

Ellipsis Sites as Definite Descriptions

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This article analyzes three phenomena that are troublesome for some theories of ellipsis: the existence of sloppy readings when the relevant pronouns cannot possibly be bound; cases where the antecedent of ellipsis does itself contain an ellipsis site, but in resolving the larger ellipsis the interpretation understood at the ellipsis site in the antecedent is not used; and cases where an ellipsis site draws upon material from two or more separate antecedents. These cases are accounted for by an analysis of silent VPs and NPs that makes them into higher-order definite descriptions that can be bound into.

Keywords: VP-ellipsis, NP-deletion, split antecedents, definite descriptions, sloppy identity

1 Introduction

There is a common view of ellipsis according to which an elided phrase requires a linguistic antecedent (Hankamer and Sag 1976) and the relationship between elided phrase and antecedent is one of identity of meaning (Grinder and Postal 1971, Merchant 2001) or Logical Form (Sag 1976, Williams 1977, and many subsequent works).

Hankamer and Sag (1976) argued that ellipsis had to have a linguistic antecedent on the basis of examples like these:

(1) (*Hankamer attempts to stuff a 9-inch ball through a 6-inch hoop.*)

Sag: It's not clear that you'll be able to.

(2) (*Sag produces a cleaver and makes as if to hack off his left hand.*)

Hankamer: Don't be alarmed. He never actually does.

We are supposed to imagine these examples being acted out, as it were, so that there is no linguistic antecedent for the ellipsis in each case, only an accompanying action. Hankamer and Sag claim that (1) cannot felicitously be understood as 'It's not clear that you'll be able to push that ball through that hoop', even though it is obvious what action is being referred to. An analogous claim is made for (2). Hence the requirement for linguistic antecedents.

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Ellipsis is sometimes thought to be based on the meaning or Logical Form (LF) of the antecedent phrase because of cases like (3), which means the same as (4) (Sag 1976:157–158).

(3) John doesn't see anyone, but Bill does.

(4) John doesn't see anyone, but Bill does see someone.

If we were to suppose that there is an elided VP in (3) that has the same form as its antecedent's surface form, *see anyone*, the resulting sentence *Bill does see anyone* would be predicted to be ungrammatical, since the negative polarity item *anyone* is not in the scope of a licenser (Ladusaw 1979). It seems more likely, then, that the licensing of VP-ellipsis makes reference to the meaning of the antecedent (in this case, roughly, the property of seeing something) or to an abstract level of syntactic representation at which *someone* and *anyone* are identical or share identical parts (Sag 1976:158, Johnson 2001:469).

This view is commonly linked to an account of strict and sloppy readings that sees them as deriving from the pronouns in the antecedent being referential and bound, respectively. The strict and sloppy readings of a representative example are given in (5) (Ross 1967).

(5) a. John loves his mother and Bill does too.

b. '... Bill loves Bill's mother.' (sloppy)

c. '... Bill loves John's mother.' (strict)

If the pronouns in the VPs are ambiguous between referential and bound, we have a neat account of this ambiguity (Keenan 1971). We can suppose that the sloppy reading results from the pronoun's being bound, as in (6), and that the strict reading results from the pronoun's being referential, as in (7), where it is to be understood that the sentence is interpreted with respect to a variable assignment that maps 1 to John.

(6) *Sloppy*

John [$\lambda_2 t_2$ love his₂ mother] and Bill [$\lambda_2 t_2$ love his₂ mother]

(7) *Strict*

John [$\lambda_2 t_2$ love his₁ mother] and Bill [$\lambda_2 t_2$ love his₁ mother]

Again, reference to either the meaning or the LF of the antecedent would suffice for the correct interpretation to be obtained at the ellipsis site.

The view that the strict-sloppy ambiguity is to be dealt with in terms of referential versus bound pronouns is independent in principle of the theses that ellipsis requires a linguistic antecedent and that the relationship between antecedent and elided phrase is one of identity of meaning or LF; but in practice these three theories are often combined. I will call the view that assumes all three the *composite view*.

It has been known for some time that the composite view faces a number of problems. In this article, I attempt to solve three of them.¹

¹ These three problems are not the only ones that face the composite view, of course. I would also draw attention to the fact that under some circumstances no linguistic antecedent is required at all, as when one points to a dance floor and says to one's partner *Shall we?* See Merchant 2004 for discussion of this problem.

The first phenomenon is that of sloppy readings appearing when they cannot possibly be the result of pronouns in VPs being bound. Some examples follow:

- (8) The policeman who arrested John read him his rights, but the policeman who arrested Bill didn't.
(Wescoat 1989)
- (9) John's coach thinks he has a chance, and Bill's coach does too.
(Rooth 1992a)
- (10) If John has trouble at school, I'll help him, but if Bill does, I won't.
(Hardt 1999)
- (11) (*John and Bill both have cats.*) When I met John, I talked to his cat, but when I met Bill, I didn't.

Take (8), for example. It clearly has the reading '... but the policeman who arrested Bill didn't read Bill his rights'. But this cannot be the result of the pronouns in the antecedent VP being bound. If they were bound, the antecedent would have the denotation $[\lambda x.x \text{ read } x \text{ 's rights}]$. If one understands this after the subject of the second sentence, one obtains the meaning 'The policeman who arrested Bill didn't read himself his own rights'. This is clearly not the meaning that the sentence in fact has. Analogous considerations hold for sentences (9)–(11). Some (though not all) speakers obtain a reading for (9) that can be paraphrased as 'John's coach thinks John has a chance and Bill's coach thinks Bill has a chance'. If I say (10), I say that if Bill has trouble at school, I will not help him, Bill; and if I say (11), I say that when I met Bill, I did not talk to his, Bill's, cat. None of these examples can be accounted for by the theory that sees sloppy readings of pronouns as arising from VP-internal pronouns' being bound. They have in common the feature that the intuitive antecedent of the relevant pronoun in the antecedent VP does not c-command it. In (8)–(11), for example, *John* cannot c-command the pronouns *him*, *his*, or *he* in the first conjunct. I will call readings like these *binderless sloppy readings*.

The second phenomenon that is problematic for the composite view arises in connection with sentences like the following:

- (12) When John had to cook, he didn't want to. When he had to clean, he didn't either.
(Schwarz 2000)

This example clearly has the reading 'When John had to cook, he did not want to cook, and when he had to clean, he did not want to clean'.² How it acquires this reading is entirely mysterious on the composite view. The ellipsis in the first sentence seems straightforward enough. We take *cook* to be the antecedent and resolve the ellipsis so as to produce the meaning 'When John had to cook, he did not want to cook'. The VP of the matrix clause in the first sentence will be $[_{VP} \text{ want to cook}]$; or if the ellipsis is resolved not in the syntax but at some level of semantic representation, there must be a VP denotation something like $[\lambda x.x \text{ wants to cook}]$. This VP is the only plausible antecedent for the ellipsis in the matrix clause of the second sentence. But any

² Hardt (1999:204–205) discusses an analogous example, attributed to Carl Pollard.

resolution procedure reliant on identity of meaning or LF structure then predicts that the second sentence will have to mean ‘When John had to clean, he did not want to cook’. This is not the case, however. Thus, the composite view faces another significant problem. I will call cases like these examples of *ellipsis-containing antecedents*.

Note that the problem of ellipsis-containing antecedents arises in configurations other than that just given, where the antecedent for VP-ellipsis contains VP-ellipsis. The following examples involve NP-deletion:

- (13) Every police officer who arrested some murderers insulted some, and every police officer who arrested some burglars did too.
(Elbourne 2001)
- (14) After the books went on sale, thirteen shoppers who had bought some earlier complained; but after the magazines went on sale, only two did.
(Eytan Zweig, pers. comm.)
- (15) When John wanted to cook, he met some people who didn’t want him to; and when he wanted to clean, he met some too.

(13), on one natural reading, means ‘Every police officer who arrested some murderers insulted some murderers and every police officer who arrested some burglars insulted some burglars’.³ There is NP-deletion in the first conjunct: *insulted some* is understood as ‘insulted some murderers’. We then have VP-ellipsis in the second conjunct, as *did too* intuitively takes *insulted some* as its antecedent; but instead of being understood as ‘insulted some murderers’, it is understood as ‘insulted some burglars’. An exactly analogous problem arises in connection with (14), which means ‘After the books went on sale, thirteen shoppers who had bought some books earlier complained; but after the magazines went on sale, only two shoppers who had bought some magazines earlier complained’. So the problem arises also when the antecedent of NP-deletion contains NP-deletion. The fourth logical possibility is VP-ellipsis within the antecedent of NP-deletion, and we see this in (15). On one reading, this means ‘When John wanted to cook, he met some people who didn’t want him to cook; and when he wanted to clean, he met some people who didn’t want him to clean’. Again, there is no evident way in which the composite view, which posits straightforward identity of meaning or LF structure between antecedent and ellipsis, can account for these examples.

The third problem that faces the composite view arises when an ellipsis site seems to be related to more than one antecedent and to draw material from both. Some well-known examples are the following:

- (16) Bob wants to sail round the world and Alice wants to climb Kilimanjaro, but neither of them can, because money is too tight.
(Webber 1978)

³ There is possibly an ambiguity between ‘insulted some of the murderers he arrested’ and ‘insulted some other murderers’. This is not relevant here. See Elbourne 2001 for further discussion.

- (17) I did everything Mary did. Mary swam the English Channel and Mary climbed Kilimanjaro, and I did too.
(Fiengo and May 1994)
- (18) Whenever Max uses the fax or Oscar uses the Xerox, I can't.
(Fiengo and May 1994)

The interpretations of these examples are tricky. (17) is the easiest. It pretty clearly means ‘... and I swam the English Channel and climbed Kilimanjaro too’. One wants to paraphrase (18) as ‘Whenever Max uses the fax or Oscar uses the Xerox, I cannot use the fax or the Xerox’, but we must be careful not to analyze the sentence as meaning ‘... I cannot do either’. The correct interpretation seems to be something like ‘... I cannot use whichever one is being used’. Similarly, the ellipsis in (16) cannot be understood as ‘... neither of them can do either’. I could say (16) and admit quite consistently that Alice can sail round the world. The sentence instead seems to mean something like ‘neither of them can do the thing he or she wants to do’. These facts seem to be beyond the composite view's ability to capture. There are similar cases that involve NP-deletion, as pointed out in Elbourne 2001.

- (19) John needs a hammer. Mary needs a mallet. They're going to borrow Bill's.

This seems to mean ‘They're going to borrow Bill's hammer and mallet’. I will refer to examples like these as involving *split antecedents*.

We have three problems, then, that the composite view does not seem able to deal with, those of binderless sloppy readings, ellipsis-containing antecedents, and split antecedents. In this article, I lay out a theory of ellipsis that is compatible with all these data (section 2) and that maintains the first two elements of the composite view; that is, I will maintain the requirements that an ellipsis site have a linguistic antecedent and that it be related to it by identity of meaning or LF. I comment on relevant previous literature in section 3. Section 4 concludes.

It should be emphasized that I will be concentrating on VP-ellipsis and NP-deletion, without attempting to account for sluicing, pseudogapping, and other kinds of ellipsis.

2 A Theory of Ellipsis

2.1 The Theoretical Framework

2.1.1 Event Semantics and Little v Before explaining my theory of ellipsis, I will set out some syntactic and semantic preliminaries that will provide a framework to work in.

Following much work in event semantics and argument structure, I assume that VPs are predicates of events (Davidson 1967, Parsons 1990, Tenny and Pustejovsky 2000, Pykkänen 2008) and that subjects are introduced by a special head *v* that takes the VP as its sister (Chomsky 1995, Kratzer 1996, Pykkänen 2008).

To get a flavor of the general approach, let us take the example in (20), which will have the structure in (21). The λ -abstractor in the syntax is from Heim and Kratzer 1998.

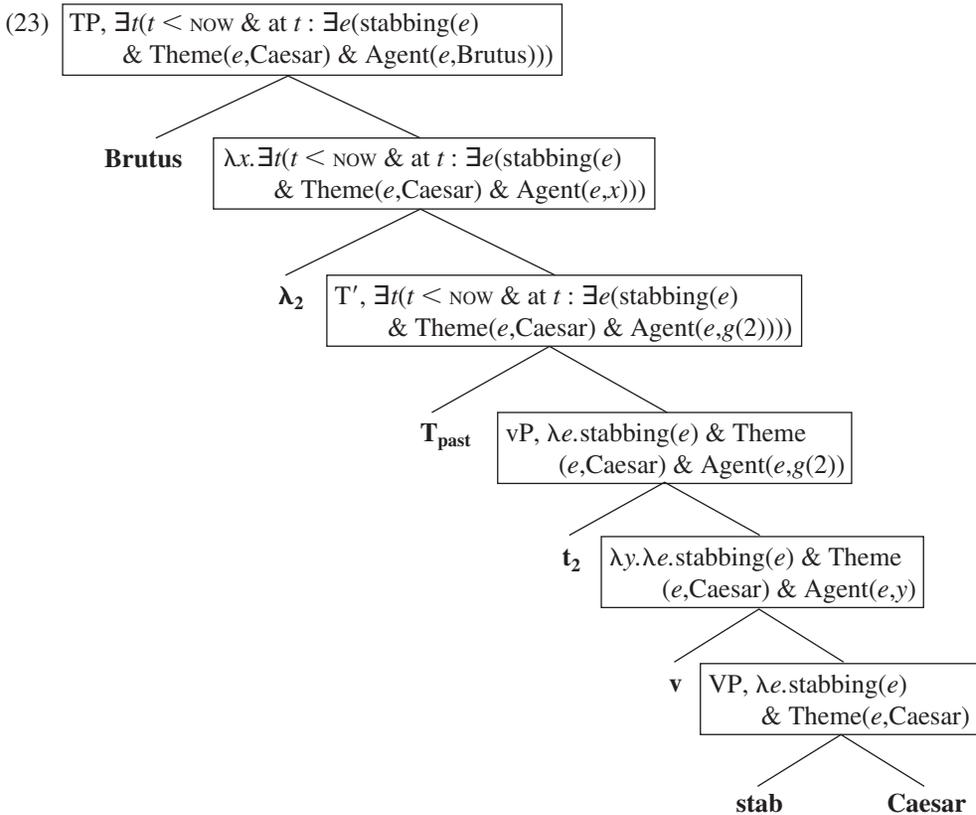
- (20) Brutus stabbed Caesar.

- (21) $[_{TP} \text{ Brutus } [_{\lambda_2} [_{T_{past}} [_{VP} t_2 [v [_{VP} \text{ stab Caesar}]]]]]]]$

The following lexical entries will enable vPs and VPs to be predicates of events; the whole sentence will be an assertion of the existence of certain kinds of time intervals and events:⁴

- (22) $\llbracket \text{Brutus} \rrbracket = \text{Brutus}$
 $\llbracket T_{\text{past}} \rrbracket = \lambda p_{(s,t)}. \exists t(t < \text{NOW} \ \& \ \text{at } t : \exists e p(e) = 1)$
 $\llbracket v \rrbracket = \lambda p_{(s,t)}. \lambda y. \lambda e. p(e) = 1 \ \& \ \text{Agent}(e,y)$
 $\llbracket \text{stab} \rrbracket = \lambda z. \lambda e. \text{stabbing}(e) \ \& \ \text{Theme}(e,z)$

These lexical entries give the meanings displayed in (23) for different parts of the tree. The sentence is interpreted with respect to a variable assignment g . (23) is not necessarily a serious contender for what the syntax and semantics of this sentence actually look like. But it will be useful to have something concrete to work with.



⁴ Some head should presumably convert the denotation of the whole sentence into a set of possible worlds or situations, and there might also be heads that contribute illocutionary force. I omit all these for simplicity's sake and write as if the denotations of sentences were truth values. I also do not properly take account of the indexical nature of tense, which presumably must make reference to the time of utterance. I gesture toward this with the term *now* in the metalanguage, which is supposed to be an indexical taking as its value the time of utterance on each occasion of use.

2.1.2 *Pronouns and Names* I will follow Postal 1966, Longobardi 1994, Elbourne 2001, 2005, Neale 2005, and other works in assuming that pronouns are basically determiners. In particular, third person pronouns are definite articles whose complements must be phonologically null (Elbourne 2001, 2005); these complements can be referential indices, which I take to be of type $\langle e, t \rangle$, or they can be normal NPs unpronounced because of NP-deletion. For example, the index 2 in what we would normally write as *he*₂ might be interpreted, by means of a variable assignment mapping 2 to John, as $[\lambda x.x = \text{John}]$; since *he* has the same meaning as *the* (give or take ϕ -features), the interpretation of pronoun plus index in this case will be ‘the unique x such that x is identical to John’, or, in other words, ‘John’. (I prefer to write [he 2], with the index adscript to indicate that it is a lexical item of type $\langle e, t \rangle$.) This position has the advantage of unifying the referential and bound occurrences of pronouns with their use as donkey anaphors (Elbourne 2005), assuming a theory whereby donkey pronouns are analyzed as taking a silent NP argument (Elbourne 2001, 2005).

I will follow Burge 1973, Recanati 1993, Larson and Segal 1995, and Elbourne 2005 in assuming that names are basically nouns. We often see them occurring with overt determiners, as in (24).

- (24) a. An embattled Tony Blair addressed the Commons this afternoon.
 b. Which Alfred did you mean? This Alfred?

When they appear to stand alone, they will be preceded by a special phonologically null definite determiner THE. This is paralleled by those languages like Modern Greek and some dialects of German in which names are regularly preceded by an overt definite article.

As for the semantics of names on this view, Burge’s (1973) basic idea is that, for example, *Alfred* means something like ‘entity called Alfred’, and variants of this have been proposed by the other authors just cited. In Elbourne 2005, I propose that on most occasions of use *Alfred* will mean ‘entity called Alfred and identical to a ’, where a is an individual constant picking out a particular entity called Alfred. In this article, I will just assume things like $[\lambda x.x = \text{Alfred}]$ for the meaning of names, since their exact semantics is orthogonal to the issues of primary concern.

I will assume that nouns, including proper names, are of type $\langle e, t \rangle$, and that definite articles, including pronouns, are functions from predicates of type $\langle e, t \rangle$ to individuals (Heim 1991, Heim and Kratzer 1998, von Stechow 2004, Elbourne 2005), as proposed originally by Frege (1893). The semantics for some relevant expressions is shown in (25).⁵

- (25) $\llbracket \text{the} \rrbracket = \lambda f_{\langle e, t \rangle}. \iota x f(x) = 1$
 $\llbracket \text{him} \rrbracket = \lambda f_{\langle e, t \rangle}. \iota x f(x) = 1$
 $\llbracket \text{cat} \rrbracket = \lambda x.x \text{ is a cat}$
 $\llbracket \text{Alfred} \rrbracket = \lambda x.x = \text{Alfred}$

⁵ The semantics given in (25) is a simplification in that we probably need to embed these lexical entries in a situation semantics or possible-worlds semantics for full adequacy, and treat definite articles as functions from properties to individual concepts (i.e., functions from circumstances of evaluation to individuals), as in Elbourne 2005. I overlook this complication here and continue to operate with an extensional semantics. I also overlook the ϕ -features on the pronouns, for the sake of simplicity.

The semantics of the metalanguage operator $\lceil \iota \rceil$ is as follows: for any function f , the denotation of $\lceil \iota x f(x) = 1 \rceil$ will be of type e , if it is defined; if there is exactly one entity x such that $f(x) = 1$, the denotation of $\lceil \iota x f(x) = 1 \rceil$ will be that very individual; if there is no such individual, the whole expression will have no value. (So the expression in effect introduces a presupposition that there is exactly one such individual, since an utterance containing it will not be felicitous otherwise.) The individual that is the value of the expression will naturally vary from model to model. For example, if our universe is $\{2, 3, 4\}$, then the denotation of $\lceil \iota x x > 3 \rceil$ will be 4; if the universe is $\{2, 3, 5\}$, the value of the same expression will be 5; and if the universe is $\{1, 2, 3\}$, this expression will have no value. This is how definite descriptions differ from constants.

2.2 *Split Antecedents*

Recall the examples of split antecedents in (16)–(18), repeated here as (26)–(28).

- (26) Bob wants to sail round the world and Alice wants to climb Kilimanjaro, but neither of them can, because money is too tight.
- (27) I did everything Mary did. Mary swam the English Channel and Mary climbed Kilimanjaro, and I did too.
- (28) Whenever Max uses the fax or Oscar uses the Xerox, I can't.

(26) seems to be interpreted as something like ‘... neither of them can do what he or she wants to do’. (27) means ‘... I swam the English Channel and climbed Kilimanjaro too’. And (28) seems to mean ‘... I cannot use whichever machine is being used’.

Given that some of these interpretations do not appear to have very close syntactic links to any antecedent VPs, it is tempting at this point to say that we have been on the wrong track all along and that the interpretation of an elided VP can be any property of events that the hearer might reasonably be expected to work out. But this would be going too far. Consider (29), which is taken from Heim 1996.

- (29) The garbage can is full. *I hope that *you* will, for a change.

It is obvious here that the speaker means ‘I hope that you will take out the garbage’. But even though it is easy to work out the intended meaning, this example does not work as a case of VP-ellipsis. There must be a tighter connection with some previous VP.

One rarely considered option that might nevertheless be explored at this stage is to say that the elided VP can be interpreted as any property of events that has *some* syntactic connection with an antecedent VP. For example, we can interpret (26) as ‘... neither of them can do what he or she wants to do’ because the word *want* occurs in a preceding VP. On this theory, (29) would not be felicitous because no plausible VP meaning can be reconstructed that would use any functions contributed by any word in the antecedent VP *is full*. In particular, neither of these words contributes anything from which the meaning ‘take out the garbage’ can be constructed.

This is too unimaginative, though. If we are allowed to create ‘. . . neither of them can do what he or she wants to do’ solely on the basis of the word *want* and a shrewd idea of what the speaker might be driving at, then surely we could construct ‘make the garbage can not be full any more’ from the word *full* and the same kind of shrewd idea. But, to repeat, (29) does not seem to be a successful case of VP-ellipsis, no matter what precise way we think of understanding it.

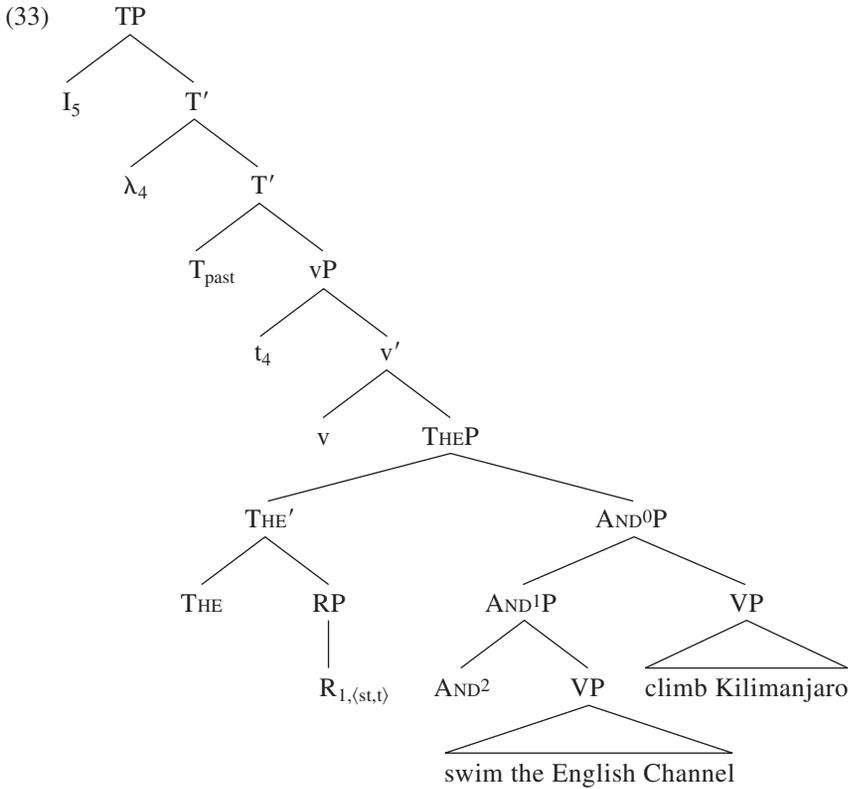
I conclude that in these cases, then, there is in fact a very close connection to the antecedents. For the purposes of this article, I wish to remain neutral between theories that appeal to meaning and theories that appeal to LF structure and lexical content.⁶ As a first step toward analyzing the current examples, let us reexamine them and see if we can come up with paraphrases that seem to incorporate the meanings of the antecedents. My proposal is that the examples are to be paraphrased as in the (b) sentences of (30)–(32), where the phrases in italics hark back to the antecedent VP denotations.

- (30) a. Bob wants to sail round the world and Alice wants to climb Kilimanjaro, but neither of them can, because money is too tight.
 b. Bob wants to sail round the world and Alice wants to climb Kilimanjaro, but neither of them can perform the particular action or actions out of *sailing round the world* and *climbing Kilimanjaro* that they desire.
- (31) a. I did everything Mary did. Mary swam the English Channel and Mary climbed Kilimanjaro, and I did too.
 b. Mary swam the English Channel and Mary climbed Kilimanjaro and I performed the particular action or actions out of *swimming the English Channel* and *climbing Kilimanjaro* that Mary performed.
- (32) a. Whenever Max uses the fax or Oscar uses the Xerox, I can’t.
 b. Whenever Max uses the fax or Oscar uses the Xerox, I can’t perform the particular action or actions out of *using the fax* and *using the Xerox* that are being performed.

It can be seen that one form of paraphrase covers all the examples. Informally, in place of the elided VP we understand ‘perform the particular action or actions out of f_1 and f_2 that have property F ’, for VP meanings f_1 and f_2 and properties of VP meanings F .

I propose to spell out parts of the above paraphrase schema with LF operators. For example, the LF of the final sentence of (31a) will be that shown in (33).

⁶ In all the examples I deal with in this article, the VP or NP at the ellipsis site is in fact identical in its syntax and lexical content to some antecedent phrase. Why, then, do I not just say that this strong kind of identity is required? I wish to keep on the table the possibility that identity in meaning is required in order to maintain the option of dealing with cases of ‘vehicle change’ (Fiengo and May 1994) by saying that different DPs can stand in the relevant reconstruction relation, provided they have the same denotation. (It follows, then, that ‘meaning’ here would have to be something like content as opposed to character, in the terminology of Kaplan 1989.) See Fiengo and May 1994:218–227 for discussion.



There is a special set of lexical items with the following semantics:⁷

$$(34) \text{ For all } n > 0, \llbracket \text{AND}^n \rrbracket^g = \lambda f_{1,(s,t)} \dots \lambda f_{n,(s,t)} \cdot \lambda h_{(s,t)} \cdot h \leq_i f_1 \oplus \dots \oplus f_n$$

The notation is that of Link’s (1983) theory of plurality. An operator AND^n takes n arguments of type $\langle s,t \rangle$ and maps them to the characteristic function of the set of $\langle s,t \rangle$ functions that are part of the plural individual that has all and only the n arguments as atomic parts. In the present case, the sentence contains the following:

$$(35) \llbracket \text{AND}^2 \rrbracket^g = \lambda f_{1,(s,t)} \cdot \lambda f_{2,(s,t)} \cdot \lambda h_{(s,t)} \cdot h \leq_i f_1 \oplus f_2$$

This means that the denotation of AND^0P in the syntax is as in (36). I use the two italicized words to stand for the meanings of the two VPs.

$$(36) \lambda h_{(s,t)} \cdot h \leq_i \textit{swimming} \oplus \textit{climbing}$$

⁷ This is reminiscent of proposals for the meanings of overt *and* and *or* between predicates advanced by Krifka (1990), Lasnik (1995), Winter (1995, 2000), and Simons (2005). In this article, however, I will not attempt to extend the current apparatus to overt coordination.

The point of THE and its argument $R_{1,\langle st,t \rangle}$ is to introduce the modification of the VP meanings that we have seen to be necessary in some of the paraphrases in (30)–(32). In the present case, as it happens, this item is redundant, but I will show the argument $R_{1,\langle st,t \rangle}$ in action for the sake of illustration. (It will play a central role in the analysis of (30a) and (32a); it so happens that (31a) is simple in ways that make it a good introductory example.) Let us assume, then, that $R_{1,\langle st,t \rangle}$ is assigned the value shown in (37).

$$(37) \llbracket R_{1,\langle st,t \rangle} \rrbracket^g = \lambda f_{\langle s,t \rangle} . \exists e (f(e) = 1 \ \& \ \text{Agent}(e, \text{Mary}))$$

This function is not the value of any overt linguistic constituent, but we can assume that this does not matter for LF variables. The mention of Mary doing things makes this function salient enough.

Meanwhile, the operator THE has the denotation in (38), which uses some terminology from Link 1983 defined in (39); $\ulcorner *P \urcorner$ is the plural predicate, the one that characterizes both singular entities that are P and plural entities whose atomic parts are all P .

$$(38) \llbracket \text{THE} \rrbracket^g = \lambda F_{\langle st,t \rangle} . \lambda G_{\langle st,t \rangle} . \sigma f (F(f) = 1 \ \& \ G(f) = 1)$$

$$(39) \sigma x P x := \ulcorner x \urcorner (*P x \ \& \ \forall y (*P y \rightarrow y \leq_i x))$$

In other words, THE takes as its arguments two properties of VP meanings and maps them to the maximal plural individual composed of individuals that satisfy the two arguments. (I use *individual* here not to mean an entity of type e but to mean an atom within the relevant domain, which here is $D_{\langle s,t \rangle}$.)

Given these definitions, the denotation of THEP in (33) is (40a), which in the present context is equivalent to (40b).

$$(40) \text{ a. } \sigma f (\exists e (f(e) = 1 \ \& \ \text{Agent}(e, \text{Mary})) \ \& \ f \leq_i \textit{swimming} \oplus \textit{climbing})$$

$$\text{ b. } \textit{swimming} \oplus \textit{climbing}$$

Moving upward in (33), we come to v and T_{past} , whose denotations are repeated here from (22).

$$(41) \llbracket T_{\text{past}} \rrbracket^g = \lambda p_{\langle s,t \rangle} . \exists t (t < \text{NOW} \ \& \ \text{at } t : \exists e p(e) = 1)$$

$$\llbracket v \rrbracket^g = \lambda p_{\langle s,t \rangle} . \lambda y . \lambda e . p(e) = 1 \ \& \ \text{Agent}(e, y)$$

These lexical entries will still suffice, but we now have to be sure to understand the notion of Agent in such a way that one can be an Agent of plural events. Let us say that one is an Agent of a plural event if and only if one is an Agent, in the normal sense, of all the events that are atomic parts of it. We will also need to make sense of the notion of an event (a plural event, to be sure) satisfying a plural individual made up of VP meanings. Let us say that for any event e and functions f, g of type $\langle s,t \rangle$, $f \oplus g(e) = 1$ if and only if there exist events e' and e'' such that $f(e') = 1$ and $g(e'') = 1$ and $e = e' \oplus e''$.⁸

⁸ See Landman 2000 for a similar proposal.

Assuming the speaker is John, we finally arrive at the truth conditions in (42) for the whole sentence.

$$(42) \exists t(t < \text{NOW} \ \& \ \text{at } t : \exists e(\text{swimming} \oplus \text{climbing}(e) = 1 \ \& \ \text{Agent}(e, \text{John})))$$

In other words, there was in the past a plural event e such that e had as its parts an event of swimming the English Channel and an event of climbing Kilimanjaro and John was the Agent of e , in the new sense whereby he was the Agent of every atomic part of e . These truth conditions seem to be intuitively adequate. Note that variables like t range over time intervals, not instants, and the events making up a plural event do not need to occur at the same time; so John does not need to have swum the English Channel and climbed Kilimanjaro simultaneously.

Before I analyze (30a) (the sentence about the globe-trotting desires of Bob and Alice), I should perhaps be more explicit about the new syntax of VP-ellipsis than I have been so far. The proposal is that a vP can be spelled out by the rules and rule schemas in (43).⁹

$$(43) \begin{array}{ll} \text{vP} & \rightarrow \text{v THEP} \\ \text{THEP} & \rightarrow \text{THE}' \text{ AND}^0\text{P} \\ \text{AND}^n\text{P} & \rightarrow \text{AND}^{n+1}\text{P VP} \\ \text{AND}^n\text{P} & \rightarrow \text{AND}^{n+1} \text{VP} \\ \text{THE}' & \rightarrow \text{THE RP} \\ \text{RP} & \rightarrow \text{R}_{m, \langle \text{st}, t \rangle} \\ \text{RP} & \rightarrow \text{R}_{m, \langle \text{e}, \text{stt} \rangle} \text{ pro}_{l, e} \end{array}$$

I am not aware of any cases where the RP has to contain more than one variable of type e , so I have just listed two cases above; a more sophisticated treatment along the lines of that given to AND^0P could be devised if necessary. We stipulate that THEP s are unpronounced. VP-ellipsis, then, consists of optionally letting little v take THEP as its sister; the VPs in THEP cannot be pronounced and are thus subject to a constraint on recoverability.¹⁰ This constraint either is or has as a consequence the requirement, in most cases, that unpronounced VPs have meanings or LFs that are identical with those of some antecedent.

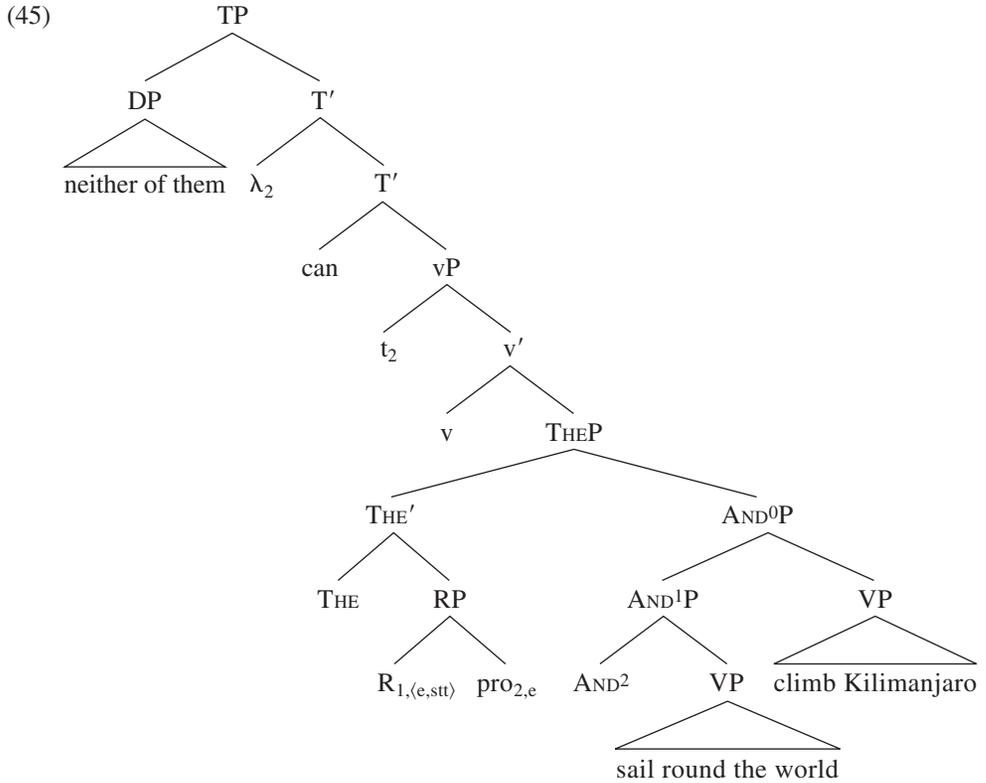
Let us now turn to the analysis of (30a), repeated here as (44).

$$(44) \text{Bob wants to sail round the world and Alice wants to climb Kilimanjaro, but neither of them can, because money is too tight.}$$

The LF for *neither of them can* will be that shown in (45).

⁹ I summarize the syntax in terms of phrase structure rules for the sake of convenience. As far as I can see, the structures postulated are also compatible with a view of syntax in which phrase structure rules are epiphenomenal and are projected from lexical subcategorization properties.

¹⁰ The head THE is thus in some respects analogous to the E feature of Merchant 2001, to appear. Note that cases of ellipsis with only one antecedent will just be trivial instances of the machinery posited in this article. That is, we can suppose that in such cases we are dealing with structures containing only one silent VP or NP, the definite articles of the relevant type, and AND^1 or AND^0 .



The free variable $R_{1,(e,stit)}$ will be assigned a meaning as follows:

$$(46) \llbracket R_{1,(e,stit)} \rrbracket^g = \lambda x. \lambda f_{(s,t)}. x \text{ desires that there be an event } e \text{ such that } f(e) = 1 \text{ and } \text{Agent}(e, x)$$

I will avail myself of the following simple denotations for *can* and *neither of them*:

$$(47) \llbracket \text{can} \rrbracket^g = \lambda f_{(s,t)}. \text{it is possible that there be an event } e \text{ such that } f(e) = 1$$

$$\llbracket \text{neither of them} \rrbracket^g = \lambda f_{(e,t)}. \neg \exists x((x = \text{Bob} \vee x = \text{Alice}) \ \& \ f(x) = 1)$$

Given these denotations, the truth conditions for this example come out as in (48). I use italicized expressions to abbreviate meanings of the VPs.

$$(48) \neg \exists x((x = \text{Bob} \vee x = \text{Alice}) \ \& \ \text{it is possible that there be an event } e' \text{ such that } \sigma f(x \text{ desires that there be an event } e \text{ such that } f(e) = 1 \ \& \ \text{Agent}(e, x) \ \& \ f \preceq_i \text{ sailing} \oplus \text{ climbing})(e') = 1 \ \& \ \text{Agent}(e', x))$$

In other words, there does not exist an individual x such that x is Bob or Alice and it is possible that x be the Agent of an event that satisfies the unique predicate f such that x wants to be the

Agent of an *f*-event and *f* is one of *sailing round the world* and *climbing Kilimanjaro*. This seems to be intuitively adequate.¹¹

The idea of having the variable $R_{1,(e, \text{stt})}$ provide extra descriptive material to modify syntactically more robust material is reminiscent of the approach to quantifier domain restriction that posits variables in the syntax, as proposed by von Stechow (1994), Stanley (2000), and Stanley and Szabó (2000). A simple way of spelling this out would give overt definite descriptions the structure in (49).

(49) [[the $R_{1,(e,t)}$] NP]

Thus, if we think that the semantics of definite descriptions crucially involves uniqueness of the entity satisfying the NP predicate (Frege 1893, Russell 1905), we can account for felicitous uses of *the table*, even though there is more than one table in the world, by saying that the covert variable $R_{1,(e,t)}$ is assigned some descriptive content like *in this room*. This descriptive content would be intersected with the denotation of the NP, leading to a denotation of the whole DP equivalent to ‘the table in this room’. In particular, von Stechow (1994) sometimes places two variables in such positions, one an individual variable bound by the subject, in order to deal with sentences like *Only one class was so bad that no student passed*. We are to understand this example as ‘Only one class *x* was so bad that no student in *x* passed’, where ‘in *x*’ is the contribution of a pair of a relation variable and an individual variable taken as argument by the determiner *no*, as shown in (50).

(50) [[no [$R_{1,(e,et)}$ pro_{2,e}]] student]

This is obviously a very close parallel to the kind of machinery posited here to deal with split antecedents. I maintain, then, that the LF machinery postulated here should not be viewed as being entirely ad hoc; rather, the combination of a determiner plus one or more lexical arguments plus a property or relation variable modifying the lexical arguments is part of a general pattern.

(32a), repeated here as (51a), can be analyzed by the same means, as suggested by the paraphrase in (51b).

- (51) a. Whenever Max uses the fax or Oscar uses the Xerox, I can’t.
 b. Whenever Max uses the fax or Oscar uses the Xerox, I can’t perform the particular action or actions out of *using the fax* and *using the Xerox* that are being performed.

In other words, there will be two small VPs, *using the fax* and *using the Xerox*, and an R variable will be assigned a denotation something like ‘currently being performed’. Working out an exact

¹¹ An anonymous *LI* reviewer points out that we also need to account for examples like (i).

(i) Mary needs to go to the dentist and Bill wants to go shopping, but neither of them can, because the buses are not running.

In this example, the two subjects hold different and not necessarily compatible attitudes (needing vs. wanting) toward the actions they are contemplating. So the content of the free variable R in the syntactic tree for *neither of them can* in this example will have to be something slightly more complicated, perhaps ‘desired or needed by’.

analysis would require us to make decisions regarding what entities *whenever* quantifies over (time intervals? situations?) and whether these are represented in the syntax. The general outlines are clear, however.

There are also examples of split antecedents involving NP-deletion, as we saw in (19), repeated here as (52). I will analyze the variant in (53), which is more revealing of structure since the quantifier *each* actually seems to bind into the deletion site.

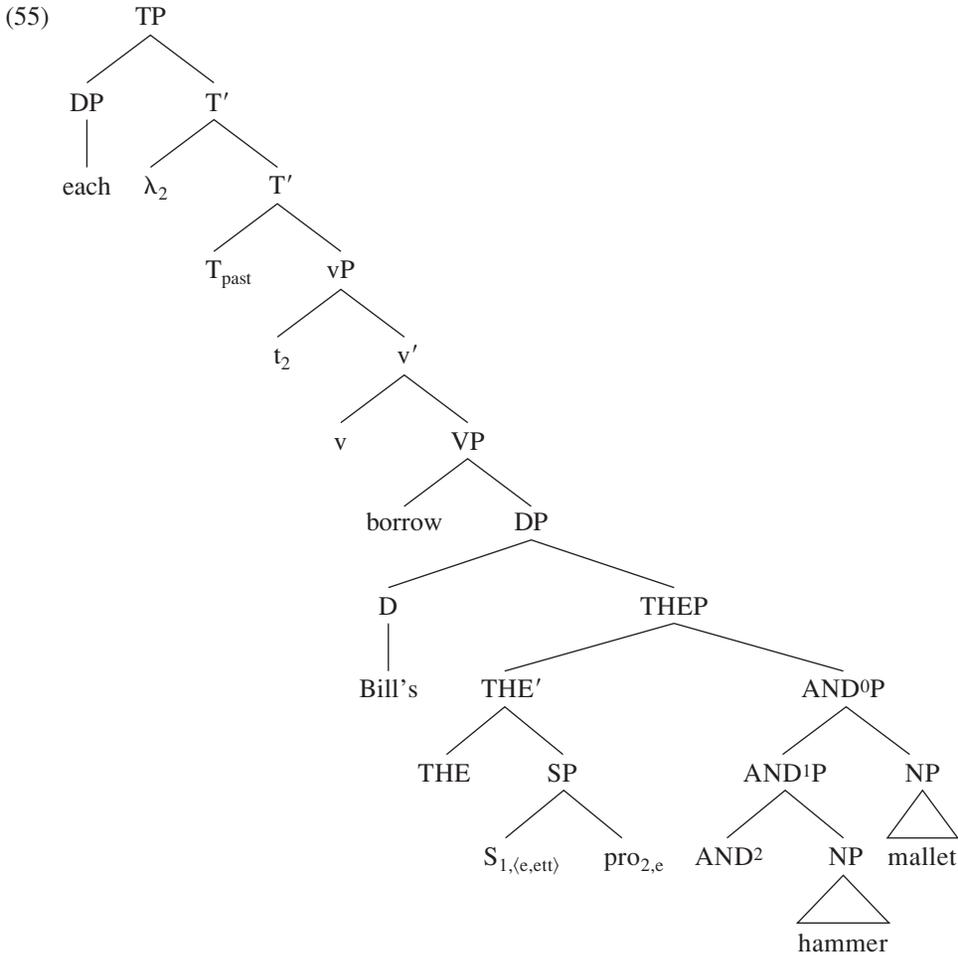
(52) John needs a hammer. Mary needs a mallet. They're going to borrow Bill's.

(53) John needed a hammer. Mary needed a mallet. Each borrowed Bill's.

We will need a set of rules for spelling out silent NPs parallel to the ones given for VPs in (43). The rules and rule schemas in (54) will suffice.

- (54) DP → D THEP
 THEP → THE' AND⁰P
 ANDⁿP → ANDⁿ⁺¹P NP
 ANDⁿP → ANDⁿ⁺¹ NP
 THE' → THE SP
 SP → S_{m,(et,t)}
 SP → S_{m,(e,ett)} prO_{t,e}

Translating the proposal just explored with respect to VP-ellipsis into the NP domain, we arrive, then, at the slightly simplified LF in (55) for the last sentence of (53). I ignore any complexity there may be behind the surface forms *each* and *Bill's*.



The new operators THE and AND² receive the interpretations in (56) and (57), parallel to the interpretations of THE and AND².

$$(56) \llbracket \text{THE} \rrbracket^g = \lambda F_{\langle e,t \rangle} . \lambda G_{\langle e,t \rangle} . \sigma f(F(f) = 1 \ \& \ G(f) = 1)$$

$$(57) \llbracket \text{AND}^2 \rrbracket^g = \lambda f_{\langle e,t \rangle} . \lambda g_{\langle e,t \rangle} . \lambda h_{\langle e,t \rangle} . h \leq_i f \oplus g$$

The nouns *hammer* and *mallet* receive the denotations one might expect, and the free variable $S_{1,\langle e,ett \rangle}$ receives the following interpretation from the variable assignment g :

$$(58) \llbracket S_{1,\langle e,ett \rangle} \rrbracket^g = \lambda x . \lambda f_{\langle e,t \rangle} . x \text{ needs an } f$$

$$(59) \llbracket \text{hammer} \rrbracket^g = \lambda x . x \text{ is a hammer}$$

$$(60) \llbracket \text{mallet} \rrbracket^g = \lambda x . x \text{ is a mallet}$$

I abstract away from the complexities inherent in the analysis of transitive intensional verbs like

need. Allowing ourselves the convenient lexical entries in (61), (62), and (63) for *each*, *Bill's*, and *borrow*, we arrive at the truth conditions in (64) for the last sentence of (53). I use italicized words to abbreviate the meanings of *hammer* and *mallet*.

$$(61) \llbracket \text{each} \rrbracket^g = \lambda f_{(e,t)}. \forall x((x = \text{John} \vee x = \text{Mary}) \rightarrow f(x) = 1)$$

$$(62) \llbracket \text{Bill's} \rrbracket^g = \lambda f_{(e,t)}. \iota x(x \text{ is Bill's} \ \& \ f(x) = 1)$$

$$(63) \llbracket \text{borrow} \rrbracket^g = \lambda x. \lambda e. \text{borrowing}(e) \ \& \ \text{Theme}(e,x)$$

$$(64) \forall x((x = \text{John} \vee x = \text{Mary}) \rightarrow \exists t(t < \text{NOW} \ \& \ \text{at } t : \exists e(\text{borrowing}(e) \ \& \ \text{Agent}(e,x) \ \& \ \text{Theme}(e,\iota y(y \text{ is Bill's} \ \& \ \sigma f(x \text{ needs an } f \ \& \ f \leq_i \text{ hammer} \oplus \text{ mallet})(y) = 1))))))$$

The claim, then, is that the last sentence of (53) is true if and only if, for all x such that x is Mary or John, x was the Agent of a borrowing event whose Theme was the unique item of Bill's that satisfied the unique predicate f such that x needed an f and f was one of *hammer* and *mallet*. This seems to be accurate.

2.3 The Risk of Overgeneration

There is an obvious concern that this powerful system might overgenerate. I do not think that this concern is as weighty as may first appear, however.

Let us consider the following examples, which are adduced by Prüst, Scha, and Van den Berg (1994:317):

(65) Maaïke dances. She sings. Saskia does too.

(66) Maaïke dances. Brigitte sings. Saskia does too.

Prüst, Scha, and Van den Berg report the intuition that a split antecedent reading ('Saskia dances and sings') is available for (65) but not for (66). Identical intuitions are reported by Fiengo and May (1994:199) for very similar examples. This is a *prima facie* difficulty for the approach advocated here, since it looks like we should be able to get a reading for (66) that could be paraphrased as 'Saskia performs the action or actions out of *singing* and *dancing* that are performed by Maaïke and Brigitte', to use the earlier schema.

There are a couple of avenues to explore at this point. One, of course, is to say that the current system is too powerful and should be replaced by one that would mechanically rule out examples like (66) in the syntax or semantics. This is problematic, however, since (65) and (66) form a minimal pair. The fact that the split antecedent reading is available for (65), which differs from (66) only in that the two antecedent sentences have the same subject in (65), leaves no evident option for the seeker of a syntactic or semantic solution other than to say that split antecedent readings are unavailable when the antecedent VPs have different subjects. This is in fact the route taken by Prüst, Scha, and Van den Berg (1994). But then this would predict that (16) and (18) would be ungrammatical in split antecedent readings, when, as we have seen, they are in fact perfectly fine.

I think it is more likely, then, that the solution to the problem raised by (65) and (66) (and other apparent examples of overgeneration) is to be found in a pragmatic or information-theoretic

hypothesis. This is the line taken by Fiengo and May (1994:199). Their examples are the following:

(67) I play tennis and I swim, and Max does too.

(68) I play tennis and you swim, and Max does too.

They say that *I play tennis and I swim* could be used as an answer to what they call a “singular question,” something like *Who both plays tennis and swims?*, as opposed to *I play tennis and you swim*, which could only be an answer to what they call a “complex question,” something like *Who plays tennis and who swims?* They propose, then, that *I play tennis and I swim* has a kind of information-theoretic unity that *I play tennis and you swim* does not. They call the unit in question a *discourse sentence* and propose that the antecedents of ellipsis must be drawn from the same discourse sentence.

Now one can raise questions about the precise notion of discourse sentence proposed by Fiengo and May. (With a little effort at constructing a context, for example, one could imagine *I play tennis and you swim* being said in response to an apparently simple question like *What do we do now?*) But I think that the general line they propose is worthy of being developed, and I would like to suggest a variant. I propose that split antecedent readings are available only if the context gives the audience some reason to entertain them.

This formulation is admittedly vague, so let me give some idea of what I mean, by commenting on specific examples. Take the three well-known cases on which we have concentrated so far:

(69) Bob wants to sail round the world and Alice wants to climb Kilimanjaro, but neither of them can, because money is too tight.

(70) I did everything Mary did. Mary swam the English Channel and Mary climbed Kilimanjaro, and I did too.

(71) Whenever Max uses the fax or Oscar uses the Xerox, I can't.

In the case of (69), I submit that the change to a subject (*neither of them*) that has to be interpreted as quantifying over both the previously mentioned subjects is responsible for making salient the possibility of an ellipsis interpretation that involves both the previously mentioned actions. Note that there is no such change in (66) and (68), where no split antecedent interpretation seems to be available. In (70), the split antecedent reading that we obtain is practically announced in advance by the lead-in *I did everything Mary did*; but it is reasonable to believe that if one asserts that one person does two things and then, with ellipsis, asserts that a second does too, one will be interpreted as asserting that the second person does the two things one mentioned. This would account for the acceptability of the much sparser (65) and (67) in their split antecedent readings. And in (71), the actions of using the fax and using the Xerox are grouped together in the *whenever* clause and established as being parallel in a certain way, as being the conditions under which something else obtains; this is surely ample reason to consider building up the meaning of the ellipsis using both of them. No such factors, I submit, obtain in the cases of (66) and (68).

If this approach is on the right track, we would expect that in at least some cases we would be able to take examples that seemed at first sight to lack split antecedent readings and show that they in fact have such readings when placed in the right context. And indeed the reading ‘Saskia sings and dances’ becomes available if we give (66) the right kind of context.

- (72) Saskia, being a competitive type, has managed to acquire all the skills that Maaike and Brigitte possess. Maaike dances. Brigitte sings. Saskia does too.

Consider also the following slight variant:

- (73) Maaike dances. Brigitte sings. Saskia doesn’t.

Imagine that we are explaining why we think that Maaike and Brigitte are certain to do better than Saskia in a talent contest. Then the reading ‘Saskia doesn’t sing or dance’ becomes quite easy to obtain, as the current theory would predict.¹²

2.4 *Ellipsis-Containing Antecedents*

Recall example (12), repeated here as (74).

- (74) When John had to cook, he didn’t want to. When he had to clean, he didn’t either.

The issue here is how to obtain the reading ‘When John had to clean, he did not want to clean’.

Given the theory of split antecedents just outlined, a simple solution suggests itself for this case. I propose that we are dealing with split antecedents here too. In particular, to use the schema in (30), I propose that the second ellipsis site is to be analyzed as meaning something like ‘want to perform the particular action or actions out of *cook* and *clean* that he had to perform then’. And I propose that the antecedent to this ellipsis, *want to* in the previous sentence, is to be analyzed as meaning exactly the same thing.

It is obvious that this will produce the correct readings. Since the elided and antecedent VPs will be identical, there is also no problem in licensing the ellipsis. And there is no problem in supposing that the second ellipsis site can have the meaning postulated for it, since cooking and cleaning have both been mentioned by then. The question is, then, whether the first ellipsis site can be interpreted as ‘perform the particular action or actions out of *cook* and *clean* that he had to perform then’, when cleaning is not mentioned until afterward.

We can answer this question in the affirmative. There is no problem in general in supposing that an ellipsis site can draw upon material that follows it, as in (75) and (76).

- (75) None of us have, but we all think we should help John.

- (76) Every pilot who shot at some hit the MiGs that were chasing him.

¹² See Frazier and Clifton 2001:8 for relevant discussion of the parsing of split antecedent examples.

Crucially, there are also parallels for the precise configuration that would be involved in (74) under the current analysis. The current analysis postulates that the first ellipsis site in this example, which occurs in the main clause of the first sentence, can draw upon material that occurs in a subordinate clause at the start of the following sentence. Exactly the same thing appears to take place in (77).

(77) John didn't at first. But when the rest of us helped Mary, he did too.

It is also conceivable that the first ellipsis site in (77) in fact draws upon unpronounced material in the second ellipsis site; this second ellipsis site would be drawing on material in the subordinate clause that immediately precedes it. If this second putative procedure is possible, it is presumably possible with respect to the predicate *clean* in (74) too, since, by hypothesis, this predicate would appear both in the subordinate clause at the beginning of the second sentence and in an ellipsis site at the end of it. (77), then, is a very close parallel to the structure posited for (74). Since (77) is perfectly natural, we must conclude that the structure posited for (74) is entirely possible.

It could be objected, of course, that the current case is importantly different from the above examples, in that the first ellipsis site in (74) allegedly involves split antecedents, at least one of which follows it. There is independent support, however, for the claim that ellipsis with split antecedents that follow the ellipsis site is indeed possible.

(78) Neither of them can, but Bob wants to sail round the world and Alice wants to climb Kilimanjaro.

(79) Although I didn't, Mary swam the English Channel and Mary climbed Kilimanjaro.

(80) Whenever I want to, Max uses the fax or Oscar uses the Xerox.

It might further be objected that these sentences are not exact parallels to the current analysis of (74), in that one of the alleged antecedents in (74) comes before the first ellipsis site, while the other one follows it. Would there not be a garden path effect, whereby a hearer would assume that the first ellipsis site had to be analyzed as *cook* and would then have a conscious feeling of having to reanalyze it upon realizing that cleaning was relevant too? One might expect so,¹³ but in fact the following sentence, where one antecedent comes before the ellipsis site and might reasonably be expected to cause a garden path effect, is quite natural in a split antecedent reading:

(81) Talking about sailing round the world, although neither of them can, Bob wants to sail round the world and Alice wants to climb Kilimanjaro.

Perhaps there are slight garden path effects in both (74) and (81), but they are too small to be accessible to consciousness. The matter would have to be adjudicated in a processing experiment.

¹³ Note, however, that (74) is most naturally pronounced with anticipatory contrastive stress on *cook* (and then retrospective contrastive stress on *clean*), which signals even while the first sentence is being pronounced that *cook* is going to be a member of a pair of properties that are viewed as parallel in some respect (Rooth 1992b); it is quite conceivable, then, given this acoustic clue, that a hearer might refrain from building a definitive representation of the first ellipsis site until the nature of this parallelism became clear.

To summarize, the proposed grammar predicts that the split antecedent analysis in question is available for the first sentence of (74), since split antecedent readings are generally available and there is nothing wrong with an ellipsis site drawing on material that follows it. And the prediction is correct, since the reading thereby made possible for the second sentence is indeed available.

This theory explains why a variant of (74) with no ellipsis in the first sentence does not have the reading in question.

(82) When John had to cook, he didn't want to cook. When he had to clean, he didn't either.

This can only mean 'When he had to clean, he did not want to cook'. This is expected according to the current theory because the overt VP *cook* at the end of the first sentence will not be able to partake of the silent LF structure that allows split antecedents. It must consist only of the VP *cook*, and the meaning 'want to cook' is therefore obligatory at the later ellipsis site.

The other examples of ellipsis-containing antecedents, those in (13)–(15), will be analyzed along analogous lines.

Finally, note that the current analysis of ellipsis-containing antecedents is quite compatible with the following datum, which to my knowledge has not been noted before:

(83) When Bob had to sail round the world and Alice had to climb Kilimanjaro, they didn't want to; and when Bob had to swim the English Channel and Alice had to climb K2, they didn't either.

That is, the first elided VP in an ellipsis-containing-antecedent case can draw upon split antecedents; then the second VP-ellipsis can draw upon a different pair of split antecedents. The current theory can handle this example with no ad hoc additions: we simply suppose that distributive interpretation is available for *they*, as generally acknowledged (Link 1983, Heim, Lasnik, and May 1991); and we suppose that the VPs in question mean something like 'want to perform the action or actions out of *sailing round the world*, *climbing Kilimanjaro*, *swimming the English Channel*, and *climbing K2* that they had to perform then'. (83) throws into vivid relief the fact that theories of the normal split antecedent cases and theories of the ellipsis-containing-antecedent cases will have to be mutually compatible and closely integrated; this requirement is obviously met easily by a theory according to which they are in fact the same phenomenon.

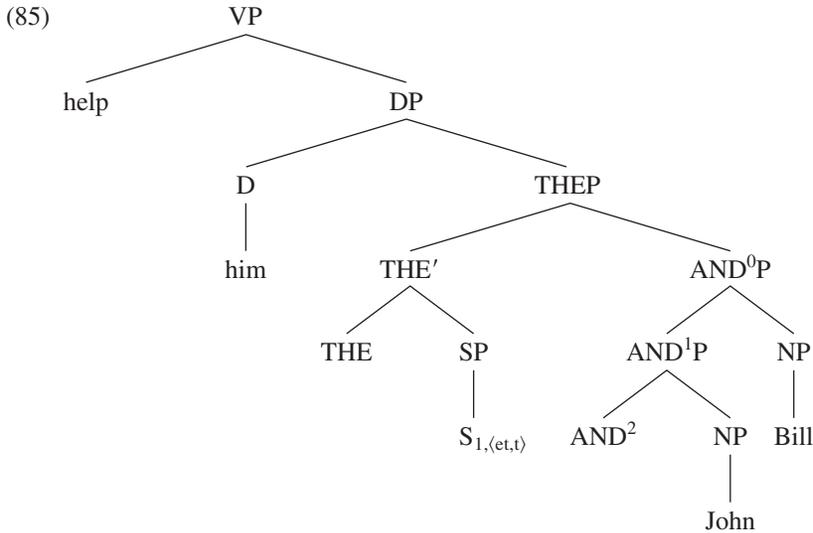
2.5 Binderless Sloppy Readings

Recall the cases of binderless sloppy readings in (8)–(11), of which (84) is an example.

(84) If John has trouble at school, I'll help him, but if Bill does, I won't.

The problem is how to obtain the reading '... if Bill has trouble at school, I won't help Bill'.

I believe, in fact, that these examples should be analyzed as being precisely parallel to the cases of ellipsis-containing antecedents. Given the treatment of pronouns and proper names set out in section 2.1.2, the overt *help him* and the final ellipsis site can both have the structure in (85).



The variable S here could have a meaning something like $[\lambda f_{\langle e,t \rangle}. \text{every individual } x \text{ such that } f(x) = 1 \text{ is having trouble at school}]$. This would mean that the VP as a whole would have the meaning in (86).

- (86) $\lambda e.e$ is an event of helping the unique individual x such that x satisfies the unique predicate f such that f is *being identical to John* or *being identical to Bill* and every individual who satisfies f is having trouble at school.

In other words, the VP *help him* turns out to mean something like ‘help the one out of John and Bill who is having trouble at school’. This seems to be intuitively adequate.

In this example, then, the answer lies in treating the pronoun *him* as a donkey pronoun, assuming that donkey pronouns are to be treated as definite descriptions (Cooper 1979, Heim 1990, Neale 1990, Elbourne 2005).¹⁴ I am in fact, then, just suggesting a slight variant of the theory in Tomioka 1999, where exactly this solution has already been proposed for these cases.

The other examples in (8)–(11) will be treated analogously.

3 Previous Literature

In this section, I compare the theory advocated here with some other theories that try to cover some or all of the cases discussed here. Because of space constraints, I concentrate on the work of Fiengo and May (1994) and Hardt (1999).¹⁵

¹⁴ See especially Elbourne 2001, 2005, where I argue that the descriptive content in donkey pronouns is obtained by NP-deletion.

¹⁵ There are five theories worthy of note that I do not deal with in the main text. The first two are the higher-order unification theory of Dalrymple, Shieber, and Pereira (1991) and the discourse grammar theory of Prüst, Scha, and Van

3.1 *Fiengo and May 1994*

Fiengo and May (1994) attempt to account for binderless sloppy readings (and other data) by means of a complex system that exploits isomorphism of patterns of indices in trees. I will not attempt to summarize this theory here.¹⁶

Fiengo and May (1994) analyze split antecedent cases such as (87).

(87) I did everything that Mary did. Mary swam the English Channel, and Mary climbed Kilimanjaro, and I did too.

About this example, they say the following (1994:195):

In this sentence, what is elided are occurrences of the VPs *swim the English Channel* and *climb Kilimanjaro* (and an occurrence of the conjunction *and*). This is all we need to know to “recover” the ellipsis—that is, that the final clause is *I swam the English Channel and climbed Kilimanjaro*. That the elided occurrences must be conjoined in the representation of ([87]) just follows from the way they can “fit” into its structure.

Using the notion of discourse sentence introduced in section 2.3, they further suggest the following (1994:200), referring to examples like (18) (*Whenever Max uses the fax or Oscar uses the Xerox, I can't*):

As a general rule, the discourse sentence is also the domain from which the elided coordinating element is drawn. In a case of disjunction, for instance, *or* is reconstructed.

It appears, then, that Fiengo and May are assuming that a conjunction must be reconstructed somehow on the basis of the linguistic environment.

It might seem that in the case of (18) Fiengo and May risk predicting the wrong reading. That is, it looks like they will predict that the sentence containing the elided VP will be *I can't use the fax or use the Xerox*, which should turn out to mean ‘I can't do either’. But they accurately point out (1994:200) that the following sentence, which is a spelled-out version of what they

den Berg (1994). The former deals with binderless sloppy readings and might be extended to deal with (31a), the sentence about Mary swimming the English Channel and climbing Kilimanjaro; but it does not attempt to deal with ellipsis-containing antecedents and the other split antecedent cases, and I see no way of extending it so that it would. Prüst, Scha, and Van den Berg (1994) also account for cases like (31a), but they do not attempt to deal with the other split antecedent cases, the binderless sloppy readings, or the ellipsis-containing antecedents, and again I see no way of extending their theory to achieve better coverage. See section 2.3 for further discussion of this article. The third theory is that of Rooth (1992a), which analyzes some cases of binderless sloppy readings; it does not, however, offer any analysis of ellipsis-containing antecedents or split antecedents. The fourth theory, that of Schwarz (2000:chap. 5), offers an analysis of ellipsis-containing antecedents whereby VPs implausibly move out of *when*-clauses; it does not attempt to analyze binderless sloppy readings or split antecedents. Finally, Merchant, to appear, contains a neat solution to the problem of ellipsis-containing antecedents that might possibly be generalized to the problem of binderless sloppy readings, given the assumptions in section 2.1.2; it does not, however, generalize to the conventional split antecedent cases, as far as I can see.

¹⁶ It should be noted, however, that when Fiengo and May 1994 appeared, Rooth (1992a:18) had already published the following counterexample to Fiengo and May's theory:

- (i) Yesterday John's boss told him to shape up, and today Bill's boss did.
- (ii) Yesterday the guy John works for told him to shape up, and today Bill's boss did.

Since *John* and *Bill* do not occupy isomorphic positions in their respective sentences in (ii), it is unclear that Fiengo and May's account correctly predicts the sloppy reading here.

predict for the ellipsis case, does in fact have the reading that the version with ellipsis seems to have (possibly among others):

- (88) Whenever Max uses the fax or Oscar uses the Xerox, I can't use the fax or use the Xerox.

Fiengo and May do not attempt to say how this reading arises. But they do arrive at reconstructed VPs that would be expected, by comparison with corresponding overt ones, to yield the right readings, and so the theory does arguably produce the right results for these cases.

It seems problematic for this theory, however, that there are split antecedent cases where there is no suitable conjunction in the linguistic environment (Elbourne 2001:277–278).

- (89) Mary swam the English Channel. Mary climbed Kilimanjaro. I did too.
 (90) I think Mary needs a hammer. No, wait, maybe John needs a mallet. In any case, they're going to borrow Bill's.
 (91) Mary needs a hammer. John needs a mallet. They're going to borrow Bill's.

It is unclear to me how examples like these could be dealt with in Fiengo and May's theory of split antecedent cases. They pose no problem for the theory advocated here, of course, since this theory does not rely on a conjunction's being present in the linguistic environment.

One might contemplate a variant of Fiengo and May's theory according to which the meanings of overt *and* and *or* were always available in split antecedent cases, even without linguistic antecedents. Perhaps they are just very basic linguistic building blocks and are generally available. The prediction would then be that the meaning of an ellipsis site with split antecedents VP_1 and VP_2 , for example, would, informally speaking, be that of either VP_1 *or* VP_2 or VP_1 *and* VP_2 . Interestingly, it seems that this is false, as we can see from the following example:

- (92) (*Luciano Pavarotti and Mikhail Baryshnikov have agreed to take part in a benefit concert. Naturally, Pavarotti wants to sing in the concert and Baryshnikov wants to dance. But the organizer has heard terrifying rumors to the effect that Pavarotti wants to dance in the concert and Baryshnikov wants to sing. So she has told Pavarotti that he can sing but not dance, and Baryshnikov that he can dance but not sing.*)
- a. Pavarotti wants to sing in the benefit concert and Baryshnikov wants to dance. Both can.
 - b. Pavarotti wants to sing in the benefit concert and Baryshnikov wants to dance. Both can sing and dance.
 - c. Pavarotti wants to sing in the benefit concert and Baryshnikov wants to dance. Both can sing or dance.

Native speakers judge that (92a) is true in the scenario given and that (92b) and (92c) are false. So split antecedent meanings cannot always be constructed from the antecedents and the meanings available to overt *and* or *or*, as claimed by Fiengo and May.

Fiengo and May (1994) do not deal with cases of ellipsis-containing antecedents.

3.2 Hardt 1999

As far as I know, Hardt's (1999) theory is the only one previously published that attempts to account for binderless sloppy readings, ellipsis-containing antecedents, and split antecedents. I will begin my discussion with an informal summary of how Hardt analyzes binderless sloppy readings and ellipsis-containing antecedents.

Hardt uses a dynamic semantics incorporating a notion of *discourse center*, based on the Centering framework of Grosz, Joshi, and Weinstein (1995). In particular, discourse representation structures (the "boxes" of traditional Discourse Representation Theory; Kamp 1981) contain special discourse markers (variables) assigned to the *center* (roughly, topic) of the discourse. This enables Hardt to explain binderless sloppy readings along the following lines. Take (93).

- (93) If Tom was having trouble in school, I would help him. If Harry was having trouble, I wouldn't.

In the first sentence, the discourse center is Tom. The overt pronoun *him* is translated by a special discourse marker assigned to the center. So *help him* means something like 'help the current center'. This meaning is then understood at the ellipsis site; more precisely, it is assigned as the value of the I(nfl) of the second sentence, which is a deictic element in this theory. In the meantime, however, the center has changed. Harry is the discourse center of the second sentence. So the second sentence ends up meaning 'I wouldn't help Harry', as desired.

The same principle can be used in cases of ellipsis-containing antecedents. Take our standard example.

- (94) When John had to cook, he didn't want to. When he had to clean, he didn't either.

Hardt supposes that in the first sentence the discourse center is the property of cooking. The first VP-ellipsis is resolved by taking *to* to be a deictic expression that picks up the property that is the current center. We arrive at the meaning 'want to cook', then, for the end of the first sentence. The value of the deictic I of the second sentence is taken to be the Discourse Representation Theory representation of *want to*, something interpretable as 'want to perform the kind of action that is the current center'. And again, by the time we get to this point the center has shifted, according to Hardt. It is now the property of cleaning, and so the correct interpretation is obtained.

Even from this informal summary, it can be seen that it is important to Hardt's system that there is no syntactic structure, or at least no syntactic complexity, at ellipsis sites. The correct interpretation is arrived at by assigning the I of the ellipsis sentence denotations involving variables picking out the current center. (One could also imagine a variant in which there was a deictic element in the VP position, as opposed to having I do this job.) But this feature of the theory, which lends it a useful flexibility and power, means that it is ill equipped to deal with cases where movement seems to take place from ellipsis sites, as in the following examples:

- (95) Which book did John read? And which book did Bill?

- (96) John read every book that Bill did.

See Johnson 2001 for a summary of the controversy about whether theories without normal syntactic structures in the ellipsis sites can deal with examples like these. The upshot is not encouraging for those theories, and things seem especially difficult for the particular version that Hardt puts forward, according to which there is nothing whatsoever in ellipsis sites. By contrast, the theory advocated here has normal syntactic structure in all ellipsis sites.¹⁷

Let us next consider Hardt's treatment of split antecedents (Hardt 1999:206–211). This does not exploit the dynamic aspects of his system. Instead, it relies on the auxiliary that precedes the VP-ellipsis site carrying two referential indices.

To explain, in Hardt's treatment of simple cases of ellipsis, the relevant auxiliary carries one referential index, as in (97).

(97) Tom walks. John does₁ too.

There is no syntactic structure in the VP position. The index 1, which is of the semantic type of VPs, is simply assigned the contextually salient property of walking by the variable assignment, and the right result is obtained.

In a split antecedent example, the relevant auxiliary carries two indices (Hardt 1999:207).

(98) I can walk, and I can chew gum. Gerry can_{1,2} too, but not at the same time.
(Webber 1978)

These indices now contribute a set of two properties (walking and chewing gum) to the interpretation of the sentence.

By itself, of course, this is not an account of how the ellipsis sentence comes to mean what it does. First, let us note a point left unmentioned by Hardt himself: that, contrary to the case of *does*, which we can imagine to be a pro-form whose semantic contribution is exhausted by the contribution of the index it bears, *can* actually must have a meaning of its own, independent of the indices. How the contribution of the indices and the contribution of the normal meaning of *can* are reconciled is not made clear. Presumably, *can* bearing an index will have to be a function that takes the value of the index as its argument, while *can* without an index and with a normal VP sister will have to be a different kind of function, one that takes the value of its sister as its argument. This would not be impossible to implement, as far as I know; but it is rather ungainly compared with systems that allow auxiliaries always to combine with their sisters in the normal way.

Having noted this preliminary point, let us see what Hardt says about the compositional interpretation of (98). Recall that the indices on *can* now denote a set of properties. Hardt says this (1999:207):

¹⁷ Hardt's theory also arguably faces a technical difficulty connected with his treatment of alphabetic variants in dynamic semantics; see Elbourne 2005:31–33 for discussion.

A simple rule for the interpretation of such set-denoting expressions is the following:

Given some set expression E appearing in a proposition $P(E)$, we have $\forall x.x \in E.P(x)$.

... In example ([98]), the antecedent for $can_{\{1,2\}}$ is the set E of properties {walk, chew gum}. By the above rule, we have: for every $P \in E$, Gerry can P .

It is notable that this treatment does not use the normal mechanisms of compositionality. It consists of a syncategorematic rule. Compositionality is still maintained, but the addition to the grammar of a syncategorematic rule narrowly tailored to a particular circumstance must be regarded as uneconomical, and hence undesirable.

As yet we have looked at only one example, for which the interpretation of the ellipsis site was a fairly straightforward conjunction of VP meanings. In addition to positing the rule that accomplishes the interpretation of this example, Hardt claims that we must allow that “more complex mappings between set expressions are possible” (1999:208). He offers the following example, a modification of (16). The superscript numbers indicate the values taken by the later subscript indices; superscripts on *to* indicate that the following VP meaning will be contributed.

(99) Wendy¹ is eager to² sail round the world and Bruce³ is eager to⁴ climb Kilimanjaro, and they_{1,3} will_{2,4}, if they have enough money.

Here is what Hardt says about this example (1999:208):

The interpretation of $they_{\{1,3\}} will_{\{2,4\}}$ does not involve all possible mappings, but rather maps 1 to 2 and 3 to 4. Thus the interpretation is: Wendy will sail round the world, and Bruce will climb Kilimanjaro.

It is not clear, however, exactly what is to take place. No compositional mechanism for achieving the desired outcome is given, just the rather vague idea that Wendy will be associated with sailing round the world and Bruce with climbing Kilimanjaro. We cannot, then, regard this treatment as being sufficiently detailed.

Even though the treatment just given is not very detailed, it may be explicit enough to be falsified. The idea seems to be that the people we are talking about are to be associated with one particular VP meaning and that this is predicated of them. But the examples in question do not all seem to be analyzable along these lines. Recall (90), repeated here as (100).

(100) I think Mary needs a hammer. No, wait, maybe John needs a mallet. In any case, they're going to borrow Bill's.

The final sentence here does not mean ‘Mary is going to borrow Bill's hammer and John is going to borrow Bill's mallet’. Rather, it means ‘John and Mary will collectively borrow whichever tool of Bill's it is that they need, hammer or mallet’. It is not too difficult to construct a parallel example in the VP realm.

(101) I think Mary wants to sail round the world. No, wait, maybe she wants to climb Kilimanjaro. In any case, I'm sure she will.

The final sentence does not claim that Mary will do both these things, and it does not claim of one of them in particular that she will do it; it claims that she will do whichever one of them she

wants to do. It is hard to see how these two examples could be analyzed by means of the idea that seems to underlie Hardt's remarks. The system proposed here, on the other hand, has no problem with them.

4 Conclusion

In this article, I have proposed that split antecedent readings arise because of silent structure that makes unpronounced VPs and NPs into definite descriptions defined on the relevant semantic types.¹⁸ These definite descriptions would have to include not only definite articles and normal lexical material but also the variables R and S modifying the lexical material. The content of these variables is constructed by the audience on the basis of contextually salient properties or relations. As emphasized in section 2.2, this recalls the structure posited for overt definite descriptions by von Stechow (1994), Stanley (2000), and Stanley and Szabó (2000), among others.

The system proposed here maintains some of the assumptions of what in section 1 I called the composite view. To be precise, it preserves the theses that an elided phrase generally requires a linguistic antecedent and that the relationship between elided phrase and antecedent is one of identity of Logical Form or meaning. Thus, it opposes the contention of Hardt (1999) and other authors that the data discussed here raise serious problems for these aspects of the composite view. However, it replaces the third component of the composite view, that strict and sloppy readings are due to relevant pronouns' being referential or bound, with a different system.

References

- Burge, Tyler. 1973. Reference and proper names. *Journal of Philosophy* 70:425–439.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Cooper, Robin. 1979. The interpretation of pronouns. In *Selections from the Third Groningen Round Table*, ed. by Frank Heny and Helmut Schnelle, 61–92. Syntax and Semantics 10. New York: Academic Press.
- Dalrymple, Mary, Stuart Shieber, and Fernando Pereira. 1991. Ellipsis and higher-order unification. *Linguistics and Philosophy* 14:399–452.
- Davidson, Donald. 1967. The logical form of action sentences. In *The logic of decision and action*, ed. by Nicolas Rescher, 81–95. Pittsburgh, PA: University of Pittsburgh Press.
- Elbourne, Paul. 2001. E-type anaphora as NP-deletion. *Natural Language Semantics* 9:241–288.
- Elbourne, Paul. 2005. *Situations and individuals*. Cambridge, MA: MIT Press.
- Fiengo, Robert, and Robert May. 1994. *Indices and identity*. Cambridge, MA: MIT Press.

¹⁸ Since I have concentrated on VP-ellipsis and NP-deletion in this article, we should also ask whether the LF apparatus introduced here has counterparts in other kinds of ellipsis too, such as pseudogapping and sluicing. The answer presumably depends on whether other kinds of ellipsis display split antecedent effects. A possible indicator in the case of sluicing is (i).

(i) Either John called someone or Mary called someone, but I don't know who.

The most obvious reading of this sentence is '... but I don't know who called someone'. However, it also seems to have the reading '... but I don't know who was called by whichever one of them it was'. This is arguably a split antecedent reading: we could paraphrase it as '... but I don't know which individual *x* is such that *John called x* or *Mary called x* is true'. This split antecedent reading constitutes evidence for extending the present theory at least to sluicing.

- von Fintel, Kai. 1994. Restrictions on quantifier domains. Doctoral dissertation, University of Massachusetts, Amherst.
- von Fintel, Kai. 2004. Would you believe it? The King of France is back! (Presuppositions and truth-value intuitions.) In *Descriptions and beyond: An interdisciplinary collection of essays on definite and indefinite descriptions and other related phenomena*, ed. by Anne Bezuidenhout and Marga Reimer, 315–341. Oxford: Clarendon Press.
- Frazier, Lyn, and Charles Clifton, Jr. 2001. Parsing coordinates and ellipsis: Copy α . *Syntax* 4:1–22.
- Frege, Gottlob. 1893. Über Sinn und Bedeutung. *Zeitschrift für Philosophie und Philosophische Kritik* 100: 25–50.
- Grinder, John, and Paul Postal. 1971. Missing antecedents. *Linguistic Inquiry* 2:269–312.
- Grosz, Barbara, Aravind Joshi, and Scott Weinstein. 1995. Centering: A framework for modeling the local coherence of discourse. *Computational Linguistics* 21:203–225.
- Hankamer, Jorge, and Ivan Sag. 1976. Deep and surface anaphora. *Linguistic Inquiry* 7:391–426.
- Hardt, Dan. 1999. Dynamic interpretation of verb phrase ellipsis. *Linguistics and Philosophy* 22:187–221.
- Heim, Irene. 1990. E-type pronouns and donkey anaphora. *Linguistics and Philosophy* 13:137–177.
- Heim, Irene. 1991. Artikel und Definitheit. In *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*, ed. by Arnim von Stechow and Dieter Wunderlich, 487–535. Berlin: Walter de Gruyter.
- Heim, Irene. 1996. Lecture notes on ellipsis. Ms., MIT, Cambridge, MA.
- Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar*. Oxford: Blackwell.
- Heim, Irene, Howard Lasnik, and Robert May. 1991. Reciprocity and plurality. *Linguistic Inquiry* 22:63–101.
- Johnson, Kyle. 2001. What VP ellipsis can do, and what it can't, but not why. In *The handbook of contemporary syntactic theory*, ed. by Mark Baltin and Chris Collins, 439–479. Oxford: Blackwell.
- Kamp, Hans. 1981. A theory of truth and semantic representation. In *Formal methods in the study of languages*, ed. by Jeroen Groenendijk, Theo Janssen, and Martin Stokhof, 277–322. Amsterdam: Mathematical Center.
- Kaplan, David. 1989. Demonstratives. In *Themes from Kaplan*, ed. by Joseph Almog, John Perry, and Howard Wettstein, 481–563. Oxford: Oxford University Press.
- Keenan, Edward. 1971. Names, quantifiers, and a solution to the sloppy identity problem. *Papers in Linguistics* 4:211–232.
- Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase structure and the lexicon*, ed. by Johan Rooryck and Laurie Zaring, 109–137. Dordrecht: Kluwer.
- Krifka, Manfred. 1990. Boolean and non-boolean *and*. In *Papers from the Second Symposium on Logic and Language*, ed. by László Kálmán and László Pólos, 161–188. Budapest: Akadémiai Kiadó.
- Ladusaw, William. 1979. Polarity sensitivity as inherent scope relations. Doctoral dissertation, University of Texas, Austin.
- Landman, Fred. 2000. *Events and plurality: The Jerusalem lectures*. Dordrecht: Kluwer.
- Larson, Richard, and Gabriel Segal. 1995. *Knowledge of meaning: An introduction to semantic theory*. Cambridge, MA: MIT Press.
- Lasnik, Peter. 1995. *Plurality, conjunction and events*. Dordrecht: Kluwer.
- Link, Godehard. 1983. The logical analysis of plurals and mass terms: A lattice-theoretical approach. In *Meaning, use and interpretation of language*, ed. by Rainer Bäuerle, Christoph Schwarze, and Arnim von Stechow, 302–323. Berlin: Walter de Gruyter.
- Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and Logical Form. *Linguistic Inquiry* 25:609–665.
- Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.
- Merchant, Jason. 2004. Fragments and ellipsis. *Linguistics and Philosophy* 27:661–738.
- Merchant, Jason. To appear. Ellipsis. *Language and Linguistics Compass*. http://www.blackwell-compass.com/home_linco_compass.

- Neale, Stephen. 1990. *Descriptions*. Cambridge, MA: MIT Press.
- Neale, Stephen. 2005. Pragmatism and binding. In *Semantics versus pragmatics*, ed. by Zoltán Gendler Szabó, 165–285. Oxford: Clarendon Press.
- Parsons, Terence. 1990. *Events in the semantics of English: A study in subatomic semantics*. Cambridge, MA: MIT Press.
- Postal, Paul. 1966. On so-called ‘pronouns’ in English. In *Report on the Seventeenth Annual Round Table Meeting on Linguistics and Language Studies*, ed. by Francis Dinneen, 177–206. Washington, DC: Georgetown University Press.
- Prüst, Hub, Remko Scha, and Martin van den Berg. 1994. Discourse grammar and verb phrase anaphora. *Linguistics and Philosophy* 17:261–327.
- Pylkkänen, Liina. 2008. *Introducing arguments*. Cambridge, MA: MIT Press.
- Recanati, François. 1993. *Direct reference: From language to thought*. Oxford: Blackwell.
- Rooth, Mats. 1992a. Ellipsis redundancy and reduction redundancy. In *Proceedings of the Stuttgart Ellipsis Workshop*, ed. by Stephen Berman and Arild Hestvik. Arbeitspapiere des Sonderforschungsbereichs 340, Bericht Nr. 29. Heidelberg: IBM Germany.
- Rooth, Mats. 1992b. A theory of focus interpretation. *Natural Language Semantics* 1:75–116.
- Ross, John. 1967. Constraints on variables in syntax. Doctoral dissertation, MIT, Cambridge, MA.
- Russell, Bertrand. 1905. On denoting. *Mind* 14:479–493.
- Sag, Ivan. 1976. Deletion and Logical Form. Doctoral dissertation, MIT, Cambridge, MA.
- Schwarz, Bernhard. 2000. Topics in ellipsis. Doctoral dissertation, University of Massachusetts, Amherst.
- Simons, Mandy. 2005. Dividing things up: The semantics of *or* and the modal/*or* interaction. *Natural Language Semantics* 13:271–316.
- Stanley, Jason. 2000. Context and Logical Form. *Linguistics and Philosophy* 23:391–434.
- Stanley, Jason, and Zoltan Szabó. 2000. On quantifier domain restriction. *Mind and Language* 15:219–261.
- Tenny, Carol, and James Pustejovsky. 2000. *Events as grammatical objects: The converging perspectives of lexical semantics and syntax*. Stanford, CA: CSLI Publications.
- Tomioka, Satoshi. 1999. A sloppy identity puzzle. *Natural Language Semantics* 7:217–241.
- Webber, Bonnie. 1978. A formal approach to discourse anaphora. Doctoral dissertation, Harvard University, Cambridge, MA.
- Wescoat, Michael. 1989. Sloppy readings with embedded antecedents. Ms., Stanford University, Stanford, CA.
- Williams, Edwin. 1977. Discourse and Logical Form. *Linguistic Inquiry* 8:101–139.
- Winter, Yoad. 1995. Syncategorematic conjunction and structured meanings. In *Semantics and Linguistic Theory (SALT) 5*, ed. by Mandy Simons and Teresa Galloway, 387–404. Ithaca, NY: Cornell University, CLC Publications.
- Winter, Yoad. 2000. On some scopal asymmetries of coordination. In *Interface strategies*, ed. by Hans Bennis, Martin Everaert, and Eric Reuland, 387–405. Amsterdam: Koninklijke Nederlandse Akademie van Wetenschappen.

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