then @ precedes &.
Induction Step: If $ precedes & and $ dominates @, then @ precedes &.

(2) a. Command Unit

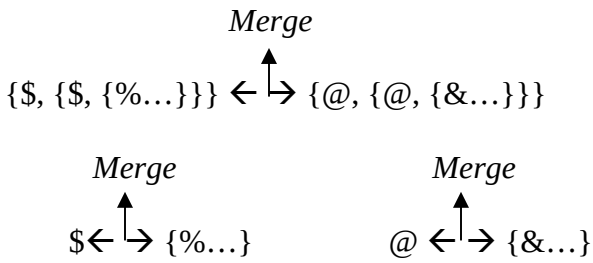
{@, {$, {@, {@, {&…}}}}}



(Monotonic application of merge to same object)

b. Not a command unit

{@, {{$, {$, {%…}}}, {@, {@, {&…}}}}}



(Non-monotonic application of merge to two separately assembled objects)

It is within CUs that syntactic terms communicate. The order resulting from linearizing each CU is based on the command relation and on the history of merge. For Uriagereka, following Epstein, command is a reflex of merge, and the head-complement merger codes the basic PF order between them. Command maps to precedence in simple CUs, because this is the optimal state of affairs. The function

mapping command to precedence is less costly information theory-wise. Thus, he deduces Kayne's LCA base step (object in (2)).

According to Uriagereka (1999), after abandoning the D- and S-structure levels, there is no point on restricting Spell-out to one application, because that is only a residue of the formerly existing S-structure level. He presents a dynamically split model, in which multiple application of Spell-out happens, accessing PF and LF in separate derivational cascades. There are structures that involve more than one CU (e.g. the object in (2)), and which are not linearizable if we do not adopt such a system. By assuming a dynamically split access to interpretation, the system satisfies the Induction step of the LCA.

Uriagereka (1999) argues that CUs are spelled-out separately since that is the most economical alternative. Spell-out separates phonetic from categorial/semantic features, yielding structures that are interpretable by the PF and LF components. After Spell-out, what remains is not a phrase marker any longer, it is in effect a lexical compound. This element is frozen, so the syntax cannot operate with it any longer, but it can associate further up. It is not a syntactic object, but it has a label and terms, which are interpretable.[2, 3]

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[2] A syntactic object is defined by Chomsky (1995): chapter 4, in the following manner:
Base: A word is a syntactic object.
Induction: {@, {L, K}} is a syntactic object, for L and K syntactic objects and @ a label.

[3] According to Chomsky (1995):
Label: Within a syntactic object, a label @ is not a term.
Term: K is a term if and only if (a) or (b):
Base: K is a phrase marker.
Induction; K is a member of a member of a term.

Here is how the Induction step can be derived, according to Uriagereka: “The elements $ dominates (in (2)) should act as $ does within its command unit, this is a consequence of the fact that $ has been spelled out separately from the CU it is attached to, in a different derivational cascade. These elements cannot interact with those elements that $ does, in the mother CU, their place in the structure is frozen under $’s dominance.”

I assume this MSO system for our analysis of VPE, but it should be said that the function that multiple spell-out has in the system that follows is going to be limited to the mere job of supplying an order to the syntactic structure. As we will see below, there are occasions when MSO applies in the derivation that lexical items may have not been inserted yet. And consequently, phonological and semantic features cannot be shipped to the PF and LF components.

3.2 A Derivational Account of VPE and of Strict and Sloppy Readings

F&M (1994) define VPs in VPE as reconstructions (see Chapter 2, section 2.3.1), where the elided VP is categorially fully specified, lacking only the phonetic material. I share this view with them. However, they do not say anything about how the different occurrences of the VP and the coordinate structures are built or linearized, or about the kind of process that is responsible for elision. Is it deletion or interpretation? In this section, I offer some suggestions with respect to those issues. Elision is analyzed as null lexicalization. This is possible, because in the model

presented here lexical insertion takes place late in the derivation, and because the structural parallelism that is needed for elision to apply comes for free from the iteration rule that builds coordinates. We see this in the next two sections.

3.2.1 Delayed Lexical Insertion

It has been proposed in the literature, most recently by Distributed Morphology (Marantz 1993) or (Otero 1998), that lexical insertion is a late process in the derivation, and that there are some linguistic facts that could not be accounted for otherwise.

I adopt this view and argue that there is a division between what is purely formal and the substantive lexicon, and also that lexical items are not inserted when the derivation starts, but later on. This idea of late lexical insertion is going to be the basis for my analysis of ellipsis and of the readings under ellipsis.[4]

Thus, the Numeration cannot be defined as a collection of lexical items any longer, but rather as a collection of syntactic categories and features with which the derivation starts. The Numeration is restricted to formal elements. Lexical insertion

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[4] One could ask whether having syntactic structure built out of categories—to only later on insert lexical material—is taking one step back to the way syntactic derivations were thought of at the time rewriting rules, such as the ones below, were considered to build sentences:

(i) NP → Det N
Det → the

Nowadays, there are two approaches with respect to the way derivations are carried out: (i) lexically driven derivations and (ii) derivations of the sort proposed by Distributed Morphology (Marantz 1993), which defend the idea of late lexical insertion. Both are possible approaches and still under consideration, so we are not adopting an old view which has already been rejected.

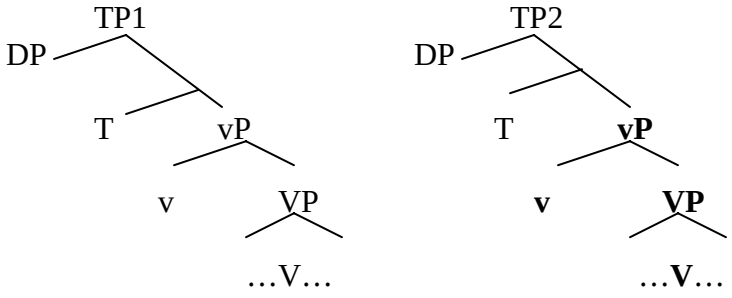
takes place only when the numeration has been exhausted, all the elements merged and the pertinent constituents moved to check its features. Lexical information—that is, the phonological and semantic information associated with each word—does not come into play until the very last minute.

3.2.2 A Rule of Iteration

In this section I want to show how the elided VPs in coordination can be constructed by the application of an iteration rule that affects part of the syntactic structure (the VP). This iteration rule gives us for free the syntactic parallelism that has been argued to be needed, in order for ellipsis to apply.[5] Syntactic parallelism is a natural consequence, since the same syntactic structure is built more than once. For a sentence like (3), the rule of iteration builds a second VP (in (4), in bold), which is structurally identical to the antecedent:

(3) Tom likes movies, and Peter does too.

(4)



[5] It has been argued in the literature (most recently by Chomsky 1993; 1995) that for ellipsis to apply a condition on structural parallelism has to be met first.

F&M (1994) argued that VPs in VP ellipsis are reconstructions, literally carbon-copies, or a set of token structures over a terminal vocabulary. These different occurrences of the same sub-phrase marker constitute connected parallel discourse and are redundant—that is the reason why ellipsis may (though need not) apply. I analyze these VPs which are carbon copies as the result of this iteration rule that rebuilds the structure of the antecedent VP for the elision site.

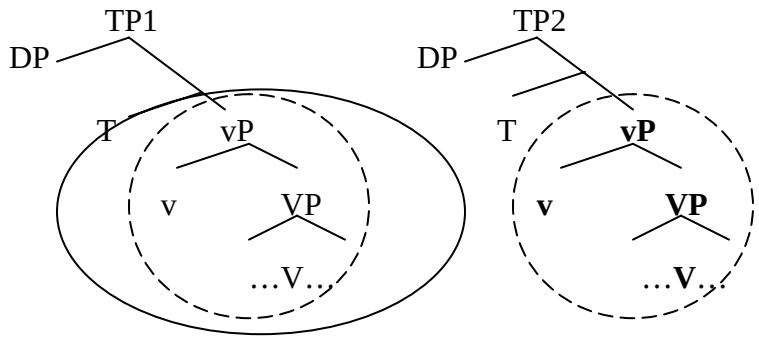
3.2.2.1 Tokens, Types, Token Structures and Occurrences.

Before we continue with the discussion, I would like to include a brief comment on some terminology used here. The terms that are to be defined beforehand include the following: type, token, occurrence, token structure and occurrence of a token structure (or of a sub-phrase marker). I have briefly characterized the terms *type* and *token* in the introduction section (3.1.1 above). There, we said that examples of the former are *woman, see, at*, etc. and of the latter $woman_2$, see_1, at_1, etc; or in other words every time a type is instantiated it becomes a token. In the proposal for VP ellipsis presented here, since lexical insertion takes place late in the derivation the term *token* refers to every instantiation of a type (i.e. V, N, D, etc.) in the Numeration (i.e. N_1, V_1, D_2). In other words, a token is an instantiation of a syntactic category with its syntactic features in the numeration. The sub-index on every token indicates the number of times that token is pulled out from the numeration when building the syntactic structure of a sentence.

Let us consider now the concept of *token structure*, and see how the concepts of token and type apply to the case of syntactic structures. In the case of syntactic structures, a type is for example a VP or an NP; once we have an instantiation of one of these types, i.e. one concrete example of a VP or an NP, we have a token structure. Let us see how these definitions apply with a concrete example. Consider sentence (3), repeated below in (5)—an example of verbal ellipsis (the elided VP is between brackets)—and its sentence syntactic structure in (6):

(5) Tom likes movies and Peter does [like movies] too.

(6)



In (6) above, there is an example of a token structure: the vP that is surrounded by an oval continuous shape; the antecedent vP. This token structure is built with tokens from the Numeration.

However, there are two occurrences of this token structure in that example (inside dashed circles): (i) one built with the tokens from the numeration (the antecedent VP), and (ii) one built by the iteration rule (the elided VP). Both VP occurrences are built from one unique token in the Numeration (see Numeration for

this sentence in (9) below): one V token and one N token. If these two occurrences of the same token structure need to be lexicalized, they will be lexicalized in the same way, for example the verb cannot be lexicalized as *like* in the antecedent and *watch* in the elision, since they are built out of the same tokens in the numeration (I will come back to the issue of tokens, occurrences and identity in sections 3.2.4.1 and 3.3 below).[6]

The iteration rule in the example above has only built one occurrence of the token structure (of the elided vP). But more occurrences of that token structure can be built by this iteration rule, as in sentence (7), where there are two elided VP and therefore two occurrences of the vP built by that iteration rule:

(7) Tom likes movies, Peter does too, but Mary doesn´t.

3.2.2.2 The Derivation of one VPE Example: Iteration and Null Lexicalization

After defining the terms of *token structure* and *occurrences of a token structure* we can continue with the discussion of the proposal. I share F&M´s idea of VPs under ellipsis as occurrences of the same syntactic structure, and I analyze these as the result of iteration. In the system proposed here, the VPs are a set of token structures

[6]Another example of different occurrences of a token structure is the case of syntactic movement. In the case of movement—if this is viewed along the lines of the copy theory of movement (Nunes 1995) where an identical copy of the moved constituent is left behind, rather than a just a trace—we could also say that there are two or more occurrences of a token structure.

The constituent which moves from its base position is the token structure that is built with tokens from the numeration. This constituent in its base position is one of the occurrences of that token structure. Together with this occurrence, there will be as many occurrences of the same token structure as landing sites for the movement operation.

over categories, rather than over a terminal vocabulary (since lexical insertion has not taken place at this stage that the iteration does).

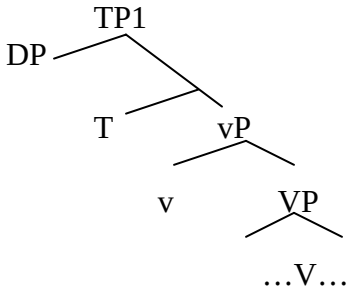
Having said that, let us see how all the notions I have just discussed apply with one example. According to Goodall (1987), coordinators subcategorize for one or more element, so every time that we have a coordinator as part of our numeration, we need two or more occurrences of a sub-phrase marker. Consider the sentence in (8), and the numeration for that sentence, which will be something along the lines of (9):

(8) Tom likes movies and Peter does too.

(9) {D[-pronominal]$_1$, D[-pronominal]$_1$ T[present]$_2$, V_1, N_1, B_1}

The derivation starts with these categories. The first syntactic object that is going to be assembled is the TP1 in (10) through subsequent merge and move operations, and the numeration is reduced to the elements in (11):

(10)



(11) {D[-pronominal]$_0$, D[-pronominal]$_1$, T[present]$_1$, V_0, N_0, B_1}

Since coordinative or Boolean elements—such as *and*, *or*, *but*—subcategorize for two or more elements, the iteration rule rebuilds part of the phrase marker in a parallel plane (Goodall 1987).[7]

The iteration rule applies in the case at stake to the VP (or vP) sub-phrase marker.[8] This iteration rule builds a second vP. This iterated VP is merged with the rest of the elements in the numeration, to end up with two parallel syntactic structures, as in (12):

---

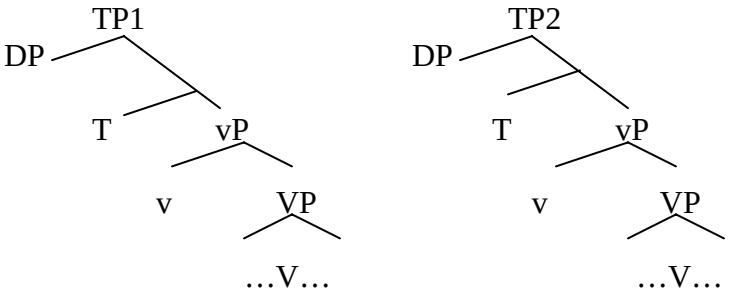
[7] We assume Goodall (1987) which offers an alternative analysis of coordinate structures as parallel structures. Conjunctions subcategorize for two or more phrase markers that exist in parallel planes: syntactic operations must apply in parallel too. He argues that not all phrase markers can be represented as trees, and he identifies coordination to be one of those cases. Coordinates can be represented as phrase markers with more than one string of terminals.

[8] In languages like Spanish, ellipsis affects more structure; it deletes the whole TP, and the iteration rule works with all that material. It, thus, appears that the scope of the iteration rule is parametrizable, as well as the amount of structure that null lexicalization can affect.

(ii) Maria ama a su madre enormemente pero Juan no.
Maria love-3p.sing her mother enormously but Juan not
"Maria loves her mother enormously, but Juan doesn't"

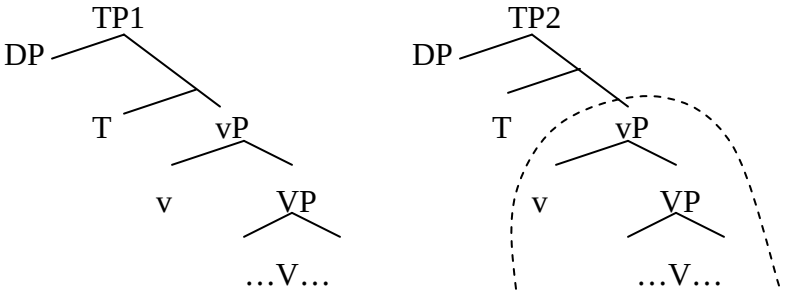
This difference in the amount of material that is deleted may be due to (i) the difference in verb raising that exist among languages—in languages like English where there is poor morphology the verb does not raise to T, while in languages with rich morphology like Spanish the main verbs raise to T—or (ii) to the difference in the position of Sigma Projection (ΣP) (the functional category where elements like negation reside) (Laka 1990)—in English ΣP is below TP, while in Spanish ΣP is above TP, and ellipsis affects that material that is below ΣP. Whether what is triggering the difference is (i) or (ii), or a combination of both, is not important. The result is that different amount of material is deleted in both languages. Martins (1994) offers an account for ellipsis in Portuguese based on the notion of ΣP. Lopez (1997) analyzes the differences between English and Spanish in terms of ΣP and the auxiliary. Murguía (1997) also looks at the differences in terms of the different position that ΣP occupies.

(12)



This iteration rule builds k-occurrences of the same token structure ("carbon-copies" in F&M's terms) which constitute connected parallel discourse. Since these iterated structures are redundant, null lexicalization may apply. That is, when lexical items are inserted in the derivation, those categories that are part of the iterated VP (under the dashed arc in (13)) will not need to be lexicalized:

(13)



The iterated VP is the same object as the first built VP, it is has identical syntactic structure, and thus, it is redundant material. What triggers this process of null lexicalization is the structural parallelism found between the first and the second VPs; they are built out of the same syntactic categories, they are identical.

Besides syntactic information, lexical items provide two types of information: phonetic and semantic (π, λ). This means that those categories that are not lexicalized

(the categories that build the iterated VP) will not be pronounced at PF, and at LF they will have no semantic features associated. So, the VP that is lexicalized (the overt VP) will function as the antecedent when interpreting the elision, and substantive representations (lexical items) will be copied from the antecedent VP into the elided VP (we will see this with more detail in section 3.2.4.1 and 3.3). The fact that both VPs are built from one token in the numeration ($\{V_1, N_{1...}\}$, see numeration in (9)) guarantees that the different occurrences of that token structure will contain the same lexical material.

In a sentence like (14) more elements than those which are phonetically realized are part of the structure. Although no overt lexical material is present in the gap, the elided VP is structurally fully realized. Ellipsis is the result of null lexicalization, not of deletion:

(14) Peter's boss likes him a lot, and Mary's boss does too.

The concept of iteration is similar to copy (in the copy theory of movement Nunes 1995), but there are some differences that make iteration a more interesting option. The copy operation creates an object that is identical to the source (there exists no

difference between them).[9] A process of iteration can differentiate between "copies", since a determinate structure cannot be iterated, until it has been built before.

This is very important for an account of ellipsis, since there must be a mechanism that helps us differentiate between occurrences of the same VP sub-phrase marker, in order for ellipsis—null lexicalization in our terms—to apply. The phrase marker that has been built first is not redundant, thus, it will be overtly realized. The subsequent occurrences of the same phrase marker, however, are redundant and can be null lexicalized.[10]

For the first built VP, which involves iteration zero, null lexicalization does not apply. However, for the second built VP, null lexicalization does apply, as it will for any further iteration. The possibility of distinguishing between occurrences also

---

[9] In the examples that Nunes (1995) discusses (see (iii) below), it is possible to distinguish between copies and decide which one is going to be pronounced, because of the number of features that each copy has checked. For a sentence like (iii), both copies of the DP *which book* are identical (see (iv)a); however, there is still a Q feature in CP that needs to be checked. In ((iv)b) it can be observed how by making one more copy of the DP in the specifier of CP the Q feature is checked (both in the CP and in the wh-element). Thus, this last copy in [Spec, CP] is different from the others in terms of the number of features it has checked, and it is the copy that will be pronounced.

(iii) Which book did John file and Mary read?
(iv) a. [$_{CP}$ Q [$_{TP}$ John filed [**which book**]] and [$_{TP}$ Mary read [**which book**]]].
b. [$_{CP}$ **[which book]** [$_{TP}$ John filed **[which book]**] and [$_{TP}$ Mary read [**which book**]]].

In the case of verbal ellipsis, it is not clear how the copy theory of movement will help us decide which of the copies of the VP is going to be realized (see (v) below): there are two copies of the VP, but it cannot be determined which of them functions as the antecedent VP. The copies are identical in the number of features that hey have checked in this case, and there is no way of distinguishing them.

(v) John [**read that book**] and Mary did [**read that book**] too.

[10] The structural parallelism together with an emphatic feature in the numeration constraints null lexicalization of the iterated structure. In the presence of an emphasis feature in the numeration, the iterated structure will be lexicalized, in the absence of such a feature it will be null lexicalized.

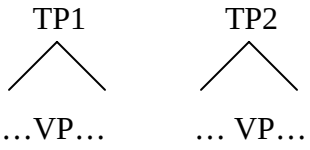
helps us linearize the parallel structures later on in the derivation, based on the antecedent-gap relation that holds between them.

3.2.3 Linearization of parallel structures

In Goodall's sense coordinated structures are parallel structures that arguably exist in separate, somehow parallel planes (see footnote 7). According to Chomsky (1995), the LCA can be reduced to an output condition on the shape of phrase markers at PF. Taking this into consideration, the fact that coordinate structures may be assembled in parallel is not an a priori problem, as long as they are linearized by the point they reach PF.

Even though there is an internal order among the elements that build each coordinate phrase marker (established by a MSO system), there is no obvious order between/among the coordinates themselves, since they are built in parallel. There is no command, hence no direct precedence relation between/among the parallel phrase markers. To converge, at least at PF, a structure must be linearizable. So some kind of order must be established, otherwise these structures will never converge. Observe (15):

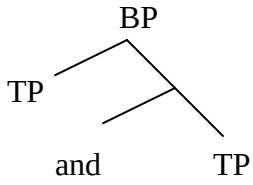
(15)



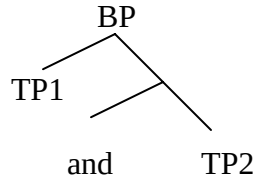
In (15) we have two parallel structures, to which no order has been assigned. In order to converge at PF some order must be assigned to the coordinates. I assume that coordinate structures project a Boolean Phrase (BP) (Munn 1987a) as in (16) below, where the coordinator heads its own phrasal projection.[11]

There is order among coordinates in a BP; in (16) the TP that is higher up in the tree c-commands and consequently precedes the lower TP. But, since coordinates are assembled in parallel, to only later on be linearized (because of PF necessities), the question is: how is order assigned to parallel coordinates? In principle, for two coordinate structures like the ones in (15) we could have as a result a Boolean Phrase as in (17) or as in (17):

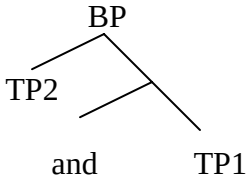
(16)



(17) a.



b.



[11] In the BP structure I am assuming—headed by the coordinator—the coordinates occupy the specifier and the complement position, essentially as in Kayne (1994). I am not assuming that the BP is formed by the coordinator and the second coordinate—which are in turn adjoined to the first coordinate—as Munn proposes in 1993.

In (17) and (17) we have the opposite command relations. In the first case it is TP1 that c-commands and precedes TP2. However, in the second case it is TP2 which c-commands and precedes TP1. I suggest that the order in which these two phrase markers are linearized comes as a result of null lexicalization affecting one of the two, and from the relationship of antecedence-gap that holds between both.[12] The one which null lexicalization does not affect comes first. This one functions as the antecedent to, in some sense, interpret the second. The final object is the one in (18):[13]

---

[12] Goodall (1987) proposes an ordering relation for coordinate structures, which is based on the existing order among elements on each of the coordinate sub-parts. To be precise, the order of a sentence like (vi) is derived from the order that every single element has in each of the sub-parts in (vii):

(vi) John and Mary eat doughnuts (= ((vii)a) U ((vii)b))
(vii) a. John ate doughnuts.
b. Mary ate doughnuts.

Both in (vii)a and (vii)b, *ate* precedes *doughnuts*. In (vii)a *John* precedes *ate* and *doughnuts*, and in (vii)b *Mary* precedes both elements as well. Consequently, the order assigned to the coordination of (vii)a and (vii)b is that one in (vi), since it respects all the previous precedence relations in each of the subparts. We do not assume this type of ordering relation, because it is not clear how it will assign order to a sentence like (viii), when its subparts are those in (ix):

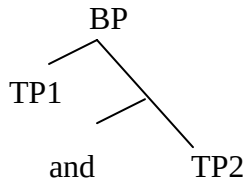
(viii) John ate cookies, and Mary did too.
(ix) a. John ate cookies.
b. Mary ate cookies.

[13] Sentence (x) seems to argue against this antecedent-gap ordering relation, since in this case the antecedent comes first and the gap follows:

(x) Peter didn't, but Mary went to the party.

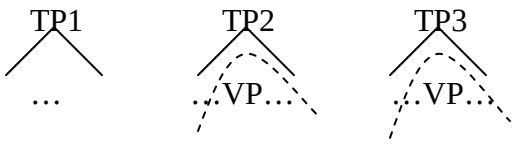
I would like to argue that this sentence has been derived in the same way as the previous sentences. It has been also linearized following the antecedent-gap relation, but then the elided clause has moved higher up in the tree to a Focus position—sentences like this one are not neutral, the material in the elision site is focused.

(18)



However, this is not the end of the problem for linearization. In sentences where more than two phrase markers have been coordinated, an antecedent-gap relation is clearly not enough, because there is one antecedent clause, but two or more clauses are affected by null lexicalization, as in (19):

(19)



One possibility, which I assume here, is that the system somehow keeps track of the order in which the different phrase markers have been built. They are kept in a stack and linerized in a First-in Last-out order (FILO).

To summarize, lexical insertion is a late process and coordinated structures that happen to have undergone VPE can be reanalyzed in terms of null lexicalization which affects an iterated structure, because it is redundant. Coordination creates parallel structures, which only later on, are ordered with respect to one another, thus meeting linearization requirements.

3.2.4 Fiengo and May (1994) Revisited

3.2.4.1 Sloppy and Strict Readings: before and after Lexical Insertion

With a system in which lexicalization is a delayed process in the derivation, we can account for the readings that F&M (1994) described (see Chapter 2, section 2.3.2), without the need to postulate different index types (α- or β- occurrences). To remind the reader which the readings are, I exemplify them below:

(20) Max saw his mother, and Oscar did too.

(21) a. Max saw Max's mother, and Oscar saw Oscar's mother. *(sloppy)*

b. Max saw Max's mother, and Oscar saw Max's mother. *(strict)*

In the system proposed here, null lexicalization applies to structurally parallel VPs (see section 3.2.2 of this chapter), so in order to interpret the elided—null lexicalized—VP, the overt VP functions as antecedent—material must be copied from the antecedent VP into the elided VP at some point in the derivation.[14]

We can account for strict and sloppy readings depending on which moment in the derivation the elided VP is interpreted, that is to say, prior to or after lexical insertion. If this interpretation process takes place before lexical items are inserted, the syntactic object is constituted by categories only: DP, V, NP, etc. I will assume that the pronoun DPs are then mere variables, which have not yet been assigned a

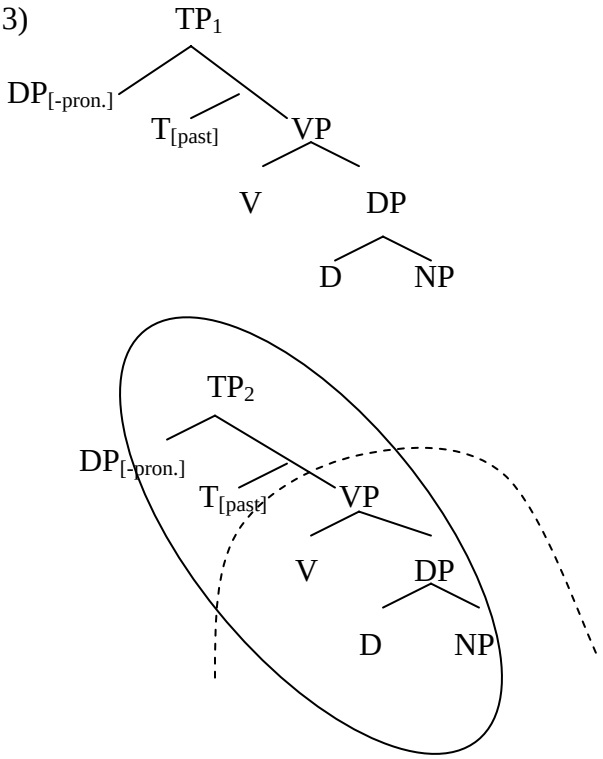
[14] The iteration process (which creates a VP skeleton) should not be confused with the copying/interpretation process that I will discuss now. After the phrasal skeleton is built, substantive representations are added, by copy at LF.

value. However, if the interpretation is done after lexical insertion, then it can clearly also involve lexical items form the antecedent VP like: *see*, *his*, etc. The pronoun DPs are then constants, having been assigned a value through lexical specification. Consider how this system works with example (22):

(22) Max saw his mother and Oscar did too.

The numeration starts with: {$D_{[\text{-pronominal}]1}$, $D_{[\text{-pronominal}]1}$, $T_{[\text{past}]2}$, V_1, $D_{[\text{+pronominal}]1}$, N_1, B_1}. Once both phrase markers have been built, we have something like (23), to which null lexicalization will apply for the second conjunct VP. At this point—when the phrasal skeleton for both parallel phrase markers has been built—the option of copying-for-interpretation from the first into the second conjunct exists, but there is no lexical material to be copied yet. If the interpretation is done at this stage in the derivation, then the sloppy reading emerges.

(23)



The sloppy reading for (22) would emerge if the second phrase marker (TP_2) in (23) is sent to LF for interpretation before lexical insertion takes place—when the coordinates are still parallel structures. Of course, LF will not be able to assign a complete interpretation to this structure, since lexical items have not been inserted yet. If the pronouns in the elided VP are interpreted in parallel to the ones in the antecedent VP, then the sloppy reading emerges. If they are not (if the SD in F&M's terms is different) then this kind of reading is precluded (I will come back to this in section 3.2.4.4).

LF partially interprets the structure that has been sent, it interprets it as much as possible.[15] The syntactic structure so far is built of categories—open variables which are assigned a value through lexical specification—so one way of interpreting this structure is by assigning a value to the variables wherever it is possible.

The DP pronouns are variables, but by binding a DP pronoun to some other element it is assigned a value—the one that the binder will obtain through lexical specification.[16] The DPs are bound by a local potential antecedent—one that is inside the same phrase marker. Thus, in (23) the D pronoun in the elided VP is bound by the DP subject—it is assigned the value of the DP subject, receiving a bound variable interpretation.

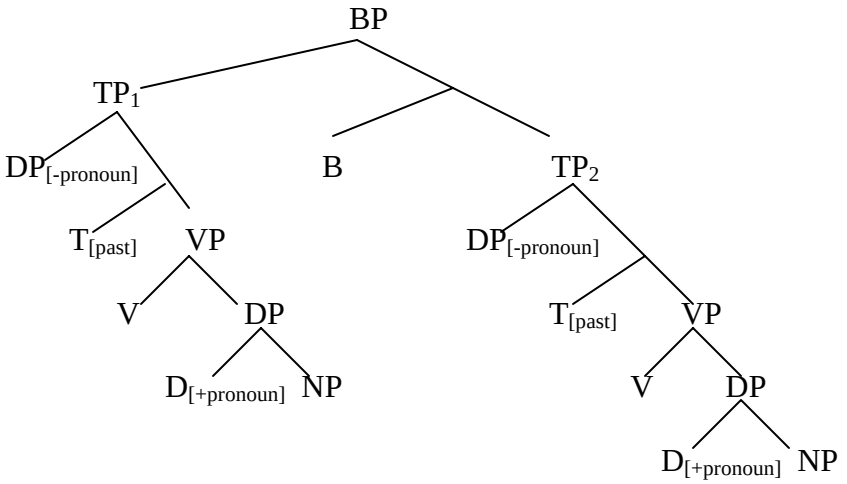
If instead of interpreting at the stage where lexical items have not been inserted (in (23)), the two parallel structures are linearized (as in (24)), lexical items inserted (as in (25)), the whole BP is sent to PF and LF, and the elided VP is interpreted at this later stage (at LF) (as in (26)), then the strict reading comes out. In order to interpret the elision site, lexical material from the antecedent is borrowed and copied into the ellipsis. When we copy from the first into the second VP, we copy: *saw*, *his*, and *mother;* we copy constants and we get the strict reading:

---

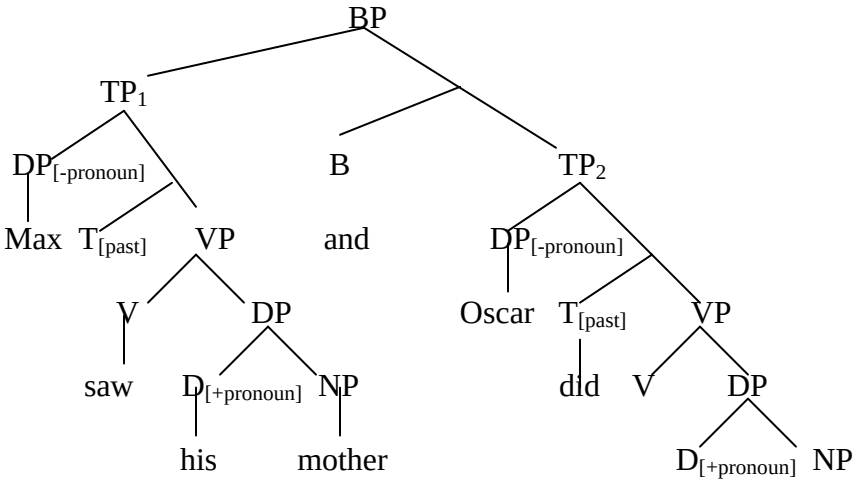
[15] What LF does at this point is a partial interpretation of the structure, much along the lines of the partial LF scope interpretation that Fox proposes (Fox 1999).

[16] As a result of the dependency established for the pronoun, it is interpreted as a β-type index (in F&M 1994). The pronoun gets its value (reference) from the element it is connected to, not independently.

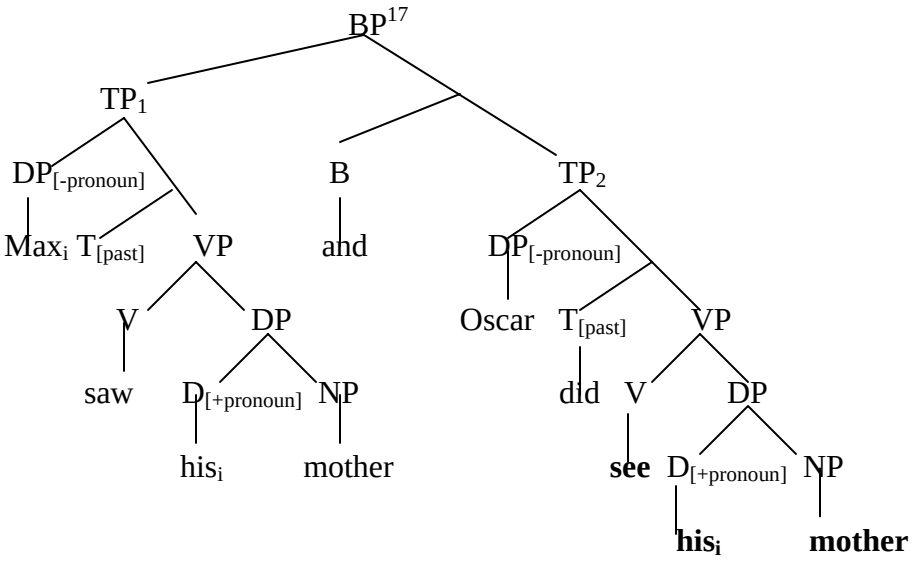
(24)


BP
TP1
B
TP2
DP[-pronoun]
T[past]
VP
DP[-pronoun]
V
DP
T[past]
VP
D[+pronoun]
NP
V
DP
D[+pronoun]
NP

(25)


BP
TP1
B
TP2
DP[-pronoun]
Max
T[past]
VP
and
DP[-pronoun]
V
DP
Oscar
T[past]
VP
saw
D[+pronoun]
NP
did
V
DP
his
mother
D[+pronoun]
NP

(26)



3.2.4.2 The Many-Pronoun-Puzzle Revisited

In sentences like (27) or (29), where more than one pronoun has been elided, ellipsis has an eliminative effect on the combinatorial anaphoric possibilities. The number of readings that emerge in such sentences is smaller than in their non-elided counterparts—for these last all the readings listed in (28) and (30) are acceptable:

(27) Max said he saw his mother, and Oscar did too.

(28) a. Max said Max saw Max's mother and Oscar said Oscar saw Oscar's mother. (*across-the-board sloppy*)

[17] In order to interpret the elided VP at LF, we copy the lexical items from the antecedent into the elision site. One question that can be raised is how the verb can show different forms in the antecedent and in the gap. The verb *to sleep* appears as *saw* in the antecedent, but its corresponding form in the elision is *see*, since the past is already marked by the auxiliary *did*. For a discussion on how this is possible I refer the reader to section 3.3.2.

b. Max said Max saw Max’s mother and Oscar said Max saw Max’s mother. (*across-the-board strict*)

c. Max said Max saw Max’s mother and Oscar said Oscar saw Max’s mother. (*sloppy-strict*)

d. *Max said Max saw Max’s mother and Oscar said Max saw Oscar’s mother. (*strict-sloppy*)

(29) Max said he thinks he saw his mother and Oscar did too.

(30) a. Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Oscar saw Oscar's mother. (*across-the-board sloppy*)

b. Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Max saw Max's mother (*across-the-board strict*)

c. Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Oscar saw Max's mother. (*sloppy-sloppy-strict*)

d. Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Max saw Max's mother. (*sloppy-strict-strict*)

e. * Max said Max thinks Max saw Max's mother, and Oscar said Oscar thinks Max saw Oscar's mother. (*sloppy-strict-sloppy*)

e. * Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Max saw Oscar's mother. (*strict-strict-sloppy*)

f. * Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Oscar saw Oscar's mother. (*strict-sloppy-sloppy*)

g. * Max said Max thinks Max saw Max's mother, and Oscar said Max thinks Oscar saw Max's mother. (*strict-sloppy-strict*)

F&M accounted for the available readings in terms of (i) the reconstruction of different index types and (ii) the identity conditions that they must respect.

I want to argue that the reason we can have some combinations of readings, but not others is that the interpretation process can involve one or more pronouns at each stage in the derivation. But the way in which this structure interpretation takes place cannot be by randomly interpreting chuncks of structure at LF. It is a cyclic operation. By cyclic here I do not refer to the familiar concept of cyclicity, established bottom-up of the tree when building a syntactic structure and that is directly related to constituency. Observe (31):

(31) a. $[_{IP}$ The man $[_{VP}$ said $[_{IP}$ he had $[_{VP}$ the time $[_{PP}$ of his life]]]]].

b. [[The man said he] had the time of his life].

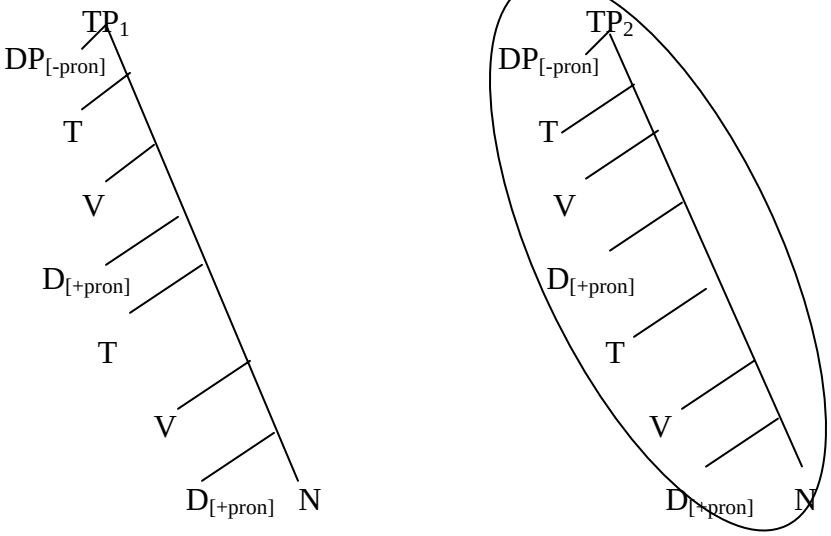
Both (31) and (31) are representations of different possible cyclic relations. In (31) the cycles are established bottom-up in the tree (right-to-left)—representing some of the constituents in that structure. In (31), however, the cycles are not established on a constituent basis, at least in traditional terms (a system like that proposed by Philips, 1996; Drury, 1998; or Guimaraes 1999 which builds the syntactic tree in a top-down fashion, establishes cycles and constituents in this way), they are established top-

down in the tree (left-to-right). This is the kind of cyclic relation I am talking about here.

I want to argue that—independently of how the syntactic structure has been built, top-down or bottom-up—antecedence relations are established in a top-down fashion, following the precedence-command order, like linearization does. This move may be justified in information-theoretic ways.

Consider example (27) again. In order to get the across-the-board SL reading, prior to lexical insertion, the whole structure for the second phrase marker is sent to LF and interpreted. Both pronoun DPs in the second VP will be bound by the only local DP available, the DP subject in that phrase marker as in (32):

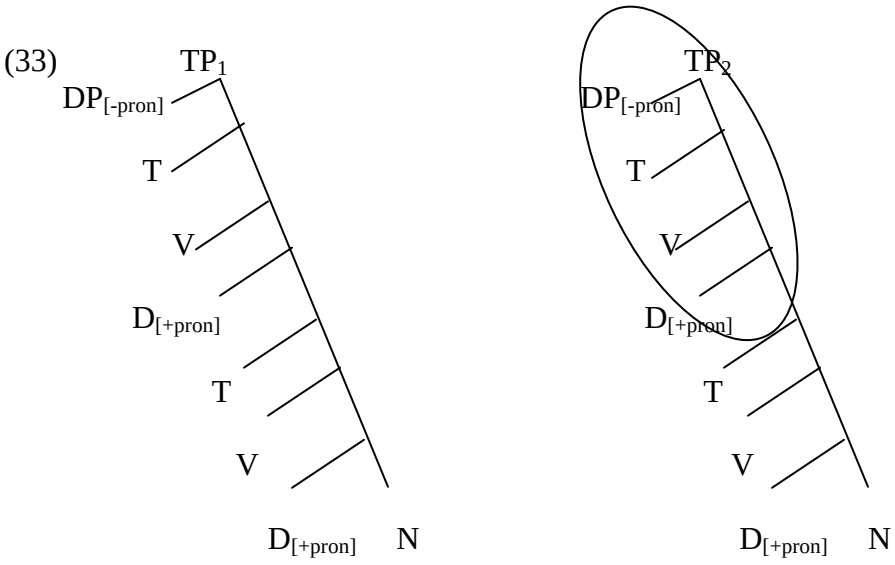
(32)



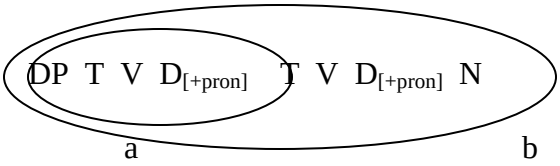
In order to get the across-the-board strict reading we just have to copy all the material (including pronouns and pronouns reference) from the first into the second conjunct after lexical insertion.

For the (sloppy-strict) reading only part of the syntactic structure for the second phrase marker is interpreted at LF—that part that contains from the subject DP to the first pronoun (see (33) below). The second pronoun is not interpreted until later on, when both the first and the second phrase marker have been lexicalized and sent to LF—the copy is done at this stage.

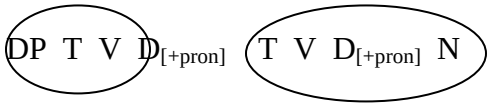
(33)



Observe (34). If the structure that is sent to LF and interpreted is that one inside circle ‘a’, then the (sloppy-strict) reading emerges. If the structure interpreted at LF is that one inside ‘b’ then the across-the-board reading does:

(34) 

However, we cannot get the (strict-sloppy) reading, because this would be a counter-cyclic operation. It is important to remember that we have claimed antecedence relations are established top-down of the tree. To get this last reading part of the structure will have to be ignored—some part of the structure in the second VP (at least that part involving the first elided pronoun in the VP) will not be interpreted at LF, violating cyclicity:

(35) 

If antecedence relations are established top-down, the first pronoun in the VP should be interpreted first, followed by the second pronoun. But, in order to get the (strict-sloppy) reading this order has to be broken. The system can operate with part of the structure, but I am assuming the part chosen has to be a linear continuum. It cannot affect discontinuous chunks of structure from the top and from the bottom of the tree.

The same kind of reasoning applies to (29)—the readings in (30) that are not acceptable violate cyclicity so they are not possible.

3.2.4.3 The Many-Clause-Puzzle Revisited

So far we have discussed examples where there are two coordinates; one antecedent and one gap. We consider in this section examples that involve more than two coordinates, i.e. more than one gap. Sentences such as (36) have been claimed to be interpreted only as strict or sloppy across-the-board. No mixed readings are possible, according to F&M (see Chapter 2, section 2.3.1). Thus, once more, the effect of ellipsis on anaphoric possibilities is eliminative—in the non-elided counterparts more readings are available:

(36) Max saw his mother, Oscar did too, but Sam didn't.

(37) a. Max saw Max's mother, Oscar saw Oscar's mother, but Sam didn´t see Sam's mother. *(across-the-board sloppy)*

b. Max saw Max's mother, Oscar saw Max's mother, but Sam didn't see Max's mother. *(across-the-board strict)*

c. *Max saw Max's mother, Oscar saw Max's mother, but Sam didn't see Sam's mother. *(strict-strict-sloppy)*

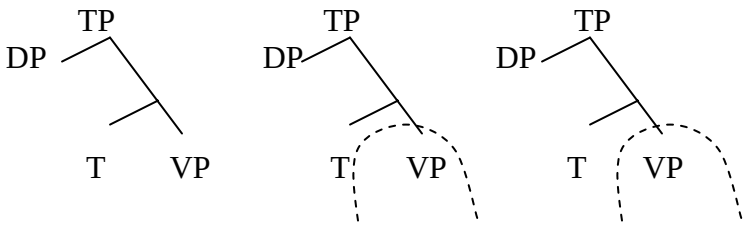
d. *Max saw Max's mother, Oscar saw Oscar's mother, but Sam didn't see Max's mother. *(sloppy-sloppy-strict)*

F&M (1994) argue that the reason for the non-existence of mixed readings is that they would involve the reconstruction of an α-type occurrence as a β-type or vice versa. In the system we are pursuing here, this is a natural consequence: again

coordinate structures are parallel structures, to which syntactic operations apply in parallel. Thus, if the second VP in (36) is interpreted as strict or sloppy—that is, before or after lexical insertion respectively—the same must apply to the third conjunct.

Let us consider the derivation of sentence (36) with some detail. From the numeration: {$D_{[-pronominal]1}$, $D_{[-pronominal]1}$, $D_{[-pronominal]1}$, $T_{[past]3}$, v_1, $D_{[+pronominal]1}$, N_1, B_2}, three parallel structures are built. Two of them are going to be null lexicalized. The resulting object is the one in (38):

(38)



The interpretation for the second and the third conjunct can be made before lexical insertion, or after lexical insertion—giving the two different interpretations: across-the-board sloppy or strict, respectively. But, the three coordinates have to be interpreted in parallel, that is, we cannot have one conjunct interpreted as sloppy and another as strict or vice versa. Or in other words, if one coordinate is interpreted at a certain stage the other coordinates must be interpreted too.

Thus, the across-the-board sloppy and strict readings are explained as follows: if we send one coordinate to LF before lexical insertion, the same operation must apply to the rest of the parallel elided VPs—resulting in the sloppy reading.

Otherwise, all are interpreted after lexical insertion by copying substantive material from the antecedent to the elided VPs—resulting in the strict reading.

3.2.4.4 Sloppy Readings and Structural Parallelism

I argued above that in a framework like the one I have presented here, the phrase-marker that contains the elided VP has to be sent to interpretation before lexical insertion takes place, in order to get the sloppy interpretation. But I also mentioned that the interpretation of the pronouns in the elided VP must be parallel to that of the pronouns in the antecedent VP—it must be structurally parallel (the dependencies must involve the same SD in F&M's terms). If both interpretations are not parallel, then the sloppy reading is precluded. Consider sentence (39) and its readings in (40), an example of the lack of structural parallelism blocking a sloppy reading:

(39) Max saw his mother, and Oscar said that Harry did too.

(40) a. Max saw Max´s mother, and Oscar said Harry saw Max´s mother.

b. Max saw his mother, and Oscar said Harry saw his mother.

c. *Max saw his mother, and Oscar said Harry saw his mother.

Sentence (39) can be given both a strict and a sloppy interpretation, represented in (40) and (40) respectively. However, the sloppy reading in (40) where the pronoun *his* in the elided VP is interpreted as referring to *Oscar* and not to *Harry* is not a possibility. The sloppy pronoun in the elision cannot refer to Oscar; the reason is that

in such a reading the pronoun indexical dependencies in the first and second VP are not structurally parallel.

Thus, it is necessary to impose a further parallelism constraint on the sloppy interpretation mechanism. The system would need to check if the dependencies established in both the antecedent and the elided VP are parallel or not, in order to accept or reject a sloppy interpretation under ellipsis. The system interprets the elided VP, and later on checks if the dependencies established for this are structurally parallel to the dependencies in the antecedent conjunct.[18]

3.3 Identity of Syntactic Structures: Identity of Categories

The issue of the syntactic identity condition between antecedent and gap that must be respected in order for ellipsis to apply has been raised in different occasions and guises. In the previous chapter, we discussed some of the examples that, in principle, seem to argue against such a restriction: (i) Lasnik (1995b) examines examples where there is a difference in verbal morphology between antecedent and gap (see (41)); and (ii) F&M's (1994) vehicle change theory which analyzes examples where the difference is between pronouns (see (42)), or pronouns and reflexives (see (43)). In

[18] It looks like a "double identity" is needed for VPE to apply. On the one hand, parallel syntactic structures between antecedent and gap must be found before lexical insertion takes place. On the other hand, at LF the dependencies that are established in the antecedent and in the elision must be either identical (the case of the strict reading) or structurally parallel (the case of the sloppy reading). It could be asked why that should be the case, why this double identity is a requirement. I would like to suggest that it could be the case that these two different identities are needed for PF and LF purposes, but I will not pursue the matter here.

both cases, an analysis that accounts for the differences and which maintains the identity condition is advanced:

(41) John slept and Mary will ~~sleep~~ too.

(42) John saw his mother and Mary did ~~see her mother~~ too.

(43) John admires himself and Mary does ~~admires herself~~ too.

In the previous section, I introduced a proposal that accounts for strict and sloppy readings under ellipsis which is based on the notions of late lexical insertion and of identity of syntactic categories. The question I want to raise now is whether that account is extendable to the examples in (41)-(43). In other words, can we account for what seems to be partial syntactic identity with the proposal sketched, and thus, offer a unified treatment of all those examples that seem to threaten the condition of identity of syntactic structures for ellipsis? I want to argue that this is possible, and also to show that syntactic identity is always respected. Rather than arguing against identity, what the examples in Chapter 2 demonstrate, is that a more abstract notion of identity is needed. I propose that this new notion corresponds to that of syntactic categories, which can be satisfied before lexical insertion takes place.

3.3.1 Identity on Ellipsis, and Syntactic Categories and Features

Before getting into the examples of partial identity in detail, the question of whether it is just syntactic categories alone, or syntactic categories and syntactic features

together that are relevant for identity should be raised. And also, do features enter the derivation underspecified and take their value in each conjunct, or do these features already have a value in the numeration? To answer the first question (whether syntactic feature values have to be identical or can differ), consider the examples below with the reading in parentheses:

(44) Max saw his friend, and Peter did too. (= $Peter_i$ saw his_i friend)

(45) Max saw his friend, and Susan did too. (= Susan saw her friend)

(46) Max shaved himself, and Susan did too. (= Susan shaved him)

(47) Max reads lots of novels, and I do too. (= I read lots of novels)

The differences between syntactic features do not seem to be important in any of the sentences above. The first sentence, example (44), is grammatical; in this case there are no differences in the features from the antecedent to the gap. That is not the case with the rest of the examples. In (45), there is a gender difference in the pronouns: masculine in the antecedent and feminine in the gap. In (46), there is not only a gender difference, but also a difference in the nominal features: the reflexive pronoun in the antecedent is realized as a pronoun in the gap. In (47), a difference can be observed in the verb person feature: 3rd person singular for the antecedent, and the bare unmarked form for the gap. Let us conclude for the time being that syntactic features are not relevant for identity, though we will see when verbal morphology in Spanish is discussed that this generalization has to be slightly modified.

In order to answer the question of whether these features are underspecified or they enter the derivation with a value, we need a more detailed study than the one that is offered here. We are just going to concentrate on a few examples. Many more cases should be studied, and not only ellipsis cases, but also other types of constructions, so that a generalization can be made with respect to syntactic features and to how they enter the derivation (i.e. with or without a value). Besides, it could be the case that different languages, or even different speakers of the same language, instantiate features in slightly different ways. I believe this to be an interesting issue to be studied, but it is not the purpose of the present work to do so.

I opt for having feature values instantiated, since there is some evidence that seems to argue in that direction. Kitagawa (1991) (see section 2.2.2) observes that in sentences with reflexives, if there are no gender conflicts in the elision between the subject and the reflexive (see (48)), then the sloppy reading is preferred (i.e. it is the reading that all speakers get). However, when there are differences in gender (see (49)), the strict reading is preferred over the sloppy one, since gender conflicts are avoided. One way in which this effect on change in preference can be accounted for is if the features have a value assigned.

(48) John considers himself to be intelligent, and Bill does too.

(49) John considers himself to be intelligent, and Mary does too.

3.3.2 Verbal Morphology

Lasnik (1994) discusses examples of VPE where differences in verbal morphology between antecedent and elision can be observed (see (50), (51) and (52) below). He argues that ellipsis takes place under identity by the application of a rule of deletion at PF, before Affix Hopping (see Chapter 2, section 2.1 for the whole discussion). Thus, he accounts for the differences in verbal morphology in the sentences below:

(50) John slept, and Mary will ~~sleep~~ too.

(51) John sleeps and Mary will ~~sleep~~ too.

(52) John has slept and Mary will ~~sleep~~ too.

We can account for these differences with our proposal too. In all three examples, the syntactic identity condition is respected; even though superficially there seem to be morphological differences in the verbal forms (e.g. *slept* versus *sleep* in (50)). The stage of the derivation at which the identity condition needs to be met is before lexical insertion, that is, when just syntactic categories constitute the phrasal skeleton. So even though those categories would show differences if they had been lexicalized, at the point where identity of structure is checked only a category V is found in the antecedent and in the gap. Let us discuss one example in some more detail.

Sentence (50) is built out of the Numeration in (53) below, which is formed by mere syntactic categories and syntactic features. The derivation starts out with those categories, and after several merge and move operations the sentence has the

structure in (54), where the syntactic skeleton for both coordinates is already assembled. At this stage in the derivation, identity of syntactic structure is met and Null Lexicalization applies to the elided VP. After lexical items are inserted, the sentence will look like that in (55), where the elided verb phrase is formed by a category V, but no lexical item.

(53) $\{T_{[+past]1}, T_{[+future]1}, D_{[-pronoun]2}, V_1, B_1\}$

(54) $[_{TP}\ DP_k\ T_{[+past]}\ \mathbf{[_{vP}\ t_k\ V]}]$ and $[_{TP}\ DP_j\ T_{[+future]}\ \mathbf{[_{vP}\ t_j\ V]}]$.

(55) $[_{TP}$ John$_k$ $T_{[+past]}$ $[_{VP}\ t_k$ slept]] and $[_{TP}$ Mary$_j$ will $[_{VP}\ t_j\ V]]$ too.

When the elided VP is interpreted at LF (after the PF and LF split), the lexical material from the antecedent will be borrowed, and copied into the gap. The lexical material in the antecedent is used to interpret the gap because (i) no lexical items are inserted in the gap, and (ii) the antecedent and the elided VP are occurrences of the same tokens in the numeration. The fact that both verbal categories are occurrences of the same token guarantees that they contain the same lexical item, in other words, that both will be lexicalize as *sleep,* not as *sleep* and *arrive* for example.

One question that could be raised now is how the verb *sleep* is realized as *slept* in the antecedent and as *sleep* in the gap. Lasnik (1995b) explains this difference as a result of Affix Hopping—an operation that takes place at the level of PF (see discussion on Chapter 2, section 2.1). However, we can account for it in a different way: both verbs are occurrences of one token in the Numeration; therefore, they have

to be filled with the same lexical item, the verb *sleep*. In the antecedent it is realized as *slept*, since the syntactic feature for Tense is [+Past], while in the gap it is realized as *sleep*, because the Tense feature in this case is [+Future]. Thus, the lexical items from the antecedent are borrowed and copied into the gap, but respecting the new syntactic context in which they appear. The interpretation process allows for this type of flexibility, while respecting lexical identity at the same time.

Having discussed the case of main verbs and ellipsis, let us now consider some examples with auxiliaries and see how the proposal presented here can account for them. Lasnik observes that there can not be any morphological difference between auxiliaries in the antecedent and elision. He discusses the examples in (56), and (57). The examples in 'c' are added:

(56) a. ?John should have left, but Mary shouldn't ~~leave~~.

b. *John should have left, but Mary shouldn't ~~have left~~.

c. John should have left, but Mary shouldn't have ~~left~~.

(57) a. John has left, but Mary shouldn't ~~leave~~.

b. *John has left, but Mary shouldn't ~~have left~~.

c. John has left, but Mary shouldn't have ~~left~~.

We can also account for these cases if we take into account a difference between main verbs and auxiliaries in English: auxiliaries occupy the node T (whether they are base generated there or raise to that position is not crucial for the argument here),

while main verbs remain in V. Taking this into account, it seems we can draw the following conclusion from the examples with auxiliary *have*: everything that is under VP can be deleted (even if it is different (e.g. *leave* versus *left*)), since what is relevant is identity of categories), what is under TP cannot be deleted. This is the reason why the "a" and "c" cases are acceptable, but not the "b" cases, since in this last case some material that resides in T (*have*) has been affected by elision.

In order to close our discussion on ellipsis and verbal morphology I consider now some examples of verbal ellipsis in Spanish, which raise an interesting contrast. In Spanish, together with the verbal phrase, the whole Tense projection is elided.[19] Here, as in English, agreement differences in the verbal form, such as number and person, can be found (see (58) and (59)). But, contrary to English, the whole TP is deleted and Tense differences are not allowed, see (60):

(58) Nosotros dormimos poco y vosotros ~~dormís poco~~ también.

We sleep-1st sing little and you ~~*sleep-2nd pl little*~~ *too.*

We sleep a few hours, and you do too.

[19] See footnote 8 for a brief discussion on why it could be that it is TP instead of VP that is affected by elision in Spanish.

(59) Has viajado a muchos países y ellos ~~han viajado a muchos países~~ también.

Have-2nd sing traveled to lots of countries and they ~~have-3rd pl traveled to lots of countries~~ too.

You have traveled to lots of countries, and they have too.

(60) *María ha leído mucho y Elena en el futuro ~~habrá leído~~ ~~mucho~~ también.

María have-3rd sing read a lot, and Elena in the future will ~~have-3rd sing read a lot~~ too.

Mary has read a lot, and Elena in the future will have too.

Our proposal of identity of syntactic categories can also account for the verbal differences (e.g. *dormimos* versus *dormís*) found in the examples above. In these examples, as well as in the English ones, when identity of syntactic structure is checked for, the sentence structure is built out of syntactic categories; no lexical items have been inserted yet, so identity is met.

However, it turns out that Tense differences are not allowed in Spanish. One question that could be raised is why it should be the case that person and number agreement feature differences are irrelevant, while Tense differences matter for ellipsis. A reason for this contrast can be found in the nature of the features themselves: person and number are agreement, that is, relational features; while

strictly Tense is not. Arguably only relational features can change/adjust values in ellipsis context (i.e. to agree), without violating the constraint on identity.

If that is the correct conclusion, we need to slightly modify our previous generalization about identity. Both syntactic categories and syntactic features like Tense are relevant for identity under ellipsis.

3.3.3 Agreement and Nominal Features

We turn now to those examples exhibiting the following differences between antecedent and elision: masculine pronoun/feminine pronoun, feminine pronoun/masculine pronoun, pronoun/reflexive, reflexive/pronoun, name/pronoun, name/reflexive. We have reviewed two analyses that deal with these differences: F&M (1994) and Kitagawa (1991).

3.3.3.1 Some Representative Examples

F&M account for all of the examples in terms of an operation called Vehicle Change (see Chapter 2, section 2.3.4), which they argue allows for free adjustment of feature values. Kitagawa also studies some of these cases (see Chapter 2, section 2.2.2). Although his analysis is restricted to pronoun/pronoun and reflexive/pronoun variations, he obtains a nice generalization with respect to the readings that are allowed in different dialects under different circumstances—i.e. in ellipsis sentences that involve gender conflict and others that do not. He accounts for ellipsis in terms of the features that are copied from the antecedent into the gap at LF—features can be

copied optionally. Consider example (61), (63), and (65). The favored reading for (61) is the sloppy reading in (62). Instead, for sentences (63) and (65), the favored reading is the strict one in (64) and (66), respectively. For the last two sentences, in the case of the strict reading the feature [+anaphor] is not copied, as opposed to the sloppy reading where the non-copied feature is [+masculine] or [+feminine].

(61) John considers himself to be intelligent, and Bill does too.

(62) a. John_i considers $[+\text{anaphor}, +\text{pronoun}, +\text{masculine}]_i$ ... , and Bill_k considers $[+\text{anaphor}, +\text{pronoun}, +\text{masculine}]_k$ …

b. John_i considers $[\mathbf{+anaphor}, +\text{pronoun}, +\text{masculine}]_i$… , and Bill_k considers $[\mathbf{ø}, +\text{pronoun}, +\text{masculine}]_i$…

(63) John considers himself to be intelligent, and Mary does too.

(64) a. John_i considers $[+\text{anaphor}, +\text{pronoun}, \mathbf{+masculine}]_i$ ... , and Mary_k considers $[+\text{anaphor}, +\text{pronoun}, \mathbf{ø}]_k$…

b. John_i considers $[\mathbf{+anaphor}, +\text{pronoun}, +\text{masculine}]_i$… , and Mary_k considers $[\mathbf{ø}, +\text{pronoun}, +\text{masculine}]_i$…

(65) Mary considers herself to be intelligent, and Bill does too.

(66) a. Mary_i considers $[+\text{anaphor}, +\text{pronoun}, \mathbf{+femenine}]_i$ ... , and John_k considers $[+\text{anaphor}, +\text{pronoun}, \mathbf{ø}]_k$…

b. Mary_i considers $\mathbf{[+anaphor}, +\text{pronoun}, +\text{femenine}]_i$… , and John_k considers $[\mathbf{ø}, +\text{pronoun}, +\text{femenine}]_i$…

Abstracting away from specific dialectal variations, we can summarize Kitagawa's observations by saying that speakers in general have a preference not to copy the feature [+/- anaphor] over [+masculine/feminine]. As it was mentioned when discussing Kitagawa's proposal, the reason why this contrast in the preference of one reading over another is found should be accounted for. In particular, it ought to be clear why the strict reading is preferred in examples (63) and (65); in other words, why optionality of copying feature [+ anaphor] is preferred to optionality of feature [+masculine] or [+feminine].

We can account for that contrast if we assume the classification of nominal features that F&M propose. According to them, there is only one feature [+/- pronoun], but no feature [+/-anaphor]: both reflexives and pronouns belong to the same nominal typology and are characterized as [+pronoun]. Reflexives are composite elements, built of two parts: an argumental part, and the grammatical formative *self* that triggers Principle A of the Binding Theory. Taking this classification into account, it can be explained why there is a preference for the strict reading in sentences (63) and (65) above—no feature value needs to be modified, while for the sloppy reading the value of the gender feature (in bold) needs to be modified. Therefore, a preference for a strict interpretation of the elision site is observed:

(67) John considers himself to be intelligent, and Bill does too.

(68) a. John$_i$ considers himself [+pronoun, +masculine]$_i$ ... , and
Bill$_k$ considers himself [+pronoun +masculine]$_k$…

b. John$_i$ considers himself [+pronoun, +masculine]$_i$… , and
Bill$_k$ considers him [+pronoun, +masculine]$_i$…

(69) John considers himself to be intelligent, and Mary does too.

a. John$_i$ considers himself [+pronoun, **+masculine**]$_i$ ... , and
Mary$_k$ considers herself [+pronoun **-masculine**]$_k$…

b. John$_i$ considers himself [+pronoun, +masculine]$_i$… , and
Mary$_k$ considers him [+pronoun, +masculine]$_i$…

(70) Mary considers herself to be intelligent, and John does too.

(71) a. Mary$_i$ considers herself [+pronoun, **-masculine**]$_i$ ... , and
John$_k$ considers himself [+pronoun **+masculine**]$_k$…

b. Mary$_i$ considers herself [+pronoun, +masculine]$_i$… , and
John$_k$ considers her [+pronoun, +masculine]$_i$…

F&M account not only for the examples (61), (63), and (65) with their theory of Vehicle Change, which allows for adjustment of feature values, but also for examples like the ones below:

(72) I turned in my assignment, but most of the students didn't ~~turn in their assignments~~.

(73) Mary loves John$_i$, and he$_i$ thinks that Sally does ~~love him$_i$~~ too

(74) I shaved John$_i$, because he$_i$ wouldn't ~~shave himself$_i$~~.

3.3.3.2 How the Current Proposal Accounts for the Previous Examples

We can also account for the previous examples with our theory of identical syntactic structures. In all the examples above, before lexical insertion takes place the syntactic structure is the same. There are differences in some cases in agreement and nominal features, but these differences do not affect the condition on identity.

Consider example (75) first, where no feature value needs to be changed neither for the sloppy nor for the strict reading. For the sloppy reading in (76), both reflexives in the antecedent and in the elision site are masculine, so there is no need for feature change. Interpreting the sentence before lexical insertion takes place gives the sloppy reading as a result, where each reflexive is bound in its own clause. For the strict reading in (76) (after lexical insertion), the reflexive in the antecedent needs to be realized as a pronoun in the elision site—it cannot be a reflexive, since its antecedent *John* does not bind it in this position—but this does not involve any change in feature value:

(75) John likes himself, and Peter does too.

(76) a. $[_{TP}\,[_{DP}$ D[-pron, +masc]$]_i$ $T_{[present]}$ $[_{VP}$ t V $[_{DP}$ D[+pron, +masc]]]]$_i$, $[_{TP}\,[_{DP}$ D[-pron, +masc]$]_j$ $T_{[present]}$ $[_{VP}$ t V $[_{DP}$ D[+pron, +masc]]]]$_j$

b. John$_i$ likes himself$_i$ [+ pron, +masc]$_i$, and Peter$_j$ does $[_{VP}$ t V $[_{DP}$ D[+pron, +masc]]$_i$

However, in the case of the strict reading, when borrowing the lexical material from the antecedent in order to interpret the gap, the reflexive *himself* in the antecedent will need to be realized as a pronoun in the gap. This should not be a problem if it is the case that reflexives are composed of two parts: (i) the pronominal part *him* and (ii) the grammar formative *self* which is added to the first, if Principe A of the Binding Theory applies. Both the reflexive in the antecedent and the pronoun in the gap are occurrences of the same token in the Numeration, to be precise, $D_{[+pron, +masc]}$. In the first case it is lexicalized as *him + self*—since Principle A applies—but in the gap it will only be *him*.

Consider example (77), where there is a gender conflict between the antecedent and the gap. For the strict reading in (78), as in the case of the previous example, no feature value needs to be changed—although the reflexive *himself* will also need to be realized as a pronoun *him* in this example. For the sloppy reading (in (78)), however, the gender feature value needs to be changed: the masculine reflexive in the antecedent needs to be realized as a feminine reflexive in the gap. Also, when borrowing the lexical items from the antecedent to interpret the gap at LF, the reflexive *himself* needs to be changed into *herself* in the gap. Both reflexives are occurrences of one token ($D_{[+pron, +masc]}$), but the gender feature value in the elision site is changed to feminine, therefore, it is lexicalized as *himself* in the antecedent, but the corresponding word for that category in the gap is *herself*.

(77) John likes himself, and Susan does too.

(78) a. $John_i$ likes $himself_i$ [+ pron, +masc]$_i$, and $Susan_j$ does [$_{VP}$ t V [$_{DP}$ D[+pron, +masc]]$_i$

b. [$_{TP}$ [$_{DP}$ D[-pron, +masc]]$_i$ T$_{[present]}$ [$_{VP}$ t V [$_{DP}$ D[+pron, **+masc**]]]]$_i$, [$_{TP}$ [$_{DP}$ D[-pron, -masc]]$_j$ T$_{[present]}$ [$_{VP}$ t V [$_{DP}$ D[+pron, **-masc**]]]]$_j$

A similar situation is found in the case of sentence (79). No feature value change is needed for the strict reading, but the gender feature needs to be changed in the gap in the case of the sloppy reading (see readings in (80) and (80) respectively). As in the previous example, in the case of the sloppy interpretation, both reflexives are occurrences of the same token in the Numeration; one occurrence of that token in the antecedent is realized as *herself* , while the corresponding lexical item in the gap is *himself* :

(79) Susan likes herself, and John does too.

(80) a. [$_{TP}$ [$_{DP}$ D[-pron, -masc]]$_i$ T$_{[present]}$ [$_{VP}$ t V [$_{DP}$ D[+pron, **-masc**]]]]$_i$, [$_{TP}$ [$_{DP}$ D[-pron, +masc]]$_j$ T$_{[present]}$ [$_{VP}$ t V [$_{DP}$ D[+pron, **+masc**]]]]$_j$

b. $Susan_i$ likes $himself_i$ [+ pron, -masc]$_i$, and $John_j$ does [$_{VP}$ t V [$_{DP}$ D[+pron, +masc]]$_j$

We can explain the sentences in (72), (73), and (74) above in the same way (we repeat these below). Consider sentence (81) first. The strict reading does not involve

any feature change, and the lexical item in the antecedent *my* is copied into the gap without any modification. For the sloppy reading, both the value of the number and person features need to be changed from 1st person singular in the antecedent to 3rd person plural in the gap. At the same time these occurrences of the pronoun are realized as *my* in the antecedent, but the corresponding form in the gap is *their*:

(81) I turned in my assignment, but most of the students didn't ~~turn in their assignments~~.

(82) a. $[_{TP}\,[_{DP}$ D[+pron, 1st, sing]]$_i$ … $[_{DP}$ D[+pron, **1st**, **sing**]]]$_i$,
$[_{TP}\,[_{DP}$ D[+pron, 3rd, pl]]$_j$ … $[_{DP}$ D[+pron, **3rd**, **pl**]]]$_j$

For the sentence below the feature that needs to be changed is [pronoun], in the antecedent its value is [-pronoun], while in the gap it is [+pronoun]:

(83) Mary loves John$_i$, and he$_i$ thinks that Sally does ~~love him$_i$~~ too

(84) Mary loves John$_i$, and he$_i$ thinks that Sally does $[_{VP}$ t V $[_{DP}$ D[+pron, +masc]]$_i$

The same kind of reasoning applies to sentence (85) below, where the feature [pronoun] also needs to change value. In this case, *John* will be realized in the gap as *himself*, since in this case Principle A is at work:

(85) I shaved John$_i$, because he$_i$ wouldn't ~~shave himself$_i$~~.

(86) I shaved John$_i$, because he$_i$ wouldn't [$_{VP}$ t V [$_{DP}$ D[+pron, +masc]]$_i$

In the case of these last two sentences, the question of how two occurrences of the same token can be lexicalized in a different way (to be precise, as *John* and *him*, and as *John* and *himself* in (83) and (85) respectively) can be raised, but it doesn't look like an impossible state of affairs.

To close up the discussion in this section, consider the examples that follow and the contrast with respect to the available readings. Compare examples (87) and (89), and (91) and (93):

(87) John saw his mother, and Mary did too.

(88) a. John saw his mother, and Mary saw his mother.

b. John saw his mother and Mary saw her mother.

(89) John saw the bastard's mother and Mary did too.

(90) a. John saw his mother and Mary saw his mother.

b. *John saw his mother and Mary saw her mother.

(her = the bitch's mother)

(91) I visited my mother, and they did too.

(92) a. I visited my mother, and they visited my mother.

b. I visited my mother, and they visited their mother.

(93) I visited Lisa's mother, and they did too.

(94) a. I visited Lisa's mother, and they visited Lisa's mother too.

b. *I visited Lisa's mother and they visited Susan's mother.

Based on these examples and on the rest of examples that have been discussed, one can conclude that there is a division between lexical items such as *his, her, himself* and *him*, and lexical items such as *Lisa, Susan*, *see* and *eat*. In other words, there is a distinction between the functional lexicon and the substantive lexicon (or between closed and open class lexical items) with respect to what counts as an occurrence of a token from the Numeration in ellipsis contexts. Functional lexicon alternations (e.g. *his/her* or *himself/him*) count as identical for ellipsis—they are occurrences of the same token in the numeration—while the case with substantive lexicon alternations (e.g. *Lisa/Susan*) is different. These last ones are not consider identical under ellipsis, i.e., they do not count as occurrences of the same token in the numeration. It will be interesting to investigate the extent of this generalization with more examples, but I will not pursue the matter here.

3.3.4 Summary

I have addressed the question of whether a condition on the identity of syntactic structure is respected in ellipsis by considering certain sentences that superficially seem to argue against such a restriction. I have argued that identity is met in ellipsis context, but that a more abstract notion of identity is needed. I have proposed identity of syntactic categories as the relevant condition for ellipsis to apply. Based on the

proposal sketched in section 3.2 and on this new definition of identity I have offered, a unified account for several cases of partial syntactic identity can be advanced. The differences that can be found between antecedent and elision in terms of (i) verbal morphology, (ii) agreement features (person, number, and gender), and (ii) nominal expressions are grouped under identity of categories.

3.4 Conclusion

By assuming that lexical insertion is a late process in the derivation I can not only analyze ellipsis as a null lexicalization process (rather than deletion or interpretation), but also (i) account for strict and sloppy readings in a derivational manner—sloppy and strict readings emerge at different stages in the derivation, before and after lexical insertion respectively—and (ii) give an answer to the identity restrictions on ellipsis—identity of syntactic structure is the relevant notion and it is met before lexical items are part of the derivation.

3.5 Appendix

An issue that can be raised for the proposal presented here is whether it can account for ellipsis in contexts other than coordination. VPE ellipsis also takes place in subordinate clauses, as examples (95) and (96) show—an example of an ellipsis adjunct clause, and of Antecedent Contained Deletion (ACDs) respectively:

(95) Mary visited his mother before Susan did.

(96) I saw all the movies that you did.

In the case of coordination, I have said that the antecedent VP is built first and then an iteration rule builds the second VP in a parallel plane—I justified this move on the fact that coordinators subcategorize for two or more elements. However, this proposal does not seem to be extendable to subordination contexts. There are two questions in this sense: (i) How exactly is the derivation carried out? Is the antecedent or the gap built first? This is an important issue because we have said that null lexicalization applies to those VPs that are built by the iteration rule, or in other words, after the first built VP which functions as antecedent. And (ii) Why should an iteration rule apply and build a second VP, when subordinates do not subcategorize for two or more elements? I address the first question here. There is not much that I can say about the motivation for a rule of iteration to apply in subordinate contexts at this point.

In the minimalist program, the general assumption is that derivations are carried out bottom-up (and right-to-left). So, in general terms, for a sentence like (97) the order in which the words are merged is the following: (i) *her* is merged with *class*, (ii) the resulting DP is merged with the verb *cancel*, and (iii) this is merged with the subject *Peter*.

(97) Peter cancelled her class.

If it is the case that derivations are carried out in that way, then it is not very clear how the antecedent can be built first in the case of subordination, especially in example (96), where the gap is embedded inside the antecedent. For an example like (95), however, since the elided VP is inside an adjunct clause, it could be the case that the elision site is built after the main clause, independently from it, and merged as an adjunct to the main clause at the end of the derivation. This possibility does not exist for the ACD example.

Nevertheless, in the past years another option that has been explored (eg. Philips (1996), Drury (1998) and Guimaraes (1999)) is that derivations are carried out top-down, parallel to the way that syntactic structure is computed on the processing side. The question of whether derivations are bottom-up or top-down is still open to debate. Let us assume for the sake of discussion that derivations on the competence side can in fact be top-down, then the issue of VPE and subordination can be given a preliminary answer. In the case of top-down derivations, both of the examples above do not represent a problem for the proposal discussed in this chapter. In both cases the antecedent is assembled first, followed by the elision site. This order in which both antecedent and gap are built determines which of the two VPs is lexicalized and which one is not.

It is not the purpose of this work to argue in one direction or another, but it should be noted that other possibilities with respect to sentence derivations can be

explored, and that this can help us not only solve the problem mentioned for subordination, but also make derivations on the competence and the performance side look more alike—this is a desirable consequence, since it reinforces homogeneity in the system.

CHAPTER 4: RELATED WORK ON ELLIPSIS AND PARSING

In this chapter, I discuss the proposal of Lappin and McCord (1990), which claims that ellipsis resolution involves the reconstruction of the elided VP by associating it with the syntactic structure and lexical items of the antecedent VP, and that this resolution process takes place at the level of S-structure.

I start by addressing those cases that they offer in favor of syntactic reconstruction at the level of s-structure. I also offer a description of the algorithm, which I am going to assume in part for the proposal I present in the next chapter. Then, I consider some examples that their algorithm fails to account for, some of which argue in favor of ellipsis resolution at the LF level, rather than s-structure.

I also briefly review some of the cases that Hardt (1993)—which advances a semantic approach for VPE—uses to argue against syntactic approaches, and conclude that those potentially problematic cases can be accounted for in a syntactic reconstruction approach if the identity condition on syntactic structure is somehow relaxed.

These two proposals address two central questions: (i) whether the process of ellipsis interpretation is of a syntactic or a semantic nature, and (ii) the level at which this takes place (s-structure or LF); they also set the stage to introduce our algorithm in Chapter 5, which is based on the minimalist theory framework.

4.1 Lappin and McCord (1990): Anaphora Resolution in Slot Grammar.

Lappin and McCord (1990) present three algorithms to resolve anaphora in Slot Filler Grammars: (i) an s-structure algorithm to interpret elliptical VPs, (ii) a syntactic filter on pronominal reference, and (iii) an algorithm for anaphor binding. The output of the first constitutes the input for the other two. It is the algorithm in (i) that we are interested in, and that will be mainly discussed in later sections.

I start by introducing Slot Grammars and the slot filling strategy, which will provide the reader with the basic toolkit to follow the discussion on the ellipsis resolution algorithm. Two arguments in favor of ellipsis resolution at s-structure (subjacency effects and subdeletion sentences) are introduced then, followed by the definition of the algorithm itself, and some parse examples. The discussion is finished with some cases that this algorithm fails to account for.

4.1.1 Slot Grammars: An Overview of the Formalism.

Lappin and McCord (1990) present an algorithm for VPE resolution based on Slot Grammars formalism. Slot Grammars are lexicalist grammars, which are organized around the filling of the slots associated with the head word of a phrase. The processing of words is done left-to-right, but phrases grow middle-out: starting with the head and adjoining slots either to the left or to the right of the head.

Each phrase is built out of a head word and some slots, or modifiers, associated with the head. There are two types of slots: (i) complement slots—those

specified in the lexical entry of a head word—and (ii) adjunct slots—specified by the grammar. Slots represent grammatical relations such as subject, object, indirect object, etc. Thus, building the structure of a sentence consists of satisfying the SlotFrame of the head of a phrase. For a sentence like that in (1), the head word is *love* and its SlotFrame will at least consist of the list (subj, obj), which must be satisfied. *John* will fill the subject slot, and *Mary* will fill the object slot.[1]

(1) John loves Mary

There are rules for slot filling. Slot filler rules give conditions not only on the filler phrase (i.e., type of phrase: NP, PP, etc.), but also on its relation to the higher phrase. Together with these, ordering rules are also specified, which state conditions on the position—left or right—of the slots with respect to the head (Slot/head rules), as well as with respect to each other (Slot/slot rules).

Slots are optional by default, but they can be specified as obligatory by either a lexical entry or by the grammar—due to characteristics of the current phrase, or of the higher phrase to which a slot is related. If a slot is obligatory it can be filled in the current phrase, but also in a raised position; or in other words, in a higher phrase. Consider (2) and (3):

[1] In this example, both the subject and object slots are filled by trivial phrases, but each slot may be a phrase with a head and a SlotFrame itself, and it would be satisfied in the same manner.

(2) [Which movie did John like *obj*]?

(3) [Which movie did Mary think [John liked *obj*]]?

In (2) the object slot of the verb *like* is filled in a raised position inside the same clause. In (3), however, the object slot of the same verb is filled in a raised position in the higher phrase. The position that this slot would have been adjoined if there had been no raising is marked with italics.

Consider sentence (4), an example of a sentence that includes a raised element (the wh-element *who*) discussed by Lappin and McCord, together with the output parse produced for the sentence in (5):

(4) Who did John say wanted to try to find him?

(5)

subj (n)	who (**X2**)	noun
top	do1 (X1, X3, X4)	verb
subj (n)	John (X3)	noun
auxcmp (inf (bare))	say (X4, X3, X9, u)	verb
obj (fin)	want (X9, **X2**, **X2**, X12)	verb
preinf	preinf (X12)	preinf
comp (en| inf| ing)	try (X12, **X2**, X13)	verb
preinf	preinf (X13)	preinf
obj (inf)	find (X13, **X2**, X14, u, u)	verb
obj (fin)	he (X14)	noun

The information about the parse is displayed as follows. Each line represents a node in the tree. The first column indicates the slot filled by the node (i.e. the argument role of the category), the second column represents the sense name of the head word with a list of the category's arguments (the SlotFrame): the first marker is the marker variable for the node/phrase itself, and the rest are the marker variables for the argument slot filler phrases. In raise operations the complement arguments are unified with the marker variables of the filler complement phrase, in other words, unification of marker variables is carried out in the sentence; the marker variable of the phrase *who* (X2) is unified with the subject variables of *want*, *try*, and *find*.[2]

4.1.2 An S-Structure Algorithm for VPE Interpretation

4.1.2.1 Motivation for VPE Resolution at S-Structure: Subjacency and Subdeletion.

Lappin and McCord argue in favor of a S-structure treatment of VPE phenomena within a slot filler framework. They give two reasons for such a move: (i) subjacency effects in ACDs, and (ii) subdeletion cases of ACDs.

They argue against May (1985), who advances a LF-based approach to VPE resolution. According to him, VPE interpretation for ACDs need to take place at LF, only after Quantifier Raising (QR) has applied, in order to avoid the interpretive

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[2] I have marked the unified variables with bold in the example. With this process of unification deep grammatical roles are obtained while parsing, through the unification of complement marker variables with the variables in the argument frames of their heads.

regress that will result from copying the matrix VP (which includes the elided VP) into the elided VP. To a sentence like (6), QR applies as in (7), and then the matrix VP is copied into the elided VP at LF as in (8). The VP copying rule, thus, applies at LF.

(6) Dulles suspected everyone who Angelton did.

(7) $[_{IP'}\,[_{NP1}$ everyone who$_1$ Angleton did$]\,[_{IP}$ Dulles suspected $t_1]$

(8) $[_{IP'}\,[_{NP1}$ everyone who$_1$ Angleton **suspected t_1**$]\,[_{IP}$ Dulles suspected $t_1]$

Lappin and McCord note that May's approach to ellipsis faces two problems. The first problem is that it cannot account for the subjacency effects shown in (9). Subjacency is a condition that constrains the binding of traces resulting from movement at S-structure. According to May's proposal, the elided VP is empty at S-structure, so it is not clear how an operator-trace chain can be established at this level.

(9) a. John read everything which Bill believes he did.

b. *John read everything which Bill believes the claim that he did.

An LF-based account also does not extend to all the cases of ACDs, such as subdeletion, where arguments or adjuncts of the partially empty VP are overtly realized:

(10) John writes more books than Bill does articles.

(11) John showed everything to Mary which he did to Bill.

(12) John reviewed the play for The New York Times shortly after Bill did for The Washington Post.

Lappin and McCord (1990) suggests that May's analysis cannot account for subdeletion cases, since it treats VP ellipsis as a relation between an empty VP and an antecedent VP.

They show how it is possible to capture the properties of ACDs in general if we assume that the elided VP is structured and may contain arguments or adjuncts: these may be lexically realized or they may be traces. Thus, a sentence like (13) has a structured VP as in (14), and it is interpreted as in (15), by copying the verb from the antecedent, avoiding the interpretive regress without the need to invoke LF:

(13) Dulles suspected everyone who Angleton did.

(14) Dulles suspected $[_{NP}\,[_{N'}$ everyone who$_1$ Angelton did $[_{VP}\,[_{V}\,]\,[_{NP}\,t_1\,]]]]]$

(15) Dulles suspected $[_{NP}\,[_{N'}$ everyone who$_1$ Angelton $[_{VP}\,[_{V}$ **suspected** $]$ $[_{NP}\,t_1\,]]]]]$

According to them, the advantages of thinking about the VP in these terms are: (i) subjacency can be checked for at S-structure, (ii) we can handle ACDs and subdeletion examples with the same interpretation procedure.

4.1.2.2 The Algorithm

Lappin and McCord (1990) define VP anaphora as an s-structure relation between the head V and selected arguments and adjuncts of a structured empty (or partially empty) elliptical VP, and the head and adjuncts of an antecedent VP. The interpretation procedure copies the head V of the antecedent VP into the elided VP, and specifies which arguments and adjuncts of the antecedent are inherited by the elliptical VP, using a slot filler type of approach, as discussed in Section 3.1.1. The algorithm that they present follows in (16). It consists of four main steps, which are divided in other sub procedures. Step A, describes the environments in which elliptical verb-antecedent pairs may be found. Step B, C, and D specify the steps for the interpretation procedure.

(16) "A. Identify an elliptical verb-antecedent verb pair <V,A> as follows.

1. An elliptical verb V is identified by the presence of an auxiliary verb or the infinitival complementizer "to", where the auxiliary verb or the complementizer does not have a realized verb complement.
2. A candidate A for an antecedent of V is a verb which is not elliptical and not an auxiliary verb with a realized complement.

3. Check that A and V stand in at least one of the following relations:

   a. V is contained in the clausal complement of a subordinate conjunction SC, and the SC-phrase is either (i) an adjunct of A, or (ii) and adjunct of a noun N and N heads an NP argument of A, or N heads the NP argument of an adjunct of A.[3]

   b. V is contained in a relative clause which modifies a head noun N, and either (i) N heads an NP argument of A, or (ii) N heads a complement of an adjunct of A.

   c. V is contained in the right conjunct of a sentential conjunction S, and A is contained in the left conjunct of S.

B. Generate a new tree in which A is substituted for V as the head of the elliptical verb phrase VP' which V heads, and A is assigned the agreement features required by the head of VP'. The new occurrence of A will be referred to as A'.

C. Consider each argument slot $Slot_i$ in the argument frame of A.

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[3] Here I include the definition of the relation Contain, that Lappin and McCord provide:

(i) "We define the predicate P is contained in Q recursively as follows. A phrase P is inmediately contained in a head Q iff (i) P is an argument of Q, or (ii) P is an adjunct of Q. P is contained in Q iff (i) P is immediately contained in Q, or (ii) P is immediately contained in a head R, and (the phrase with head) R is contained in Q."
("Anaphora Resolution in Slot Grammars", page 11)

1. If $Slot_i$ is filled by a phrase C, then

   If there is a phrase C' in VP' which is of the appropriate type for filling $Slot_i$, then fill $Slot_i$ in the argument frame of A' with the marker variable of C'.

   Else,

   Fill $Slot_i$ in A' with the marker variable of C, and list C as a new argument of A'.

2. If $Slot_i$ is empty in the frame of A, it remains empty in the frame of A'.

D. For each adjunct Adj of A, if there is no adjunct of the same type as Adj in VP', then list Adj as a new adjunct of A'."

4.1.2.3 The Algorithm at Work: Some Examples

Now let us look at three examples to see how the algorithm actually works. Consider sentence (17), the ACD example I discussed above, and the output parse in (18):

(17) Dulles suspected everyone who Angelton did.

(18) a. Parse before VP Anaphora Algorithm

subject	Dulles (X4)	noun
top	suspect (X1, X4, **X5**)	verb
obj	everyone (**X5**)	noun
obj	who (**X5**)	noun

subject	Angelton (X9)	noun
nrel	do (X7, X9, **X5**)	verb

b. Parse after VP Anaphora Algorithm

Antecedent verb-elliptical verb pairs: suspect.2 – do.6

Elliptical verb-new argument pairs: none

Elliptical verb-new adjunct pairs: none

Subj	Dulles (X4)	noun
top	suspect (X1, X4, **X5**)	verb
obj	everyone (**X5**)	noun
obj	who (**X5**)	noun
subj	Angelton (X9)	noun
nrel	**suspect** (X7, X9, **X5**)	verb

In sentence (17), only the verb from the antecedent VP is copied into the elided VP; no arguments or adjuncts are inherited from the antecedent. The object in the elision site is successfully recognized to be a trace: we can observe the unification of the variable X5 in the object slot with the phrase marker of the head of the relative clause *everyone*, and with that of the wh-phrase *who*. Consider (19) now, and the output parse in (20):

(19) John wrote notes to everyone who asked him to.

(20) a. Parse before VP Anaphora Algorithm

subj	John (X3)	noun
top	write (X1, X3, X4, **X5**, u)	verb
obj	note (X4)	noun
iobj	to (X7, **X5**)	prep
objprep	everyone (**X5**)	noun
subj	who (**X5**)	noun
nrel	ask (X9, **X5**, X11, X12)	verb
obj	he (X11)	noun
comp	preinf (X12)	preinf

b. Parse after VP Anaphora Algorithm

Antecedent verb-elliptical verb pairs: write.2 – preinf.9

Elliptical verb-new argument pairs: preinf.9 – note.3

Elliptical verb-new adjunct pairs: none

subj	John (X3)	noun
top	write (X1, X3, X4, **X5**, u)	verb
obj	note (X4)	noun
iobj	to (X7, **X5**)	prep
objprep	everyone (**X5**)	noun
subj	who (**X5**)	noun
nrel	ask (X9, **X5**, X11, X12)	verb
obj	he (X11)	noun

comp	preinf (X12)	preinf
auxcomp	**write1 (X15, X11, X4, X5)**	verb

In sentence (19) the verb is copied from the antecedent into the ellipsis site. The direct object of *write1* (X4) is inherited from the antecedent, while the indirect argument (X5) is realized as a trace bound by the wh-phrase (see unification of marker variables).

Consider (21) now, an example of subdeletion. This subdeletion sentence is resolved in the same manner as the other ellipsis examples. This is an advantage of this algorithm (which assumes that the elided VP is not structurally empty). Observe the resulting tree after VP anaphora interpretation, which is displayed in a linear format under (22):

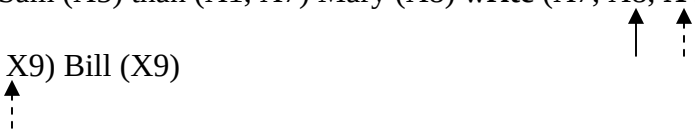
(21) Max writes more letters to Sam than Mary does to Bill.

(22) Antecedent verb-elliptical verb pairs: write.2 – do.9

Elliptical verb-new argument pairs: write.9 – letter.4

Elliptical verb-new adjunct pairs: none

Max (X3) write (X1, X3, X4, X5, u) more (X13) letter (X4) to (X11, X5) Sam (X5) than (X1, X7) Mary (X8) **write** (X7, X8, **X4,** X9**)** to (X7, X9) Bill (X9)



In order to interpret the elision in (21), the verb from the antecedent VP is copied into the elided verb phrase, the direct object (X4) is inherited from the antecedent too, and the indirect object (X9) is that one overtly realized in the elided VP (*to Bill*). Compare how the direct and indirect objects are represented—marked with the solid and the dashed arrows, respectively. The former is only listed in the arguments list (or SlotFrame); represented by the marker variable X4, as the inherited argument that it is. The latter, however, is part of the argument list (represented in the SlotFrame by the variable X9), but it is also listed as a member of the structure of the tree (Bill (X9))—in other words, it is structurally realized in the lower/elided VP.

I would like to call the reader's attention to the following fact: even though the elided VP inherits the direct object, its syntactic structure is not copied into the gap. The direct object exists in the elided VP SlotFrame by means of a marker variable, or in other words, a pointer/an address that makes reference to the syntactic structure realized in the antecedent clause. Thus, their proposal does not face a computational complexity problem, since the number of output symbols with respect to input symbols does not grow unboundedly because of copy of the syntactic structure. I will discuss this issue in more detail in Chapter 5, section 5.1.1**.**

4.1.3 Some Problematic Examples for this Algorithm

4.1.3.1 Strict and Sloppy Readings

When Lappin and McCord's algorithm reconstructs the elided VP, it does so in a way that does not always permit us to get all the possible readings for the elided VP. However, it has been shown in the literature that there are ellipsis sentences for which more than one reading is available, i.e. where the elided VP receives either a strict or sloppy interpretation. Consider sentence (23) below, together with the readings in (24) (I include one example here for illustrative purposes, but I refer the reader to Chapter 2, section 2.3, where this matter is discussed in detail):

(23) John saw his mother and Peter did too.

(24) a. John_1 saw his_1 mother, and Peter_2 saw his_1 mother.

b. John_1 saw his_1 mother, and Peter_2 saw his_2 mother.

For the sentence in (23) there are two possible readings: (i) the strict reading in (24), where the pronoun in the elided clause is interpreted as referring to the subject in the antecedent, and (ii) the sloppy reading in (24), where the same pronoun is interpreted as referring to the subject in the elided clause. Let us see how Lappin and McCord account for strict and sloppy readings.

For the interpretation of pronouns and anaphors, Lappin and McCord propose an Anaphor Binding Algorithm and a Syntactic Filter on Pronominal Anaphora. These last two together cover more or less the same amount of data as the Binding

Theory does, however, they are both defined on configurations that apply to the SlotFrame of the verb—they do not depend on c-command relations like Principle A, for example, does.

The output of the VP resolution algorithm is the input for those two other routines.

Consider the sentence in (25), and the available readings in (26): the sloppy reading represented under (26), and the strict one under (26). For the sentence in (25) Lappin and McCord's algorithm predicts only one reading: the sloppy one. Their interpretive mechanism copies the verb from the antecedent into the elided VP, and this copied verb inherits the anaphoric element *herself*, which is interpreted in the lower VP. The anaphor is bound by the subject in the second clause and the sloppy reading comes out. The output of their parsing algorithm is included in (27) below:

(25) The girl will write a book about herself, and Mary might too.

(26) a. The girl … about herself, and Mary … about herself too.

b. The girl … about herself, and Mary … about her too.

(27) Antecedent verb-elliptical verb pairs: write.4 – may.12

Elliptical verb-new argument pairs: may.12 – book.6, may.12 – about.7

Elliptical verb-new adjunct pairs: none

the (X11) girl (X9) will (X8, X9, X10) write (X10, X9, X12, u, u) a (X15) book (X12) about (X12, X16) herself (X16) and (X1, X8, X18) Mary (X19) may (X8, X19, u) write (X24, X19, X12) too (X18)

Antecedent NP-reflexive pairs:[4]

girl.2 – herself.8, Mary.11 – herself.8

Evidently, a descriptively adequate algorithm should also predict the strict reading. This is a flaw that Lappin and McCord themselves mention. They observe how in order to obtain the strict interpretation, according to which *herself* is bound by *the girl*, it would be necessary to refine the VP anaphora algorithm to permit it to identify inherited arguments by abstract referential indices, such as phrase marker variables, as well as by the heads of the argument phrase.

They just discuss the example above, but we can observe how in other sentences the number and the kind of readings that are predicted by their algorithm vary. Consider sentence (28) now. The interpretative mechanism would copy the verb *talk* to the elided VP, and this copied verb would inherit the pronoun *his*, which is interpreted in the lower VP. In this case, the readings that their algorithm predicts are two: strict and sloppy. The filter on pronominal anaphora will correctly predict that

[4] The output of applying both the anaphor binding algorithm and the filter on syntactic coreference to sentences are pairs of coreferent antecedents and anaphors, or antecedents and pronouns respectively. This is what these pairs are showing, corefering elements.

the pronoun in the elided VP could co-refer either with the subject in the first clause, or with the subject in the second clause.

(28) Peter talked to his teacher, and Tom did too.

Nevertheless, for a sentence like (29) or (30) the algorithm makes the wrong predictions again. One of the conditions that must be respected for co-reference by the Anaphor Binding Algorithm and the Syntactic Filter on Pronominal Anaphora is the identity of agreement features between antecedent and anaphor/pronoun. If the antecedent and the inherited pronoun/anaphor have incompatible agreement features (e.g. *Mary* and *his* in (29); or *Susan* and *himself* in (30)), then they cannot co-refer. However, as we saw in Chapter 2, section 2.2 (where Kitagawa's analysis is discussed), gender conflicts do not preclude coreference in all the examples.

(29) Peter talked to his teacher, and Mary did too.

(30) John talked about himself, but Susan didn’t.

Sentence (29) will only be assigned the strict reading (that one in which the pronoun in the elision site is bound by the subject in the first conjunct). The sloppy reading (pronoun bound by subject in second conjunct) is precluded, since there is an agreement mismatch between *his* and *Mary*. Sentence (30) cannot be assigned any reading, the strict reading does not obtain for the same reasons as in (25) above. And

the sloppy interpretation (the only one that could be available, since *himself* is inherited by the elided VP) is not acceptable due to agreement features mismatch.

Thus, we can conclude that the strategy of inheriting the argument from the antecedent, and interpreting it (applying the anaphora/pronoun algorithms) in the SlotFrame of the elided VP does not yield the correct results. It seems that inheriting arguments in a more abstract manner is necessary for VP ellipsis interpretation. I will propose something to this regard in Chapter 5, section 5.3.2.

4.1.3.2 On the Necessity of the LF level

Fiengo and May (1994) argue in favor of the need to reconstruct elliptical ACD sentences at the level of LF. They show that there are interactions between Binding Theory and Quantifier Raising (QR), which can only be accounted for at the LF level.

They analyze several ACD examples, and the level at which Binding Theory seems to apply for these. They observe how some of those cases are problematic for a syntactic approach to VPE where the elided VP is fully interpreted at the level of s-structure, such as that defended by Lappin and McCord (1990)—in order to interpret pronouns and anaphors the reconstructed VP is considered at the level of s-structure, not later on. There are sentences like (31), however, which cannot be analyzed at s-structure. As Fiengo and May observe, s-structure and LF are in a feeding/bleeding relationship with respect to Binding Theory, and all those cases where binding violations are bled from one level to the other would be unaccounted for (in this and

in all the examples included in this subsection we are interested in those readings where the pronouns are interpreted anaphorically):

(31) Mary introduced him_1 to everyone that $John_1$'s mother wanted her to.

Sentence (31) violates Principle C at s-structure under this anaphoric reading, since the pronoun c-commands the name *John*. However, it is still grammatical. A look at its LF form in (32) provides the answer to why this sentence is accepted under the reading in (31).

(32) everyone that $John_1$'s mother wanted her to **[$_{VP}$ introduced him_1 to t]**
[Mary introduced him_1 to]

After QR has applied, and the elided VP (boldfaced) is reconstructed, the violation that existed at s-structure disappears. At LF the NP *John* is no longer c-commanded by the pronoun, it is free, and the Principle C violation is no longer sustained. Lappin and McCord's s-structure proposal cannot explain cases like this, where a violation is bled form s-structure to LF.

Consider the sentences in (33) and (34) now. Both of these sentences violate Principle C at s-structure, since in both cases the pronoun c-commands its antecedent, the name *John*. However, (33) is grammatical, while (34) is not. Once again, the correct distinction is made at the LF level (see (35) and (36)):

(33) Mary introduced him$_1$ to everyone that John$_1$ wanted her to.

(34) * Mary introduced him$_1$ to everyone that she wanted John$_1$ to.

(35) everyone that John$_1$ [$_{VP}$ wanted her to **introduce him$_1$ to t**] [Mary introduced him$_1$ to]

(36) *everyone that she [$_{VP}$ wanted John$_1$ to **introduce him$_1$ to t**] [Mary introduced him$_1$ to]

At LF (35) conforms to Binding Theory requirements. That is not the case with (36), which violates Principle B at LF, since the reconstructed occurrence of the pronoun is not locally free. In this last case, s-structure and LF stand both in a bleeding and a feeding relationship. The violation of Principle C at s-structure is bled, since the pronoun does not c-command the name at LF any longer. However, QR and VP reconstruction feed Principle B, because the reconstructed pronoun is c-commanded by the referential expression *John*.

In sum, an s-structure algorithm like that of Lappin and McCord's, despite otherwise wide coverage, faces some problems. The elided VP is not only reconstructed, but also interpreted at that s-structure. Binding Theory applies at this level too, and this is problematic because it does not cover those examples where BT interacts with QR. In Chapter 5, I present an algorithm that does not face this problem; it allows reconstructing some of the structure of the elided VP as the

sentence is parsed, but it finishes interpreting the elision by applying binding theory to the output of LF-related operations, such as QR.

4.1.3.3 Some Remaining Issues

Another problem that the algorithm proposed by Lappin and McCord (1990) faces is the fact that VP anaphora resolution is totally dependent on accessing the antecedent. The SlotFrame of the antecedent is used to interpret the elided verb phrase. However, there are VPE examples where the antecedent does not precede the gap like (37) and (38) below:

(37) Although Mary didn't, Peter went to the party.

(38) Mary did, but Peter did not pass the exam.

Examples like (37) and (38) above, where the relation is gap-antecedent instead of antecedent-gap, are unaccounted for. Lappin and McCord's algorithm is dependent on accessing the antecedent to interpret the gap. It is not clear how the parse for this type of sentences will be resolved; either the elided verb phrase will not receive any interpretation since the antecedent is not available at the point where the gap is processed, or the gap will be assigned the wrong interpretation by accessing a predicate that precedes the gap, but which is not the antecedent.

Finally, consider (39)-(41) below. These sentences are examples of gapping—another type of verbal ellipsis, where the auxiliary, verb, and optionally some of the arguments (example (40)) and/or adjuncts (example (41)) are elided:

(39) Peter ate pasta, and Mary pizza.

(40) John talked with this boss about a salary raise, and Sam about a permanent contract.

(41) Max sometimes mistreats his friends, and Peter his mother.

The algorithm defined by Lappin and McCord above does not extend to this kind of elliptical structure. Step A of the algorithm—which is in charge of detecting the elision site and relating it to the antecedent—will not detect these gaps; since an auxiliary is not present and the detection routine is anchored to the existence of an auxiliary without a following verb.

One could imagine a solution to this problem, which is modifying Step A in order to cover those examples above too. Nevertheless, as it stands it remains a problem for two reasons: (i) one of the advantages of Lappin and McCord's proposal (which the authors offer as an argument in favor of their ellipsis account) is that different ellipsis phenomena are resolved with the same algorithm; but this strength becomes a weakness in the case of gapping. And (ii) gapping has been analyzed as a sentence grammar process (as opposed to VPE, which has been proposed to be a discourse type of phenomena); thus, an s-structure algorithm such as Lappin and

McCord's should arguably include the elliptical sentence grammar process par excellence.

In the next chapter, I will introduce a minimalist algorithm for VP anaphora which: (i) can build some structure for the elided verb phrase without resorting to the antecedent, so it can also account for cases where the relevant relation is gap-antecedent rather than antecedent-gap, (ii) covers VPE, ACD and pseudogapping cases, as well as the gapping cases, and (iii) offers an explanation for why gapping sentences (as opposed to other elliptical processes) display locality effects—i.e. there cannot be any material intervening between the elided clause and the antecedent, as the examples in (42) and (43) show:

(42) *Peter ate pasta, and **I think that** Mary pizza.

(43) *My best friend loves movies, and **everyone knows that** Susan plays.

4.1.4 Summary

Lappin and McCord (1990) present a VP anaphora resolution algorithm that applies at the level of s-structure. VP ellipsis is interpreted by resorting to the SlotFrame of the antecedent: the verb is copied from the antecedent into the elision site, but the arguments or adjuncts of that verb are inherited. This mechanism allows (i) treating different elliptical constructions (VPE, ACDs, and subdeletion) in a unified way, and also (ii) parsing ellipsis in an efficient way, since the syntactic structure of elided elements does not need to be copied into the gap: elided elements are inherited. I

assume a similar mechanism in my proposal in next chapter (see Chapter 5, section 5.2.6.1).

However, we have also seen how there are certain facts about elliptical constructions that an s-structure algorithm fails to encompass; to be precise, cases where interaction between binding theory possibilities and quantifier raising at LF is observed, and which argue in favor of resolving ellipsis at LF. Thus, we find contradictory requirements, which seem to argue in the direction of a two-fold process of ellipsis resolution in which some of the work is done before reaching the LF level, and some at the LF level.

I have also mentioned other problematic cases posed by the combination of strict and sloppy readings, by examples where the antecedent precedes the gap, and by gapping sentences. In Chapter 5, I offer an alternative algorithm that tries to address all these issues.

4.2 Hardt (1993). Verb Phrase Ellipsis: Form, Meaning, and Processing.

Hardt (1993) claims that ellipsis resolution is done by the identification of a VP meaning at the discourse level. He presents the Proverb Theory, which treats VP-anaphora and NP-anaphora uniformly. He analyzes VPE as a proform, i.e. it has no syntactic structure, and it is interpreted by being semantically identified with its antecedent.

I do not get into a description of his proposal here—since it is not relevant to what I am going to present in the next chapter—but I rather have a quick look at the arguments that he offers against syntactic approaches to VP ellipsis, and in favor of a semantic approach, to see whether they are valid.

4.2.1 Binding and Island Constraints Do Not Apply to VP Ellipsis

Hardt (1993) claims that the two main arguments that have been offered in the literature in favor of syntactic reconstruction approaches do not go through. Those arguments are: (i) binding constraints, and (ii) island constraints, which seem to be at work in the gap site and argue in favor of an elided VP with syntactic structure.

Hardt (1993) also notes that Binding constraints are not always respected under ellipsis. Both in sentence (44) and (45) binding constraints do not seem to apply as they do with overt material. If syntactic material is copied from the antecedent into the elision the resulting sentences would be those in (46) and (47), which violate Principle C and Principle A of the Binding Theory, respectively:

(44) Harry got to Sue_i's apartment before she_i did.

(45) $John_i$ defended $himself_i$ better than his_i lawyer could have.

(46) *Harry got to Sue_i's apartment before she_i did [go to Sue_i's apartment].

(47) *$John_i$ defended $himself_i$ better than his_i lawyer could have [defended $himself_i$]

Hardt observes that examples like (44) and (45), above oblige to relax the identity condition on ellipsis. He notes how Fiengo and May (1992) vehicle change theory—which allows for certain differences between the antecedent and the gap—accounts for Principle A and Principle C violations. The reconstructed VPs will look like in (48) and (49), after vehicle change applies, respecting binding theory constraints:

(48) Harry got to Sue$_i$'s apartment before she$_i$ did [go to her$_i$ apartment].

(49) John$_i$ defended himself$_i$ better than his$_i$ lawyer could have [defended him$_i$]

One of the differences that vehicle change allows for is the conversion of a name into a pronoun, as in (48). Another difference is the conversion of a reflexive into a pronoun (as in (49)). Since reflexives are composed of two parts (an anaphoric and a pronominal part), if only the pronominal part is copied into the elision, Principle A is respected. Nevertheless, Hardt argues that there are also Principle B violations under ellipsis, for which Fiengo and May's theory does not account. An example of this type of violation is sentence (50):

(50) A: Why do you want him$_i$ to play chess?

B: I don't, he$_i$ does [want him$_i$ to play chess].

However, we have seen in Chapter 2 (section 2.3), where I discuss Fiengo and May's (1994) proposal, that reconstruction is a symmetrical relationship. Consequently, in the same way that a reflexive can be reconstructed as a pronoun, a pronoun can be reconstructed as a reflexive, thus, respecting binding theory and supporting identity of structures.

With respect to the second argument, the island constraints, he claims that all those sentences in ((51)-(54)) which have been used to argue in favor of syntactic reconstruction for the elision site (there is a trace in the gap that needs to be bound; thus, requiring syntactic reconstruction (Chao 1987; Haik 1987; Tancredi 1992)) are examples of pesudogapping.

(51) John knows who$_k$ Bill criticized e$_k$, and Mary knows who$_i$ Sue did e$_i$.

(52) John read everything which$_i$ Bill did e$_i$.

(53) *John read everything which$_i$ Bill believes the claim that he did e$_i$.

(54) *John met everyone Op$_i$ that Peter wondered when he could e$_i$.

I believe that characterizing these sentences as pseudogapping just puts the problem aside, it does not solve it. If it was true that they are cases of pseudogapping, then how is pseudogapping treated? There is still a trace that needs to be bound in the elision site in those cases, and the Proverb Theory cannot account for them. I believe that elliptical constructions such as VPE and Pseudogapping can be and should be

treated uniformly. In the next chapter, I propose a unified account for both elliptical constructions.

4.2.2 Some Problematic Cases for Syntactic Identity

Hardt discusses some examples that he considers to be problematic for a syntactic approach to VPE; we can divide those in two groups: cases (i) where syntactic identity between the antecedent and the elided VP seems not to be respected, or (ii) where the antecedent is not in a local relation with the gap.

With respect to the first group there are examples that involve reflexives (in (55)), negative polarity items (in (56)), and active/passive mismatches (in (57), (58) and (59)). Hardt claims all the examples below argue against identity of syntactic structure. In (55) the antecedent is *defended himself*, while the gap must be *defend him*, so as to conform with BT. In sentence (56) below the material in the elided VP should be *have some* rather than *have any*. The same kind of problem arises with Active/Passive mismatches between the antecedent and the gap, or vice versa:

(55) John defended himself, because his lawyer couldn't.

(56) Tom doesn't have any paper. Harry does, though.

(57) The information could have been released by Gorbachov, but he chose not to.

(58) A lot of this material can be presented in a fairly informal and accessible fashion, and often I do.

(59) Max fired Harry, although it was Tom who should have been.

Another situation in which Hardt questions the reality of syntactic identity is sentences where syntactic constraints on variables within the antecedent do not apply in the ellipsis site. The sentences in (60) and (61) both have a variable in the antecedent bound by a wh-operator. In both, the antecedent VP is *visit e*. If this syntactic representation was copied into the gap, the wh-trace *e* will not be bound in the elision, resulting in an ungrammatical sentence:

(60) China is a country that Joe wants to visit **e**, and he will too, if he gets enough money.

(61) China is one of the countries that Joe doesn't want to visit **e**. In the case of India, he does.

However, we have seen in Chapter 2 that a theory like that of vehicle change can account for all these cases, while at the same time maintaining the identity condition for ellipsis.

The other kind of examples that Hardt offers are cases where the relation between gap and antecedent is not local, cases that involve long distance antecedents (example (62)), and missing antecedents (examples (63) and (64)):

(62) I disagree with the writer who says funeral services should **be government-controlled**. The funeral for my husband was just what I wanted, and I paid a fair price, far less than I had expected to pay. But the hospitals and doctors should.

(63) I will if you will.

(64) You shouldn't have.

These examples are not problematic for the analysis that I propose for VPE in the next section. As we are going to see there, a VP is predicted without the need to access the antecedent. This predicted VP is interpreted at LF, where there is access to c-commanding material and to not c-commanding material as well.

One can conclude that the two arguments (binding and island constraints) offered in the literature in favor of syntactic reconstruction for ellipsis can still be sustained.

4.3 Closing Remarks

I have discussed Lappin and McCord's (1990) algorithm for VPE resolution, which is representative of the syntactic view on ellipsis. From the discussion of this proposal, we can conclude that it seems necessary to claim that the elided VP has syntactic structure if we want to offer (i) a unified treatment of different elliptical

constructions—account for VPE, subdeletion or pseudogapping, as well as examples of VPE with traces that need to be bound inside the elided VP.

We have also seen that the arguments in favor of syntactic reconstruction (binding and island constraints effects) are effective. And also, that those examples that seem to question the validity of a syntactic approach are no longer relevant if the identity condition on ellipsis is somehow relaxed, along the lines of the theory of vehicle change proposed by Fiengo and May (1994), for example.