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Toward a Referential View of Definite Descriptions

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by

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Report

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Dedication

For my mother and father.

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Abstract

Toward a Referential View of Definite Descriptions

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I argue for a referential view of definite descriptions. According to the view that I advocate, definite descriptions are variables. At the syntactic level, they contribute a free variable that must be assigned a referent in order for the sentence to be truth evaluable. When an assignment is provided, through the referential intentions of the speaker, the semantic content of a given use is a singular proposition involving the object that the assignment assigns to the variable. I show that this view has the resources to accommodate uses of definite descriptions that are bound into by external quantifiers. Using the same resources, I show how one can arrive at the dual readings available for sentences containing definite descriptions embedded in modal and belief operators. I discuss the distinction between referential and attributive uses of definite descriptions and explain how the relevant differences are achieved on this view.

Table of Contents

List of Figures	ix
Introduction.....	1
Chapter 1	6
Section 1.1: Definites as Variables	6
1.1.1: The View.....	6
1.1.2: Referential Terms	9
1.1.3: A Fregean View?	12
Section 1.2: Quantifier Interaction and Binding In.....	15
1.2.1: Mates Cases	15
1.2.2: Scoping Relations	16
1.2.3: Binding In	20
Section 1.3: Attitudinal and Modal Operators	24
1.3.1: Scope Ambiguity in Modal and Attitudinal Reports	24
1.3.2: Another Functional Response	26
Chapter 2.....	37
Section 2.1: Schiffer's Fido-Fido Theory of Indexicals and a Liberal Theory of Reference	37
2.1.1: The Fido-Fido Theory and the Meaning of Definites.....	37
2.1.2: Bach and Ease of Reference	39
Section 2.2: Achieving Reference.....	42
2.2.1 Reference in Referential Uses.....	42
2.2.2 Reference in Attributive Uses.....	43
2.2.3 Reference to Functions	44
Section 2.3: Referential and Attributive Uses.....	46
2.3.1 The Referential/Attributive Distinction	46
2.3.2 Associated Propositions.....	49
2.3.3 Raising Saliency.....	51
Section 2.4: Conclusions.....	54

References.....	56
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List of Figures

FIGURE 1: The Murderer of Bella is Insane.....	7
FIGURE 2: Every student is happy.	17
FIGURE 3: John offended every student. (Bad).....	18
FIGURE 4: John offended every student. (Good)	19
FIGURE 5: The mother of each girl waved to her.....	20
FIGURE 6: Mary waved to each girl.....	21
FIGURE 7: The mother of each girl waved to her. (With Function).....	23

Introduction

Since Donnellan¹, theorists have recognized what have been called attributive and referential uses of definite descriptions. When a speaker uses a definite description referentially, there is some object such that the speaker uses the expression to call attention to that object and attribute some properties to it; the speaker is using the expression with the overarching aim of talking about a particular object. When a speaker uses a definite description attributively, they use the expression with the intention to talk about who or whatever object satisfies that description. Consider the following cases, adapted from Donnellan:

Attributive Case: Russell and Gato are detectives at the scene of Bella's brutal murder. As of yet, Gato and Russell don't know who the murderer is, but there is good reason to think that there was exactly one. Based on the evidence at the scene, Russell forms the belief that whomever it was that killed Bella must have been insane. He wishes to express this belief to Gato and so utters (1).

- 1) The murderer of Bella is insane.

Referential Case: Russell and Gato are jurors at the trial for Bella's murder. The suspect, Geist, is on the stand and is acting particularly erratically; she has tried to bite the bailiff and is currently thrashing around in her seat. Russell forms the belief that Geist is insane and wishes to convey this information to Gato. Since he believes that Gato and he mutually believe that Geist is the murderer, he also utters (1).

Intuitively, the proposition conveyed in the first case is true iff there is some unique murderer of Bella and she, whoever that happens to be, is insane. The truth conditions of this proposition can be represented by (2).

- 2) $\exists x \forall y ((\text{Murderer-of-Bella}(y) \leftrightarrow x=y) \ \& \ \text{Insane}(x))$

¹ Donnellan, 1966.

In the second case, the proposition conveyed is a singular proposition that is true iff Geist is insane. The descriptive content of the definite description is used as a means of picking out a particular individual and does not itself get into the content of the assertion. One way of representing the truth conditions of this proposition is (3), where g is a directly referring term for Geist.

3) $\text{Insane}(g)$

While theorists agree on the existence of and need to account for both uses, they disagree on how one should do that. Some, borrowing the notion of speaker reference from Kripke², argue that referential uses can be explained at the level of pragmatics. For them, all uses of definite descriptions semantically encode the proposition associated with the attributive use, but some also conversationally implicate the propositions associated with the referential use. These theorists argue that at the level of logical form, descriptions are quantificational in nature. Some, beginning with Russell³, argue for the logical form given in (2) or one of its truth conditional equivalents.⁴ Others argue that definite descriptions, like indefinite descriptions, have the form given in (4).

4) $\exists x((\text{Murderer-of-Bella}(x) \ \& \ \text{Insane}(x))$

According to them, the uniqueness that the Russellians think is a part of the truth conditions is instead something that is conversationally or conventionally implicated.⁵ The crucial similarity between these theorists is that they all argue for a univocal

² Kripke, 1977.

³ Russell, 1905.

⁴ Cf. Neale, 1990.

⁵ Ludlow and Segal, 2004.

semantics for definite descriptions⁶ according to which ‘the’ expresses a quantifier of some form or other.

Others, dissatisfied with a pragmatic explanation of the referential uses, have argued that both referential and attributive uses of definites need to be explained at the level of semantics.⁷ According to them, (1) is ambiguous; some uses have the proposition associated with (2) as their semantic content while others express the proposition associated with (3).

One motivation for this view, and for many views that posit referential uses, is that Russellian views are notoriously bad at accounting for incomplete descriptions. Incomplete descriptions are uses of definites where the descriptive content is not enough to uniquely identify an object. Russellian views hold that the semantic content of an utterance of, for example, ‘the book is on the table’ is true just in case there is exactly one book and exactly one table and that book is on that table. If the Russellian is right, one shouldn’t be able to use this expression to say something true in a context where there are many books and many tables, but one clearly can. While there are many resources that Russellians have appealed to in an effort to accommodate these uses, this is at least a *prima facie* problem for them.

Surprisingly few philosophers have argued for the remaining position: that both readings can be explained with a thoroughly referential semantic interpretation for definites.⁸ According to these views, all uses of sentences like (1) express singular

⁶ I will subsequently use ‘definites’ to mean definite descriptions.

⁷ Devitt, 1981, 2004.

⁸ Strawson, 1950; Santorio, 2013.

propositions like (3) and it is the attributive uses that are to be explained via pragmatic principles.

The lack of support for this view is less surprising when one considers the behavior of definites embedded in other constructions. In particular, it has been argued that their ability to enter into scope relations with other operators must be explained by their status as quantifiers. After all, overt quantifiers behave in much the same way in similar constructions. Once we see that there are other ways of explaining these phenomena, the referential view becomes much more palatable.

This is precisely how I will argue for such a view. According to my view, definite descriptions are variables. At the syntactic level, they contribute a free variable that must be assigned a referent in order for the sentence to be truth evaluable. When an assignment is provided, through the referential intentions of the speaker, the semantic content of a given use is a singular proposition involving the object that the assignment assigns to the variable.⁹

In the first chapter, I will explain how a view of definites as variables can account for all of the data that pushed others to think that they must be quantifiers. My discussion will focus on instances where quantifiers bind into definite descriptions as well as other cases of apparent scope interaction with quantifiers, and belief and modal operators. Along the way I will explain why I think my view should count as a ‘referential’ one and how it is different from the version of the Fregean view found in Heim and Kratzer (1998).

⁹ One important precedent for views of definite descriptions as free variables is to be found in the dynamic frameworks provided by Kamp, 2011 and Heim, 1982. My view will be guided by these views but will have important differences. For more recent discussion of a variable view of definites in a static framework see Santorio, 2013.

In the second chapter, I will explain how this view of definites combines with a certain view of referential intentions and speaker meaning to deliver the appropriate semantic content in the referential uses. Then I will return to the attributive readings and explain how they are to be understood on this view. I will close with a discussion of the attributive/referential distinction.

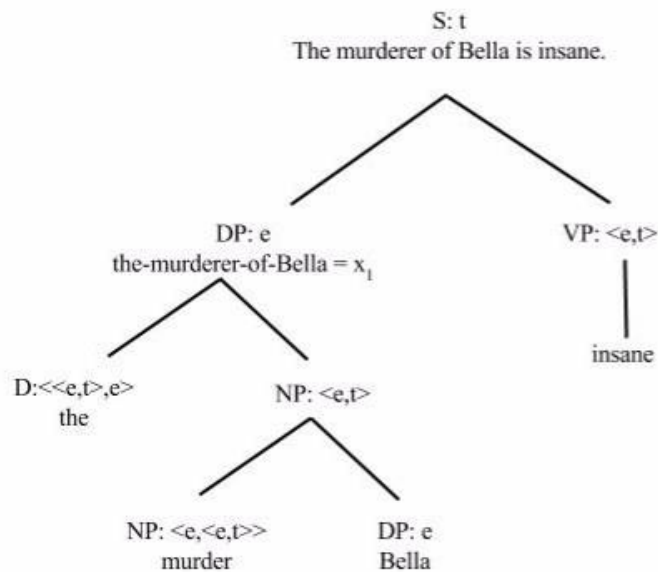
Chapter 1

SECTION 1.1: DEFINITES AS VARIABLES

1.1.1: The View

The definite article expresses a function from the content of noun phrases of type $\langle e, t \rangle$ to variables of type e , making it of type $\langle \langle e, t \rangle, e \rangle$. There are two senses in which definite descriptions are variables: a semantic sense and a syntactic sense. Semantically, they behave as variables because the same definite description can have different denotations under different assignments. Syntactically, they behave as variables because at the level of syntactic processing they can be bound by explicit and implicit quantifiers. In unbound uses of definites, an assignment must be provided via the referential intentions of the speaker in order for the sentence containing the definite description to be evaluated. When an assignment is so provided, the contribution of the definite description to the proposition expressed on that occasion is the denotation of the variable on the provided assignment. Consider (1) again as used in the referential case. According to my view, this sentence has the following structure:

FIGURE 1: The Murderer of Bella is Insane.



The content of ‘the’, being of type $\langle\langle e,t\rangle,e\rangle$, combines with the content of the noun phrase ‘murderer of Bella’, which is of type $\langle e,t\rangle$, to produce a variable, say ‘ x_1 ’, which is of type e .¹⁰ The result is a sentence with the logical form given in (5).

5) Insane (x_1)

Since x_1 is a free variable, (1) can only be evaluated on a particular assignment. As the case is described, Russell utters (1) with the intention to convey the information that Geist is insane. He is able to use (1) to do this because Russell and Gato mutually believe that Geist is the murderer, that she is acting erratically, and that her behavior has prompted Russell’s utterance. Because of this, it is reasonable for Russell to expect Gato to recognize his referential intentions and thereby settle on the correct assignment for x_1 .

¹⁰ The actual variable produced is the concatenation of ‘the’ together with the rest of the description- in this case, the-murderer-of-bella. I use x_1 here for brevity and to emphasize that it is a variable. This should affect nothing in what follows.

With Geist supplied as the referent of ‘the murderer of Bella’, the proposition expressed is then the object involving one that has Geist as a constituent and attributes to her the property of being insane.

At this point, one might question whether the content of ‘the’, on the variable view, is actually a function from the content of noun phrases to entities. It is not. ‘The’ expresses something of type $\langle\langle e,t\rangle, e\rangle$ because at the syntactic level, it combines with something of type $\langle e,t\rangle$ to produce something of type e . That thing, the definite description itself, is a variable that ranges over objects in the domain. If ‘the’ is to be a proper function, it must assign the same variable to different uses of the same predicate. If the denotation of a variable varies according to assignments, it is difficult to see in what sense the variables delivered by different uses of the same description are the same as each other (despite their ultimately differing intended assignments) but are each distinct from the variables of other descriptions (with whom they may share ultimate intended assignments).

I propose that they are similar and different with respect to the restrictions imposed on the potential assignment of the variable. In this way, descriptions have something like what Richard Heck calls a ‘standing meaning’.¹¹ The standing meaning of an expression is its context independent meaning. For the indexical ‘I’, the standing meaning is something like ‘the person speaking’. The standing meaning is not part of the content of the expression but instead helps to determine it on a given occasion of use.

¹¹ Heck, 2002.

On the view I'm going to develop, the standing meaning of a description is its meaning as something conventionally used to refer to things satisfying that description.¹² As such, the variable carries a restriction that it must take as its assignment the object that the speaker intends to refer to using that description. Its content on a given occasion of use will be the denotation of the intended assignment. So the respective sameness and difference of variables contributed by the same or different descriptions will consist in their behavior at the syntactic level and their rules for use rather than their ultimate denotation at the semantic level. I will say more about the standing meaning of definites in chapter 2.

1.1.2: Referential Terms

I introduced this view as falling into the camp of wholly referential views, as opposed to wholly attributive views or ambiguity views. On a loose definition of 'referential view', a referential view of definite descriptions is just a view that takes so-called referential uses of definites to be paradigmatic and so-called attributive uses to be derivative in some way. On this understanding my view will surely be referential.

A more precise understanding will instead define referential views in terms of the character of the semantic content of definites. According to this definition, a view of definite descriptions is wholly referential if the descriptions function, in every use, as semantically referring expressions. This characterization requires some explanation of what it means to be a referring expression. In this section I will try to provide one, along with an account of how definites on my view are referring expressions.

¹² This differs crucially from Kaplan's notion of character. Unless your view of context is rich enough to include the speaker's referential intentions, the standing meaning together with the context of use doesn't determine the content of that use. Kaplanian character would.

One can define what it is to be a referential term in a way that is neutral on the metaphysics of semantic content by appealing to truth conditions. According to Mark Sainsbury, ‘It is constitutive of being a referring expression that how things are with its actual referent, if any, is what matters to the truth or falsehood, with respect to any world, of a range of sentences or utterances in which it occurs’.¹³ If, however, we are happy to confine ourselves to the language of structured propositions, we can use Kaplan’s notion of direct reference to say what it is to be a referential term. According to Kaplan, a term is directly referential if its contribution to the proposition expressed is the object to which it refers and nothing more.¹⁴

Recall, again, our treatment of ‘the murderer of Bella is insane’. ‘The murderer of Bella’ is a free variable that must be evaluated relative to an assignment. Once an assignment is provided, as when the speaker intends to be referring to Geist, the denotation under that assignment is then part of the content of the utterance; the contribution that the definite makes to the proposition expressed on that occasion is the object referred to and the proposition is thereby a singular one involving Geist. Because of this, the truth or falsity of it relative to a world will depend on what is going on with Geist at that world. So according to the characterizations provided by both Kaplan and Sainsbury, definite descriptions will be referential on my view.

If we consider instead the sentence ‘Russell believes that the murderer of Bella is insane’ and hold fixed the speaker’s referential intentions so that they still intend to refer to Geist with their use of ‘the murderer of Bella’, then we again have the result that the

¹³ Sainsbury, 2008.

¹⁴ Kaplan, 1989a. 1989b.

contribution made by ‘the murderer of Bella’ to the proposition expressed is Geist. The denotation is not in any way shifted by the belief operator. The speaker will be attributing the belief that Geist is insane to Russell. So definites are referential in this context as well.

I have so far argued that some uses of definites, the ones in which the speaker has referential intentions with respect to a single object, are referential in the relevant sense. They are rigid designators in both their embedded and unembedded occurrences. As will become clear in section 1.2, a speaker need not always have referential intentions with respect to a single referent; sometimes they have referential intentions with respect to many objects by supplying a function on the intended assignment. The details of this will be made clear later, but the key point now is that this is not a case where the operators themselves shift the denotation of the description. The operators merely provide the relevant parameters for the referential function that is itself world relative. It is through special intentions on the part of the speaker that the reference is variable and not in virtue of the standing meaning of the definite.

Understanding definites as referential may seem controversial. Many believe that definite descriptions are not rigid designators. One motivation for thinking this is the truth conditions of utterances in which definites are embedded in modal operators; the truth of ‘the president could have been a professional wrestler’ seems to depend on whether there is a world in which whoever is the president in that world is also a professional wrestler, and not on whether there is a world in which President Obama is a professional wrestler. This issue will be discussed in section 1.2.3.

Another motivation for thinking that definites are not rigid designators is the apparent modal profile of the content of utterances that don’t contain embedded definites;

the truth-value, relative to a given world, of what is asserted by a use of ‘the president is a professional wrestler’, seems to depend on whether whoever is the president in that world is also a professional wrestler in that world, and not on whether President Obama is a professional wrestler in that world. In chapter two, I will argue that this is not the modal profile of the proposition expressed by a given utterance of that statement, but rather of a proposition that is associated with all utterances of that statement. It is the association and salience of that proposition, I claim, that explains our intuitions regarding these truth conditions.

I will say more in the next chapter about the meaning of the definite article and that of definite descriptions. I will also explain how reference is possible using definites. Since issues of binding and scope are in large part dependent on the syntactic properties of an expression, we should have enough information with the sketch just given to discuss the puzzles that will concern us in this chapter. First, I would like to make some brief remarks about how my view differs from a Fregean view.

1.1.3: A Fregean View?

Heim and Kratzer sketch an e-type view of definite descriptions in *Semantics in Generative Grammar* that, like the view given here, has the content of the definite article of type $\langle\langle e,t\rangle,e\rangle$. According to that view, ‘the’ expresses a partial function from noun phrases (things of type $\langle e,t\rangle$) to objects. More specifically, it expresses the function that maps the content of noun phrases onto the object that is the

unique member of some contextually salient subset of the extension of that noun phrase.¹⁵

For example, ‘table’ will have as its extension the set of all tables. In a given context, there will be a subset of those tables that are contextually salient. If there is only one member of that set, as when there is only one table in the room and we haven’t been talking about other tables, ‘the table’ will denote that member in that context.

This method of denotation fixing leads to two major differences in the potential referents of descriptions. First, on this view, the referent of ‘the F’ must be an actual F and the unique contextually salient F; on my view, the referent of ‘the F’ need not be either of these things. Second, on this view, the content of ‘the’ combines with the content of the noun phrase in a given context of use to fully determine a referent. This is the sense in which ‘the’ expresses a function from the noun phrases to the relevant entities. My view lacks this feature. According to my view, the same description could be used in the same context to refer to different referents as long as the speaker could have referential intentions with respect to either of them.¹⁶

Descriptions on this view also behave differently with respect to reference. In the previous section, I argued that my view is a referential view of definites because the contribution of the definite to the proposition expressed by an utterance containing it is

¹⁵ I am using the term ‘extension’ here to pick out, in the case of unary predicates, the set of objects that are mapped to 1 by that predicate. Intuitively, the extension of a predicate is the set of things that satisfies that predicate.

¹⁶ As I mentioned before, this is only true if you understand ‘context’ in a weak enough sense that it doesn’t include the referential intentions of the speaker. Otherwise, the denotation of a definite on a given occasion of use will be fully determined by the context on my view as well. This seems to me to be largely a terminological issue. I use ‘context’ in the weaker sense here to point out a major difference between my view and the Heim and Kratzer view; definites on my view depend on the recognition of referential intentions in a way that H&K definites don’t.

merely its referent on that occasion. From what I have now said about definites in the H&K framework, one might think that they are referential as well. This would be a mistake.

In saying that definites are e-type and that they contribute their denotations, H&K are not talking about the proposition expressed by an utterance. Like Frege, they think that the referent of a sentence is a truth-value and not a structured proposition or a set of worlds. Semantic values, in the way that H&K are talking about them, are just what the expressions contribute to the computational determination of the truth or falsity of that sentence on that occasion. If one wants to know the thing asserted or expressed by a given utterance of a sentence, or the belief that one can form on the basis of it, one needs to look to the intension of that sentence.

As will be discussed in further detail later, the intension of a sentence is the function from worlds to truth-values such that it maps a world to 1 if the sentence is true in that world and to 0 otherwise. If one were thinking of propositions in a possible worlds framework, it would be natural to take the proposition expressed by a given utterance of a sentence to be the set of worlds that the intension of that sentence maps to 1 (relative to that world and assignment). As with extensions, intensions are compositional; the intension of a sentence is a function of the intensions of its component expressions. The intension of an expression is the function from worlds to the extension of that expression at that world.

The extensions of definites on the H&K view are world relative; for a given world w , the extension of the definite at w will be whatever individual uniquely (saliently) satisfies that description *in* w . Definite descriptions, for H&K, are not rigid designators. This means that the truth or falsity of the proposition expressed by an utterance of ‘the

president is happy', relative to a world w , will depend not on whether the actual president is happy in w , but on whether the president in w is happy in w . If we were to translate the H&K view into the language of structured propositions, we would say that their definites do not contribute their denotations to the propositions expressed; they are not referring terms.

SECTION 1.2: QUANTIFIER INTERACTION AND BINDING IN

1.2.1: Mates Cases

In 'Descriptions and Reference', Benson Mates draws attention to uses of definite descriptions that contain in their descriptive content variables which are bound external to the description.¹⁷ Sentences (6) through (9) are among the examples he considers.

- 6) Somebody has lost the only real friend he ever had.
- 7) The million-pound fortune of every Englishman is in jeopardy.
- 8) Every positive integer is the positive square root of some positive integer.
- 9) The one woman whom every Englishman honors above all other women is his mother.

Mates argues that a serious contender of a Russellian view must accommodate these uses and not just "the simple examples upon which attention has been so exclusively focused". In some of the examples, the description takes wide scope with respect to the quantifier at the level of surface form. Proper processing of these sentences, however, seems to require that the descriptions take narrow scope at the level of logical form. This has led some to argue that these examples show that the descriptions must be

¹⁷ Mates, 1973.

able to enter into scoping relations with quantifiers and must therefore be quantifiers themselves.

As Michael Glanzberg points out, there are two separable issues here: 1) the issue of how e-type entities can engage in scoping interactions with quantifiers and 2) the issue of how e-type views of definites can make sense of descriptions involving variables that are bound by quantifiers external to the description. Glanzberg's 'Definite Descriptions and Quantifier Scope' is a discussion of the first issue.¹⁸ I will spend the next section explicating his solution to that problem. In the following section, I will provide my solution for the second problem.

1.2.2: Scoping Relations

Glanzberg discusses two types of cases that are typically presented as raising scoping problems for e-type views of definite descriptions. He correctly points out that these do not raise issues of scope. Rather, the first raises a problem for binding into definites on an e-type view, while the second raises the problem of achieving functional readings of certain expressions. In this section, I will present Glanzberg's first example and his solution to the purported problem of scope. In the following section I will discuss my solution to the problem that binding in raises for that example. I will not discuss Glanzberg's second example in this paper. Glanzberg's examples are given as (10) and (11). For consistency and ease of exposition, my discussion will focus on his examples rather than those of Mates.

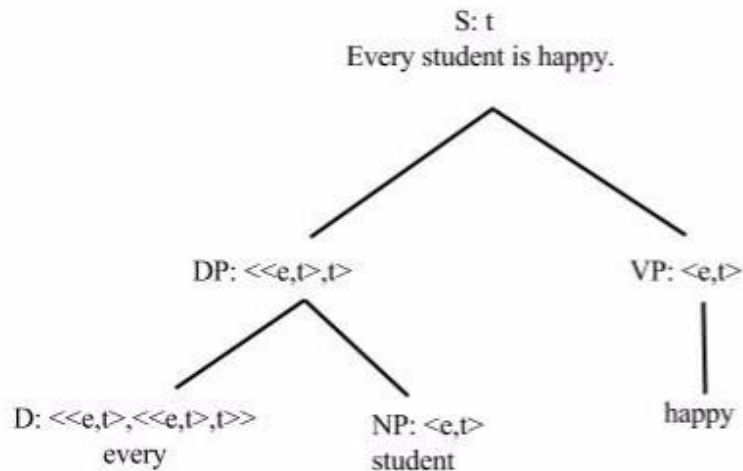
10) The mother of each girl waved to her.

¹⁸ Glanzberg, 2007.

11) The woman every Englishman loves is his mother.

Glanzberg begins with a quick overview of quantifiers and quantifier raising as presented in the H&K framework. I will do the same. Quantifiers on the H&K framework are type $\langle\langle e,t\rangle, \langle\langle e,t\rangle, t\rangle\rangle$; they are functions from predicates to functions from predicates to truth-values. Consider ‘Every student is happy’ which has the following structure.

FIGURE 2: Every student is happy.



The denotation of *every*, which is of type $\langle\langle e,t\rangle, \langle\langle e,t\rangle, t\rangle\rangle$, combines with the denotation of *student*, which is of type $\langle e,t\rangle$, to form the denotation of the whole determiner phrase *every student*, which is of type $\langle\langle e,t\rangle, t\rangle$.¹⁹ More specifically, it is the function that maps predicates to 1 if and only if every student satisfies that predicate. If we think of the extension of *student* as the set of students and the extension of *happy* as

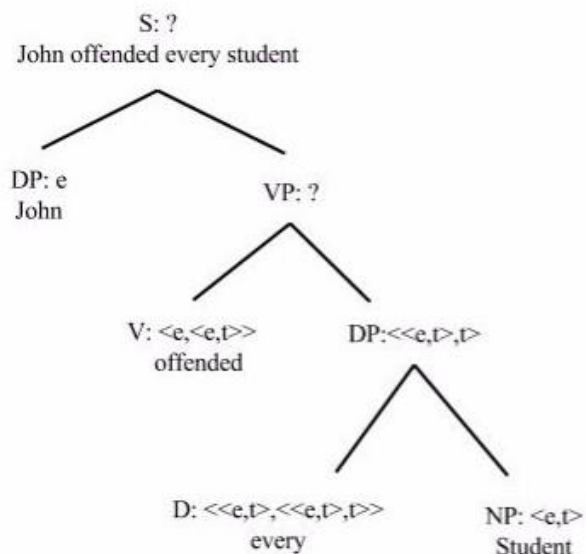
¹⁹ I am following Glanzberg’s convention of using italics rather than quotes to refer to lexical items.

the set of happy things, we can say that the denotation *every student* maps the denotation of *happy* to 1 if and only if the extension of *student* is a subset of the extension of *happy*.

Since the subject of a sentence typically combines with an entity of type $\langle e, t \rangle$, there is generally no problem with determiner phrases involving quantifiers occurring in that position; since they denote functions that take as their arguments entities of type $\langle e, t \rangle$, they combine with verb phrases of that type in a straightforward way. However, we run into a problem when quantified determiner phrases occur as arguments in verb phrases. Consider the following sentence.

12) John offended every student.

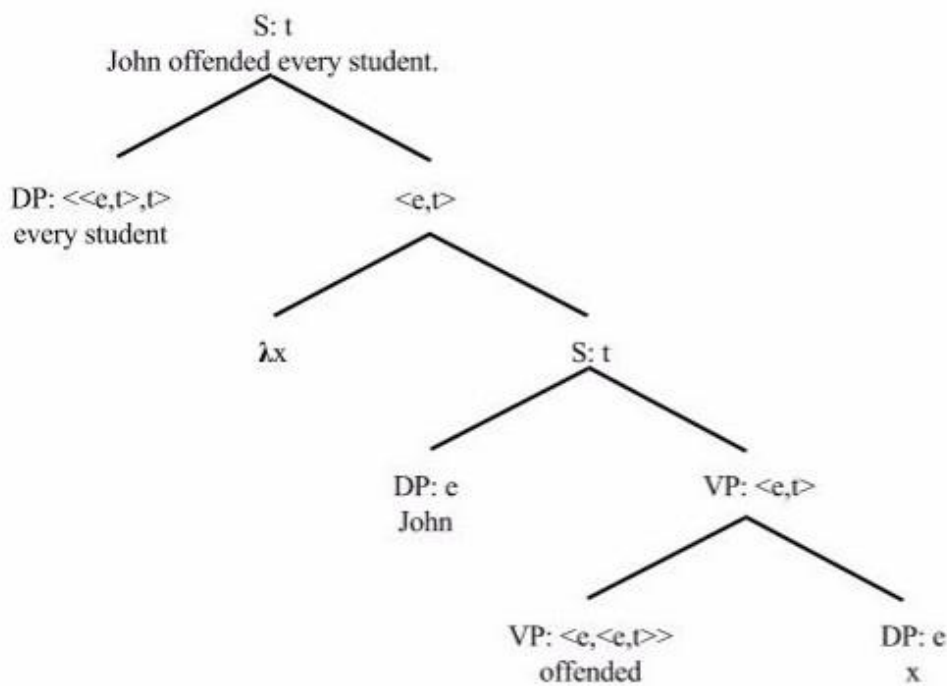
FIGURE 3: John offended every student. (Bad)



As the above diagram shows, we can't process this sentence in the normal way. Since the DP is of type $\langle \langle e, t \rangle, t \rangle$ and the V is of type $\langle e, \langle e, t \rangle \rangle$, neither can be the argument of the other; they cannot combine through functional application. Because of this, linguists posit an underlying logical form that is different from the surface form.

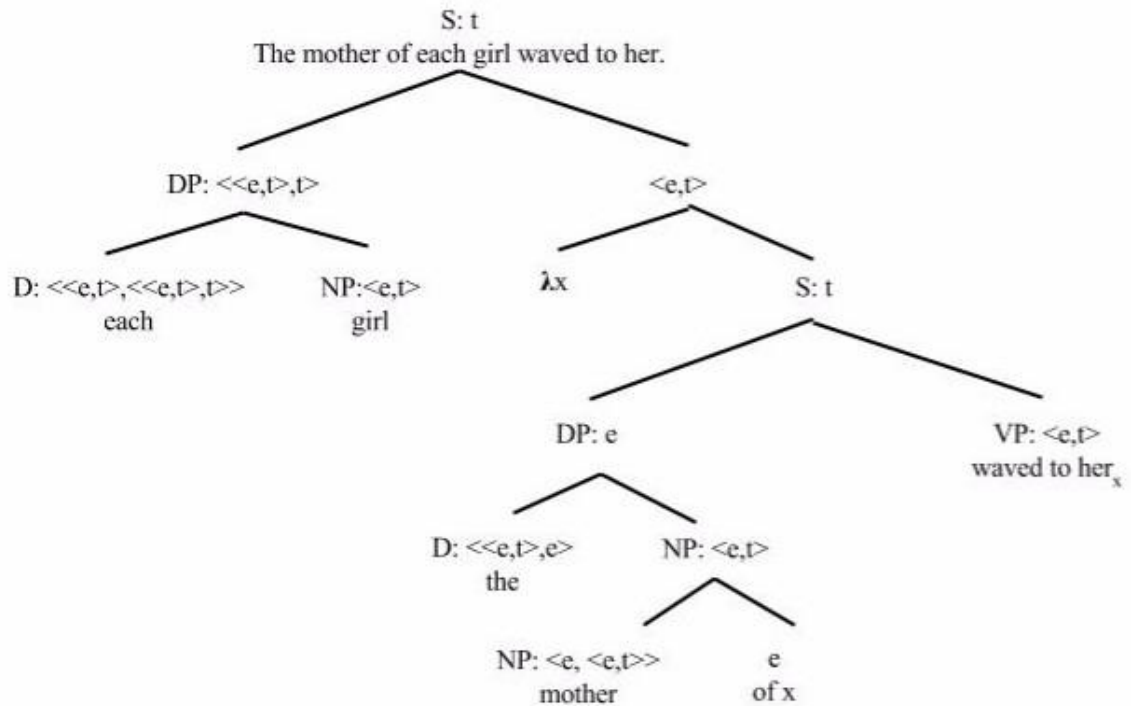
According to them, the determiner phrase contributes a variable that combines in the normal way with the verb. The quantifier is then raised to take scope over the whole sentence and bind the variable. In the H&K framework, the binding is done by λ -abstraction. Instead of the structure in figure 3, we get the one in figure 4.

FIGURE 4: John offended every student. (Good)



With this in mind, we can now return to example (10). As Glanzberg points out, the movement required to get the correct scoping in (10) is handled entirely by the quantifier movement rule just discussed, applied to the quantifier phrase *every girl*. There is no need to move the definite description, and therefore assign it scope, whether we interpret it as of type e or of type $\langle\langle e,t \rangle, t \rangle$; either way we get an interpretable structure.

FIGURE 5: The mother of each girl waved to her.



In the structure displayed in figure 5, the description is assigned type e so that it combines with the VP through functional application to provide a sentence of type t that is then bound by the lambda operator. This, of course, is only a syntactic solution; it just shows that something of type e could combine in the right way syntactically to get an interpretable structure. It doesn't show that the semantic theory that I have provided produces a proposition with the right truth conditions. That will be demonstrated in the next section.

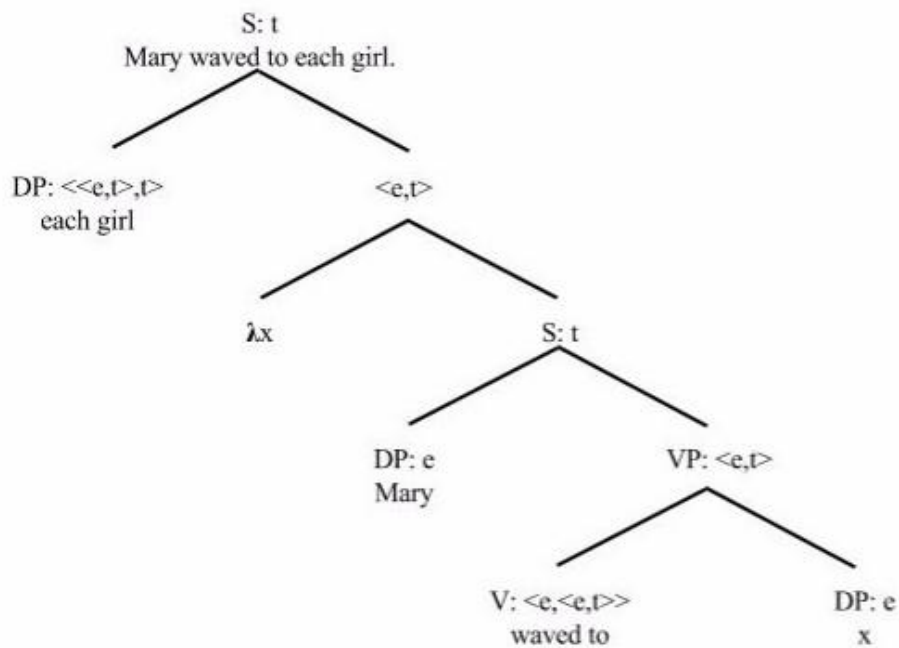
1.2.3: Binding In

Even if the explanations given above can handle the relative scoping of the definite and quantifier phrase, we still don't have an explanation of how it is that the

quantifier with wide scope can *bind into* the definite description; we don't have an explanation of how the quantifier can interact with the definite in such a way that it denotes a different individual for each girl. We want the truth conditions to be such that this sentence is true if and only if, for each girl, that girl's mother waved to her. In order for this to happen, the intended referent needs to vary in a way that the denotations of referring expressions normally can't. To see the problem, consider sentence (13), which has a similar structure, given by Figure 6, but has a proper name standing in for the definite description.

13) Mary waved to each girl.

FIGURE 6: Mary waved to each girl.



If 'the mother of' behaves, as Mary does, by referring one time to a single entity and contributing that entity to the lambda phrase, then we will get the wrong truth

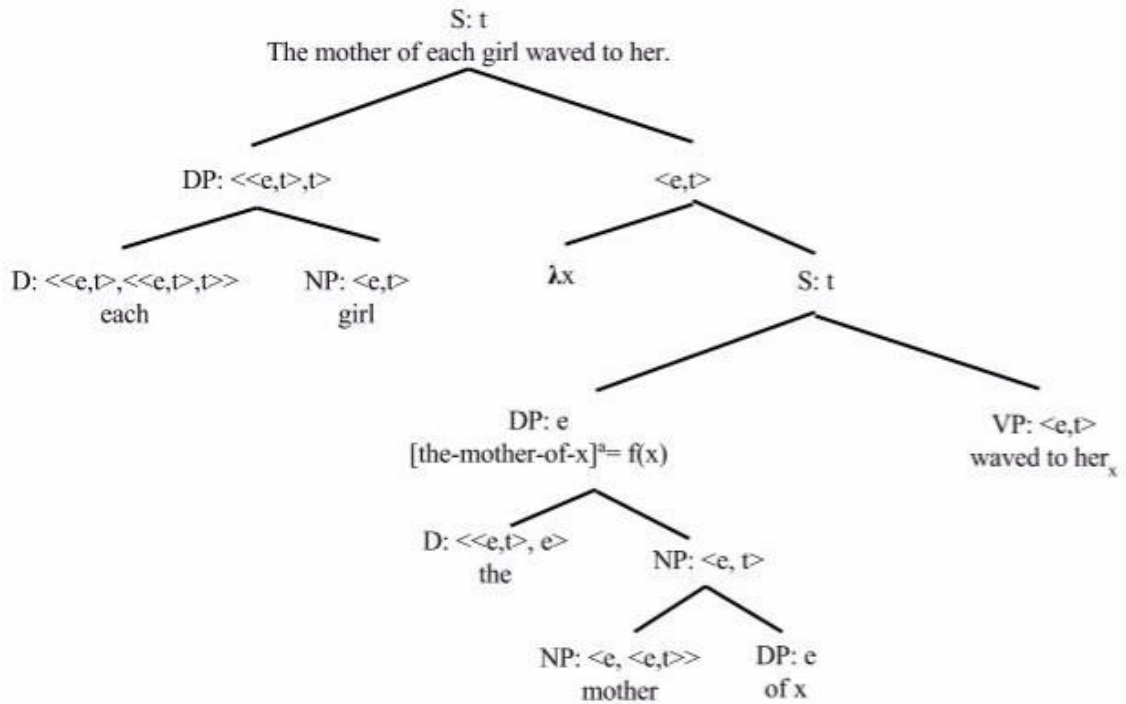
conditions for (10). This is because there will have to be some particular mother such that this sentence is true iff that mother waved to each girl.

The first thing to notice here is that the definite description, when fully specified in our syntax tree, itself contains a variable.²⁰ Since *the mother of John* is a conventional means for referring to whichever object is the mother of John, we should expect *the mother of x* to be a conventional means for referring to the mother of x. Since we don't have a value for the free variable, 'x', this seems uninterpretable. One way of understanding this is as follows. Given any assignment function *a*, *the mother of x* is a conventional means for referring to the mother of [*x*]^a. When *x* occurs in a context where the intended assignment function doesn't supply a referent for it because it is bound by a quantifier, it is inappropriate for a speaker to have referential intentions with respect to a single individual.

Instead, the speaker should have intentions with respect to something that will allow them to refer to multiple objects in turn. I propose that that thing is a function from the relevant individual to a person. In this case, the speaker intends for the hearer to entertain the mother-of function and thereby complete the proposition with that assignment. The resulting interpretation can be represented via its fully specified syntax tree as in Figure 7 or as the proposition whose truth conditions are represented by (14):

²⁰ I'm speaking somewhat loosely here. Strictly speaking, the denotation of 'the mother of John' behaves syntactically as an unstructured variable and so, in a sense, it doesn't contain anything. What I mean here is that the lexical item, which is structured, contains the variable.

FIGURE 7: The mother of each girl waved to her. (With Function)



14) $\forall x(Gx \rightarrow Wm(x)x)$.

So, just as before, the speaker provides an assignment against which the definite is evaluated. Unlike before, instead of having referential intentions with respect to a single object and thereby providing that object as the denotation of the definite on the intended assignment, the speaker instead has referential intentions with respect to a function that takes as its argument the variable provided by the lambda operator.

The mother-of function is a fairly natural function. It is also one that is naturally recoverable from the choice of description alone.²¹ As we will see in the next section, it will be helpful for other puzzles that speakers be able to refer to different functions with

²¹ ‘Mother of’ is actually not a function on many domains because many things will have two (or more) mothers and many things will have no mother. For the sake of this example, we’ll assume that each of the children in the given context has exactly one mother, or one salient mother, and that the function maps each child onto that mother.

the same description and for many of those functions to be far less natural. It will turn out that which functions one can refer to using a definite description will be much more constrained by word choice than a standard referent.

In my discussion of reference more generally in chapter 2, I will say more about how one refers to and recognizes reference to functions as well as how one's intentions with respect to them can be understood. For now, I will assume that such reference is possible and move on in the next subsection to a discussion of how it is helpful in explaining the different readings available for definites embedded in modal and belief operators.

SECTION 1.3: ATTITUDINAL AND MODAL OPERATORS

1.3.1: Scope Ambiguity in Modal and Attitudinal Reports

Bertrand Russell famously brought to light the dual meanings associated with sentences involving definite descriptions embedded in attitudinal verbs.²² He discusses the sentence 'George IV wished to know whether Scott was the author of *Waverly*' and distinguishes between primary and secondary occurrences of 'the author of *Waverly*'. According to Russell, when the expression has a secondary occurrence, we use the sentence to mean, "George IV wished to know whether one and only one man wrote *Waverley* and Scott was that man". When it has a primary occurrence, we use the sentence to mean, "One and only one man wrote *Waverley*, and George IV wished to know whether Scott was that man". Theorists have since found a similar duality of meanings in sentences containing definites embedded in modal operators.

²² Russell, 1905.

Since I believe that having the description in a predicative position adds unnecessary complication, I will focus my discussion on the sentence *Mary believes that the president is nice* along with its modal correlate, *Necessarily the president is nice*. Russellians explain the two readings in each case by appealing to a difference in the scope of the definite relative to the belief or modal operator. The sentences are presented below, along with their two standard Russellian analyses.

15) Mary believes that the president is nice.

- a. Believes (Mary, $\exists x \forall y ((\text{president}(y) \leftrightarrow x=y) \ \& \ \text{nice}(x))$)
- b. $\exists x \forall y ((\text{president}(y) \leftrightarrow x=y) \ \& \ \text{Believes}(\text{Mary}, \text{nice}(x)))$

16) Necessarily, the president is nice.

- a. Nec. ($\exists x \forall y ((\text{president}(y) \leftrightarrow x=y) \ \& \ \text{nice}(x))$)
- b. $\exists x \forall y ((\text{president}(y) \leftrightarrow x=y) \ \& \ \text{Nec.}(\text{nice}(x)))$

On the a. reading of (15), one reports the belief of Mary that there is a unique president and that that president is nice. On the b. reading one asserts that there is a unique president and then reports the belief of Mary that that person is nice. Similarly, for the a. reading of (16), one asserts that it is necessary that there is a unique president and that she is nice, while the b. reading asserts that there is a unique president and that she is necessarily nice.

Possible worlds talk may allow us to specify the target truth conditions in a way that is less theory laden.²³ We'll say that the a. reading of (15) is true just in case for every world w that is compatible with what Mary believes, whoever happens to be the (unique) (salient) president in w is nice in w . The b. reading of (15) is true just in case for every world w that is compatible with what Mary believes, whoever is the (unique)

²³ I include in parenthesis additions that one might want.

(salient) president *in the actual world* is nice in w . For (16), we'll say that the a. reading is true just in case for every possible world w , whoever happens to be the (unique) (salient) president in w is nice in w , while the b. reading is true just in case whoever is the (unique) (salient) president *in the actual world* is nice in w .²⁴

It will be the goal of the next section to show that both of these readings are possible on my view. As in the explanation of binding into definites, my response here will involve speaker's contributing functions through their referential intentions rather than contributing particular objects. So rather than intending one referent, the speaker intends a (possibly different) referent for each possible world. Since I don't want to take a stand on the correct semantics for attitude reports and modal claims, I will merely demonstrate how definites as variables will integrate with one view and hope that the reader can make the necessary adjustments for their preferred theory.

1.3.2: Another Functional Response

In *Semantics in Generative Grammar*, Heim and Kratzer sketch the beginnings of an intensional extension of their semantics. In this section I will quickly explicate their system and show how it can be adapted to easily accommodate a variable view of definites. Unless specified otherwise, semantic rules in this section will be from 12.3 of that text.²⁵ I will close the section with examples of definites embedded in modal and belief contexts, demonstrating the variety of readings that one can achieve with them.

²⁴ Wide and narrow scope readings of these cases have been associated with *de re* and *de dicto* readings of the same sentences. In 'Speaker Reference and Semantic Reference', Saul Kripke argues that the two cannot be identified on the grounds that there will be some readings that can be explained by scope which cannot be explained by the *de re/de dicto* distinction. He appeals to sentences containing iterated modals. Though I will not be employing a scoping solution, my solution will accommodate these cases as well.

²⁵ Their numbers may vary.

H&K begin with a specification of the semantic types and domains:

1. Recursive definition of semantic types

- a. e is a type.
- b. t is a type.
- c. If a and b are types, then $\langle a, b \rangle$ is a type.
- d. If a is a type, the $\langle s, a \rangle$ is a type.
- e. Nothing else is a type.

2. Semantic domains

- a. $D_e = D$
- b. $D_t = \{0, 1\}$
- c. If a and b are semantic types, then $D_{\langle a, b \rangle}$ is the set of all functions from D_a to D_b .
- d. If a is a type, then $D_{\langle s, a \rangle}$ is the set of all functions W to D_a .

D here is the union of the domains of all possible worlds and W is the set of all possible worlds. All assignments are relativized to a world and an assignment function. When an item's assignments are stable across functions we can drop the assignment specification in the entry. So we have:

3. $[[\square]]^w := [[\square]]^{w, \emptyset}$

Lexical entries are then given for a sample of the language:

4. Names

- a. For any possible world w :
 - i. $[[Jan]]^w = \text{Jan}$.
 - ii. $[[Ann]]^w = \text{Ann}$.
 - iii. etc.

5. Easy predicates

- a. For any possible world w :
 - i. $[[smoke]]^w = \lambda x \in D. x \text{ smokes in } w$
 - ii. $[[love]]^w = \lambda x \in D. [\lambda y \in D. y \text{ loves } x \text{ in } w]$
 - iii. $[[cat]]^w = \lambda x \in D. x \text{ is a cat in } w$
 - iv. etc.

6. Determiners

- a. For any possible world w :
 - i. $[[every]]^w = \lambda f \in D_{\langle e, t \rangle}. [\lambda g \in D_{\langle e, t \rangle}. \text{for all } x \text{ such that } f(x) = 1, g(x) = 1]$
 - ii. Etc.

7. Attitude verbs

- a. For any possible world w :
 - i. $[[believe]]^w = \lambda p \in D_{\langle s, t \rangle}. [\lambda x \in D. p(w')=1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w]$
 - ii. $[[know]]^w = \lambda p \in D_{\langle s, t \rangle}. [\lambda x \in D. p(w')=1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ knows in } w]$
 - iii. $[[hope]]^w = \lambda p \in D_{\langle s, t \rangle}. [\lambda x \in D. p(w')=1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ hopes in } w]$

One natural way to extend the intensional framework to account for metaphysical modals is as follows:

8. Modal Operators

- a. For any possible world w :
 - i. $[[necessarily]]^w = \lambda p \in D_{\langle s, t \rangle}. p(w')=1 \text{ for all } w' \in W$

ii. $[[possibly]]^w = \lambda p \in D_{\langle s, t \rangle}. p(w')=1$ for some $w' \in W$ ²⁶

Since intensional verbs combine with propositions (things of type $\langle s, t \rangle$) and sentences are typically of type t , H&K provide a new composition rule to raise the that-clauses of attitude reports to the appropriate type when they occur in intensional contexts.

9. Intensional Functional Application (IFA)

- a. If \square is a branching node and $\{\square, \square\}$ the set of its daughters, then, for any possible world w and any assignment a , if $[[\square]]^{w,a}$ is a function whose domain contains $\square w'$. $[[\square]]^{w'a}$, then $[[\square]]^{w,a} = [[\square]]^{w,a}(\square w'. [[\square]]^{w',a})$.

We can think of the propositional content of a given structure \square of type t (relative to a given assignment), as the function $\langle s, t \rangle$ that maps each world w onto the truth-value that w assigns to \square (relative to that assignment). IFA says that if \square is a function whose domain contains the function from worlds to the truth value that that world assigns to \square (ie., the proposition that \square expresses), then the semantic content of \square applied to \square is \square applied to the proposition that \square expresses. This was intended to apply to just the intensional operators but it works equally well for the new modal operators. This is because we want the modal operators to be functions from the propositions expressed by their counterpart node to truth-values.

Let's first look at the belief example that H&K provide:²⁷

17) Mary believes Jan is loyal.

For any possible world w :

²⁶ If one preferred an account that allowed for a more restricted accessibility relation, one could amend these clauses to read "...for all $w' \in W$ that are accessible from w " and "...for some $w' \in W$ that is accessible from w ", respectively.

²⁷ My labeling is slightly different and some explanation and transitional content have been omitted.

- a. $[[Mary]_{vp} \text{believes } [sJan \text{ is loyal}]]^w = \text{by Functional Application}$
- b. $[[believes [sJan \text{ is loyal}]]^w ([[Mary]]^w) = \text{by the lexical entry for } Mary$
- c. $[[believes [sJan \text{ is loyal}]]^w (Mary) = \text{by IFA}$
- d. $[[believes]]^w (\Box w'. [[Jan \text{ is loyal}]]^{w'}) (Mary) = \text{by functional application}$
- e. $[[believes]]^w (\Box w'. [[is \text{ loyal}]]^{w'} ([[Jan]]^{w'})) (Mary) = \text{by the lexical entry for } Jan \text{ and the emptiness of } is$
- f. $[[believes]]^w (\Box w'. [[loyal]]^{w'} (Jan)) (Mary) = \text{by the lexical entry of } loyal$
- g. $[[believes]]^w (\Box w'. (\Box x \in D. x \text{ is loyal in } w')(Jan)) (Mary) = \text{by functional application}$
- h. $[[believes]]^w (\Box w'. Jan \text{ is loyal in } w') (Mary) = \text{by the lexical entry for } believe$
- i. $[\Box p \in D_{\langle s, t \rangle}. [\Box x \in D. p(w') = 1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w]] (\Box w'. Jan \text{ is loyal in } w') (Mary) = \text{by definition of } \Box\text{-notation}$
- j. $[\Box x \in D. [\Box w'. Jan \text{ is loyal in } w'] (w')=1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (Mary) = \text{by definition of } \Box\text{-notation}$
- k. $[\Box x \in D. Jan \text{ is loyal in } w', \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (Mary) = \text{by definition of } \Box\text{-notation}$
- l. $[\Box x \in D. Jan \text{ is loyal in } w', \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (Mary) = 1 \text{ iff } Jan \text{ is loyal in } w', \text{ for all } w' \in W \text{ that are compatible with what } Mary \text{ believes in } w$

On my view, an utterance of (15) will be processed in the same way with the exception that the subject of the complement clause is a variable, and so the sentence as a whole will have to be evaluated relative to an assignment. Let's suppose that the speaker intends the assignment a which has as the value for $[[the\ president]]^{w'}$ an object that is the value of a function f . Suppose further that f is a partial function from worlds w' to the unique object in w' that is president, if there is one. We can then derive the truth conditions of the utterance.

15) Mary believes that the president is nice. (for assignment a)

For any possible world w :

- a. $[[Mary\ [_{VP}believes\ [s\ the\ president\ is\ nice]\]]]^{w,a}$ = by Functional Application
- b. $[[believes\ [s\ the\ president\ is\ nice]]]^{w,a}$ ($[[Mary]]^{w,a}$) = by the lexical entry for *Mary*
- c. $[[believes\ [s\ the\ president\ is\ nice]]]^{w,a}$ (Mary) = by IFA
- d. $[[believes]]^w$ ($\Box w'$. $[[the\ president\ is\ nice]]^{w',a}$) (Mary) = by functional application
- e. $[[believes]]^w$ ($\Box w'$. $[[is\ nice]]^{w'}$ ($[[the\ president]]^{w',a}$)) (Mary) = by the lexical entry for *the president* on a and the emptiness of *is*
- f. $[[believes]]^w$ ($\Box w'$. $[[is\ nice]]^{w'}$ ($f(w')$)) (Mary) = by the lexical entry of *nice*
- g. $[[believes]]^w$ ($\Box w'$. ($\Box x \in D$. x is nice in w')($f(w')$)) (Mary) = by functional application
- h. $[[believes]]^w$ ($\Box w'$. $f(w')$ is nice in w') (Mary) = by the lexical entry for *believe*

- i. $[\Box p \in D_{\langle s, t \rangle}. [\Box x \in D. p(w') = 1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w]] (\Box w'. f(w') \text{ is nice in } w') (\text{Mary}) = \text{by definition of } \Box\text{-notation}$
- j. $[\Box x \in D. [\Box w'. f(w') \text{ is nice in } w'] (w')=1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (\text{Mary}) = \text{by definition of } \Box\text{-notation}$
- k. $[\Box x \in D. f(w') \text{ is nice in } w', \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (\text{Mary}) = \text{by definition of } \Box\text{-notation}$
- l. $[\Box x \in D. f(w') \text{ is nice in } w', \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (\text{Mary}) = 1 \text{ iff } f(w)' \text{ is loyal in } w', \text{ for all } w' \in W \text{ that are compatible with what Mary believes in } w = \text{by definition of } f$
- m. $[\Box x \in D. f(w') \text{ is nice in } w', \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (\text{Mary}) = 1 \text{ iff whoever is uniquely president in } w' \text{ is loyal in } w', \text{ for all } w' \in W \text{ that are compatible with what Mary believes in } w$

To get the second reading, suppose that the speaker intends the assignment b which has as the value for $[[the\ president]]^{w'}$, an object that is the value of a function g . Suppose further that g is a partial function from worlds w' to Barack Obama. The derivations diverge at step f , when the function provided by the speaker's referential intention is supplied as the semantic contribution of the definite.

15) Mary believes that the president is nice. (for assignment b)

For any possible world w :

- a. $[[Mary [\nu p \text{ believes } [sthe\ president\ is\ nice]]]]^{w,b} = \text{by Functional Application}$

- b. $[[believes [the\ president\ is\ nice]]]^{w,b} ([[Mary]]^{w,b})$ = by the lexical entry for *Mary*
- c. $[[believes [the\ president\ is\ nice]]]^{w,b} (Mary)$ = by IFA
- d. $[[believes]]^w (\Box w'. [[the\ president\ is\ nice]]^{w,b}) (Mary)$ = by functional application
- e. $[[believes]]^w (\Box w'. [[is\ nice]]^{w'} ([[the\ president]]^{w',b})) (Mary)$ = by the lexical entry for *the president* on b and the emptiness of *is*
- f. $[[believes]]^w (\Box w'. [[is\ nice]]^{w'} (g(w'))) (Mary)$ = by the lexical entry of *nice*
- g. $[[believes]]^w (\Box w'. (\Box x \in D. x\ is\ nice\ in\ w')(g(w'))) (Mary)$ = by functional application
- h. $[[believes]]^w (\Box w'. g(w')\ is\ nice\ in\ w') (Mary)$ = by the lexical entry for *believe*
- i. $[\Box p \in D_{\langle s, t \rangle}. [\Box x \in D. p(w') = 1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w]] (\Box w'. g(w')\ is\ nice\ in\ w') (Mary)$ = by definition of \Box -notation
- j. $[\Box x \in D. [\Box w'. g(w')\ is\ nice\ in\ w'] (w')=1, \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (Mary)$ = by definition of \Box -notation
- k. $[\Box x \in D. g(w')\ is\ nice\ in\ w', \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (Mary)$ = by definition of \Box -notation
- l. $[\Box x \in D. g(w')\ is\ nice\ in\ w', \text{ for all } w' \in W \text{ that are compatible with what } x \text{ believes in } w] (Mary) = 1 \text{ iff } g(w')\ is\ nice\ in\ w', \text{ for all } w' \in W \text{ that are compatible with what } Mary \text{ believes in } w$ = by definition of g

- m. $[\Box x \in D. g(w')$ is nice in w' , for all $w' \in W$ that are compatible with what x believes in $w]$ (Mary) = 1 iff Barack Obama is nice in w' , for all $w' \in W$ that are compatible with what Mary believes in w .

The modal claims will be processed in a similar fashion. Assume again that the speaker has intended the assignment a which has as the value for $[[the\ president]]^{w'}$ an object that is the value of a function f . Suppose further that f is a partial function from worlds w' to the unique object in w' that is president, if there is one. This gives us the a. reading.

15) Necessarily the president is nice. (for assignment a)

For any possible world w :

- a. $[[necessarily\ [sthe\ president\ is\ nice]]]^{w,a}$ = by IFA
- b. $[[necessarily]]^w (\Box w'. [[the\ president\ is\ nice]]^{w',a})$ = by functional application
- c. $[[necessarily]]^w (\Box w'. [[is\ nice]]^{w'} ([[the\ president]]^{w',a}))$ = by the lexical entry for *the president* on a and the emptiness of *is*
- d. $[[necessarily]]^w (\Box w'. [[is\ nice]]^{w'} (f(w'))) =$ by the lexical entry of *nice*
- e. $[[necessarily]]^w (\Box w'. (\Box x \in D. x\ is\ nice\ in\ w')(f(w'))) =$ by functional application
- f. $[[necessarily]]^w (\Box w'. f(w')\ is\ nice\ in\ w') =$ by the lexical entry for *necessarily*
- g. $[\Box p \in D_{\langle s, t \rangle}. p(w')=1\ for\ all\ w' \in W] (\Box w'. f(w')\ is\ nice\ in\ w') =$ by definition of \Box -notation

- h. $[\Box w'. f(w') \text{ is nice in } w'] (w')=1$ for all $w' \in W$ = by definition of \Box -notation
- i. $f(w')$ is nice in w' for all $w' \in W$ = by definition of f
- j. Whoever is uniquely the president in w' is nice in w' for all $w' \in W$

For the b. reading suppose again that the speaker intends the assignment b which has as the value for $[[the\ president]]^{w'}$, an object that is the value of a function g . Suppose further that g is a partial function from worlds w' to Barack Obama. The derivations here diverge at step d, when the function provided by the speaker's referential intention is supplied as the semantic contribution of the definite.

16) Necessarily the president is nice. (for assignment b)

- a. For any possible world w :
- b. $[[necessarily [sthe\ president\ is\ nice]]]^{w,b}$ = by IFA
- c. $[[necessarily]]^w (\Box w'. [[the\ president\ is\ nice]]^{w,b})$ = by functional application
- d. $[[necessarily]]^w (\Box w'. [[is\ nice]]^{w'} ([[the\ president]]^{w',b}))$ = by the lexical entry for *the president* on b and the emptiness of *is*
- e. $[[necessarily]]^w (\Box w'. [[is\ nice]]^{w'} (g(w'))) =$ by the lexical entry of *nice*
- f. $[[necessarily]]^w (\Box w'. (\Box x \in D. x \text{ is nice in } w')(g(w'))) =$ by functional application
- g. $[[necessarily]]^w (\Box w'. g(w') \text{ is nice in } w') =$ by the lexical entry for *necessarily*
- h. $[\Box p \in D_{\langle s, t \rangle}. p(w')=1 \text{ for all } w' \in W] (\Box w'. g(w') \text{ is nice in } w') =$ by definition of \Box -notation

- i. $[\Box w'. g(w') \text{ is nice in } w'] (w')=1$ for all $w' \in W$ = by definition of \Box -notation
- j. $g(w')$ is nice in w' for all $w' \in W$ = by definition of g
- k. Barack Obama is nice in w' for all $w' \in W$

In this way, the different available readings in both the belief and modal cases are achieved through a difference in the intended referent. The assignments that are provided for *the president* are not *formally* constrained in any case by the description used. As far as the syntactic processing of the sentences go, *the president* behaves as an unstructured free variable. The functions f and g above are somewhat natural functions and are closely tied to the description used; f picks out in each world whichever object uniquely satisfies the description in that world while g picks out in each world the object that uniquely satisfies the description in the actual world. In theory, however, any function on the set of possible worlds is a viable option.

The semantic contribution of the definite will nonetheless be constrained by the description used in some sense. The hearer must recognize the intended referent using only contextual clues and the description used. Because of this, a choice of description in a given context will, in virtue of affecting the amount and kind of information available to the hearer, limit the number of functions that a speaker could reasonably expect their hearer to pick up on.

Chapter 2

SECTION 2.1: SCHIFFER'S FIDO-FIDO THEORY OF INDEXICALS AND A LIBERAL THEORY OF REFERENCE

2.1.1: The Fido-Fido Theory and the Meaning of Definites

In "Indexicals and the Theory of Reference", Stephen Schiffer argues for what he calls the Fido-Fido theory of indexicals. According to this theory, the contribution that an indexical makes to the proposition expressed by an utterance involving a primary use of that indexical is merely the referent of that indexical on that use. Many of the distinctions and background theoretical frameworks that Schiffer relies on in that paper will be useful in understanding how reference works on my view. In fact, one could see this view as one way of extending the Fido-Fido theory of indexicals to definite descriptions. Schiffer himself states that such an extension is plausible.

Schiffer states his theory as follows:

If *t* is an indexical, then (a) there is some condition *D* such that *t* is a conventional means for referring to a thing qua its satisfaction of *D*, and (b) the fact that (a) exhausts the semantical import of *t*. (p.84)

He says that the standing meaning of an indexical is a function from possible occasions of utterance to the referent of the indexical on those occasions. More specifically, it will be the function that maps them onto the thing referred to with that indexical on that occasion qua its satisfaction of *D*, where *D* is the relevant condition for that indexical. He says that "knowing the meaning of an expression is knowing the contributions it makes to the meanings of the sentences in which it occurs" (p. 87).

For example, the indexical 'she' is such that it is a conventional means for referring to a thing qua female and to know the meaning of 'she' is to know what its contributions would be in each use: namely, the things referred to qua female with 'she'

on those uses. As Schiffer points out, “for every predicate F, ‘the F’ is a conventional means for referring to a thing qua its having the property expressed by F” (p. 86). So, on this view, the meaning of ‘the F’ is a function from uses of ‘the F’ to the object referred to on each occasion by ‘the F’ qua it being F.

One thing to notice about this proposal is that while the meaning of ‘the F’ is a function from occasions of use to referents, it is not necessarily a function from occasions of use to unique satisfiers of F. This leaves open the possibility that there are many things that are F in each context. I would like to further weaken the connection between F-ness and ‘referring qua F-ness’ by suggesting that the relevant condition be that the object be saliently and mutually associated with F-ness among the speaker and hearer. This is usually achieved by the speaker and hearer mutually believing that the object is saliently F but, it may, on occasion, be achieved in other ways. For example, it may be enough that the object is associated with F-ness in virtue of the fact that the speaker and hearer mutually believe the object to be F or are prepared to act as if they do for the purposes of the conversation. With this amendment, one can use a definite description to refer to things that don’t satisfy that description. I will argue later that this is a virtue of the theory.

The view is, then, that definite descriptions are variables that behave syntactically as free variables that require an assignment. The meaning of a definite description is the above function and what it is to know the meaning is to know what the definite description contributes on each use, which is just to know that it is a conventional means for referring to objects qua being satisfiers (or apparent satisfiers) of that description. Speakers then exploit that meaning on particular uses to refer to particular objects. In doing so, they provide the assignment for the variable. The semantic value of the definite

description (its contribution to the proposition on that particular use) is the object assigned to the variable. So while the *semantic content* of a definite in a particular use will be unstructured and non-compositional in a certain sense, the *standing meaning*, or the rule governing meaning, will be both structured and compositional.

In the following section I will make some brief comments about the sort of theory of reference that is required to make sense of my view. In section 2.2, I will expand on how reference is accomplished in referential and attributive uses. These are not meant to demonstrate the distinction between referential and attributive uses or to constitute my full story of what happens in those cases. I will merely be concerned with showing that it is reasonable to suppose that a speaker could refer to an object using a definite description and expect her hearer to pick up on the correct referent as a result. In section 2.2.3, I will argue for reference to functions. In section 2.3, I will lay out what I take to be the distinctive features of referential and attributive uses, and briefly explain how advocates of opposing views accommodate our intuitions regarding them. I will end the chapter by presenting my own explanation of these features.

2.1.2: Bach and Ease of Reference

I take it as a datum to be explained that we can use definite descriptions to (in some sense) say something about the satisfiers of those descriptions even when we don't have any other way of identifying those objects. We may even lack any causal-historical contact with the object at all. For example, I can use the description 'the first child born in Germany in 2016' to say things about whichever object satisfies that description even though I have no idea who that will be in any meaningful sense; my only way of thinking about that object at all is as the unique satisfier of that description.

These cases are standardly assumed to be paradigmatic attributive uses and are explained by appeal to the alleged quantificational character of the content of the expression. On my view, attributive uses, along with the referential ones, contribute singular content; the referent of the expression is a constituent of the proposition expressed. According to some understandings of singular content, this should be impossible. Kent Bach, for example, claims that 1) “speaker’s reference and the hearer’s full understanding of it can be achieved only by way of a singular thought of an object” and 2) “We cannot form a singular thought about an object we can ‘think of’ only under a description”.²⁸ (p. 191-192)

These claims come in the course of discussing the use of definites to refer and are predicated on the idea that definites themselves do not refer. Bach makes the distinction as follows:

When reference is made by the noun-phrase itself, indicative sentences in which it occurs express singular propositions, at least when they express a proposition at all. The referent of the expression is a constituent of that proposition. When a speaker refers, he uses a noun-phrase to indicate which thing he is trying to convey a singular proposition about. He can use a noun-phrase to refer his audience to something even if the noun-phrase does not itself refer. (p. 191)

Given this distinction it is natural to take Bach’s first claim as pertaining to the use of expressions by speakers to refer and not the reference of expressions that are themselves referring terms. For example, one may be able to assert a singular proposition with the use of a name even if one only has access to the referent of that name through descriptive means; one might be able to use an expression that refers without using that expression to refer.

²⁸ Bach, 2004: 191-192

One might suggest that I can salvage harmony with Bach's account by conceding that one doesn't use descriptions to refer in attributive cases but that the descriptions nonetheless refer in those cases. I don't think that this is a viable option. On my view, the reference of definite descriptions makes heavy use of the speaker's referential intentions and cannot be accomplished solely on the basis of the lexical entry of the word (as may be the case for certain views of names). This makes it unlikely that one could use that distinction to accept Bach's first claim while holding onto singular content for attributive uses of definites. For these reasons, I reject both of Bach's claims and endorse a much looser view of referential intentions and singular thought.²⁹

On the view that I am making use of, if one attempts to think about whatever object uniquely satisfies some description and there is an object that does so, they thereby have a *de re* thought *of* that object. There is defeasible evidence for this claim in our everyday attribution of beliefs. For example, suppose that I know that you believe that whoever happens to be the tallest spy is not very stealthy on the grounds that no tall person is ever stealthy. If I also know that Stanley is the tallest spy, I can attribute to you the belief that Stanley is not very stealthy. Of course, the naturalness of this report will depend on the context of utterance and our topic of discourse, and this may lead some to think that it is not, strictly speaking, true. But it is just as reasonable to suppose that any weirdness would be due to misleading implications about the way in which you are representing your belief rather than some problem with the content itself.

²⁹ I trust that there is a way of understanding this such that 'singular thought' doesn't have to be characterized in terms of objects being constituents of thoughts. If we do characterize it in that way, we can take Bach as ruling out the possibility that proponents of Fregean views of mental content can think that some expressions have objects as their semantic content. I will not be assuming a view of mental content. I understand singular content as the sort of content that is about particular objects (in a significantly robust sense) and truth conditionally depends on those objects in all worlds.

While reference on my view is achieved through singular thought, I see no reason why this should have to be the case. It doesn't seem incompatible with the notion of reference that one should be able to achieve it through purely descriptive means. We even seem to be able to designate the referents of names by description. For example, I can say, "Let Stormageddon refer to the tallest spy" and then go on to use 'Stormageddon' in a way that is, at least *prima facie*, referential; "Stormageddon might not have been the tallest spy" seems true in virtue of the fact that the object that is actually the tallest spy might not have been so.

Even if these considerations are unconvincing, uses of descriptions in which the speaker truly has no causal-historical contact with the object will likely be pretty rare, and there are a number of other ways to accommodate them. Barring an argument for a stricter conception of singular thought and referential intention, however, I see no reason not to suppose that they are as liberal as I have outlined here.

SECTION 2.2: ACHIEVING REFERENCE

2.2.1 Reference in Referential Uses

First let's see how reference works in a paradigmatic referential case.³⁰ Suppose that Lorene and Riko are at the dog park and there is a particularly rambunctious corgi running around. Lorene would like to tell Riko that that particular corgi, call her Samus, was there last week and had been bullying Lorene's Rottweiler, Bao. Since Lorene and Riko don't know Samus' name, Lorene must find some other way of referring to her.

³⁰ For the next two sections I am going to assume that the cases I am discussing are referential and attributive, respectively. In section 2.3.1, I will spell out explicitly what I take to be meant by this distinction and how I propose to account for it on my view. The purpose of these sections is merely to show how the reference fixing could be accomplished in either case.

Fortunately, Lorene has a lot of resources and mutual knowledge to draw from. In particular, she knows quite a bit about their shared knowledge of Samus' salience and visibility, of each others' perceptual abilities and of their knowledge of dog breeds. So she knows that it is mutual knowledge that Samus is a particularly salient corgi.

She also knows that 'the corgi' is conventionally used to refer to things qua corgi. Because of this, she can use the expression 'the corgi' and expect Riko to know that she is trying to refer to something qua corgi. This will prompt Riko to search the environment for some salient corgi and find Samus. As Schiffer puts it, "one refers to a thing qua (its having) a certain property when one intends to activate one's audience's belief that that thing has that property, so that one's audience will recognize that one is referring to that thing"(p. 73).

Thus when Lorene utters (18) she intends to refer to Samus with her use of 'the corgi'. Her utterance has the form of (19) but her intention to refer to Samus provides the assignment for x_1 and so the proposition expressed is represented by (20) where 'b' refers to Bao and 's' refers to Samus.

18) The corgi was bullying Bao last week.

19) Was-Bullying-Last-Week (x_1 , b).

20) Was-Bullying-Last-Week (s, b).

2.2.2 Reference in Attributive Uses

Now let's consider an attributive case. Suppose that Mili and Latif are driving through west Texas. Mili is looking out the window and notices that all of the public buildings are decorated with giant, apparently new, pug murals. Believing that only a mayor would have the power to accomplish such a feat and that only a pug lover would

want to, Mili forms the belief that whoever happens to be mayor of that town must really love pugs. She wishes to impart this information to Latif and so wishes to refer to whoever is the mayor of that town. Unfortunately, she doesn't know the mayor's name and has no way of knowing if Latif would, even if she did. So she must find some other way of referring to the mayor.

Fortunately for Mili, she knows that towns typically have mayors and that 'the mayor of this town' is an expression that is conventionally used to refer to objects that are mayors of the towns referred to by 'this town' in the given contexts. Using this knowledge, and hoping to activate it in Latif, Mili utters (21) which has the form of (22) and the content of (23), where 'm' refers to the mayor.

21) The Mayor of this town really loves pugs.

22) Really loves pugs (x_2)

23) Really loves pugs (m)

Latif, upon hearing Mili, must interpret her utterance. Latif also knows about the conventional meaning of 'the mayor of this town'. Latif thus knows that Mili must be trying to refer to some object and further that she must be trying to refer to the mayor of that town. So Latif interprets her as doing so and forms the belief that the mayor of that town really loves pugs.

2.2.3 Reference to Functions

So far, I have only explained how speakers can reference ordinary objects like people and dogs. Some of my arguments in chapter 1 make heavy use of reference to functions. Since functions are very complex abstract entities, it might be argued that implicit reference to such entities should be much more difficult than I am supposing. I'd

like, in this section, to briefly say what I think is required for reference to functions and why I think it is much easier than one might suppose.

I contend that in order to have a particular function in mind, a person need only be disposed to identify (by some means or other) the value of the function for any, or suitably many, arguments. In order to refer to a function, one needs to have it in mind and intend for the hearer, on the basis of one's utterance, to likewise have it in mind.

We make reference to functions all of the time. The most obvious examples are from math: addition, subtraction, the successor of, etc. We can also speak somewhat technically of the mother of function, the mayor of function and the favorite dog of function. We become disposed to identify the values of mathematical functions (and thereby have them in mind) by being presented with their values for various arguments and extrapolating their values for future arguments.

We become disposed to identify the values of the other functions by having some means of thinking about their values that is dependent on their arguments. For example, having competence with the word 'mother' and being generally able (given certain relevant information) to pair persons with their mothers, I am able to think of the output of the mother-of function for an arbitrary object x as the unique object that stands in the mother-of relation to x , if there is one.

As I mention in footnote 21 of chapter 1, these will only qualify as functions over certain domains, but that is true of functions in general. This has the potential to be problematic in the current circumstances because some of these relations will not be functions on certain sets of objects or on the set of possible worlds. For this reason, I think that it is actually partial functions that we make reference to in most cases. How this affects the truth values of modal and attitudinal claims will depend on one's view of

empty names and how one wishes to tinker with the lexical entries for *belief*, *necessarily*, etc.

SECTION 2.3: REFERENTIAL AND ATTRIBUTIVE USES

2.3.1 The Referential/Attributive Distinction

Two features are commonly used to distinguish referential from attributive uses of descriptions.³¹ The first feature, which I shall call ‘description independence’, has to do with the relation between the object that the description refers to or denotes and the description itself. Thanks to Donellan’s misdescription cases, it has been recognized that referential uses of definites can convey propositions that are about objects that don’t have the properties involved in the description.³² For example, I can use ‘the woman drinking an old fashioned’ to say something about someone who is not a woman drinking an old fashioned, so long as contextual clues make it clear to whom I am trying to refer. Attributive uses, on the other hand, exhibit description dependence; they convey propositions that must be about objects that actually fit the description involved.

The second feature, hereafter ‘object-oriented modality’, has to do with the truth conditions of the proposition conveyed. A referential use of ‘The F is G’ seems to convey a proposition that is true in a world, *w*, just in case the intended referent of ‘the F’ for that use is G in *w*. That is, if Kathi is the intended referent of ‘The F’ for a given referential use, then the conveyed proposition will be true in an arbitrary world, *w*, if and

³¹ I will use ‘attributive use’ and ‘referential use’ to mean either a use of the expression or an utterance of a sentence involving an expression so used.

³² I am using ‘convey’ here so as to be neutral about the relation between the relevant proposition and the utterance of the description-involving sentence. Different views of definites will call for different relations, ranging from something as strong as semantic content to something as weak as pragmatic association.

only if Kathi is G in *w*. In this way, the modal profile of the proposition conveyed depends on what happens with Kathi in each world and not on what happens with each world's respective F object (if they even have one).

Attributive uses instead exhibit 'description-oriented modality'. They convey propositions whose truth in a world is dependent on what is happening with the (unique) satisfier of their description in that world. So, an attributive use of 'The F is G' will convey a proposition that is true in an arbitrary world, *w*, if and only if whatever object is (uniquely) F in *w* is also G in *w*. This feature of attributive uses has been particularly problematic for referential views of definites. Starting with Russell, opponents have argued that even if referential views can predict the right *truth-value* in the actual world, they predict the wrong *truth conditions*. Since the description-oriented modality of (some) definites is such an obvious feature of theirs, any viable view of definites must account for it in some way.³³

Most description theorists agree that there is at least a *prima facie* appearance of these features. What they disagree about is how to accommodate these seemings. Advocates of an ambiguity thesis of definite descriptions have argued that the difference between a so called attributive use and a so called referential use is a difference in the truth conditions of the propositions expressed by those utterances. The semantic content of the two uses is different in kind; referential uses, according to them, express object dependent propositions, while attributive uses express quantificational ones.

³³ Some, including Nathan Salmon in his 1982 'Assertion and Incomplete Descriptions', have claimed that even referential uses exhibit description-oriented modal profiles and that this is something that must be accounted for by proponents of referential or ambiguity views. It will turn out that my story (which borrows quite a bit from Michael Nelson's 1999 response to Salmon) will apply to both 'attributive' and 'referential' uses, though description-oriented profiles will be more salient in the former case. For now, let's suppose that it is only the attributive uses that have this feature.

If one assumes that, on their referential uses, definite descriptions contribute only their referents and that they can be used to refer to objects that don't satisfy the description, one can straightforwardly account for the two features of referential uses. The proposition expressed by a referential use of 'The F is G', where 'The F' is referring to Kathi, is the same proposition as that expressed by 'Kathi is G'. It will be true in any world (including the actual world) just in case Kathi is G in that world and regardless of whether she is F. Thus, this proposition exhibits both description independence and object-oriented modality.

If we assume that the quantified proposition expressed by an attributive use of 'The F is G' is the standard Russellian one, we can also explain the attributive features. We can represent the truth conditions of that proposition as ' $\exists x \forall y ((F(y) \leftrightarrow x=y) \ \& \ G(x))$ '. Clearly, this proposition only says something about whatever object is uniquely F in the context; this explains the description dependence of those uses. The Russellian proposition asserts that whatever thing is uniquely F is also G. As such, it will be true in any world in which the unique object that is F in that world is also G. This explains the description-oriented modality of these uses. So, the ambiguity theorist explains the relevant features of the uses by appealing to those same features in the relative semantic contents of those uses.

The Russellian, however, posits the same semantic content for both uses but explains the features of the referential uses by appeal to pragmatically supplied content. Their explanation for the attributive features will be the same as the ambiguity theorist's; the attributive uses convey a proposition that exhibits description dependence and description-oriented modality in virtue of semantically encoding the above specified quantificational proposition, which itself has those features. Advocates of thoroughly

Russellian views typically explain the referential features by claiming that in addition to semantically encoding the quantificational proposition, referential uses conversationally implicate, or otherwise pragmatically supply, another proposition. It is this other proposition that exhibits description independence and object-oriented modality.

Like the Russellians, I believe that the semantic contents in the attributive cases and referential cases are the same but that there is a difference in pragmatically generated content. Unlike them, I believe that it is the attributive features that are to be explained by pragmatic means. Because definite descriptions are a conventional means for referring to objects that uniquely satisfy the description, they are associated with their Russellian counterparts. In cases of attributive uses, mutual knowledge (or a lack thereof) between the speaker and hearer will raise to salience those propositions.

In some circumstances, the salience of these propositions together with the contextual irrelevance of the semantically encoded proposition will make it reasonable for the hearer to suppose that conveying the associated proposition was the primary communicative intention of the speaker. In the following section, I will further explain the associated propositions and then move on to a discussion of the four common ways that they can be raised to salience.

2.3.2 Associated Propositions

In responding to the claim that referential uses of definite descriptions have the wrong modal profile, Michael Nelson argues that some of the perceived features of

utterances can be explained by appeal to associated propositions rather than semantically encoded propositions.³⁴ He states,

It does seem that Salmon is correct in claiming that such a proposition [with the Russellian content of a description] bears some relation to such utterances, but what justifies the claim that a proposition with such a modal profile is the *semantic content* of [the] sentence, rather than *merely associated* with all utterances of the sentence? Intuition alone does not determine the nature of the relation between a proposition and (utterances of) a sentence... The nature of the relation is a theoretical matter that is not open to pre-theoretical musings... (p. 579)

Nelson further argues that Russellian propositions *are* associated with sentences involving descriptions and that advocates of referential views have an explanation for this. Descriptions, like other context sensitive expressions, have rules of use as part of their lexical meaning. He claims, "...it seems that associated with utterances of sentences containing context-sensitive elements are 'weaker' proposition[s] that match such sentences' linguistic meanings, even though such a proposition is not semantically encoded by such utterances." (p. 580)

Descriptions are (generally) used to refer to objects that are unique satisfiers of the description. Because of this, he thinks that it is reasonable to suppose that sentences involving descriptions are associated with their Russellian content even though their actual semantic content is referential. Thus he argues that our intuitions about the modal profile of description-involving utterances can be explained by appealing to these associated propositions.

I believe that the difference between referential and attributive uses is to be explained by appeal to these associated propositions as well. Attributive uses of definite

³⁴ Nelson, 1999.

descriptions occur when certain features of the mutual belief of the speaker and hearer causes the salience of the associated propositions to be raised. In the next section I will explain how this happens.

2.3.3 Raising Salience

There are many ways in which the salience of the associated propositions could be raised on different occasions. In this section I hope to, through the use of cases, explicate the four most common ways. This is not meant to be an exhaustive list and there will surely be cases of raised salience that don't fit any of the paradigms below. Additionally, some of the cases can be combined, further amplifying the salience of the associated proposition.

Descriptions, on my view, are a conventional means for referring to things qua being the satisfier of the description. In the referential cases, the speaker exploits mutual beliefs that she shares with her hearer in order to use a description to refer to an object that saliently satisfies that description. It is in virtue of independently knowing that a certain object satisfies the used description that the hearer is able to know that it is that object to which the speaker intends to refer with her use of the description.

In the first three cases, this mutual belief is absent. Either the speaker, the hearer (or both) don't have independent access to the object, or if they do, this is not mutually believed between them. Because of this, reference cannot be achieved in the normal way. Instead, one or both of them must be assumed to be related primarily with (or more closely to) the associated proposition. This assumption raises the salience of the associated propositions in those cases.

In the first type of case it is mutually believed that the speaker doesn't have independent access to the object to which they are referring.³⁵ For example, if Jon and Bryce are walking on the beach, Bryce might point to some paw prints and utter, "The dog who left those has huge paws." Since it is reasonable for Jon to assume that Bryce doesn't know which dog left those paw prints, it is reasonable for him to assume that Bryce meant to be referring to whichever dog left those prints.

Since it is likely that this is how Bryce is conceiving of the dog, it is also likely that the belief that prompted his utterance is something like 'whichever dog left those prints has huge paws'. But this is exactly the Russellian proposition that is associated with Bryce's utterance. So because Bryce's reference is accomplished through the referent being the unique satisfier of the description and because the belief that gives way to his utterance is the associated proposition and because all of these things are mutually believed by Jon and Bryce, the associated proposition will be very salient in the given context. The associated proposition may even be assumed to be the primary communicative intention of Bryce, though this will depend on other contextual features.

In the second type of case, it is mutually believed that the hearer doesn't have independent access to the object to which the speaker is referring.³⁶ For example, Megan might, while flipping through some exam books, say to Brian, "The best student in my class got the first question completely wrong". Unlike in the first case, the speaker here knows exactly who matches the description and the hearer knows that she does. It is also mutually believed by Megan and Brian that Brian doesn't know which student is the best one in Megan's class.

³⁵ Or, if they do, they don't know that they do.

³⁶ Or don't know that they do.

So there is no particular person such that Megan can expect to activate in Brian a belief that that person is the best and to thereby recognize that Megan intends to refer to them. The best Brian can do is to assume that there is some best student and that Megan is referring to them. In this case, Megan must be expecting Brian to think of the student as ‘the best student in Megan’s class’ and so also to form the belief in the Russellian proposition. Further, since this belief is likely to be more useful and relevant, Brian might take it to be the primary communicative intention of Megan. Either way, the associated proposition is likely to be very salient in this context.

In the third type of case, there is no mutual belief about which object satisfies the description. Consider again the case of Mili and Latif driving through Pudgetown. When Mili says, “The mayor of this town really loves pugs” she doesn’t know whether or not Latif knows who the mayor is. Latif doesn’t know whether Mili does either. Both of these things are mutually believed between them. Since Mili can’t expect Latif to be able to have other means of recognizing her intended referent, she must expect Latif to be able to do it solely on the basis of the description used. So whether or not Latif actually conceives of the intended referent as the unique satisfier of the description, Mili must think that she *could* conceive of it in that way. So she must be meaning to communicate something about whatever object satisfies that description. Because of this she must also be committed to the associated proposition.

The fourth type of case is different in kind from the first three. In this type of case, the conditions for normal reference through the use of a definite description are fully met but certain Gricean maxims act to raise the salience of, or perhaps even force the conversational implication of, the associated proposition. The relevant maxims at work in my example are relevance and then some combination of quantity and manner. It

is likely that a subset of these or perhaps different maxims altogether could achieve the same end.

Consider again the case of Brian and Megan discussing Megan's students. Suppose that this time, Megan and Brian mutually know which student is Megan's best. Suppose also that Megan and Brian were just discussing the difficulty of the first question of the exam and possible problems with the way it was worded. In this case, when Megan utters, "The best student in my class got the first question completely wrong", she *can* expect Brian to recognize her referential intentions. However, the semantic content of Megan's utterance is not particularly relevant; that one student failed a question isn't very good evidence for the difficulty of it. Megan must be using the description that she chose in order to highlight that feature of the student. She must be meaning to communicate the associated proposition.

This will be further supported in a case where Brian and Megan both know the student's name. In that case, it would be weird for Megan to choose a longer and more circuitous expression when she could just refer to the student by their name. Because Megan chose a longer expression, Brian must assume that her word choice is relevant to her communicative intentions.

SECTION 2.4: CONCLUSIONS

I have argued for a referential view of definite descriptions, according to which descriptions are free variables. In the first chapter, I argued that if we allow speakers to have intentions with respect to functions, in addition to particular objects, we can explain the apparent scoping properties of definites. In particular, I demonstrated that this view can deliver the right truth conditions in cases where quantifiers bind into definite

descriptions as well as in cases of apparent scope interaction with belief and modal operators. In the second chapter, I discussed the theory of reference that I am relying on and showed how it can be used to achieve reference in the referential and attributive cases. I explicated what I take to be the distinguishing features of referential and attributive uses and showed how the attributive features can be accommodated with a pragmatic explanation.

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